

OPEN FINANCE

IN LATIN AMERICA AND THE CARIBBEAN

GREAT OPPORTUNITIES, LARGE CHALLENGES



Diego Herrera
Walter Pereira
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Contents

Acronyms and Abbreviations	vii
Foreword: Open Finance in Latin America and the Caribbean, and an excellent text for starters and experienced people in the region	x
Foreword	xii
Introduction	xiv
1 What Is Open Finance?	1
1.1 Historical Context, Concepts, and the Importance of Data for the Financial System	2
1.2 Security and Standarization of Application Programming Interfaces in Open Finance: From Screen Scraping to APIs	7
1.3 The Open Finance Ecosystem	12
1.4 Conclusions	18
2 Potential Risks and Opportunities of Open Finance	19
2.1 Open Finance Opportunities	20
2.2 Potential Risks of Open Finance	22
2.3 Conclusions	25
3 Assessment of International Open Finance Ecosystems	26
3.1 Approaches to Adopting Open Finance	28
3.2 Some Data-Sharing Ecosystems around the World: Overview	30
3.3 Conclusions and Lessons Learned	35
4 Open Finance in Latin America and the Caribbean: Development and Challenges	37
4.1 Financial Inclusion and Banking Concentration in Latin America and the Caribbean	38

4.2 Survey Results Regarding Development of Open Finance in Latin America and the Caribbean	39
4.3 Challenges Faced.....	55
4.4 Assessment of Open Finance in the LAC Region	56
4.5 Conclusions	68
5 Industry and Regulatory Best Practices and Recommendations for Open Finance Implementation.....	69
5.1 Initial Steps to Open Finance	70
5.2 Define the Objectives of Open Finance	72
5.3 Define the Types of Participants and Forms of Participation	72
5.4 Define the Scope of Data to Be Shared	73
5.5 Set Application Programming Interface Standards for Data Sharing	74
5.6 Address Data-Sharing Costs	76
5.7 Obtain Consent from the Financial Consumer	76
5.8 Plan for the Liability Model	76
5.9 Establish Technical Standards	77
5.10 Establish Financial Consumer Experience Guidelines	78
5.11 Design Strong Governance	79
5.12 Strengthen Institutional Capacity	80
5.13 Conclusions	88
References.....	89

Acronyms and Abbreviations

AISP	Account information service provider, a term under PSD2 that means fintech that gathers customer data for its business model
API	Application programming interfaces, which are a collection of rules and guidelines allowing software programs to communicate with one another, forming an interface between programs to enable their interaction
ASPSP	Account servicing payment services provider, a term under PSD2 that can include providers such as a bank or credit card issuer that offers digital access to customers
BCRA	Central Bank of the Argentine Republic
CDR	Consumer Data Right, a regulatory framework for consumer data privacy that was created by the Australian Federal Government and introduced in the 2018 Treasury Laws Amendment
CMA	Competition and Markets Authority in the United Kingdom (UK)
CMA9	The nine largest banks in the UK, as determined by the Competition and Markets Authority (CMA) as part of the UK's open banking initiative
CMF	The Financial Market Commission, a decentralized public service of a technical and supervisory nature in Chile
CNBV	National Banking and Securities Commission, in Mexico
CNV	The National Securities Commission, the official body responsible for the promotion, supervision, and control of equity markets in Argentina
DDI	Data donor institute, a firm or organization that holds data about the data subject, which the customer may compel to share with a data recipient institute (DRI)
DRI	Data recipient institute, the firm or organization which acts with the customer's explicit consent to gather data from a data donor institute (DDI)
EBA	The European Banking Authority, a regulatory agency of the European Union (EU)
FCA	The Financial Conduct Authority, the conduct regulator for financial services firms and financial markets in the UK
GDPR	General Data Protection Regulation in the EU, in force in May 2018

HKMA	The Hong Kong Monetary Authority, Hong Kong's central banking institution
IESG	Implementation Entity Steering Group, for the UK open banking initiative
INAI	National Institute for Transparency, Access to Information, and Personal Data Protection, in Mexico
KYC	Know your customer, which describes the process of verifying the identity of (new) customers. The process aims to prevent illegal activities such as money laundering, financing of terrorism, or fraud, in order to protect a financial institution and other customers
LGPD	General Data Protection Law in Brazil, in force in September 2020
MAS	The Monetary Authority of Singapore, the central bank of Singapore
OBIE	Open banking implementation entity in the UK, consisting of the nine largest banks' current accounts delivering standardized API access
OIDF	OpenID Foundation, which promotes, protects, and nurtures the OpenID community and technologies
PIS	Payment initiation services
PISP	Payment initiation service provider, which is a fintech that enables payments between ASPSP accounts
PSD2	Payment Services Directive 2, in the EU, in force in January 2018
PSU	Payment services user, also known as the end customer
RTS	Regulatory and technical standards that must be applied to PSD2; these have been settled by the European Parliament and were intended to come into full force in September 2019, but have been substantially delayed by technical issues in many EU markets.
SCA	Strong customer authentication, the method through which the ASPSP (DDI) checks that it is their customer who instructs them to perform a task
SFC	Superintendencia Financiera de Colombia, the Colombian government agency responsible for overseeing financial regulation and market systems to preserve stability, security, and confidence, and to promote, organize, and develop the securities market



- SUSEP** Superintendence of Private Insurance, responsible for authorizing, controlling, and supervising the insurance, open supplementary pension, capitalization, and reinsurance markets in Brazil
- TPP** Third-party provider (AISP, PISP, or other type of DRI acting on the behalf of the customer with explicit consent) where the PSU and ASPSP are the first and second parties
- TSP** Technical services provider, typically a firm that acts on behalf of a regulated DRI/TPP to get the data from the DDI on behalf of the DRI

Foreword: Inter-American Development Bank

Open Finance in Latin America and the Caribbean: Great Opportunities, Large Challenges concludes more than one year of surveys, studies, and analysis about the open finance ecosystem in Latin America and the Caribbean. This research is a collaborative effort between the Financial Data and Technology Association (FDATA) and the Inter-American Development Bank (IDB) through our FintechLAC initiative. Through the development of this study, we also received cooperation from the Latin American Federation of Banks (FELABAN), Fintech Iberoamérica, 39 fintech companies, and financial authorities from the region. Without their inputs and data, this text would not have been possible.

This document fundamentally defines open finance as a financial services ecosystem where financial consumers' transactional data is shared with their previous and conscious consent between financial institutions that offer tailor-made financial services and products based on information. The text provides a conceptual view of the open finance ecosystem and how it can be scalable and applicable as broadly as open data. It explains the basics of technologies such as application programming interfaces (APIs) and new actors such as the third-party providers (TPPs) which are critical for the ecosystem.

Open finance ecosystems worldwide are rapidly evolving through at least three types of models, from the highest level of regulatory intervention to none, making them (i) mandatory (European Union, Brazil, United Kingdom), (ii) voluntary (Hong Kong, Singapore, Japan), or (iii) market-driven (United States and Argentina). For Latin America and the Caribbean, the three paths are valid and the selected path should be adapted to each country's financial, legal, and institutional architecture. There is no recipe to create the conditions for the ecosystem, as technology can be applied in any jurisdiction. However, as mentioned extensively in the text, policymaking becomes necessary because of the depth, fundamental changes, and risks that open finance entails.

The document offers a balanced point of view about open finance, showing its benefits and risks. The reader will find at least three benefits: (i) increased competition, (ii) more significant levels of financial inclusion, and (iii) reduced entry barriers for consumers. As with every other financial activity, however, innovation comes with risks, such as information security, exclusion, and operational risks, to mention a few. These risks, and the need for an orderly implementation, make open finance an opportunity for policymakers to go far beyond their supervisory role and also act as organizers for the ecosystem.

We surveyed 15 financial regulators and supervisors, of which 66 percent had data protection regulations in place (making their jurisdictions ripe for initiating open finance regulations), with mature regulations older than four years. However, it is remarkable that, at the time of this writing, only five jurisdictions have open finance regulations under some level of implementation: Brazil, Chile, Colombia, Ecuador, and Mexico. FintechRegMap, IDB's interactive map, displays the status of relevant fintech regulations in the region. The map is available at www.iadb.org/FintechRegMap or via the Power BI mobile application.

Furthermore, 80 percent of the public sector actors surveyed believe that some form of regulation is necessary for open finance. These numbers contrast with the point of view of the fintech sector, where 94 percent of 38 companies surveyed think that the preexistence of regulation of financial data sharing positively impacts the growth and maturation of open finance. More results are left within the text for the reader, including those regarding benefits, difficulties for implementation, and concerns on practices such as screen scraping, among others. The surveyed data included the opinions of experts from banking associations and fintech companies from Latin America and the Caribbean. One number to remember: the research found 17 companies exclusively devoted to open finance services, ranging from layering financial institutions systems to offering API solutions.

As is obvious now, the open finance ecosystem has institutional capacity implications for financial regulators and supervisors. As IDB has recommended from an empirical standpoint in other scenarios, strengthening institutional capacity to respond proactively to the opportunities and risks posed by open finance requires (i) developing the legal and institutional framework, (ii) developing human talent, and (iii) creating technological capability. Finally, supervision is necessarily, but it is understood that such a complex ecosystem will also require international cooperation and an extensive, planned public-private dialogue. In particular, the document puts forth a number of recommendations for open finance including: (i) defining and implementing API standards, (ii) defining rules for new actors such as TPPs, (iii) creating powers and guidelines for regulators and participants in the ecosystem, (iv) implementing governance for the ecosystem, and (v) using sandboxes and other regulatory innovations for testing business models and technologies.

This study is a tool for every actor in the open finance ecosystem: our regional policymakers, academia, the industry, and the public. Open finance is a relevant innovation to improve lives in Latin America and the Caribbean through financial inclusion.

Daniel Fonseca

Connectivity, Markets, and Finance Division Chief (a.i.)
Inter-American Development Bank

Foreword: FintechLAC

Open finance represents an immense opportunity to revolutionize the financial landscape in Latin America and the Caribbean. It promotes expanded access to financial services, healthy competition, transparency, and fair and equitable treatment. By enabling secure exchange of financial data, open finance creates an ecosystem where users can access personalized solutions and companies can develop innovative products and services tailored to individual needs.

In today's fast-paced digital world, trust has become the cornerstone of any thriving financial ecosystem. According to Keefer and Scartascini (2022), "(...) investment, entrepreneurship, and employment all flourish when firms and government, workers and employers, banks and borrowers, as well as consumers and producers trust each other."

It is crucial to create the right conditions to ensure trust by promoting financial education to generate greater awareness among users about the privacy of their data, informed consent, and the security measures necessary to take full advantage of digital financial services. From a technological perspective, application programming interfaces (APIs) offer more advanced security levels. But we must ensure that the appropriate security measures are met. For this reason, ensuring the proper levels of availability and responsiveness and maintaining data consistency and quality are essential for the credibility of new financial services. By examining lessons learned from other regions and drawing on the experience of industry leaders, this report aims to provide valuable information and recommendations for policymakers, financial institutions, and all stakeholders on the journey toward an open finance scheme in Latin America and the Caribbean.

I invite you to dive into the pages of this report, explore the dynamic landscape of open finance, and envision a future where trust is the foundation of our digital financial ecosystem. Let's walk this transformative journey together, embracing innovation, collaboration, and the benefits of open finance ecosystems.

Only through collective efforts can we create an environment that fosters trust, protects privacy, and empowers individuals and businesses to take full advantage of the opportunities that open finance offers. May this report serve as a catalyst for dialogue, inspire action, and accelerate the realization of a dynamic open finance ecosystem throughout the region. Let's work together toward a more inclusive, transparent, and trustworthy digital financial future.

Inés Páez

Head of Financial Inclusion and Innovation of the Superintendency of Banks
of the Dominican Republic and President of the Executive Committee of FintechLAC

Foreword: FDATA Global Board

As the ambition and economic imperatives for open finance drive the proliferation of such regimes across the world, we are witnessing a period of unprecedented parallel activity around the design and delivery of regulatory frameworks fundamental to healthy, ethical, and competitive ecosystems. As now evidenced in markets of comparatively earlier adoption such as the United Kingdom, open finance (with open banking as the first data set in a broader vision) has significant potential to unleash the inherent benefits of innovative, transformational products and services. These offer wider consumer choice while fostering greater access and inclusion—all factors contributing to an improved state of financial well-being for the end consumer.

Subsequent implementations of frameworks for regulated open data are often wisely predicated on the learnings from previous iterations, leading to a rapid advance of both pace and scope as jurisdictions leapfrog over one another. For example, Australia's Consumer Data Right, with its multi-sectoral approach, may well provide an eventual roadmap for a more comprehensive open data economy. Brazil's visionary open finance implementation has clearly helped inspire and accelerate similar ambition across Latin America and the Caribbean, where the benefits of data access, portability, and interoperability have huge implications for economic inclusion, competition, and growth across a vast geography and already globally significant market.

With rigorous consultative input sought from regulatory authorities, industry associations, and companies, this piece of collaborative research draws upon the deep expertise of the Inter-American Development Bank and the renowned global reach of the Financial Data and Technology Association (FDATA) to provide the context and concepts for open finance, an overview of opportunities and risks, a detailed comparison between the frameworks and differing approaches of major markets, and concluding recommendations and best practices for implementation. I am delighted to introduce and share this work with regulators and industry across the region and beyond.

Kathryn Petralia

Chair of the FDATA Global Board

Introduction

Open finance is a transformational concept that revolutionizes financial data and services. This document provides a comprehensive overview of open finance in Latin America and the Caribbean (LAC) region and its potential impact on the financial industry. It is a valuable resource for those looking to understand open finance better and its implications for consumers, financial institutions, and policymakers. The subsequent sections of this study aim to explore the concepts and principles, the ecosystems, opportunities and risks; open finance in select countries around the globe as a point of comparison; and the development of open finance in LAC. It will also present best practices and recommendations for implementation of open finance.

Section 1 explores the historical context and concepts of open banking, open finance, and the open data economy. It outlines the principles of open finance, including data access, portability, and interoperability, and it examines the open finance ecosystem, which includes financial consumers,¹ incumbent financial institutions, third-party providers (TPPs), and data aggregators. Section 2 presents the potential opportunities and risks of open finance, highlighting the benefits of increased competition and transparency for consumers on the one hand, and the potential risks to privacy, consumer rights, and information security on the other hand.

Section 3 provides an overview of some international examples of open finance ecosystems, including a review of data-sharing ecosystems in Australia, the EU, Hong Kong, Japan, Singapore, and the United Kingdom (UK). Section 4 examines the development and challenges of open finance in the LAC region, including an analysis of results from research conducted by the authors with regional regulators and supervisors, banking associations, fintech associations, and open finance fintech companies. Finally, Section 5 provides recommendations and best practices for implementing open finance, such as defining the implementation objectives, defining the types of data to be shared, addressing customer consent, and determining governance, as well as establishing technological standards and strengthening institutional capacity.

¹ The terms “financial consumer” and “customer” are used to describe an individual who obtains or has obtained a financial product or service from a financial services firm, to be used for personal, family, or household purposes, or that individual’s legal representative. The definition is extended to the legal representatives of firms, who obtain financial services or products on behalf of those firms.

1 What Is Open Finance?



This section provides a comprehensive overview of open finance, its historical context, and the value of information for the financial system. It also discusses how sharing financial data between financial institutions and third-party providers (TPPs) creates new services and products that benefit financial consumers. First, it discusses the evolution of technologies that have led to the financial data-sharing that is now possible. It then explores the principles of open finance and its ecosystem, including the payment initiation service provider (PISP) and the account information service provider (AISP), along with the types of information that can be exchanged among financial providers. This overview aims to provide a clear understanding of open finance and its role in the modern financial landscape, along with the potential benefits and challenges that it presents.

1.1 Historical Context, Concepts, and the Importance of Data for the Financial System

Information is one of the most valuable assets within financial system institutions. From the emergence of the first banks to today's financial institutions and conglomerates, information and its extensive use has been widely recognized as valuable to the supply of financial products and services (Barron and Staten, 2003). Financial consumers (individuals and enterprises) provide a vast amount of personal information when opening a new account at a financial institution, applying for a loan, or purchasing an insurance policy. Once a relationship has been established, these financial institutions can frequently collect additional information about these consumers, including, for example, the products they purchase, how they manage their finances, and whether or not they pay their debts (Awrey and Macey, 2022).

New technologies have enabled sharing financial consumers' data efficiently and securely among actors beyond the incumbent financial institutions (such as traditional banks), to fintech companies and other financial services providers. The entrance of new financial market technology based participants, such as TPPs, which are explained later, allowed information sharing from incumbents to other market participants, and has intensified the competition in the financial system.² In a nutshell, TPPs allow information and, sometimes, financial transaction messages to flow across the ecosystem; thus, TPPs have become a crucial actor in open finance.

This data sharing only became possible due to a change in the public policy approach regarding who owns the data that is collected by financial services providers and attributing ownership of

² The World Bank emphasized that the abundance of new entrants and innovators in the financial system is indicative of competitive pressures on incumbent service providers. This competitive pressure has been exacerbated by the emergence of new fintechs and new licensing regulations for challenger banks, digital banks, and alternative lenders. See Feyen, Natarajan, and Saal (2023, 42).

that data to the financial consumer. The financial consumer becomes crucial in deciding whether to share their data and with whom. Recent literature shows that giving control and ownership of consumers' data to the consumers increases data sharing in the whole financial system (Chen et al., 2018). In conclusion, the role of data is becoming more critical within the financial system, and new providers such as TPPs are changing the game.

1.1.1 Open Banking, Open Finance, and Open Data Economy

Data sharing among players is the key to understanding the concepts and the main differences between open banking, open finance, and open economy. The following describes these concepts and some examples, starting with the most straightforward (open banking).

1.1.1.1 Open Banking

According to Kellezi, Boegelund, and Meng (2021), "open banking is a concept of providing banking services through collaboration with other institutions, and the institutions also share and manage data together." Babin and Smith (2022) complement this definition, saying that open banking is a concept where data belonging to individuals or businesses is shared securely between different parties through digital channels, involving the sharing of internal data held by one party with others within a banking system. This exchange happens with the understanding that financial consumers own their data and can use technology based approaches to share it for the consumers' benefit, usually with their consent. In other words, open banking can be defined as a banking ecosystem that safely shares the consumers' transactional data between financial institutions and other regulated banking sector players with prior consent.

1.1.1.2 Open Finance

Open banking limits its ecosystem to banking services and products and does not include other financial products and services, such as insurance or investments. That is precisely what open finance entails: a broader spectrum of financial products and services offered under the principle of financial consumers' data sharing. An open finance ecosystem provides a secure and efficient mechanism for financial consumers to grant authorized TPPs to access their financial data, enabling the offering of financial products and services that align with the consumers' specific requirements. Data sharing allows the transition from a closed information architecture model, where financial institutions exclusively retain, manage, and store customer data, to an open information architecture model that facilitates the standardized exchange of information and services among regulated financial institutions and other providers, with the explicit consent of the customer. For instance, open finance in the UK is based on application programming

interfaces (APIs) and regulated by the Finance Platform Regulations.³ Simon Redfern pioneered the model in 2012 with the founding of the Open Bank Project (Briones de Araluze and Cassinello Plaza, 2022). Open finance in the UK grants financial consumers more control over their financial data and enables them to access various services from different providers (Schammo, 2019). Open finance benefits from at least three different types of data, which should be part of the implementation:

1. **Transactional data:** data originating from the financial consumers' transactions or intentions of transactions such as electronic transfers, automated teller machine (ATM) cash-in and cash-out operations, and credit card payments. Most of this data would require permission or consent from the financial consumer if a financial institution or TPP required sharing it.
2. **Aggregated data:** aggregated information from financial institutions or TPPs for which there is no possibility of identifying figures for individual consumers when sharing the data. This information does not require consent from the financial consumers, but it usually requires negotiations and consent from financial institutions that have assembled the data, that own it, and which they might hold as confidential.
3. **Open financial data:** non-confidential information generated by financial institutions or TPPs and usually accessible in the public domain. Examples of this data category are the number of branches or ATMs and their locations. Financial institutions and TPPs can build datasets for this category through ad hoc techniques such as data scraping or screen scraping, discussed later in this section.

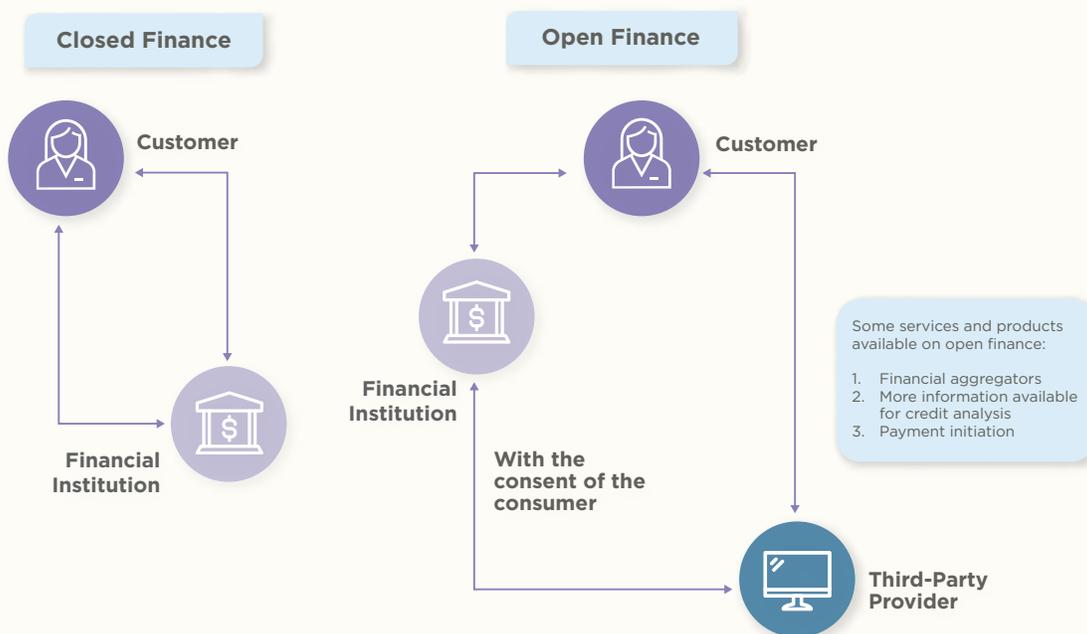
Although this document emphasizes open finance, financial consumer data, and TPPs, financial intermediaries can benefit as well from going beyond their own databases. Public policy should regulate these and other types of information, including identity, behavioral, and individual account data (aliases and account identification, to mention a couple), whenever risks, consumer-protection issues, or competition and concurrency issues derive from their use. Policymakers also should regulate the relationships between the different agents within the open finance ecosystem. The public policy intervention should include regulating the data and the relationships between agents, including clear instructions for standards in some technologies (as will be mentioned in Section 5).

The financial consumer (the customer) is the center of the open finance ecosystem (see Figure 1.1). There are bidirectional relationships between financial consumers and financial institutions as well as with TPPs, who facilitate data flows with the consent of the consumer. As explained later, data aggregators, payment initiators, and other TPPs can increase the quantity and quality

³ This document explains APIs with more detail in the next sections.

of financial services and products offered to customers through data processing. The data flows (represented by the arrows in Figure 1.1) are possible through the APIs, which are critical for the ecosystem to work. The following text elaborates on APIs and their functions.

FIGURE 1.1 DIFFERENCES BETWEEN CLOSED FINANCE AND OPEN FINANCE



Source: IDB and FDATA.

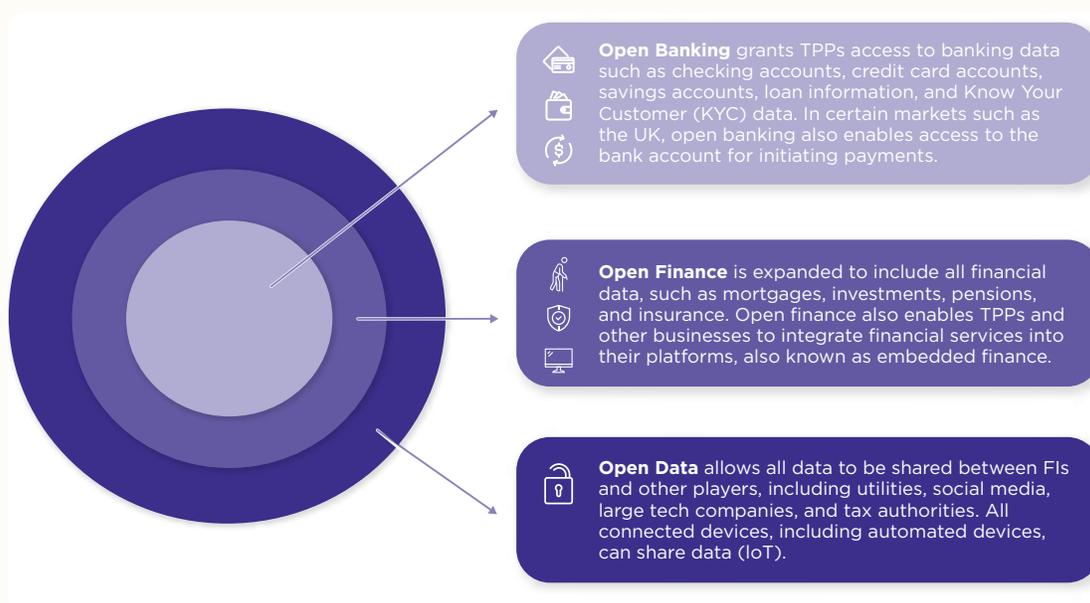
1.1.1.3 Open Data

As the implementation of financial data sharing progresses in countries around the world, the scope of that data has shifted from open banking to open finance, and then to open data (or open data economy), as in Australia (see Figure 1.2).⁴ According to Plaitakis and Staschen (2020), open data is the “exchange of consumer data between private sector institutions, including financial institutions (FIs) and nonbank financial institutions such as mobile money issuers, utility providers, and telecoms, with other such institutions based on consumer consent.” In this way,

⁴ This document focuses exclusively on the development of an open finance ecosystem. Nevertheless, it does acknowledge the potential for open finance to expand into an open data economy in a next step.

open data represents the potential for all sectors of the economy to be interconnected, and it facilitates the exchange of information between players from various sectors (Plaitakis and Staschen, 2020). Open data means utilizing data from utility companies, social networks, big tech companies, or tax authorities with financial intermediaries. As is the case for Colombia (described later), the concept is to use all this data for financial inclusion.

FIGURE 1.2 EVOLUTION FROM OPEN BANKING TO OPEN DATA



Source: IDB and FDATA.

All connected devices, including automated devices, can share data because of the Internet of Things (IoT). So, in the concept of the open data economy, it is not strange to collect data from devices such as cellphones and any other device where the consumer owns data. For example, using dash cameras in transportation services is a means to collect data to understand drivers' attitudes while driving or to collect information in the case of accidents, thus facilitating the work of insurance companies. However, it is essential that how open data is used is properly regulated. Reasons such as privacy and excessive surveillance practices, among others, call for exemplary policy implementation. Open data is beyond the scope of this document and a topic for further research.

In conclusion, and given this document's scope, open finance means financial consumers' data can be shared across the financial system to amplify the supply of financial products and services to financial consumers.

1.2 Security and Standardization of Application Programming Interfaces in Open Finance: From Screen Scraping to APIs

Open finance has the potential to significantly reduce the technological barriers that have made it difficult for customers to access their financial information, prevented them from easily sharing that information with TPPs and other providers, and discouraged customers from switching between the products and services offered by different financial institutions (Awrey and Macey, 2022). By lowering these technological barriers, open finance aims to level the information playing field, promoting greater competition among incumbent financial institutions and between these incumbents and a new breed of TPP.

Historically, TPPs have used practices such as screen scraping and reverse engineering to access their financial consumers' information, most of the time without their consent. These practices have resulted in maintenance costs and information security risks (see Box 1.1).

BOX 1.1 HISTORY OF SCREEN SCRAPING AND ITS RISKS

Origin

Screen scraping, or web scraping, as it is also known, was the first method that TPPs found to capture the financial data of financial consumers of financial institutions. During the 1990s, with the emergence of personal accounting and financial management software, companies offering these solutions relied on users downloading their own bank details into a spreadsheet and uploading the data to the TPP's system.

Recognizing the friction this method created, these companies began connecting directly to users' bank accounts—with their permission and banking credentials—to import the account data required to fulfill their role.

continued on next page →

(cont.)

BOX 1.1 HISTORY OF SCREEN SCRAPING AND ITS RISKS

How does it work?

Screen scraping entails asking financial consumers to provide their user ID and password to their bank's website or application, and then TPPs use these credentials to log in as the user.

All account data and other information visible on the bank's website can be copied, pasted, analyzed, and saved through automated commands.

Risks

1. Security and encryption

The first issue with screen scraping is that asking financial consumers for their bank account credentials is a poor security practice. *Without external inspection or regulation, the customer would have no way of determining if appropriate security measures are in place.* And while the data is stored in an encrypted format, TPPs must have available decryption keys, which might become a target for hackers.

2. Control over the time and frequency that providers can see data

The frequency for accessing data, term, and extent are a second issue with screen scraping. Suppose you use a fintech application to handle your finances. This fintech requested access to your financial information so it could, for instance, access your credit card information. In the case of screen scraping, a consumer may not know how long that data is being used. As well, the only way to end access for screen scraping is to replace credentials—for example, by changing passwords.

In contrast, with regulated APIs for open finance, consumers have greater insights into the data they authorize for access and the duration of this access.

3. Integration breaks due to minor site changes

A third issue is integration failures caused by minor modifications to the bank's website or application. For screen scraping to function, an automated tool must be developed to access the client's bank platform and detect every web page element to capture the desired data.

As the layout of a bank website or application page changes, the page's data organization may also shift. Some data, such as account amounts, transaction dates, or descriptions, may suddenly appear in a different column from one day to another.

Therefore, automated screen scraping programs require exceptionally high maintenance as they must be continuously updated.

Thus, the significant change in open finance is the shift away from insecure screen scraping and password sharing and toward APIs. APIs provide a secure and standardized way for applications to interact with one another and deliver the requested information or functionality (Sullivan, Miller, and Montes, 2021).

1.2.1 What Is an Application Programming Interface?

An API is a structured data-sharing agreement between two or more network participants that includes a set of common data standards, message formats, rules, and procedures that allow these network participants' applications to communicate with one another (Awrey and Macey, 2022). Financial consumers explicitly grant permission or consent to TPPs and financial institutions to share their data, including the possibility of determining which specific portions of data can be shared, which works for the so-called API call. APIs are the best way to open consent-driven access to user data because APIs enable secure and standardized data access, data portability, and interoperability, which are principles considered essential for the development of open finance (Awrey and Macey, 2022; OpenID Foundation, FAPI Working Group, 2022). Properly standardizing and ruling how APIs work is essential for implementing open finance. Most of the architecture for sharing data will rely on APIs, and having diverse standards or no standards at all might end in information asymmetries and lack of clarity for the open finance ecosystem, as will be discussed later.

1.2.2 Principles of Open Finance

As previously stated, open finance provides an agile and secure way for financial consumers to offer new service providers access to their financial information to facilitate the delivery of financial products and services according to the consumers' needs. For this to occur, three principles must be present: data access, data portability, and data interoperability. Financial authorities should consider these principles when constructing open finance policies, either within rules or embedded in the principles-based regulation. Also, a specific authority (even within the regulator) should ensure that the principles are always maintained at every moment.

1.2.3 Data Access

Data access is fundamental for the ecosystem for creating opportunities for TPPs to enable the offering of financial services and products. The difficulty for TPPs in obtaining information from incumbent institutions, and the difficulty for incumbents receiving information from other institutions, resulted in an informational concentration scenario, with information and access

to it concentrated among few.⁵ Subsequently, providing customers with access to their own financial information is the starting point for developing open finance. This can be accomplished by explicitly granting customers proprietary rights to their information or by requiring financial institutions to provide financial consumers with this information upon request. In any case, regulation should enable financial consumers to share their own information with their consent to financial institutions and TPPs. The final part of this document examines how public policy can enable data access for financial consumers.

As a result of data access customers can instruct financial institutions to provide their personal information (in whole or only parts of it) to specific third parties, including other financial institutions.

1.2.4 Data Portability

Data access is insufficient to generate the benefits associated with more and better financial products and services from open finance. The benefits for financial consumers may be limited if the financial institution provides this information in an unstructured manner that requires the recipient of this data to reformat or rework it in some way. Because of this, the portability of this information must be considered. Data portability is defined by the International Organization for Standardization (ISO) as the “ability to easily transfer data from one system to another without being required to re-enter data” (ISO, 2017).

This data portability can occur in either of two ways:

1. **Export portability** allows financial consumers to download their personal and transactional data through the applications of their financial institutions, which can be loaded into the applications of other institutions.
2. **Platform portability** allows the sharing of this information automatically and in real time.

Players within the ecosystem who are using screen scraping or reverse engineering have some degree of data portability already. However, when data transfer occurs through APIs, this process tends to be considered more secure and standardized (OpenID Foundation, 2022).

⁵ In 2016, the UK’s Competition and Markets Authority (CMA) released a report after investigating the country’s retail banking market. The report found that the presence of persistent market concentration and barriers to entry and expansion could suggest competition issues that may result in negative outcomes for customers. See Competition and Markets Authority (2016, 34).

In practice, data portability means the possibility of “moving” the transactional data associated with an account from one financial institution to another intermediary without re-entering it in the recipient institution.

As with the first principle, data access, data portability can be mandated or may be voluntary, where policymakers act as enablers. This document delivers guidelines on the topic.

1.2.5 Data Interoperability

Data portability across platforms requires interoperability. The ISO defines data interoperability as the “ability of two or more systems or applications to exchange information and to use the exchanged information mutually.”⁶ The development of standardized protocols that allow independent or isolated information systems to send automated requests for specific information to each other and then automatically receive the requested information in a specified format is what data interoperability envisions. A typical example of interoperability is with cellular phone carriers: two people subscribed to different companies’ services do not need to perform any special computer actions before talking to each other. Usually, cellphone carriers use their networks to operate with networks of other suppliers; there is an information exchange, and they can use the information mutually.

The question of interoperability is crucial for policymakers’ decisions worldwide and in the LAC region. Data interoperability is the basis for enabling seamless transactions between financial institutions and is critical in the payments ecosystem. Note, it is important to remember at this point that transactions are usually messages with instructions from one financial institution to another. To achieve the goals of seamless transactions and an inclusive payment ecosystem, some financial regulators and central banks have developed mandates, instructions, and clear rules for interoperability.

To summarize, APIs are required to ensure that the third principle (data interoperability) is followed. APIs enable the rapid, automated transfer of massive amounts of financial consumer data across a potentially vast network of financial institutions. Different API models exist, and the open API is the most common in an open finance ecosystem (see Table 1.1).

⁶ International Organization for Standardization (ISO). 2017. ISO/IEC 19941:2017 Information Technology–Cloud Computing–Interoperability and Portability, section 3.2.1. <https://www.iso.org/obp/ui/#iso:std:iso-iec:19941:ed-1:v1:en>

TABLE 1.1 TYPES OF APPLICATION PROGRAMMING INTERFACES

INTERNAL API	APIs are used by enterprise developers and within each enterprise.
PARTNER API	APIs are used by business partners, such as suppliers, providers, and resellers, for enhanced partner integration.
OPEN API	External partners and developers use APIs to create innovative applications and products.

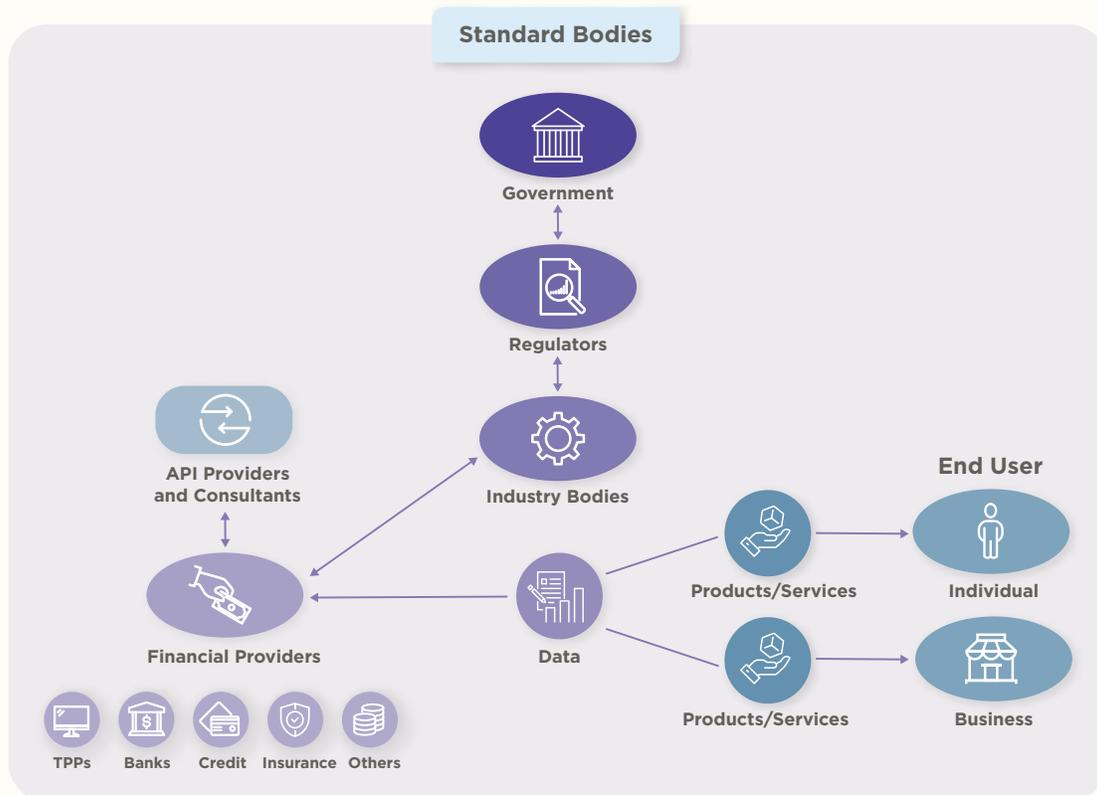
In regulated open finance ecosystems, it is common to find models based on open API, in other words, APIs that have been standardized and adopted by the industry. Brazil, Mexico, and the UK are examples of collaboration between the regulator collaborated with the financial sector to establish technical standards for the secure and standardized exchange of information.

1.3 The Open Finance Ecosystem

Open finance can occur on either a regulated or market-driven basis following different implementation approaches, as will be discussed later. As a result, various authorities, market participants, types of data, technology, standards, rules, and governance schemes can be involved in open finance, resulting in an ecosystem that necessitates cooperation among these various actors (Sullivan, Miller, and Montes, 2021). The role of governments and regulators is critical, mainly because establishing regulations and rules will enable the functioning of the open finance ecosystem (see Figure 1.3). Section 5 of this document delivers some public policy recommendations for these actors. As the text explains later, governance is also a relevant aspect of open finance, and the joint work of financial authorities and industry bodies allows for maintaining open finance within the ecosystem; this two-way relationship is indicated on Figure 1.3 by the bidirectional arrows for these actors. As well, this document delivers specific recommendations for the industry and policy standards for APIs. API providers (and consultants) are essential for the ecosystem; they are the ones who provide the technical tools for the data of financial consumers (end users) to be transmitted, as shown at the bottom of Figure 1.3.

While the size and composition of the open finance ecosystem vary across jurisdictions, there are four groups of key players in open finance: (i) customers (end users), (ii) incumbent financial institutions, (iii) TPPs, and (iv) data aggregators. The text following briefly explains the role of each in the value chain of open finance.

FIGURE 1.3 OPEN FINANCE ECOSYSTEM



Source: IDB and FDATA.

1.3.1 Customers or Financial Consumers

Financial consumers hold a unique position in this ecosystem, owning and generating the transactional data used to design and market financial products and services, and acting as the end users of those same products and services.

1.3.2 Incumbent Financial Institutions

Incumbent financial institutions include banks, brokerages, insurance companies, and other financial intermediaries already under financial authority’s oversight. Because of the longevity, tradition, and size of these institutions, these actors manage the most relevant portion of financial consumer information. Some of these institutions may face challenges during the implementation process for open finance due to technological change.

1.3.3 Third-Party Providers

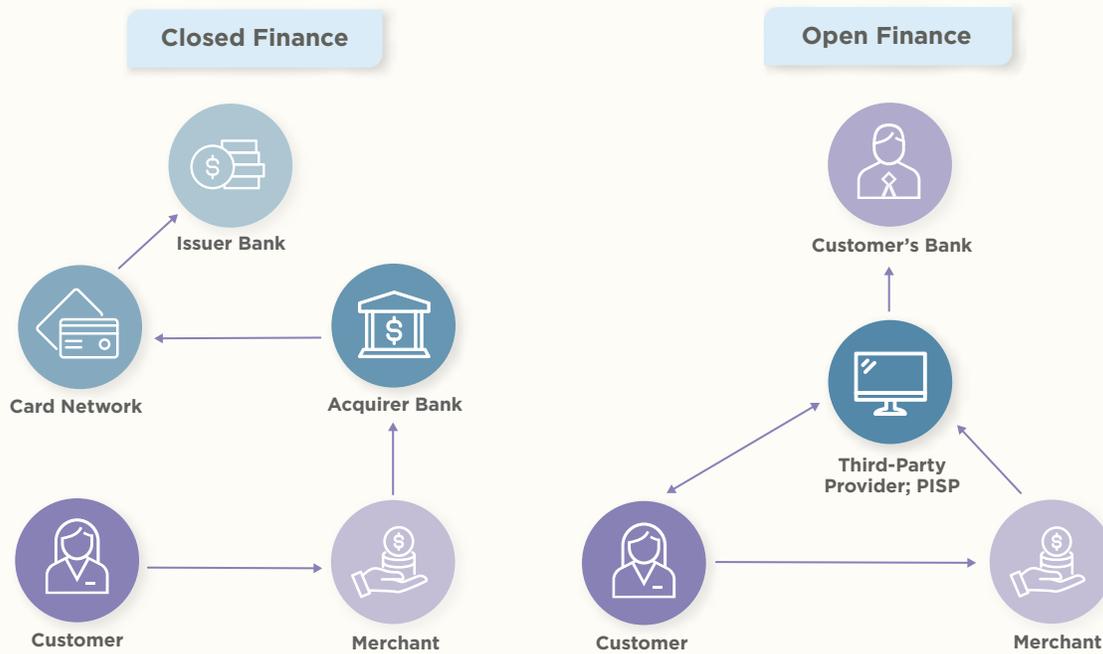
TPPs are regulated companies that, depending on the regulation, can participate in the open finance ecosystem through two categories. Globally, as open finance providers, TPPs are generally classified as payment initiation service providers (PISPs) or account information service providers (AISPs) (see Figures 1.4 and 1.5).

Each country's open finance implementation may differ in design, including mandatory rules versus voluntary participation. However, the foundation of open finance is to allow TPPs access to consumers' account data, resulting in data portability, which, as seen earlier, is a crucial concept for increasing competition in the market for financial services.

1.3.4 Payment Initiation Service Providers (PISPs)

The financial consumer's consent authorizes these providers to initiate payments to the TPP on the financial consumer's behalf and with funds held in the customer's bank or other financial institution account. The providers can initiate payment operations on the customer's behalf, but they never have the funds or resources associated with payments in their possession. These are account-to-account transactions (A2A), meaning that funds are transferred from one account to another without intermediaries, such as card networks. As Figure 1.4 shows, the process for a transaction in a closed finance scenario is more complex; in contrast, in the open finance scenario, TPPs simplify the data transmission required for finalizing payments. Key to this point is that payments are digital messages.

FIGURE 1.4 ACCOUNT-TO-ACCOUNT TRANSACTIONS BEFORE OPEN FINANCE AND WITH OPEN FINANCE, INCLUDING PISPs



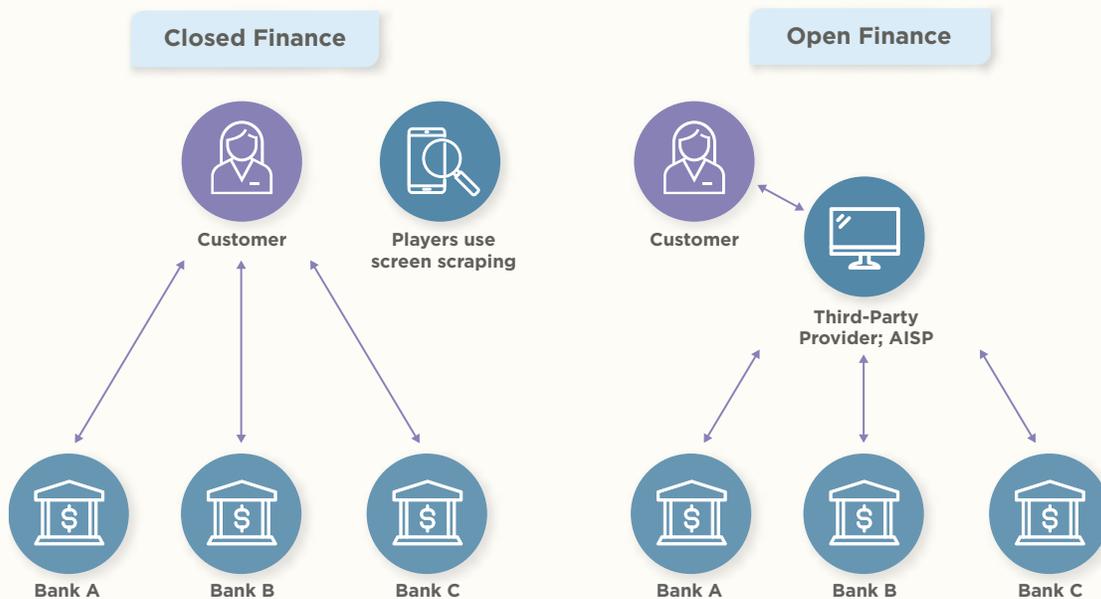
Source: IDB and FDATA.

1.3.5 Account Information Service Providers (AISPs)

With the financial consumer's consent, AISPs access financial information about the consumer's accounts or financial products to offer them other personal financial services, such as recommendations on alternative savings, or investment or financial management. For instance, information from consumers allows some providers to offer comparisons of bank interest rates or financial products, such as insurance policies. AISPs only access information authorized by the customer.

AISPs are present in many jurisdictions, and would need to be regulated and licensed. However, some other financial institutions, incumbents, fintech, or other service providers can perform similar activities. Figure 1.5 shows the process of accessing financial information to offer comparisons and recommendations in a closed finance scenario (with the possibility of screen scraping) and in an open finance scenario with an AISP.

**FIGURE 1.5 OFFERING ADDITIONAL SERVICES:
BEFORE OPEN FINANCE AND WITH OPEN FINANCE, WITH AISPS**



Source: IDB and FDATA.

However, it should be noted that open finance typically distinguishes between the following categories of information that may be shared between financial providers with the customer's consent:

- **Data on the products, services, and account types** that providers in the financial system offer as well as the associated financial conditions.
- **Registration data**, which is identifying information collected by the financial institution/provider, including for example, information collected during the financial consumer hiring or onboarding process, due diligence, or know your customer (KYC) processes.
- **Data for payments initiation**, which is access to information about the customer's accounts and with the possibility of instructing that a transfer or payment is initiated on behalf of the customer.

The application of public policies related to open finance, specifically account information access versus payment initiation and thus AISP and PISP, varies throughout the LAC region. In Mexico,

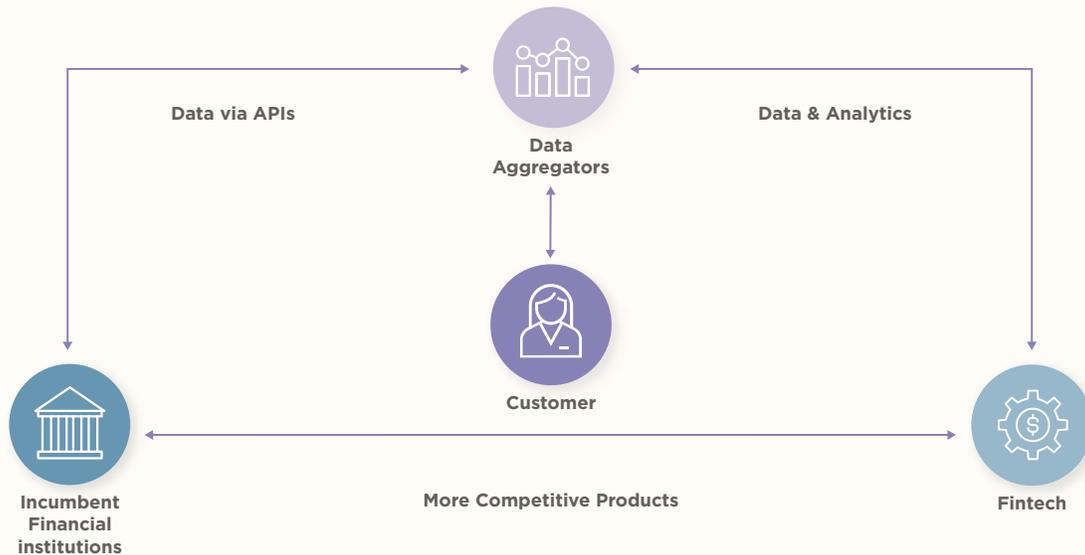
for example, “data access and reading” (i.e., accessing information for aggregation proposals) are regulated, and the market is expecting a public policy regarding open finance for initiating payments. In Brazil and Colombia, regulators are currently considering PISPs as a new type of regulated financial institution. The current participants in the open finance ecosystem in Brazil can perform data aggregation, but there is no specific license for a company to become an AISP exclusively. Outside of the LAC region, jurisdictions that embrace both regulatory approaches provide more significant opportunities for TPPs to participate in the open finance infrastructure, promoting competition and developing more creative business models.

1.3.6 Data Aggregators

Data aggregators are technological platforms connecting all the other players in the open finance ecosystem. These platforms create and manage APIs (either partner or open APIs) that allow incumbent financial institutions to access and share consumers’ financial data with TPPs. Two kinds of data aggregators exist (Awrey and Macey, 2022). The first type serves as a centralized repository for customer data and a technological channel for data sharing among financial institutions. The second type combines these functions with advanced data analytics, allowing the aggregator’s clients—established incumbents, other financial institutions, and TPPs—to extract insights from this data that could help them design and market their products and services better. Data aggregators often interact directly with financial consumers, allowing them to aggregate their own data across financial institutions while controlling who has access to it and what they can do with it (see Figure 1.6).

Partnering with data aggregators allows incumbent financial institutions to leverage cutting-edge technology while saving time and money on negotiating individual data-sharing agreements with hundreds, if not thousands, of TPPs (Gerety, 2021). For TPPs, data aggregators represent an opportunity to outsource the development and management of APIs; the extraction, aggregation, and analysis of customer data; and the creation of robust front-end user experiences.

FIGURE 1.6 OPEN FINANCE AND THE ROLE OF DATA AGGREGATORS



Source: IDB and FDATA.

1.4 Conclusions

The financial industry's greatest asset is information. For decades, incumbent institutions have frequently held relevant financial consumer data without converting it into benefits such as personalized financial products. Open finance has emerged to open this data to TPPs and other players, providing an agile and secure method for customers to grant new service providers access to their financial information. In turn, this data access and sharing can facilitate the delivery of financial products and services tailored to the consumers' needs. This data can be accessed via screen scraping, reverse engineering, or APIs. However, the most significant change in open finance is the transition from nonsecure access methods, such as screen scraping, to secure access methods via API. Respecting certain principles, such as data access, data portability, and data interoperability, open finance establishes an ecosystem in which the financial industry, regulators, consultancies, and technology companies collaborate to benefit consumers, whether individuals or businesses. However, there are risks and opportunities unlocked by this ecosystem.

2 Potential Risks and Opportunities of Open Finance



This section delves into the intricacies of the open finance ecosystem and analyzes its risks and opportunities. The open finance ecosystem offers considerable opportunities for increased competition, greater financial inclusion, and reduced entry barriers, which can significantly benefit consumers and the broader financial services industry. However, it is imperative to acknowledge the risks involved in this new ecosystem, such as cybersecurity risks, consumer-protection risks, and security and operational risks. To establish a sustainable and secure open finance ecosystem, these risks must be managed. Implementing robust data-protection regulations, consumer safeguards, and technological infrastructure is crucial. By carefully assessing the risks and opportunities, stakeholders can create a more informed understanding of the open finance ecosystem and establish effective strategies to maximize its potential benefits while minimizing its risks.

2.1 Open Finance Opportunities

Open finance brings greater financial consumer autonomy and control over their financial information, allowing them to authorize sharing of their data with other financial institutions or TPPs through a secure and fast interface, such as APIs. The expectation is that these technological applications will increase competition and innovation while lowering the entry barriers into the financial system. This ecosystem will be able to expand the financial products and services offered, thus improving financial inclusion through personalized products and services, and improving financial consumer experiences, with potentially significant effects on the economy's social well-being (World Bank, 2021).

The benefits and opportunities of open finance can be considered from various perspectives, including supply (incumbent financial institutions and TPPs), demand (individual and business financial consumers), and the regulator's perspective. The direct benefits of open finance for the financial industry are summarized below as increased competition and reduced entry barriers; more access, transparency, and visibility for consumers; and the end of information asymmetries between financial service providers.

2.1.1 Increase of Competition and Reduction of Entry Barriers

Open finance enables entrants (from the supply side) to design and deliver personalized products and services to customers, allowing entrants to compete with incumbent financial institutions to benefit the financial consumers (World Bank, 2022). As in every market, reducing marginal costs through technologies incentivizes entrants and incumbents to offer better products at lower prices for financial consumers. This new scenario tends to encourage incumbents to incorporate new technologies into their products and services, thus increasing their effectiveness and allowing current financial consumers to obtain better conditions for their financial services and products.

Open finance might induce competition through the supply of tailor-made products for consumers, based on the consumer's data, which characterizes their behavior and mitigates uncertainty for financial institutions. More innovative products and the possibility of an increased supply of financial services are beneficial for any financial sector.⁷ The combination of payment systems and open finance, such as in Brazil, is proven to increase the number of financial services and products suppliers, increasing diversification in what is offered to customers. As of the end of 2022, more than 800 financial services suppliers compete in PIX, the Brazilian payments system (and described later in this text), a substantial element in open finance implementation. Also, this combination can help increase financial inclusion. Positive information from payments can complement the data used for credit scorings, improving the prediction of credit behavior of usually excluded populations and micro-, small, and medium enterprises. Such has been the case for the UK.

2.1.2 Transparency and Clarity of Financial Services and Products for Consumers

For consumers, open finance has the potential to bring greater transparency and control over their financial information, allowing them to switch financial providers whenever they wish, offering them better conditions for financial products and services, and offering personalized and competitive products. Open finance can be essential in promoting financial inclusion, stimulating and facilitating access to the financial system by designing financial products for underserved segments of the population, and creating new, more personalized products and services (Plaitakis and Staschen, 2020). For example, by enabling A2A transfers through PISPs, open finance can provide access to electronic payments for segments of the population that otherwise lack access to payment services. As a result, financial consumers' data allows for offering other products such as insurance, credit, or investments. On the other hand, more data from financial consumers will reduce information asymmetries, increasing transparency in financial markets.

2.1.3 Reduction of Information Asymmetries

For decades, the incumbent financial institutions had the information advantage, which has limited or restricted the ability of new players to compete in the financial system. This asymmetry has exacerbated adverse selection problems in which entrants, having access to only partial information, can only offer their products or services to consumers with a lower risk profile or higher financial stability or soundness (Jaffee and Russell, 1976; Stiglitz and Weiss, 1981).

⁷ For more information, see the Credit Information Market Study of November 2022. (Financial Conduct Authority, 2022.) Available at <https://www.fca.org.uk/publication/market-studies/ms-19-1-2.pdf>.

Open finance enables individuals and enterprises to decide with which financial providers they wish to share their financial information. In turn, this enables a more accurate assessment of customer risk and an improved forecasting process for new financial service providers. By sharing financial information, financial service providers can assist individual consumers in optimizing their budget management and finances. In some jurisdictions, open finance has enabled the emergence of players that support consumers with financial management, which is crucial for increasing financial literacy and reducing future negative economic impacts.

Open finance provides companies access to business financial management services that enable them to aggregate and consolidate their banking and financial information, thereby streamlining their treasury processes or integrating them with their back office. This new ecosystem can therefore provide numerous benefits and new business opportunities. With the supply of more financial providers, competition is expected to increase, resulting in improved financial consumer conditions, better service quality, and expansion of market coverage, which will influence financial inclusion in underserved or unbanked individuals. However, as will be explored in Section 3, international experience shows that the role of policymakers and regulators is vital in developing and implementing an open finance ecosystem that generates benefits and simultaneously mitigates potential risks.

2.2 Potential Risks of Open Finance

As previously described, open finance can unlock various business opportunities and benefits for consumers, the financial industry, and regulators. However, financial consumers' trust and confidence are critical to successfully implementing open finance. Thus potential risks must be addressed, and adequate safeguards for consumer rights, privacy protection, and information security must be established (Bank for International Settlements, 2020).

2.2.1 Consumer Protection

As previously stated, consumers' control over their information is a premise for allowing the sharing of financial transaction data, which is manifested in consumers providing consent. Consequently, regulators and the financial sector must consider the following potential risks: consumer and business risks, exclusion risk, and operational risks (Expert Group on European Financial Data Space, 2022).

2.2.1.1 Consumer and Business Risks

There are risks associated with the use of consumer data. When materialized, these risks range from unfair data use and credit risk management to abusive selling and fraud, which could negatively affect consumers and businesses. For instance, if consumers' data is used unfairly or fraudulently, it could result in financial loss or damage their reputation. Similarly, if enterprises do not have the necessary protection and information, they could make incorrect decisions or suffer reputational damage.

Prioritizing protection of consumer data and privacy while promoting transparency, competition, and innovation in the financial industry is essential to mitigate these risks. One way to achieve these goals is to implement effective regulations and establish clear guidelines and standards for collecting, using, storing, and protecting consumer data. Implementing open data standards would make consumers' data protection easier to achieve. Clear mandates regarding data can help prevent abusive selling practices and fraud, and ensure that businesses have access to accurate and relevant data to make informed decisions.

In addition, it is vital to prioritize educating consumers and businesses about open finance and its risks and benefits. Information about how data is used and protected is vital for consumers and businesses to make informed decisions. Indeed, overall, financial education is a crucial factor in helping consumers make better financial decisions. Financial education is a process of improving consumers' understanding of financial terms and concepts and acquiring skills and confidence crucial to making efficient and informed financial decisions and, ultimately, achieving personal welfare (Lučić, Uzelac, and Gaćina, 2021). Research has shown that people with more financial literacy make better financial decisions and show positive financial behaviors (Nicolini and Haupt, 2019). Financial literacy is another primary area in which policymakers could act, especially considering the situations of low-skilled, poor, and elderly populations (Martín et al., 2023).

2.2.1.2 Exclusion Risks

Open finance allows financial institutions to access and analyze vast amounts of data from various sources, including credit scores, income, and spending habits. Open data enables assessing a financial consumer's risk profile and making decisions about their access to financial products and services, such as loans, insurance, or investment products. Implementing open finance could bring several risks to consumers, including exclusion, discrimination, or overcharging based on the financial consumer's risk profile. Adverse selection or profiling can materialize if data is not appropriately used.

Policymakers can help mitigate exclusion risks by establishing clear guidelines and standards for when and how financial consumer data can be used in open finance. Financial institutions must ensure that their decision-making processes are transparent and fair, and that they do not discriminate against customers based on their risk profile. Moreover, governmental policies must

ensure that the benefits of open finance are accessible to everyone, regardless of their credit history or location, promoting financial inclusion and equal opportunities for all.

2.2.1.3 Operational Risks

Implementing open finance can also bring certain risks for consumers, particularly regarding managing and protecting complex data—risks that arise from increased data sharing. With open finance, financial and nonfinancial institutions have access to vast amounts of data, which the institutions can analyze to make informed decisions about financial products and services. However, managing such complex data could lead to cybersecurity threats and data breaches, compromising the privacy and security of sensitive data. Such risks materialized could result in intellectual property theft, industrial espionage, or other forms of cybercrime. Moreover, misusing personal data could lead to fraudulent activities and financial loss.

Mitigating operational risks requires establishing clear guidelines and standards for protecting personal and nonpersonal data in open finance. Participant institutions must ensure that financial consumer data is stored securely and that cybersecurity protocols are in place to prevent data breaches and cyberattacks. Furthermore, it is crucial that regulatory frameworks are established that promote transparency and accountability in using financial consumer data.

When discussing allowing nontraditional financial institutions to enter the market to provide digital financial services, there is a concern about increasing financial system risks related to those nonregulated institutions operating. These risks can be mitigated by observing the financial regulatory framework of financial stability, financial integrity, and financial inclusion, based on the principles of similar regulations for similar activities, a risk-based approach with proportionality, and balance between *ex ante* rules and *ex post* rules (Rojas-Suárez, 2016).

Additionally, it is crucial to educate and promote awareness among financial consumers to ensure they understand the risks associated with sharing their data and how to protect against cybersecurity threats. Financial institutions must also play a role in educating their customers about the importance of data protection and the measures in place to ensure the security of their data.

2.2.2 Privacy Protection

As the volume of data shared on open finance has the potential to increase, there will inevitably be an increase in the risk of fraud, data leakage, and information misuse, which can compromise consumer financial privacy. Therefore, it is essential to ensure financial consumers give explicit consent and completely comprehend the scope of permission granted to third parties to access their information, and it is essential that adequate standards and safeguards to protect information are implemented. In certain jurisdictions, such as Brazil and the EU, new legislation relating to the rights regarding personal data and its protection has been introduced, ensuring

that consumer consent is meaningful and urging market participants to adopt adequate policies, procedures, and controls to safeguard data and financial consumer security. Given the interaction between financial service providers for information sharing via APIs, it is necessary to establish a standardized model to mitigate any operational and cybersecurity risks (Bank for International Settlements, 2020).

2.2.3 Information Security

Over the past few years, the financial industry and regulators have invested significant resources to design and maintain cyberresilient systems to address the new risks emerging in the context of the digital economy. However, implementing open finance must consider the safeguards participants must implement in this area, including attribution of liability for fraudulent or erroneous transactions (Plaitakis and Staschen, 2020).

Consumer protection and liability frameworks are established in most countries that are implementing open finance. Similarly, several nations have incorporated specific authentication requirements and disclaimers for financial consumers in the event of losses resulting from unauthorized transactions, and they have voluntarily established dispute-resolution mechanisms.

2.3 Conclusions

As we have seen, open finance can unlock several benefits and opportunities of financial systems. The primary benefits of this ecosystem are increased competition, by allowing TPPs to securely access financial consumer information and offer personalized products and services, and increased inclusion, by including people who have previously been on the margins of the financial system. However, it is the regulator's responsibility to ensure that the financial industry adheres to the established models for responsibility and technical standards to maintain trust and protect financial consumer data. By implementing effective measures to manage and protect data, open finance can benefit consumers and the financial industry while minimizing the risks.



3 Assessment of International Open Finance Ecosystems

As highlighted before, information is one of the most valuable assets of the financial system. Open finance enables TPPs to access financial consumers' data and provide financial consumers with better, more personalized products and services, thereby increasing competition and financial inclusion. More and more jurisdictions are enacting regulations that give consumers control over their own financial data and that allow them to permit TPPs to access this data. In some jurisdictions, these consumer rights are extended to other economic sectors. Table 3.1 provides a brief global overview of existing and future consumer data ownership, sharing, and protection regulations. Data-protection laws can provide financial regulators with tools to define ownership of data and mitigate some of the risks generated by the application of open finance. However, open finance regulations can exist without data-protection laws and can be *catalysts for* data-protection laws: that is, issuing open finance regulations can promote or speed up the creation of data-protection rules.

TABLE 3.1 OPEN FINANCE REGULATIONS

COUNTRY/REGION	OPEN BANKING REGULATION	OPEN FINANCE REGULATION	DATA LAW
EUROPEAN UNION (EU)	Revised Payment Services Directive (PSD2): Regulates TPP access to bank accounts ⁸		General Data Protection Regulation (GDPR) ⁹
UNITED KINGDOM (UK)	PSD2 directive (transposed into UK law), Competition and Markets Authority (CMA) open banking remedies	Future CMA remedies on open finance consultation ¹⁰	GDPR (UK)
AUSTRALIA	Consumer Data Right (CDR): Fully implemented for open banking ¹¹	CDR to apply to open finance	Next phases in CDR to target the energy and telecommunications sectors ¹²

continued on next page →

⁸ European Union (2015).

⁹ Intersoft Consulting (n.d).

¹⁰ Competition and Markets Authority (2022).

¹¹ Australian Banking Association (2022).

¹² Consumer Data Right, Australia Government (n.d.).

(cont.)

TABLE 3.1 OPEN FINANCE REGULATIONS

BRAZIL	Open banking regulation: Regulates the scope of data and services of open banking ¹³	Open banking regulation: Goes beyond open banking into open finance ¹⁴	Brazil's General Data Protection Law (LGPD) ¹⁵
MEXICO	Fintech law, Article 76: All FIs are obligated to share information using APIs with authorized third parties. ¹⁶	Fintech law, Article 76: This applies to all FIs, not only banks.	

3.1 Approaches to Adopting Open Finance

In general terms, the adoption of open finance can be divided into three different approaches: mandated, guided, and market-driven (see Table 3.2).

TABLE 3.2 APPROACHES TO ADOPTING OPEN FINANCE

APPROACH	DESCRIPTION	PROS	CONS	EXAMPLES
Mandated	The regulator requires banks to adopt open finance, which requires banks to share data with TPPs.	<ul style="list-style-type: none"> Ensures that open finance moves forward Enables innovation Regulates standardization and compliance between FIs and TPPs 	<ul style="list-style-type: none"> Higher costs of compliance for FIs API standardization can increase development costs for FIs 	EU, UK, Australia, Mexico, and Brazil

continued on next page →

¹³ Brazil (2020).

¹⁴ Brazil (n.d.).

¹⁵ International Association of Privacy Professionals (2020).

¹⁶ Belvo (2022).

(cont.)

TABLE 3.2 APPROACHES TO ADOPTING OPEN FINANCE

Guided	In this model, the regulator establishes open banking standards and guidelines, and then encourages banks to adopt them, but implementation is voluntary.	<ul style="list-style-type: none"> • Flexibility and freedom in pace of adoption • Reduced compliance costs for banks 	<ul style="list-style-type: none"> • Lower adoption by FIs, which may impact achieving the benefits and opportunities • A lack of API standardization, which can hinder TPP integration and increase associated costs 	Hong Kong, Singapore, and Japan
Market-driven	This model is completely market driven, with no regulatory intervention. The governing body may or may not publish guidelines and establish standards. The industry is responsible for adopting open finance initiatives.	<ul style="list-style-type: none"> • Increased competition between FIs and TPPs 	<ul style="list-style-type: none"> • Lack of direction for the industry • Lack of technical standards and lack of clear accountability rules 	Argentina

In addition to the different types of approaches and their respective implications (see Table 3.2), the scope of initiatives and their ranges also vary. Some open finance implementation initiatives are restricted to specific banking services (as in the EU and UK), others include financial services (Brazil and Mexico), and others address other sectors beyond finance (in Australia). In the EU, data access requirements are asymmetrical in that banks must grant TPPs access to payment accounts, but banks do not have the right to access data held by TPPs (unless the latter are the banks themselves). Data-sharing rights are reciprocal in some other jurisdictions, such as in Brazil and Mexico. An overview of open data-sharing initiatives in sample countries and regions follows.

3.2 Some Data-Sharing Ecosystems around the World: Overview

The following provides an overview of different approaches taken by some jurisdictions to implementing open finance, governance, and relationships with data protection and general data regulations. There is no one-size-fits-all type of approach, and the approach varies substantially depending on the legal, institutional, and industrial context. The overview presents for each jurisdiction the main characteristics and the extent of data use (data scope). From the overview, the reader can draw some conclusions.

3.2.1 Australia

Australia started the Consumer Data Right (CDR) in July 2020, as an economy-wide reform for open data so that consumers and small businesses could have more control over their data and could share it with regulated TPPs.¹⁷ The implementation covers many areas, from banking system data (open banking) to financial data (open finance) and the energy and telecommunications sectors. The primary purpose is to enhance financial consumer autonomy and data ownership. Another goal is to foster competition in the financial industry so that financial consumers get better rates and customized services.

The reform is mandatory not only for the four largest banks but also for third parties that access the data and who are obliged to share the data when requested on a reciprocal basis. The implementation was gradual, beginning with the country's four largest banks and including more participants later. Regarding data sharing, implementation was phased, starting in 2019, with implementation for transaction data on credit cards, bank accounts, and transaction accounts. Subsequently, in 2020, the second phase included integrated personal data and real estate. In contrast, implementation for data sharing for pensions, corporate finance, investment lines, and asset management has been progressively introduced since 2020.

Data scope

- account and transaction data
- customer identification data
- generic product data

¹⁷ For more information, see Consumer Data Right, Australia Government (n.d.).

3.2.2 Canada

Canada began its open finance efforts in 2018, when the government included language in the federal budget to deliver a phased implementation of an open finance framework. The government has appointed an open banking lead, responsible for working collaboratively with financial institutions and fintechs to design Canada's open finance system and implement it by the end of 2023.¹⁸

The first phase in Canada will include a broad set of consumer accounts and small and medium-sized enterprise (SME) accounts, including checking, savings, credit cards, brokerage accounts, and more, but the phase will not include payment initiation, which will be incorporated later. Canadians have established working groups focused on privacy, security, third-party accreditation, and liability as they work to submit their recommendations to the government. Working group meetings around technical standards and governance have signaled to the market the potential decisions on these crucial elements of Canada's framework.

3.2.3 European Union

In the EU, the first step was possible with the publication of EU Directive 2015/2366 by the European Parliament and the Council, also known as the PSD2 (Zunzunegui, 2018). The PSD2 directive entered into force in 2016 and was implemented by EU member countries beginning in January 2018. PSD2¹⁹ mandates that banks provide access to authorized TPPs so that TPPs can act on behalf of their clients (with their consent) to collect account information and initiate payments from their accounts free of charge. Banks are obligated to provide their data in this regime, but TPPs are not. Thus, there is no reciprocity in this model.

No new regulatory or supervisory body was established in the EU to specify the implementation. The banking supervisor is responsible for monitoring the open banking framework. Implementation was conceived to have progressive phases for PSD2 in each member country's regulations and the publication of regulatory standards (but without the definition of technical standards) made by the European Banking Authority (EBA) of the EU (World Bank, 2022).

Data scope

- account and transaction data
- confirmation of funds
- customer identification data
- generic product data
- payment initiation

¹⁸ For more information, see Government of Canada (n.d.).

¹⁹ For more information on the latest advancements for PSD2, see European Union (2022).

3.2.4 Hong Kong 🇭🇰

The Hong Kong Monetary Authority (HKMA) unveiled several measures in September 2017 to prepare Hong Kong for what is known as the “New Era of Smart Banking” (Hong Kong Monetary Authority, 2017). One of the steps taken was establishing a policy framework for an open API, which would encourage the widespread use of APIs in the banking industry, boost innovation, and improve financial services through collaboration between banks and technology companies. The approach established by the regulator was voluntary.

The HKMA’s primary policy goals were to: “(i) ensure the competitiveness and relevance of the banking sector; (ii) provide a secure, controlled and convenient operating environment to allow banks and their partners (called third-party service providers, or TSPs, in this framework), to work together and develop innovative/integrated banking services that improve customer experience; (iii) and keep up with international developments in the delivery of banking services” (Hong Kong Monetary Authority, 2018).

The approach for using APIs in Hong Kong was left to the judgment of banks. However, the regulator offered recommendations for bilateral agreements and requires that those who choose to enter this data-sharing infrastructure agree to guarantee a proportionate level of protection in data transmission.

The HKMA’s Open API Framework recommends minimum security standards and architecture.²⁰ Participants should always refer to sound industry practices and consider regulatory requirements.

Data scope

- account and transaction data
- clients’ onboarding
- customer identification data
- generic product data
- payment initiation

3.2.5 Japan 🇯🇵

The revision of Japan’s Banking Act went into effect in June 2018, mandating that Japanese banks implement open APIs within two years. The approach established by the regulator was voluntary, and financial institutions can adopt open banking, but they must adhere to specific rules if they do. Japan’s Financial Services Agency intends to “Prompt banks to vie with each

²⁰ For more information, see Hong Kong Monetary Authority (n.d.).

other in providing good services for financial consumers and pursue the best practice” and “Promote transparency of bank’s initiative to enable financial consumers to choose banks.”²¹

Japan has not established a specific model for infrastructure governance and monitoring. Banks lead the way in implementing open APIs and cooperating with fintechs despite data sharing not being mandatory. The Japanese Bankers Association designed the open banking framework, which set broad principles for data exchange and lets banks and TPPs freely define their standards. This method enables data creators and third parties to negotiate and contract bilaterally.

Data scope

- account and transaction data
- customer identification data
- generic product data
- payment initiation

3.2.6 Singapore

Singapore has adopted an industry-collaborative position, and the central bank of Singapore—named the Monetary Authority of Singapore (MAS)—has been very proactive in driving industry standards and frameworks to encourage adoption. Singapore’s road toward open banking started in 2016 with the production of an API guidebook to stimulate the creation of applications enabled by APIs. Afterward, MAS introduced an API registry²² and the API Exchange (APIX), an innovation-promoting open architecture platform (Kapronasia with Equinix, 2021). Each financial institution may enter into a bilateral agreement with a TPP, establishing conditions based on its risk analysis and evaluation of each TPP.

Data scope

- account and transaction data
- customer identification data
- payment initiation

²¹ For more information, see Jetro Australia (2020).

²² The registry is available online. See Monetary Authority of Singapore (n.d.).

3.2.7 United Kingdom

The UK's Competition and Markets Authority (CMA) completed its research of market competition in retail banking in 2016, and its conclusions were published that year. The study uncovered substantial costs for consumers and companies, as well as entrance barriers that stifle competition and innovation. The CMA proposed an “open banking system” whereby the largest UK banks would be required to provide authorized vendors API access to the retail and SME client account transaction data. The objective established by the policy was to level the competitive playing field and increase the number of providers of financial products and services (Competition and Markets Authority, 2022).

Regulations mandate that TPPs using APIs to access client accounts must get authorization from the Financial Conduct Authority (FCA), the financial supervisor. In this sense, there are two types of service providers: AISP and PISPs.

The UK has an open API standardization model. The Open Banking Implementation Entity (OBIE)²³ is responsible for assuring compliance with the API standards mandated for use by participating financial institutions and TPPs. Note, it is relevant that OBIE is an independent body from the FCA. OBIE is a public-private organization delivering the open banking standards and industry guidelines to guarantee competition, innovation, and transparency in the ecosystem. OBIE has its own governance and is managed by a trustee, led by a steering committee with a secretariat. Technical standards for API data sharing are mandatory and are centrally defined by the OBIE, which specifies the data-sharing technologies and processes to be used. In essence, the participating institutions collaborate to co-create and define the standards.

Data scope

- account and transaction data
- confirmation of funds
- customer identification data
- generic product data
- payment initiation

²³ For more information, see Open Banking Implementation Entity (n.d.) and other pages on their website such as About Us, API specifications, and Open Banking.

3.3 Conclusions and Lessons Learned

There are several approaches to implementing an open finance environment (or open banking, depending on the scope of data covered). Generally, there are increasing efforts promoted by competition authorities (as in the UK, the EU, and Australia), and financial authorities (as in Hong Kong). As noted, the market-driven approach gained traction during the early stages of open finance. Still, as privacy and data security expectations rose and these countries saw the potential benefits of a regulated environment, regulators began guiding the industry through recommendations for developing APIs and supervising this ecosystem (as in Singapore and Japan).

In systems with mandatory participation, such as those in Australia, the EU, and the UK, the regulator typically focuses on promoting financial inclusion or increasing competition in the financial sector, allowing for the incorporation of a significant number of actors. In countries or regions where the primary purpose of the data-sharing ecosystem is to increase market competition, this is a natural requirement for reducing financial sector market concentration. Regarding the scope of the open finance model, such as the types of institutions involved, some countries or regions establish a specific scope, centered on banks and payment services (as in UK, EU, and Hong Kong) or a broader scope encompassing numerous types of financial services, such as credit and insurance (as in Australia and Japan).

Various jurisdictions use diverse API-based data-sharing techniques. Some jurisdictions specify minimum requirements or define a single API model for use by all system participants (as in UK and Australia), or there is space for market participants to agree on these procedures (as in EU, Hong Kong, and Japan).

It must be noted that lack of standardization of APIs can impede TPPs integrating and increase associated costs. In the EU, for instance, the absence of a standard API prevented the growth of payment initiation services, as banks and fintech platforms encountered integration challenges.²⁴ Initially, there were also documentation issues, as there was no central body in the EU to oversee the development of this ecosystem, which there was in the UK with the establishment of OBIE.

The need for consumer consent, or permission, to disclose financial data is a characteristic of open finance ecosystems. Some governments have proposed new framework laws regarding open finance or adjusted existing privacy rules to ensure consumer permission is meaningful and well-informed. Policymakers have also pushed market players to establish data-protection policies, processes, and controls for the client. In the EU, for instance, the GDPR²⁵ was implemented in 2018; this data-protection law enabled data portability and protected consumer data rights. The regulation sets out the rights of the person or entity regarding their data and how

²⁴ This is elaborated on in The Paypers (2022).

²⁵ For more information, see GDPR.eu (n.d.).

data is processed, corrected, and erased. GDPR also addressed responsibilities for controllers and processors, international data transfers, supervisory authorities, and rules for cooperation and consistency (European Union, 2023). GDPR eased open data rules for the EU's financial system, despite lacking an authority like the UK's OBIE.

Numerous nations and regions have a phased or staggered adoption strategy, distinguishing each phase by the kind of data or the type of institution that must exchange data. The following are the primary considerations in carrying out the phased implementation:

- **Sensitivity of the data**—beginning with the sharing of public information and later incorporating confidential financial consumer data
- **Types of services**—beginning with data sharing related to the most basic services, such as loans, credit and debit cards, deposit accounts, and transaction accounts
- **Types of entities**—that are required to share data, beginning with institutions with the largest market share

As shown by sample experiences from around the world, for an open finance structure to achieve the promised advantages, it must ensure the confidence of financial customers by implementing participant-wide safety guidelines.

4 Open Finance in Latin America and the Caribbean: Development and Challenges



This section describes the status of the development of open finance in the LAC region and discusses the challenges faced in implementing the ecosystem within the region. To gain a deeper understanding of the financial landscape in the region, banking and fintech associations, as well as regional fintech leaders, were interviewed in 2022. In addition to these interviews, a survey was conducted among financial regulators, supervisors, and regional open finance companies and associations to gather information on the current state of open finance.

4.1 Financial Inclusion and Banking Concentration in Latin America and the Caribbean

Although the LAC region is undergoing a financial sector transformation, there is still a long way to go to give access to financial service accounts to the most significant part of the population. The COVID-19 pandemic increased the digitalization of financial services accounts: 73 percent of the region's adult population have access to an account.²⁶ The growth in financial services accounts in LAC from 2017 to 2021 was remarkable: more than 34 percent (World Bank, 2021). Also, the gender gap in account ownership showed an improvement since 2011, reducing from 9 to 7 percentage points when comparing adults with an account by gender. Despite these gains almost a third of the region's population lacks access to a financial services account and the percentage of the population aged 15 years and older with a bank account varies widely among countries. Brazil had the highest percentage of people with a bank account (84.04 percent), followed by Venezuela (84.39 percent) and Jamaica (73.30 percent). In contrast, Mexico had 36.93 percent, and Nicaragua had the lowest percentage, 26.03 percent.²⁷

On the other hand, the percentage of respondents who indicated they used mobile money, a debit or credit card, or a mobile phone to make a payment from an account, or who reported using the internet to pay bills or to buy something online or in a store in the past year, reached 65 percent in 2021. This number was a significant increase from 2014 (43 percent) and 2017 (only 45 percent), reinforcing the argument for the pandemic's effect on payments.

The above trends reflect a change in the preferences of financial consumers, who are turning to digital means for their financial transactions. While the pandemic encouraged or required the changes, these changes in the financial sector should be accompanied by appropriate policy measures that are consistent with the opportunities such as open finance. As the industry develops, policymakers in the region are turning to create policies and rules on open finance.

²⁶ The Global Findex survey (World Bank, 2021) considers people older than 15 years old an adult.

²⁷ The World Bank's Global Findex Database data is available at <https://www.worldbank.org/en/publication/globalindex/Data#sec3>.

4.2 Survey Results Regarding Development of Open Finance in Latin America and the Caribbean

The following presents the results of a survey conducted across the LAC region. The survey was conducted by the Financial Data and Technology Association (FDATA) and the Inter-American Development Bank (IDB) through its FintechLAC initiative. The survey was completed by 15 financial regulators and supervisors, 11 banking associations, 8 fintech associations and chambers, and 39 open finance firms, including 17 companies participating in the open finance ecosystem. The survey was conducted between March 1, 2022, and July 13, 2022, to provide comprehensive data regarding the status of open finance in LAC, perceptions, benefits, and challenges.

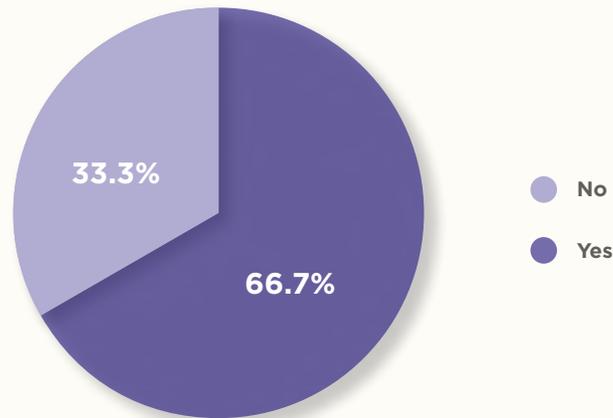
4.2.1 Answers from Regulators and Supervisors

In the survey, the regulators and supervisors in the LAC region were asked about open finance. The responses of the 15 regulators and supervisors (Barbados, Bolivia, Brazil, Chile, Colombia, Costa Rica, Dominican Republic, French Guiana, Guatemala, Honduras, Mexico, Paraguay, Peru) can be divided into several subtopics. Note that some jurisdictions have more than one financial regulator or supervisor.

4.2.1.1 Data-Protection Regulation

The first question responses indicated that 66.7 percent of the countries that participated in the survey had some data-protection regulations (see Figure 4.1). Note that the sample size accounts for answers of those who responded each question. It can vary across charts slightly.

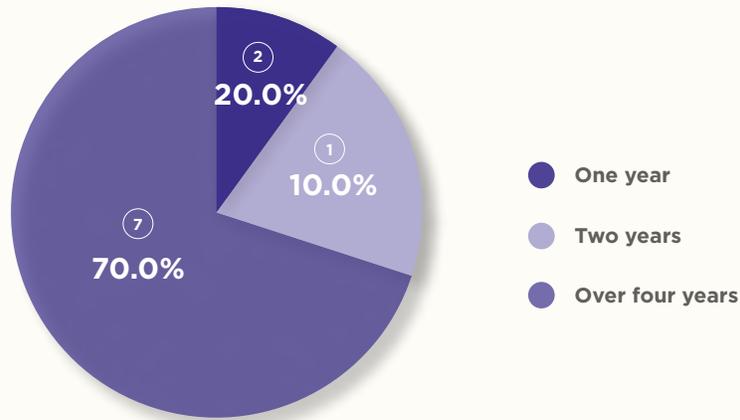
FIGURE 4.1 DATA-PROTECTION REGULATION IN LAC REGION



Source: IDB and FDATA.

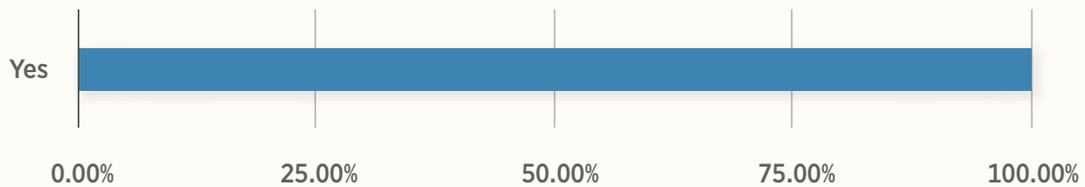
According to respondents, 70 percent had regulations that had been in force for over four years (Figure 4.2) and all of those who responded (10) had sanction powers for non-compliance (Figure 4.3). Note that, according to Medine and Plaitakis (2023), data-protection regulations can level the playing field for market participants when applied to open finance. However, the provisions of data-protection regulations do not account for issues specific to open finance. As well, when a law addressing data protection exists in addition to an open finance regulation, the nation has laws that might be at odds—protecting data but requiring data sharing. In other words, there may be overlapping or contradictory definitions and provisions if the two laws have not been designed to coexist.

FIGURE 4.2 YEARS DATA-PROTECTION REGULATION HAS BEEN IN FORCE



Source: IDB and FDATA.

FIGURE 4.3 SANCTIONS AVAILABLE FOR
NON-COMPLIANCE WITH DATA-PROTECTION REGULATION

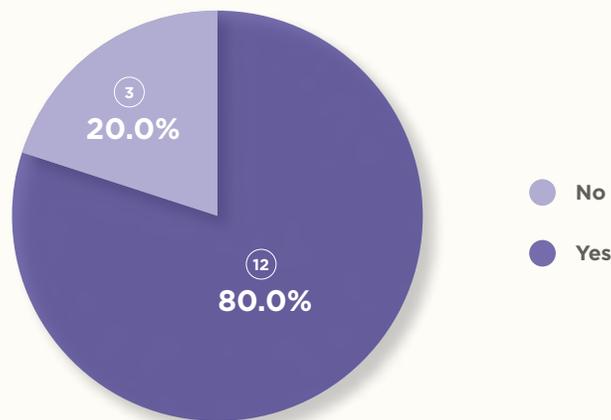


Source: IDB and FDATA.

4.2.1.2 Interest in Open Finance Implementation

On the topic of interest in open finance implementation, around 80 percent of regulators and supervisors in the 15 regulators and supervisors surveyed expressed interest in having a structure for open finance in their respective jurisdictions (see Figure 4.4).

FIGURE 4.4 INTEREST IN HAVING OPEN FINANCE STRUCTURE



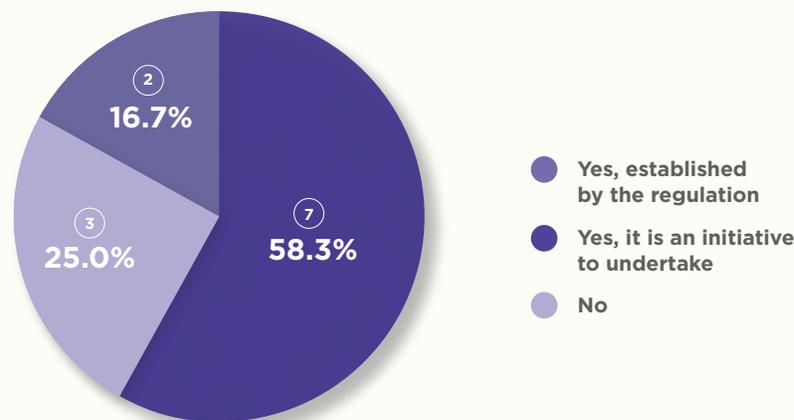
Source: IDB and FDATA.

Regulators and supervisors were asked who would be responsible for implementing open finance. The responses were wide ranging. One response indicated that the responsibility would be shared among the central bank, the financial superintendent, and the government. Another response indicated that the responsibility would be shared between the central bank and the superintendent, and a third indicated shared responsibility between the central bank and the government. Some responses indicated that one authority would have exclusive responsibility: two indicated the central bank; three indicated the superintendent; and three indicated the government. One final response indicated responsibility would be shared by various regulators and supervisors.

4.2.1.3 Technical Standards for Application Programming Interfaces

There is also interest from the region’s regulators and supervisors in technical standards for the APIs used in the open finance ecosystem. The survey results showed that 58.3 percent of the regulators and supervisors that answer this question are interested in technical standardization. However, technical standards development is still pending in most LAC countries, with only 16.7 percent of the regulators and supervisors responding that technical standardization is already established in the regulation (see Figure 4.5).

FIGURE 4.5 TECHNICAL STANDARDS FOR APIS: STATUS AND INTEREST



Source: IDB and FDATA.

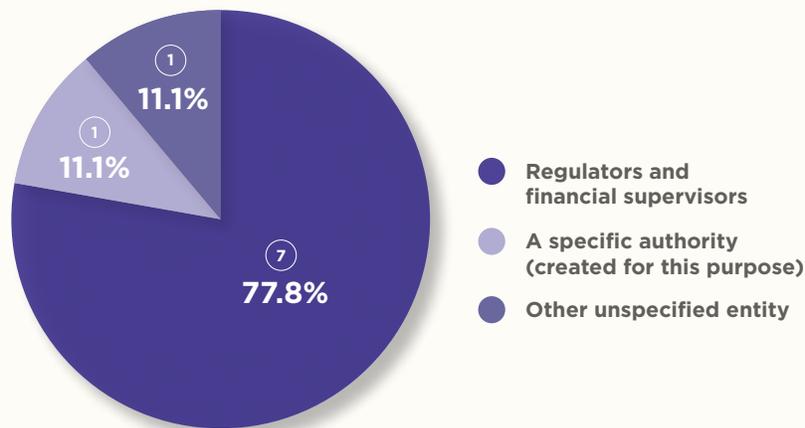
4.2.1.4 Delegation of Authority for Implementing Open Finance

Regarding the development of technical standards, most of the regulators and supervisors (77.8 percent) who participated in the survey and are interested in implementing open finance would leave implementation to financial regulators and supervisors. Only one regulator or supervisor would create a specific authority for this purpose, and one would leave it to other unspecified entities (see Figure 4.6).

Note that, while establishing an implementation entity is not essential, the experience of two countries regarded as advanced has shown that doing so can assist the financial industry in making more informed decisions. In the UK, establishing an implementing entity played a crucial role in the development of API standards that enabled companies to meet their obligations

under the second payment services directive (Directive 2015/2366/EU, or PSD2, noted earlier) regarding the provision of open banking services and facilitated interoperability in the ecosystem. In another example, Brazil established a deliberative council, which was responsible for making technical and delicate implementation decisions.

FIGURE 4.6 DELEGATION OF AUTHORITY FOR IMPLEMENTING OPEN FINANCE



Source: IDB and FDATA.

4.2.1.5 Conclusions

Regulators and supervisors across the LAC region recognize the potential for open finance and acknowledge their interest in its implementation. However, public policy development is still pending or in the early stages, with different approaches toward governance and API standards.

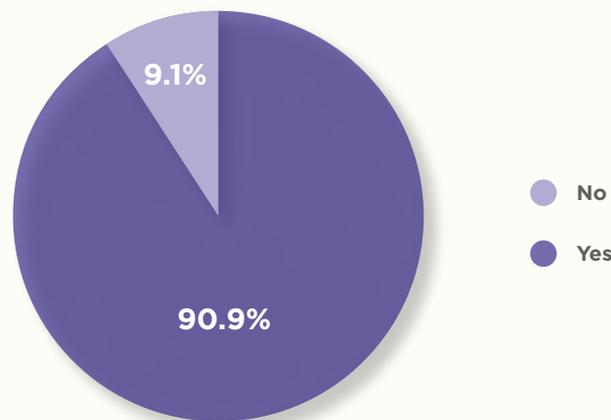
4.2.2 Answers Given by Banking Associations

Based on the survey, the banking community in the LAC region seems keen to adopt open finance. Associations from Bolivia, Ecuador, Brazil, Colombia, El Salvador, Guatemala, Honduras, Mexico, Panama, and Peru responded to the study. They can be divided into three main categories, with the consequent impact.

4.2.2.1 Perceived Benefits of Open Finance

Of the banking associations surveyed, 90.9 percent see open finance as having benefits (see Figure 4.7).

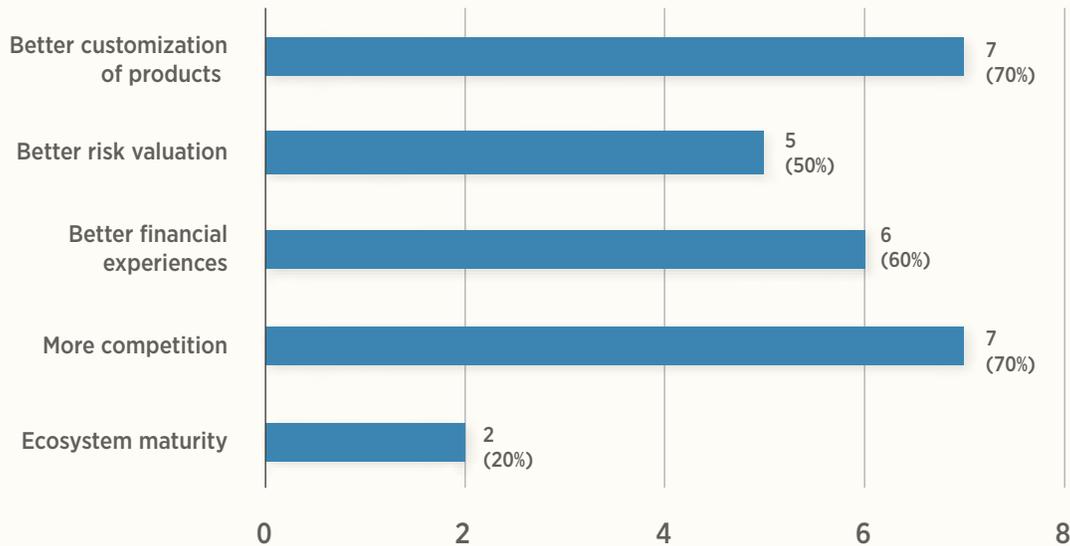
FIGURE 4.7 PERCEPTION OF VALUE OF OPEN FINANCE



Source: IDB and FDATA.

The survey highlighted several benefits that the banking community perceives can be achieved through open finance (see Figure 4.8). Better personalization of financial products (70 percent) and more competition among financial players (70 percent) are the most prominent benefits perceived by the banking community. The other benefits highlighted by the banking community include better financial experiences (60 percent), better risk assessment (50 percent), and a maturing of the ecosystem (20 percent).

FIGURE 4.8 OPEN FINANCE BENEFITS PERCEIVED BY THE BANKING COMMUNITY



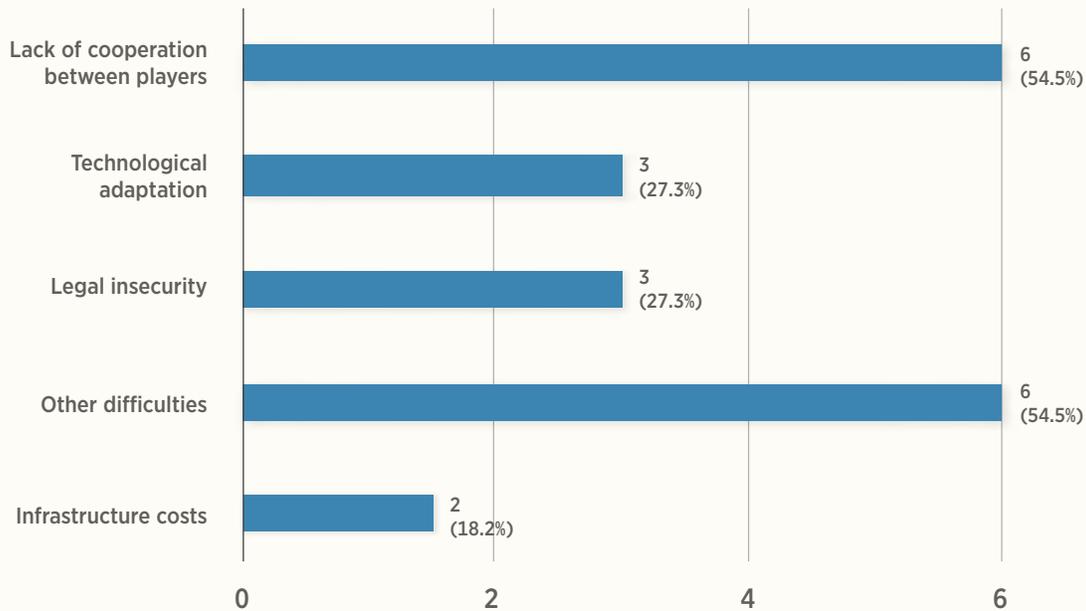
Source: IDB and FDATA.

Note: These categories do not add up to 100%. Respondents could select more than one answer.

4.2.2.2 Potential Challenges Anticipated

On the other hand, the banking community in the region is wary of the potential challenges that could arise from implementing open finance. The lack of cooperation between institutions (54.5 percent) is perceived as the most significant challenge that can hamper the progress in implementing open finance in the respective countries. Legal uncertainty (27.3 percent), technological adaptation (27.3 percent), and infrastructure costs (18.2 percent) are the other significant potential difficulties anticipated by the banking community (see Figure 4.9).

FIGURE 4.9 DIFFICULTIES TO IMPLEMENTING OPEN FINANCE



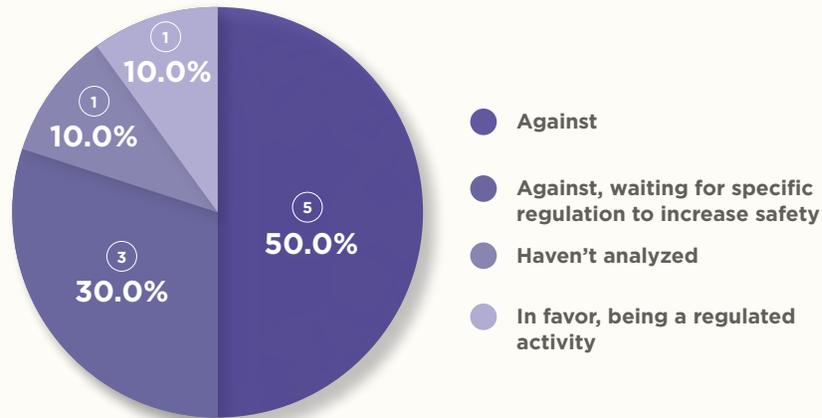
Source: IDB and FDATA.

Note: These categories do not add up to 100%. Respondents could select more than one answer.

4.2.2.3 Concerns about Market Practices Used to Collect Financial Data

As well as perceptions of benefits and challenges to implementing open finance, the survey also touched on the market practices used to collect financial data, such as screen scraping. The results suggest that around 50 percent of banking associations are against screen scraping, and approximately 30 percent expect specific regulations to be implemented to ensure greater security in the financial industry. The banking community's reluctance to accept screen scraping may have significant implications for developing open finance in the region (see Figure 4.10).

FIGURE 4.10 BANKING ASSOCIATIONS' STANCE ON SCREEN SCRAPING



Source: IDB and FDATA.

4.2.2.4 Conclusions

In conclusion, the banking community in the LAC region appears to recognize the potential benefits of open finance, such as better personalization of financial products and more competition among financial players. However, concerns from the banking community about potential challenges, such as a lack of cooperation between institutions and legal uncertainty, are evident. The banking community's stance on screen scraping may have significant implications for the development of open finance in the region, and it is crucial to address the concerns of the banking community to achieve a successful implementation of open finance.

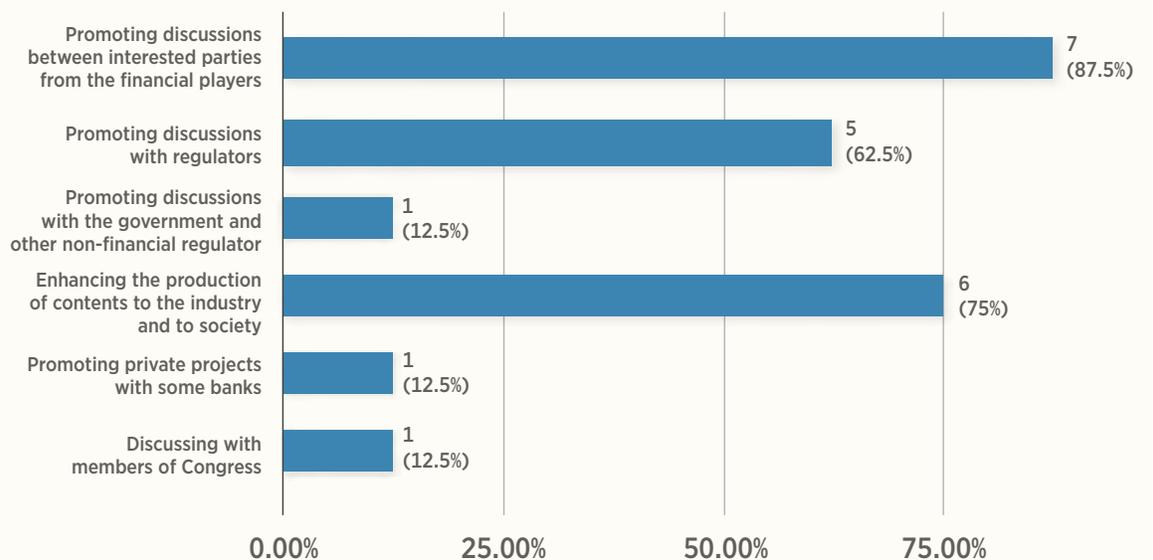
4.2.3 Answers Provided by Fintech Associations

Fintech associations are essential in promoting discussions with the financial sector and society. Eight associations answered the survey regarding open finance in LAC; the associations are from Argentina, Chile, Colombia, El Salvador, Guatemala, Mexico, Peru, and Venezuela.

4.2.3.1 Role of Fintech Associations in LAC

According to the survey, 87.5 percent of fintech associations in the LAC region are promoting discussions among financial players (banks, other financial institutions, and fintech platforms) about open finance (see Figure 4.11). Furthermore, 62.5 percent discuss with regulators, and 75 percent produce knowledge and communication materials for industry and society.

FIGURE 4.11 ASSOCIATIONS' ACTIVITIES RELATED TO OPEN FINANCE



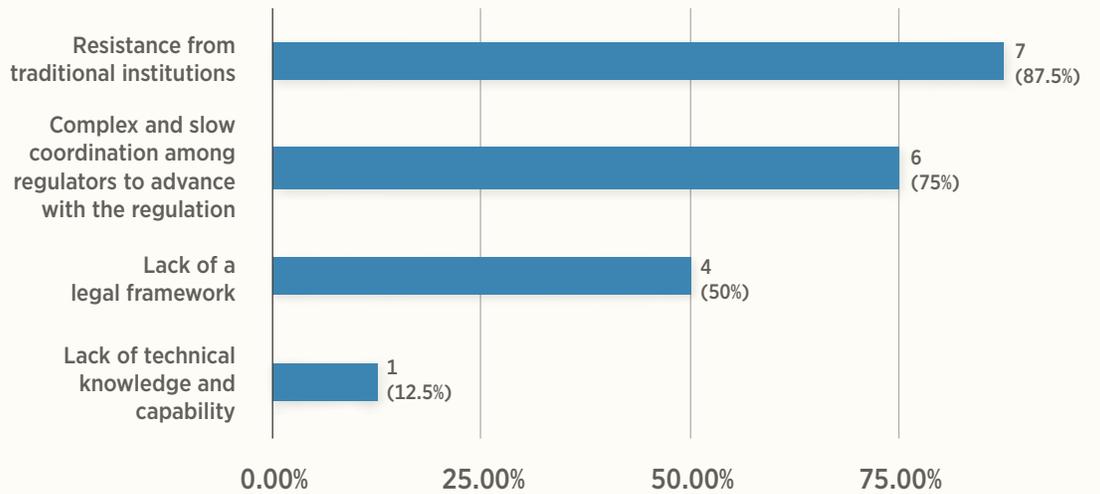
Source: IDB and FDATA.

Note: These categories do not add up to 100%. Respondents could select more than one answer.

4.2.3.2 Challenges to Open Finance

According to their survey responses, fintech associations consider two primary difficulties concerning open finance: traditional financial institutions' resistance to sharing their financial data (87.5 percent) and the slow coordination between regulators to advance a regulatory framework (75 percent) (see Figure 4.12).

FIGURE 4.12 CHALLENGES TO OPEN FINANCE PERCEIVED BY FINTECH ASSOCIATIONS



Source: IDB and FDATA.

Note: These categories do not add up to 100%. Respondents could select more than one answer.

4.2.3.3 Methods of Sharing Financial Data

When fintech associations were asked what methods were used to share financial data, four answered and they noted that two methods are used: APIs (75 percent) and screen scraping (75 percent). Half of the surveyed fintech associations in the region have a position in favor of screen scraping and defend a regulation that allows the practice, 25 percent are against it and 25 percent are neutral or not aware of this practice (see Figure 4.13).

FIGURE 4.13 FINTECH ASSOCIATIONS' STANCE ON SCREEN SCRAPING



Source: IDB and FDATA.

4.2.3.4 Conclusions

As seen, the fintech associations in the LAC region play a critical role in promoting open finance by facilitating discussions between financial players, regulators, and society. These associations produce informative content and have conversations with regulators, which will help to inform the creation of a regulatory framework for open finance. However, the associations perceive challenges in the form of resistance to data sharing from traditional financial institutions and the slow coordination. Fintech associations highlight the use of APIs and screen scraping as the main instruments used to share financial data. While the practice of screen scraping has some support among fintech associations and some opponents, survey responses suggest that clear regulation is considered necessary.

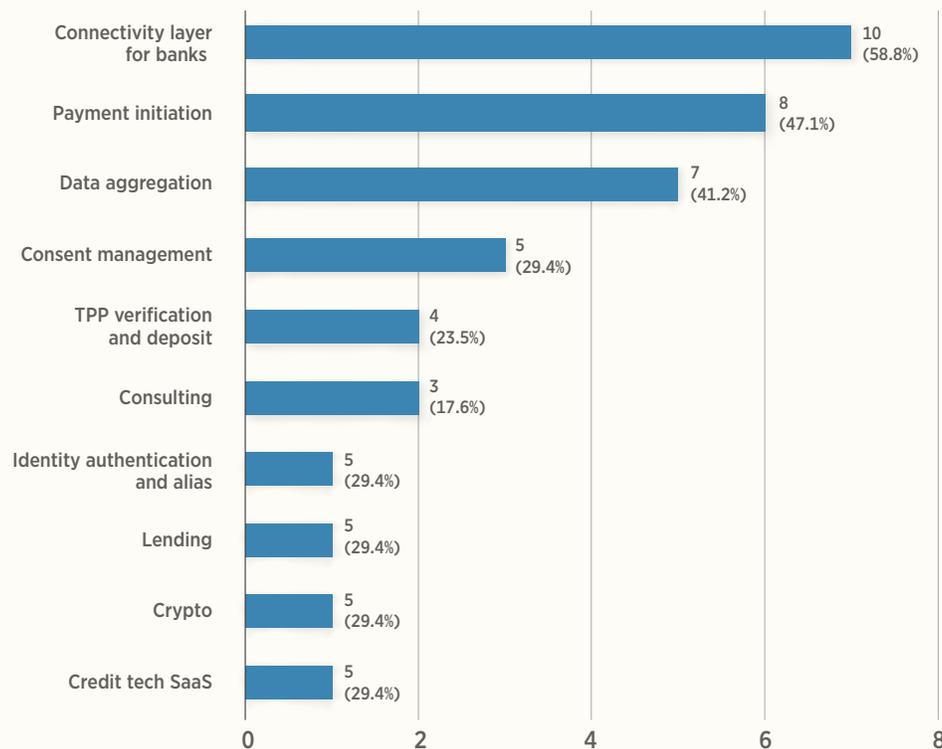
4.2.4 Answers by Open Finance Fintech Companies²⁸

In LAC, the presence of fintech companies offering open finance solutions is notable. Some of the prominent names are Belvo, Quanto, Finerio Connect, and Teros. The survey gathered information from 39 open finance firms, including 17 companies participating in the open finance ecosystem.

4.2.4.1 Open Finance Solutions Offered

Out of 39 respondents of the survey, 17 companies (43.6 percent) offer open finance solutions. Among these 17 offering open finance solutions, 58.8 percent offer a connectivity layer for banks, 47.1 percent offer data aggregation, and 41.2 percent offer payment initiation (see Figure 4.14).

FIGURE 4.14 FINTECH COMPANIES AND OPEN FINANCE SOLUTIONS OFFERED



Source: IDB and FDATA.

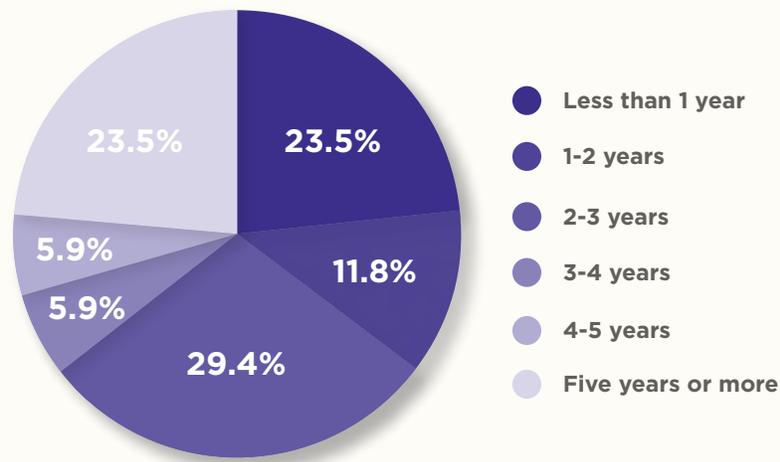
Note: These categories do not add up to 100%. Respondents could select more than one answer.

²⁸ The information and answers provided in this subsection may not be representative of the entirety of fintech companies operating with open finance in the Latin America and Caribbean region.

4.2.4.2 Duration of Operations

Among the 17 firms offering open finance solutions, most are fairly new operations (with under five years in operation) (see Figure 4.15).

FIGURE 4.15 FIRMS OFFERING OPEN FINANCE SOLUTIONS: YEARS IN OPERATION

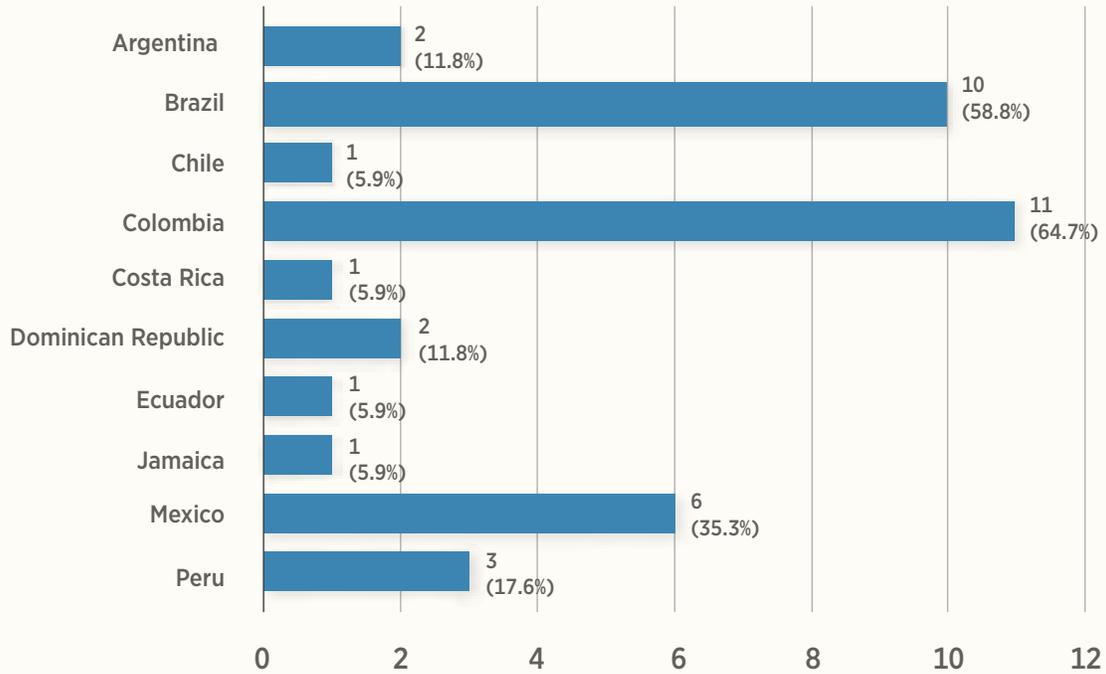


Source: IDB and FDATA.

4.2.4.3 Geographic Presence

Regarding their geographic presence, around 64.7 percent of all surveyed companies who responded to the survey operate in Colombia, 58.8 percent in Brazil, and 35.3 percent in Mexico (see Figure 4.16). Some companies operate in multiple countries.

FIGURE 4.16 FINTECH COMPANIES: WHERE THEY OPERATE IN LAC



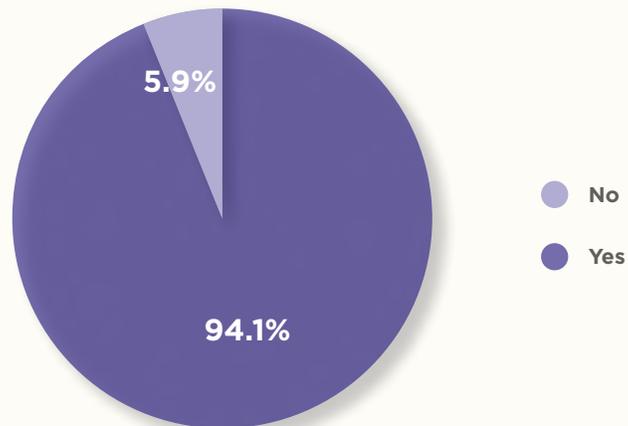
Source: IDB and FDATA.

Note: These categories do not add up to 100%. Respondents could select more than one answer.

4.2.4.4 Regulation's Impact on Open Finance

According to the respondents, most (94.1 percent) believe that the pre-existence of regulation of financial data sharing positively impacts the growth and maturation of open finance (see Figure 4.17).

FIGURE 4.17 IMPACTS ON OPEN FINANCE BY PREVIOUSLY ENACTED FINANCIAL DATA-SHARING LEGISLATION



Source: IDB and FDATA.

4.3 Challenges Faced

Considering that regulation related to open data and privacy in the LAC region is still developing or in the early stages, and the belief that the pre-existence of regulation positively impacts the growth and maturation of open finance (see Figure 4.19), it is not surprising that around 54.5 percent of companies responding to the survey consider the lack of regulatory support as a challenge to implementing open finance (see Figure 4.18). Additionally, companies identified other factors that hamper the sharing of financial data, including pressure from banks (45.5 percent) and lack of financial incentives (45.5 percent).

FIGURE 4.18 CHALLENGES TO OPEN FINANCE PERCEIVED BY COMPANIES



Source: IDB and FDATA.

Note: These categories do not add up to 100%. Respondents could select more than one answer.

4.4 Assessment of Open Finance in the LAC Region

This subsection overviews open finance implementation in some countries in the LAC region. As IDB's data shows, as of March 2023, only five jurisdictions in the LAC region have issued and have implemented open finance regulations or are in the process of doing so (see Figure 4.19).²⁹ Mexico and Brazil were, respectively, the first and second countries in the region to adopt open finance regulation and have made significant progress in its implementation. In contrast, other countries in the region, including Colombia, are moving toward implementing open finance regulation. In Ecuador, a fintech law through which the regulator seeks to regulate fintech activities was enacted, and it is anticipated that there will soon be implementation guidelines for open finance.³⁰

²⁹ For more information, see IDB (n.d.).

³⁰ Ecuador's law is available from Ecuador Buscador de Oficinas (BDO Ecuador), (2023).

FIGURE 4.19 FINTECH REGULATION IN LAC



Source: IDB (n.d.).

The remainder of this section presents an overview and some detail for the following countries in the LAC region: Argentina, Brazil, Chile, Colombia, Ecuador, and Mexico (Table 4.1).

TABLE 4.1 SELECTED LAC COUNTRIES AND APPROACH TO IMPLEMENTING OPEN FINANCE

REGULATED IMPLEMENTATION OF OPEN FINANCE	OPEN FINANCE THAT IS MARKET DRIVEN
<ul style="list-style-type: none"> • Brazil • Chile • Colombia • Ecuador • Mexico 	<ul style="list-style-type: none"> • Argentina

For Brazil, Chile, Colombia, Ecuador, and Mexico, the overview includes the results of interviews with bank organizations, fintech associations, and regulators and supervisors. In contrast, Argentina has its central bank regulating aspects of digital transactions, and it has a fintech industry interested in implementing the interoperability of financial data.

Note that other countries, such as the Dominican Republic and Peru, have expressed their interest in implementing the regulation soon. While these two examples are not described in this section, they are among the LAC countries surveyed, with the results summarized earlier in Section 4. Still other countries in the LAC region have not started to openly discuss regulating an open finance ecosystem, and they have not been addressed in this section.

As each country described in the following overview is at a different stage in implementing open finance, the descriptions vary in structure and depth. The analysis includes topics such as the history and status of open finance implementation, type of participation, third-party access, implementation objective, governance, technological requirements, security measures, implementation model, privacy protection and rights, and data scope and products covered.

4.4.1 Brazil

As noted earlier, Brazil was the second country in Latin America to adopt an open finance regulation; however, it has been the fastest jurisdiction in terms of implementation. Establishing multisectoral governance to ensure the equal participation of all financial players (incumbents and fintech companies) has been fundamental for the ecosystems evolution.

4.4.1.1 Open Finance History and Status

Discussions around open finance began in 2019 when Brazil's central bank convened a meeting of financial sector representatives to discuss possible implementation of open finance in the country. The central bank issued Resolution Number 1 on May 4, 2020, which consolidated the initiative.³¹

The central bank established interoperability standards between various financial authorities in May 2022, providing greater clarity and interoperability legislation within the infrastructure of open finance.³² This interoperability will allow data sharing in a standardized fashion between several institutions authorized by the central bank and SUSEP, the entity responsible for overseeing insurance and pension markets.

³¹ Brazil's Resolução Conjunta N° 1, de 4 de Maio de 2020 is available in Portuguese at <https://www.in.gov.br/web/dou/-/resolucao-conjunta%20n-1-de-4-de-maio-de-2020-255165055>.

³² Brazil's Resolução Conjunta N° 5, de 20 de Maio de 2022, is available from Banco Central do Brasil (BCB) in Portuguese at <https://www.bcb.gov.br/estabilidadefinanceira/exibenormativo?tipo=Resolu%C3%A7%C3%A3o%20Conjunta&numero=5>.

4.4.1.2 Type of Participation

Participation is mandatory for financial institutions included in regulatory Segments 1 (S1) and 2 (S2) as defined by the Central Bank, for example with assets of at least 10 percent of GDP, and for institutions holding demand or savings or prepaid deposit accounts. As well, institutions that initiate payment transactions and institutions that have signed a corresponding agreement in Brazil are required to participate in open finance.

4.4.1.3 Third-Party Access

If third parties can fulfill the API's technical criteria for data transmission and are included in the participants' directory maintained by the central bank, these additional institutions are welcome to participate in the ecosystem voluntarily.

4.4.1.4 Objectives

The primary goal of the regulator in implementing open finance was financial inclusion—specifically, facilitating access to financial markets and favoring the inclusion of those not yet served by banks. The regulator also set objectives of encouraging competition in the financial and payment systems; transparency, which requires improving the quality and flow of information in the market and related to the central bank; and education, which encourages savings and conscious participation in the financial market.

4.4.1.5 Governance

In 2020, Brazil's central bank created a governance structure. The so-called Initial Structure is composed of the following:

- A deliberative council responsible for defining the internal regulations, structure, and guidelines for the groups, and for approving norms and specifications
- A secretariat responsible for organizing and coordinating the daily activities
- Technical groups, which are responsible for preparing studies and technical proposals in accordance with the work plan defined by the deliberative council and the central bank³³

The deliberative council consists of seven members (chairs) and includes representation from associations from different sectors. Three chairs are from the banking and cooperatives sector and three are from the fintech companies, digital credit, and digital payments sectors. To ensure all deliberations can be approved, one chair is an independent councilor, who has no direct

³³ These documents and studies from the working groups are used by the deliberative council to help with the decision-making process.

contact with any companies involved in implementing the structure. Everyone on the council has an equal say in decisions.

Participation in the technical groups is open to employees of both participating institutions and nonparticipating institutions of members of the associations with a seat on the deliberative council. According to the Biannual Report from Open Finance Brazil (Open Finance Brazil, 2022), more than 600 people participate in the technical groups. There is also a transparency portal where society can follow the infrastructure participants.

4.4.1.6 Technological Requirements

The requirements for APIs used to share financial data are established by financial regulator legislation. However, institutions must agree on technical rules and operational processes for implementation by a vote of their representatives on the deliberative council.

4.4.1.7 Consumer Consent

The regulation sets out detailed requirements for obtaining the explicit and informed consent of financial consumers to access their data and initiate payments, and consent can be revoked at any time.

4.4.1.8 Security Measures

Brazil's central bank issued Resolution 4,658 in 2018, establishing new cybersecurity standards for financial organizations.³⁴ The institutions must ensure their risk management policies, strategies, and structures outline decision criteria and comply with legal standards when contracting for data processing, storage, and cloud computing in Brazil or overseas.

Brazil's open finance regulation is built upon international data-sharing security rules approved by the UK. Institutions wanting to participate in the ecosystem must pass functional security tests and get OpenID Foundation (OIDF) security certifications. According to the central bank, R\$91 million has been disbursed in the development of open finance through June 2022, with more than 75 percent allocated to developing the technical infrastructure and cybersecurity of the ecosystem (Open Finance Brazil, 2022).

³⁴ Brazil's Resolution CMN 4,658 of April 26, 2018, is available in English at <https://www.bcb.gov.br/ingles/norms/Resolution%204658.pdf>.

4.4.1.9 Privacy Protection and Rights

In 2018, Brazil published its data-protection law (LGPD),³⁵ a regulatory framework for protecting personal data in Brazil that regulates the activities of processing personal data, whether on the internet or not. The data-protection law came into force on September 18, 2020.

The LGPD serves as the legal foundation for open finance in Brazil. On the one hand, open finance creates a standard for sharing data in the context of the financial system, but on the other hand, LGPD is a law designed to preserve the privacy of individuals in all fields of activity. The LGPD defines personal data as any information that may be used to identify an individual, such as their name, Cadastro de Pessoas Físicas (CPF, or Natural Persons Register, which is the Brazilian individual taxpayer registry identification), address, phone number, and so on. When a Brazilian establishes an account or employs a financial service, it is typical for them to supply this information.

The LGPD was enacted to provide the data subject with greater insight into how their personal data is being used by those controlling the data. Open finance is an organized implementation of LGPD within the financial system, but the underlying premise is identical.

4.4.1.10 Implementation Model

Brazil adopted a phased implementation, divided into four phases:

1. Related to the availability of public information (such as characteristics of banking products and services, as well as the location of ATMs and bank branches) in a standardized format, not involving financial consumer data
2. Related to sharing financial consumer information with consent
3. Associated with initiating payments via the instant payments system, PIX, which was implemented in 2020
4. Related to open data on insurance, pensions, investments, etc.

Data scope

- account and transaction data
- customer identification data
- generic product data
- payment initiation
- transaction data on insurance, pensions, investments, etc.

³⁵ Brazil's law 13,709, of August 14, 2018, is available in Portuguese at http://www.planalto.gov.br/ccivil_03/_ato2015-2018/2018/lei/l13709.htm. See International Association of Privacy Professionals (2020) for the text in English.

4.4.2 Chile

Chile's fintech law went into force at the beginning of February 2023.³⁶ Chile is now establishing working groups and discussion committees to implement around 70 financial technology and innovation regulations.

4.4.2.1 Open Finance Status

Chile's regulators have approved a series of regulations favorable for the evolution of open banking in the country. The first step toward implementing open banking in Chile occurred in 2020 when President Sebastián Piñera signed the Financial Portability Law.³⁷ That law made it simpler for individuals and businesses to transfer between service providers for financial services, including bank accounts, credit cards, mortgages, and loans.

On August 6, 2021, law number 21,365, known as the Interchange Rates Law, was enacted. This law regulates payment card interchange fees (transaction fees paid by the merchant bank) to increase payment market competition.³⁸ In that same year, law number 21,314 established new transparency requirements and reinforced the responsibilities of market agents, introducing more competition and improvements in financial consumer protection.³⁹

Alongside these new regulations, the Ministry of Finance commissioned research on the changes required to develop a framework for open finance in Chile, to enable swift and secure data interchange between financial firms. A study (Montoya and Celedon, 2021) suggested creating an open finance framework in Chile and outlined a clear framework for collaboration between banks and fintech.

Congress passed a comprehensive law for the fintech industry (and noted earlier) in October 2022. It was proclaimed by the Chilean president on December 22, 2022, published on January 4, 2023, as law number 21,521, and went into force 30 days later, on February 3. The law received support from IDB. According to Chile's Financial Market Commission during the interview phase of the study, the the fintech law will "encourage innovation, financial inclusion, the growth of new sources of credit and small firms, and increased competition on the financial market."

The new law allows the regulator to authorize newly regulated companies and other audited entities to enable an API to promote the exchange of consumer information, which would be a

³⁶ Chile's law 21,521, published on January 4, 2023, is available in Spanish at <https://www.bcn.cl/leychile/navegar?idNorma=1187323&id-Parte=10393560>.

³⁷ Chile's law 21,236, published on June 9, 2020, is available in Spanish at <https://www.bcn.cl/leychile/navegar?idNorma=1146340>.

³⁸ Chile's law 21,365, published on August 6, 2021, is available in Spanish at <https://www.bcn.cl/leychile/navegar?idNorma=1163384>.

³⁹ Chile's law 21,314, published on April 13, 2021, is available in Spanish at <https://www.bcn.cl/leychile/navegar?idNorma=1158144>.

significant step in implementing open finance. Under Article 3 of the new fintech law, the CMF should issue regulations to ensure the implementation of open finance within 18 months.

While open finance regulation is not yet implemented, Asociación de Bancos e Instituciones Financieras A.G. (Association of Banks and Financial Institutions, ABIF), BancoEstado, and the Association of Fintech Companies of Chile (FinteChile) have signed a framework agreement that establishes security standards, responsibilities, resolution procedures, access protocols, and mechanisms for reading data from financial consumers in a controlled manner via screen scraping. The framework agreement is entirely voluntary for banks and fintech businesses alike. It is set out to advance the country's open finance system and is supplemented by bilateral agreements.

4.4.3 Colombia

Colombia has been making progress toward establishing an open finance framework. Colombia has also proposed adding payment initiation as a payment system activity that participants in this sector can carry out.

4.4.3.1 Open Finance Status

Colombia has published Decree 1,297 of 2022, which sets out the requirements for a voluntary framework for open finance and the definition of standards by the Superintendencia Financiera de Colombia (SFC).⁴⁰ The SFC is the Colombian government agency responsible for overseeing financial regulation and market systems to preserve stability, security, and confidence, and to promote, organize, and develop the securities market.

Decree 1,297 specifies the rules around consumer data exchange, established the administration of digital platforms and services, and regulated payment initiation services (PIS). The consolidation of financial security and stability, the expansion of access to the payment system, and the strengthening of institutions are also mentioned in the decree.

Some open finance platforms were already active in Colombia before the law established a framework for them. Law 1,581 of 2012 (the “Habeas Data” law)⁴¹ and Law 1,266 of 2008 (the “Habeas data financiera” law)⁴² gave citizens the power to decide with whom they want to share their information, as well as when and where to do so. Open platforms may ask consumers and companies for authorization to share their data with third parties, such as a financial institution,

⁴⁰ Colombia's Decree 1,297 substituted Decree 2,555 of 2010. The text of Decree 1,297, of July 25, 2022, is available in Spanish at <https://dapre.presidencia.gov.co/normativa/normativa/DECRETO%201297%20DEL%2025%20DE%20JULIO%20DE%202022.pdf>.

⁴¹ Colombia's law 1,581, of October 17, 2012, is available in Spanish at <https://www.funcionpublica.gov.co/eva/gestornormativo/norma.php?i=49981>.

⁴² Colombia's law 1,266 of December 31, 2008, is available in Spanish at <https://www.funcionpublica.gov.co/eva/gestornormativo/norma.php?i=34488>.

a tax institution, or any other source. More recently, the SFC has instructed supervised entities to adopt the latest version of standards when carrying out all types of monetary operations that are carried out by using QR codes, in an attempt to standardize information in the payments ecosystem.⁴³

4.4.4 Ecuador

Ecuador enacted a fintech law in December 2022.⁴⁴ The fintech law, known as the Organic Law for the Development, Regulation, and Control of Technological Financial Services, identifies five different types of activities: (i) infrastructure technologies to channel means of payment; (ii) technological financial services; (iii) specialized companies for electronic deposits and payments; (iv) technological services of the stock market; and (v) technological insurance services.

Article 19 in the law defines a new classification for data within the financial services industry, including: reserved, confidential, and open data. Finally, the law determines that the Junta de Política y Regulación Monetaria (Monetary Policy and Regulation Board) will implement the necessary arrangements for the private financial system to provide open banking services, which includes APIs for validation of their account information in order to facilitate interoperability with fintech companies.

4.4.5 Mexico

Mexico was the first country in the LAC region to issue regulations for financial data sharing through APIs. Mexico's fintech law of 2018⁴⁵ was an essential step toward rules published by Mexico's National Banking and Securities Commission (CNBV) in 2020. The law was issued with support from IDB.

4.4.5.1 Open Finance History and Status

In 2016, Mexican regulators were evaluating the United Kingdom's fintech legislation, resulting in frequent interactions with the UK's FCA. The primary purpose of the discussions was to bring British knowledge to Mexico and assist Mexico in establishing a robust environment for innovation in Latin America.

⁴³ See Colombia (2023), SFC Circular Externa 005 of 2023 regarding the EMV® QR Code Specification for Payment Systems (EMV QRCPs) Merchant-Presented Mode or Consumer-Presented Mode. The text is available in Spanish at <https://www.ambitojuridico.com/sites/default/files/2023-03/CIR-EXTERNA-005-SUPERFINANCIERA-2023.pdf>.

⁴⁴ Ecuador's fintech law, published on December 22, 2023, is available in Spanish at http://www.edicioneslegales-informacionadicional.com/webmaster/directorio/2SU215_2022.pdf.

⁴⁵ Mexico's fintech law, published on March 9, 2023, is available in Spanish at https://www.diputados.gob.mx/LeyesBiblio/pdf/LRITF_200521.pdf.

Due to its relationship to the UK, Mexico was able to receive assistance from the Prosperity Fund, a British fund to promote economic growth and reduce poverty in partner nations. In 2018, with support from IDB, Mexico passed its fintech law to foster the growth of innovative financial technology enterprises. Article 76 of the law stipulated drafting a rule focused on open finance, and in 2020, the country published broad rules establishing technical and security requirements for APIs.

4.4.5.2 Type of Participation

Article 76 of the fintech law mandates establishing APIs that permit interconnectivity between financial institutions, money transmitters, credit information companies, clearing houses, regulated fintech companies, and companies authorized to operate with new models (World Bank, 2022).

4.4.5.3 Third-Party Access

Access to the APIs of financial institutions requires prior authorization from the CNBV. As well, the regulator requires that participants comply with the technical and safety standards of the APIs.

4.4.5.4 Objectives

Financial inclusion was one of the objectives of Mexico's financial regulators in implementing open finance in the country (Mexico, 2020).

4.4.5.5 Governance

In Mexico, the regulator was responsible for drafting the technical standards, and there is no portal about the initiative where members of the the public and industry can track the evolution of the ecosystem.

4.4.5.6 Technological Requirements

According to the fintech law, the CNBV in Mexico has the authority to set the technical standards for the interoperability of APIs and their governance, security, and consent processes.

4.4.5.7 Security Measures

Financial authorities might mandate that institutions adopt standard APIs for ecosystem interoperability. To this purpose, in 2020, the CNBV adopted general rules that set out technical and security requirements for APIs. Furthermore, the collected data may only be utilized with the consent of the financial consumers. If there is a threat to the data or the provider does not follow the data exchange rules, the institutions will be denied access to the information.

4.4.5.8 Privacy Protection and Rights

In implementing open finance, regulators addressed the fundamental right to privacy regarding the user's financial information and thus the need for secure and interoperable access.

The Mexican Constitution recognizes the right to privacy as a fundamental right. In January 2017, Mexico passed a privacy protection law (the General Law for the Protection of Personal Data Held by Representatives).⁴⁶ This law aims to provide the foundations, principles, and processes necessary to protect personal data.

In addition, Mexico has a data-protection authority, the National Institute for Transparency, Access to Information, and Personal Data Protection, or INAI, which, in addition to regulating and executing the laws, regulations, and guidelines, offers company-specific guidelines and recommendations.

4.4.5.9 Implementation Model

Open finance implementation in Mexico is divided into four phases:

- exchange of public data through APIs
- standardization of aggregated data (statistical information, such as age and gender)
- standardization of the exchange of transactional data (personal information and financial data)
- regulation of other types of data

There is uncertainty about the deadlines for the phases, but the expectation is that all phases will be completed in 2023.

Data scope

- account and transaction data
- customer identification data

4.4.6 Argentina

Argentina has been taking steps toward open banking, with the country's central bank implementing new regulations and initiatives to encourage digital payments and promote interoperability. In May 2022, the board of the central bank (Banco Central de la República Argentina, or BCRA) adopted new measures to regulate virtual wallets, requiring banks, fintech companies,

⁴⁶ Mexico's data privacy protection law of 2017 is available in Spanish at <https://www.gob.mx/indesol/documentos/ley-general-de-proteccion-de-datos-personales-en-posesion-de-sujetos-obligados>.

payment services providers, and digital wallet administrators to enable financial consumers to link other accounts. This regulation will allow financial consumers to make payments and transfers through one digital wallet, using funds deposited in another account, ultimately promoting greater convenience and accessibility in digital payments (Fintechnews Switzerland, 2022).

4.4.6.1 Open Finance Status

The Argentine government has not yet regulated open finance. Nevertheless, some previous regulations are paving the way for future implementation, just as the market has already acted indirectly to create the foundations for open finance. According to the BCRA, 48.3 percent of locations have at least one access point to financial services (Argentina, Banco Central de la República Argentina, 2020). The Argentine government is working toward an agenda that promotes digital transformation and financial inclusion in the country.

The BCRA released a series of communications in 2021 related to financial services and cybersecurity. In January 2021, Communication A 7208 established rules for accessing ATMs with fingerprint readers to facilitate money withdrawals.⁴⁷ In April, Communication A 7266 required financial institutions and payment service providers to develop a contingency plan for cyberattacks and implement control and prevention measures.⁴⁸ In July, Communication A 7326 mandated verification measures for financial institutions and payment service providers that offer payment accounts through digital wallets or similar services.⁴⁹

Finally, Transferencias 3.0, a real-time digital payment method that allows users to pay through transfers from any of their bank or payment accounts, was launched in November 2021 and reached over 2 million transactions in less than two months (Argentina, Banco Central de la República Argentina, 2022). The new payment system complies with the ISO 20022 standard, which standardizes payment systems worldwide, making the system international.

In May 2022, Argentina took a big step toward open finance regulation. Through Communication A 7514, the BCRA described measures to improve the operation of the electronic payment system, emphasizing that digital wallets will be able to expand the scope of their services by allowing financial consumers to register accounts—either cash or payment—provided by other financial entities or payment service providers (PSP).⁵⁰

⁴⁷ Argentina, Banco Central de la República Argentina (2021a). The text of BCRA Communication A 7208 is available in Spanish at <https://www.bcra.gob.ar/Pdfs/comytexord/A7208.pdf>.

⁴⁸ The text of BCRA Communication A 7266 is available at <https://www.bcra.gob.ar/Pdfs/comytexord/A7266.pdf>.

⁴⁹ The text of BCRA Communication A 7326 is available at <https://www.bcra.gob.ar/Pdfs/comytexord/A7326.pdf>.

⁵⁰ The text of BCRA Communication A 7514 is available at <https://www.bcra.gob.ar/Pdfs/comytexord/A7514.pdf>.

Despite not having a specific open finance regulation in Argentina, some market players have taken the first steps to establish the foundation for an open finance ecosystem. The following examples show the market's interest in open finance.

- **Banking as a Service (BaaS) Model**—BIND (an industrial bank) and Poincenot technology studio worked as partners to design, build, and deploy the first BaaS model, bringing fintechs and traditional companies the possibility of accessing their financial data and products efficiently using open APIs. Through these open APIs, companies can integrate their legacy systems into the bank systems to make payments, collections, investments, reconciliations, and more in an efficient and safer way. According to Poincenot (2021), the initiative allowed the bank to process over 8 million transactions during April 2021, in contrast to only 1.3 million transactions in the same month of the previous year. As well, this initiative allowed the bank to incorporate 250 new financial consumers with high transactional activity from the business segment.
- **MODO digital wallet**—The MODO digital wallet is an initiative created by a consortium of 39 public, private, and cooperative banks to help users make payments. However, it should be noted that this is an associative model: it is not open to the entire fintech and financial market, and users cannot choose which other members of the infrastructure can access their banking information.

4.5 Conclusions

As seen, various countries in the LAC region are progressing toward implementing open finance regulations. Brazil and Mexico have taken essential steps by establishing such regulations, although each jurisdiction is advancing at its own pace. While Brazil had its open finance governance ensured by the Brazilian central bank, with the standardization of APIs being central to the implementation phases, Mexico is moving toward implementing a transactional data regulation, which could contribute to the open finance governance implementation. Colombia and Chile are also heading toward a regulated open finance structure, having recently approved legislation to implement the regulation and data sharing and privacy discussions. While Argentina's central bank regulates aspects of digital transactions, the country is tending toward a market-driven approach, with some players in the financial industry adopting some measures to ensure a foundation to an interoperable data ecosystem. As noted earlier, other countries, like the Dominican Republic and Peru, have expressed their interest in implementing open finance regulation soon, and still other countries in the region are not yet openly discussing open finance.

5 Industry and Regulatory Best Practices and Recommendations for Open Finance Implementation



This section will guide the financial industry, regulators, and supervisors in considering international best practices and regional distinctions by defining principles for setting a specific regulatory framework for open finance in the LAC region. The core idea behind open finance is to place financial consumers at the center of the financial system, allowing them to provide explicit consent for new financial service providers or authorized third parties to consult the consumers' financial information. As described before, placing financial consumers at the center will enable TPPs to offer or facilitate offering financial consumers new financial products and services better suited to their needs, offer better terms, or initiate payment transactions directly with the available funds in the consumers' own accounts (A2A). An open finance ecosystem can promote greater competition and financial inclusion, as it establishes standards for agile and secure data sharing in a standardized format via interfaces that protect security and privacy. It also reduces existing information asymmetries between different financial providers.

The regulatory framework for open finance can contribute to handing power over data to the consumers themselves, allowing them to obtain better conditions for financial services and products, whether that means facilitating access to the financial market for underbanked consumers, reducing prices and switching costs for banked consumers, or facilitating data portability. In addition, a robust regulatory framework can hasten the implementation of this ecosystem. One of the primary responsibilities of the regulator in this task is to ensure that consumers' trust in this data-sharing mechanism is warranted and valued, as trust is crucial for the ecosystem.

5.1 Initial Steps to Open Finance

This section primarily addresses *establishing* the regulatory framework for open finance. However, many steps, phases, considerations, recommendations, and best practices in open finance are interrelated *and* relate to both implementing open finance and its oversight. The following list presents an overview of all recommendations and best practices before they are explored in detail. However, note that this list does not present sequential steps; indeed, the final two recommendations (regarding strong governance and institutional capacity) bring together many of the preceding considerations.

- Define objectives of open finance.
- Define types of participants and forms of participation.
- Define the scope of data to be shared.
 - customer-provided data
 - transactional data
 - valued-added customer data

- Set API standards for data sharing.
 - read/write API specifications
 - open data API specifications
 - trust framework
 - customer experience standards or guidelines
 - dynamic client registration specifications
 - management information reporting specifications
 - operating standards or guidelines
- Address data-sharing costs.
- Obtain consent from the financial consumer.
 - consent flow
- Plan for the liability model.
- Establish technical standards.
- Establish financial customer experience guidelines.
- Design strong governance.
- Strengthen institutional capacity.
 - legal and institutional frameworks
 - powers and authority
 - participants
 - roadmap/timetable
 - standards
 - developer solutions
 - governance for the implementing entity
 - governance for the oversight authority
 - dialogues
 - public-private dialogues
 - public-public dialogues
 - international dialogues
 - human talent
 - technological capacity
 - for regulatory entities
 - for implementation entities

5.2 Define the Objectives of Open Finance

It is essential that regulators, supervisors, and the financial industry define a clear objective for establishing the legal framework for open finance. They must also measure accomplishments, address challenges, and guide each other. As seen in Section 3, some jurisdictions, such as the EU, the UK, and Australia, initially intended to increase competition. In other jurisdictions, such as Brazil and Mexico, financial inclusion was the primary motivation for establishing the legal framework for open finance.

Jurisdictions must explicitly state their public policy goals in implementing an open finance ecosystem and initiate a dialogue with industry about those goals. Such implementation goals necessarily relate to the principles guiding data sharing for the consumers. These same principles (access, portability, interoperability, transparency, privacy, and data security) should guide the actions of all participants in the open finance ecosystem.

5.3 Define the Types of Participants and Forms of Participation

It is crucial that the regulatory framework clearly defines precisely what types of institutions will be required to share information, who may participate voluntarily, and who will be subject to special regulation (such as participants who provide services that involve not only reading data but also initiating payments). Establishing from the outset a broad regulatory perimeter for mandatory participation by financial institutions that hold significant amounts of customer data can have positive effects on financial inclusion and increased competition (Plaitakis and Staschel, 2020). These participating financial institutions, for example, would hold customer data such as account information, loans, and payments, and, in the future, could expand to include insurance, investments, and savings data.

5.4 Define the Scope of Data to Be Shared

We can consider financial data in three broad categories: information provided by customers, information generated from transactions, and value-added information about and for customers.

Customer-provided data

This is information customers provide directly to their banks. Examples are contact information, financial history, and payee lists for bill payments. Clearly, financial consumers “own” this information, and they should be able to dictate that their information be shared without restrictions.

Transactional data

This is information generated through transactions made by a customer’s account. Examples are withdrawals, transfers, and other transactions; account balances, and interest earned and/or charged. In the case of Brazil’s open finance system, examples of products that generate transaction data include regular deposit accounts, savings deposit accounts, prepaid payment accounts, postpaid payment accounts, credit operations, foreign exchange operations, accreditation services in payment arrangements, investments, insurance, and listed supplementary pension plans.

Value-added customer data

This is information that results from an effort by an entity that holds data to gain insights into a financial consumer. Some examples include credit scores, verification of income or assets, verification of customer identity, and data on an individual customer that has been aggregated across the customer accounts and standardized, cleansed, or reformatted.

Other value-added information is already public. This is called open data, and examples are service channels and ATM locations. As such data does not refer to specific financial consumers and does not involve personal data, sharing such data does not require consumers’ consent. This information is useful in two ways: (i) for developing financial product comparators or applications that provide financial consumers with location-referenced information about the point of services of financial service providers and (ii) as a mechanism for institutions to test technology and security standards for implementing APIs.

5.4.1 Data Scope Recommendation

For an open finance ecosystem, it is best to initially include (i) open data on financial products and service channels and services; (ii) customer registration information; (iii) transactional data on the use of financial products; and (iv) access to information required for the provision of payment initiation services (PIS). This recommendation suggests a wider scope for data sharing than what is found in jurisdictions such as Mexico.

5.5 Set Application Programming Interface Standards for Data Sharing

As introduced in Section 2, information is an essential asset for the financial system; for example, it allows for estimating risk for loans and designing personalized financial products. APIs are the paths through which information may transit from one financial institution to another. Regulation should signal minimum API standards for participants that follow the principles noted earlier to properly enable such information to be shared across the financial system.

As shown earlier, creating, issuing, and implementing standards for APIs is fundamental for financial consumers' financial information to be shared securely and easily with TPPs, subject to customer consent. A regulator-defined open finance regulatory framework can establish minimum standards for crucial aspects of operating the ecosystem—such as consent requirements, authentication requirements, information security, data protection, and consumer protection—and thus incorporate the necessary safeguards to mitigate the resulting risks.⁵¹

For API standards, the regulator needs to issue, communicate, and implement the following types of methods and parameters that govern how actors in the ecosystem participate. This recommendation follows the UK's OBIE specifications as a guide.

- **Read/Write API specifications** enable TPPs to access information, initiate payments, and create secure participant connections. Note, it is relevant here to remember that a payment is essentially a message from one financial institution to another about debits and credits to accounts. In API creation, FAPI (Financial-grade API) is increasingly seen as the best in class and gold standard for ensuring a secure ecosystem. Markets like the UK, Australia, Brazil, and Saudi Arabia are all based on FAPI security protocols. When referring to API

⁵¹ As noted previously, a good example for standards is offered by the UK's Open Banking Implementation Entity (OBIE). More information is available at <https://standards.openbanking.org.uk/>.

standardization for payment initiation, for instance, the international payment standards, ISO20022 for message definitions, and the data repositories are essential.

- **Open data API specifications** enable endpoints for web and mobile applications. These specifications include details of physical and digital endpoints. For instance, for ATMs, the data includes the identification of the ATM, services offered, and accessibility.
- A **trust framework** establishes the criteria for who can participate, what roles they can play (such as AISP or PISP), and how they can each verify their identity. Defining roles is essential to build a trust framework as is determining the **identity verification process** (such as obtaining a certificate from a trusted authority). Maintaining a list of authorized parties and their respective roles is also essential. However, building a **central directory** is not a critical requirement and is a design choice. In some cases, having a machine-readable list of authorized participants and trusted certificate authorities can be highly effective. In the case of Brazil and the UK, for instance, the creation of the central directory was chosen due to the complexity of the financial industry and the different existing regulators. For more complex ecosystems with multiple regulators, many roles, and certificate authorities, a directory can simplify working within the trust framework.
- **Customer experience standards (or guidelines)** ensure a consistent user experience, ensure unnecessary friction is avoided, and help establish trust among users. (Customer experience guidelines are elaborated later in this section.)
- **Dynamic client registration specifications** specify technical requirements to register the clients through APIs for TPPs so participants can make protected data requests after authorization. Third-party applications that access private data of the data owner after authorization are an example.
- **Management information reporting specifications** include the syntax (that is, the structure of statements in a computer language) for the data through standards such as JavaScript Object Notation (JSON).
- **Operating standards (or guidelines)** ensure an ecosystem with clear expectations for reporting, service level agreements (SLAs), and dispute resolution. An SLA describes the expected and acceptable service availability and performance to a customer, service provider, or both.

5.6 Address Data-Sharing Costs

We recommend sharing financial consumer information free of charge, with the financial consumer's consent. Of course, gathering, protecting, and sharing data has costs, but establishing accessible technical standards for the data transfer mechanism (such as a common standard API) should reduce costs, rather than bilateral negotiations. The most straightforward and equitable solution is for each party to pay for its technology and have the right to share data (with the financial consumer's consent) and to receive data from the other parties.

5.7 Obtain Consent from the Financial Consumer

Explicit consent to share data is crucial. Each participating institution must obtain consent from each financial consumer for the data required to perform the contracted service. Consent must be clearly defined and in writing.

As an institution's business model may depend on continued access to the data, the institution must have the means to discover and be notified if a client decides to revoke consent. As a result, withdrawal of consent may necessitate the termination of the client's contractual relationship with the participating institution. The participating institution must clarify to clients that they have the right to withdraw consent but that doing so will result in the cessation of service provision.

Note: this is later referred to as the consent flow, which is the process of obtaining the customer's consent to get, use, and share their data and managing that consent.

5.8 Plan for the Liability Model

The open finance responsibility model is crucial. When determining a potential loss, it is essential to have a thorough understanding of the various types of loss and risk materializations derived from operational, liquidity, market, and other financial risks. From this vantage point, one can define the monetary value of a loss, what recourse the consumer has, and the party responsible for compensating the consumer.

From a financial data perspective, there are two certainties of custodianship: the customer and the account servicing payment services provider (ASPSP), which is a term used in the EU directive called Payment Services Directive 2 (PSD2).

Many TPPs might have access to the same customer data. The above-mentioned certainties frame a basic structure of the liability model required for effective open finance:

- a method to make the customer whole when, through no fault of their own, they suffer loss
- a method used by firms to allocate blame and cost, which is accurate, fair, and reasonable
- a system to protect these regulated market actors from customers making fraudulent claims

Many TPPs are new businesses with thin capital models. They are often not regulated in the same way as banks, which hold significant balance sheet reserves to underpin the maturity transformation and risks associated with deposit banking and lending, or insurers, who also have balance sheet strength and reinsurance to distribute risk. If the TPP cannot pay from its resources, the customer should be able to rely on the TPP's insurance to pay the TPP to cover the loss. For example, in the EU and under PSD2, if the TPP cannot pay, the liability for making the customer whole rests as a contingent liability on the balance sheet of the cyberrisks insurance market that has provided adequate coverage to the TPP. However, there may be circumstances where the financial consumer suffers a loss and must be made whole where the insurer is not compelled to act to cover the loss. Therefore, jurisdictions investigating how to implement open finance must conduct scenario planning and thoroughly understand the scope of the various types of claims and potential scenarios for failure or contributing to failure.

5.9 Establish Technical Standards

As we saw in Section 1, TPPs initially accessed information from incumbent institutions via screen scraping, resulting in risks for financial consumers and costs for the TPP if the incumbent financial institution changed how it presented financial consumer information. Through the development of technical standards, pass/fail tests of compliance with these standards, and strict performance regulations, it is possible to mitigate data leakage risks and reduce implementation costs with the introduction of APIs. As we saw in Section 3, the lack of technical standardization in APIs in the EU led to less financial consumer adoption of the ecosystem than in the UK, as API calls between banks and TPPs contained significant flaws.

The lessons learned from the EU and UK experiences were critical to Brazil, for example, and shaped the regulator's view on standardizing such criteria—an important aspect incorporated into Brazil's implementation process. In the interviews conducted with the central bank of Brazil to create this report, it was said that the technological approach toward the APIs, in which a participant can connect with one player and thus with all players (due to standardization) is

one of the key success factors of this model. There is tremendous value in establishing technical standards, from both a technological perspective and an implementation perspective. The advantages include the following:

- reducing complexity and risk
- protecting financial consumers and all market participants in a cohesive ecosystem by reducing risks and creating certainty that TPPs can offer a complete service to all their customers
- minimizing security costs by significantly reducing the range of penetration testing and audit requirements
- enabling investment in customer-facing innovation, rather than tying up resources in the maintenance of plumbing (that is, the infrastructure and the back office requirements)
- making it easier for smaller firms (including smaller banks and TPPs) to participate, improving fairness and competition
- simplifying the ability to trace issues, assess fault, and allocate loss, which makes it easier to establish a liability model and better enables cyberrisk insurers to assess threats and perform during the underwriting and handling of claims
- enabling more rapid growth and better sharing of best practices across jurisdictions

5.10 Establish Financial Consumer Experience Guidelines

Financial consumer experience standards or guidelines are vital when developing the different elements of open finance. Consumer experience guidelines can be the starting point for standardizing how the consent flow is presented across all financial sectors as the implementation phases of open finance progress. The Brazilian open finance model also adopted such consumer experience standards guidelines as an essential piece of development and standardization, ensuring the user has a smooth user experience of the solutions powered by this system. This approach also worked well for PIX implementation, which drove strong adoption and made it very popular among users.

5.11 Design Strong Governance

Creating a strong governance structure is critical in any country interested in developing an open finance ecosystem. As it happened in markets such as the UK, Australia, and Brazil, the banking sector—as a significant piece of a broader financial ecosystem—was the starting point for implementing open finance and the initial focus in the process. This approach allowed for greater control in the process, as there are generally fewer regulatory institutions involved and a smaller subset of market participants. Newer regulation should aim for a long-term strategy, focusing on the key goal of an open financial sector, but connecting the many elements of the ecosystem (and its various actors) along the way.

A well-defined structure that allows for an integrated discussion with market participants is vital for a structured decision-making process. Most successful cases globally have a structure that includes working groups, strategic groups (a board to vote for the different aspects that need to be specified), and support areas (to ensure progress and deal with the daily interactions with participants and suppliers).

In some markets, it is possible to see a pattern: a structure is created for the implementation phases, which is then substituted once the whole system is running with a structure that is set and defined with the help of the market participants involved in the ecosystem. The UK provides an example with its OBIE, which was created initially and will be substituted by a new structure. In Brazil, a structure called Convention was created and it will be substituted once the open finance implementation process is completed.

Noting that open finance is an ecosystem, thus with many interrelated parts, the greater the scope of shared data and the greater the range and number of participants, the more important it is that the regulator with delegated authority establish governance that permits cooperation between different financial institutions and, in some jurisdictions, cooperation between different regulators. In countries with a specific regulator for the banking, insurance, and securities sectors, for instance, it will be the regulator's responsibility to establish clear rules for participation in governance for both the implementation phases and the final state, during the operation and oversight of open finance. It is also essential that the regulator ensure that all participants in this ecosystem have equal representation, and steering and decision-making powers (for example, through a council, as in Brazil) to ensure the ecosystem's sustainable growth.

5.12 Strengthen Institutional Capacity

For financial regulators and supervisors, implementing an open finance ecosystem has implications in terms of institutional capacity. Regulators and supervisors should strengthen the institutional capacity to better respond to the opportunities and risks posed by open finance throughout the regulatory cycle. Strengthening capacity involves understanding technological trends and emerging threats, analyzing trade-offs, identifying and addressing risks, and monitoring key performance indicators in implementation for a secure open finance ecosystem, among other factors. From an empirical point of view and as IDB has suggested in other scenarios, it is fair to say that institutional capacity divides into three fundamental, but interconnected issues: (i) legal and institutional framework, (ii) human talent, and (iii) technological capacity. We address these issues in turn.

5.12.1 Legal and Institutional Frameworks

The frameworks required for open finance initially relate to the appropriate institutional configuration and arrangements for financial authorities to exercise their powers and lead on topics such as open finance. Having specific legal and institutional structures devoted to open finance or fintech, or even different authorities (such as OBIE in UK), allows for clear powers and responsibilities, and enables effective implementation and supervision of the ecosystem.

The legal framework relates to putting regulations, rules, and standards in place that will allow the institutional framework to operate. Creating institutional and legal frameworks entails clearly defining powers and responsibilities inside the organization and institutionalized avenues for collaboration with key market participants and other relevant stakeholders.

5.12.1.1 Legal Framework

The most relevant enabler for an open finance ecosystem is the existence of regulations, a legal framework. First, jurisdictions must set out primary regulations (laws, acts, decrees) that are principles-based and that establish open finance. These first regulations should include: (i) the high-level fundamentals for open finance, including but not restricted to the ecosystem participants (account providers, TPPs, and others); (ii) general directions to rule their interactions in the ecosystem; (iii) the defined powers and obligations of financial regulators in implementation; (iv) how to guide and grant powers and obligations for the implementation phases; and (v) the defined obligations to create standards (e.g., APIs, ISO20022 for payments) and other general mandates.

Regulations should also be technology neutral to allow technologies to compete fairly and freely, avoid dependencies on specific providers or developers, but specify open and certified standards, as mentioned above.

Furthermore, regulations should align with three objectives. First, they should focus on the effects of the participants' activities on financial consumers and risks to those consumers, and how to protect the consumers and their data in the ecosystem. The second objective is to protect competition, concurrence, transparency and efficiency in the markets. Finally, regulations should consider both idiosyncratic and systemic risks, and their regulation should be proportional to the risks and activities of the participants who offer open finance services.

Consequently, the specific regulators should issue and enact the rules for open finance implementation. As mentioned above, these rules should include but not be limited to the following:

- **Powers and authority**—The regulators should clarify the entity (external or internal) who will have the powers and authority to implement open finance. The rules should include the authority's structure, specific responsibilities, and regulatory perimeter. The rules should also state the objective and purpose of the positions in charge of open finance implementation and oversight.
- **Participants**—Clear definitions of participants and their roles in the ecosystem are critical for determining rights and obligations. The rules should describe the technical, legal, operational, and regulatory requirements for their participation in the ecosystem. If necessary, the implementing documents should also include details for the creation of provider directories and other topics.
- **Roadmap/Timetable**—The regulator should signal timeframes for the different implementation phases for open finance. The main objective is to prepare the financial sector to deliver data and deploy technical adjustments for the implementation. These phases should indicate at least the following, among other details: (i) the type of data each phase will include; (ii) technologies, standards, and versions of the standards to be used; (iii) technical specifications for financial services firms, TPPs, and other actors; (iv) dates for testing and startup periods.
- **Standards**—The regulator should issue the technical standards for APIs and data management (including directories and dictionaries), among others. Besides the requirements noted above, the implementation phases must include issuing customer experience guidelines for open finance adoption, detailed operational guidelines, and security standards. Maintaining a Frequently Asked Questions section, signaling specific contacts for help with technical questions, and offering online resources, including technical solutions is also necessary.

- **Developer solutions, including sandboxes**—It is also important to offer open resources for technology developers. An interesting tool might be technology sandboxes, which allow opportunities to try out technologies, test, and collaborate. Rules for offering technical resources, including regulatory sandboxes, might be also included in the rules.

As shown in Section 4, the Brazilian regulatory approach, complemented by open architecture for payments systems and clear guidelines for mandatory standards, has allowed for the growth of the open finance ecosystem in Brazil. Other jurisdictions such as Colombia have put in place voluntary approaches for open finance, entailing the option to adapt to certain standards for information sharing. Mexico created several categories of data for the open finance ecosystem. In summary, and independent of the approach and characteristics for each regulation, implementation is crucial to allowing the ecosystem's growth, deterring or organizing practices such as screen scraping, and regulating the relationships among the actors in the sector, among other benefits. It is important to note that dynamic ecosystems tend to be located in regulated jurisdictions. The experience of UK shows how issuing proper rules and open standards for APIs and payments initiation, among others, and establishing a centralized authority with clear governance and structure, can ease the adoption of open finance.

5.12.1.2 Institutional Framework

Regarding institutional frameworks, first and foremost, it must be noted that open finance is a country-wide decision. As such, financial authorities (financial superintendencies, commissions, central banks) should work in tandem to properly implement and oversee this novel, comprehensive financial activity. The main recommendation is to have coordination mechanisms and clear definitions for both implementation activities and oversight activities.

To create an effective institutional framework, regulators and supervisors must create specific units or institutional arrangements, either inside or outside their organizations, to regulate and supervise the fintech industry and open finance. Dedicated departments or teams are required for financial authorities (extended for central banks when dealing with payments infrastructures) because of the differentiated, specialized type of sector that constitutes open finance.

As noted regarding legal framework, to implement open finance, the institutional change should come from administrative acts or regulations to create, modify, or add to the existing bylaws for creating entities. Additional entities for the oversight of the ecosystem can be created, if required, to avoid conflicts of interest emerging. Such conflicts of interest might appear due to the differentiated roles of implementing, regulating, and supervising the ecosystem.

Such changes to institutional/organizational structure usually require budgetary decisions. Open finance implementation and oversight have implicit and explicit costs that financial authorities should contemplate. Finally, with regards to the institutional framework, the authors recommend that the separate functions (at least implementation and oversight) should be explicitly independent.

In summary, strong governance requires many, related topics (Table 5.1). Note that it is relevant to highlight that in the initial phases both the implementation and regulatory paths should run parallel processes; hence, having clear governance and an institutional set-up is vital.

TABLE 5.1 GOVERNANCE

GOVERNANCE FOR THE IMPLEMENTING ENTITY	GOVERNANCE FOR THE OVERSIGHT AUTHORITY
<ul style="list-style-type: none"> • Rules should include a clear mandate and a governance scheme for the implementing entity, including its internal decision-making bodies (steering committee, secretariat, or other options), rules for decision making, detailed functions, etc. • If the country opts for an implementation entity, governance should define the powers for standard implementations, the promotion of open finance, research, and other related activities. • The implementation entity should be clearly named and should have an effective communication strategy for communicating with the participating institutions and the financial consumers. • The relationship with the oversight authority needs to be clearly stated, as well as what reports are to be provided and the reporting structure, and other conditions, if applicable. 	<ul style="list-style-type: none"> • Rules should define powers clearly and set out the structure for overseeing open finance. This includes addressing oversight functions, responsibilities, lines of report, committees, decision limits, and powers. • The framework for supervision should be related to the activities within open finance and the risks related to those activities. Note that it is vital to remember that there are several types of actors, including TPPs and incumbents. • Some authorities might be granted mandates for data management (directories), the building of directories, and other duties. Explicit governance should guarantee competitive neutrality, transparency, and proportionality.

Governance for both implementation and oversight functions is critical for the success of open finance. The above recommendations are based on the understanding that some regulators (including central banks) do not have the power to promote or foster markets, and regulation and the rules need to clearly state such purposes for implementing entities.

5.12.2 Dialogues

Any organizational change and strategy must be based upon and promote dialogue among the key stakeholders of the ecosystem, and this includes both the public and private sectors. As part of the plan for implementation and supervision of open finance, both implementation and supervisory authorities should plan for and facilitate dialogue with the industry. The public-private dialogue is key to listening, understanding, and internalizing the points of view from the industry and finding solutions. Permanent roundtables are a good idea. Also public-public dialogue is necessary, because of the blurry legal and regulatory perimeters in topics such as technologies and data protection, and the attributions of other authorities and public offices.

5.12.2.1 Public-Private Dialogue

The public-private dialogue should bring together the authorities with the participants and other relevant stakeholders (such as media) in a formal or informal process to achieve shared objectives in implementing and supervising open finance. One reason for such dialogue is that institutionalized avenues for dialogue with the private sector ensure collaboration and public-private information flows, which are critical for implementation. As noted in this study, implementing an open finance framework is only possible through empowering businesses to share data and jointly optimize market functioning. For instance, setting standards for payments and data sharing should come from a dialogue with the private sector and including a cost-benefit analysis to make efficient decisions. Also, establishing permanent roundtables to keep all actors and participants informed about decisions and advancements is critical. Finally, dialogue should be accompanied by an effective communication strategy that should reach financial consumers.

Another reason for such dialogue is that empirical evidence shows how exchanging information, experiences, and lessons learned is crucial to informing regulatory decisions and preparing the market for advancing the ecosystem. Ongoing and focused dialogue is critical to maintain a healthy bidirectional information flow. As well, putting in place a permanent roundtable with the open finance ecosystem participants to discuss the essential regulatory issues is recommended. In addition, periods for comment (for example, on the regulatory agenda and drafted regulations and rules) are a great tool for refining the contents of regulations. For crucial milestones (for instance, setting standards for APIs or payments), establishing specific dialogues and inviting the relevant actors and stakeholders, might be critical, as the UK experience shows.

Finally, regulatory innovations such as innovation hubs and regulatory sandboxes might be another opportunity for fostering the public-private dialogue. Dedicated channels for communication about open finance through innovation hubs might be excellent opportunities. Regulatory sandboxes might also be helpful in testing innovations, standards, technologies, and business models with the permanent oversight of the supervisors and under controlled conditions.

5.12.2.2 Public–Public Dialogue

As well as public–private dialogue, public–public dialogue is key. Given the nature of open finance, financial regulators must closely coordinate with other public sector institutions, such as competition authorities and institutions leading the data agenda (information technology and connectivity ministries, data-management agencies, identity agencies, and privacy watchdogs, among others). For instance, mandates for open data in the financial sector should consider the mandates of respective data-management authorities as described above. Another example comes from jurisdictions where payments mandates are overlapped for financial watchdogs and central banks; in such cases, rules regarding operational risk need to be defined. As with public–private dialogue, the benefits of public–public dialogue can be achieved similarly, with a mix of permanent roundtables for ongoing discussions, periodic dialogues, and specific dialogues.

5.12.2.3 International Dialogues

In addition to dialogues within a jurisdiction, countries working toward open finance will also benefit from discussions with other jurisdictions that have implemented similar frameworks or are in the process of doing so, to exchange experiences and learn from their implementation efforts. International coordination, learning from best practices, and sharing lessons learned are relevant tools for policymakers. Initiatives such as FintechLAC, from IDB, could be an instrument to leverage these connections and experiences.

5.12.3 Human Talent

Authorities must examine how to prepare the organization for approaching new financial innovation models, new technologies, and the financial sector’s transformation due to digital technologies and innovation.

As in any other organization, human talent is the most critical asset for financial regulators and supervisors. When working toward open finance, implementing it, and supervising the open finance ecosystem, financial regulators and supervisors should focus attention and resources to ensure their talent has sectorial and technical knowledge to plan, design, implement, and supervise the drivers and novel actors within the new ecosystem. Specifically, such talent includes personnel with technical knowledge (as new technologies are fundamental for the ecosystem), legal expertise (regarding compliance, competition, and concurrence), knowledge of risks (operational and liquidity risks), and operational experiences.

Some efforts that could aid in having a fit-for-purpose human capital range from identifying needs to building capacity. The following considerations apply to both the implementation and oversight functions, and address both upskilling in an existing workforce (learning additional skills) and attracting new talent.

First, authorities should systematically identify training needs and prioritize them according to the implementation phases and the emerging regulatory requirements of their context. The skills that organizations need will range from legal skills, to understanding data-sharing principles, or knowing about technologies such as APIs and standards such as JSON, to notable operational issues such as connectivity or ethical hacking.

Organizations should provide training in innovation and technology topics and in innovation-driven regulatory approaches, as well as training and exchange dialogues on specific issues with experts from academia and from the public and private sectors. Authorities must facilitate working groups and workshops to discuss and exchange ideas and methods to approach technology and new business models including open finance use cases.

Alongside the upskilling, regulators must attract new talent with skills that complement the organization's current skillset, technical knowledge, and experience. One specific example of the capacities needed is the issue of data collection, aggregation, and analysis. These efforts should be accompanied by deploying technological tools to conduct new data-driven functions. For instance, any supervisor should be able to oversee API-based organizations using technologies.

Finally, authorities must promote periodic training and dialogues to expose their employees to cases and best practices that are both local and international.

5.12.4 Technological Capacity

As the market evolves to more sophisticated use of technology and data, new data and technological tools are being used by public agencies to get a better understanding of risks, oversight, and compliance. Adopting technology based solutions tailored to specific needs calls for authorities to modernize technologically. Therefore, the third aspect of strengthening regulators and supervisors for open finance is using digital technologies to improve their functions. This applies to both regulatory entities and implementing entities.

5.12.4.1 Regulatory Entities

The modernization of regulators and the implementation of digital solutions for supervising open finance should ensure the sustainability and security of any development in coordination with relevant internal stakeholders, such as IT units. Part of that is the need to consider operational risks, such as cybersecurity risks, and provide plans and strategies to address them accordingly.

For instance, the responsibilities of receiving data from directories, the possibility of creating online resources for supervision purposes, and even the publication of dedicated web pages with the specific regulations, rules, standards, and guidelines, requires new technologies. Implementing RegTech or SupTech (which can be defined as the use of technology for regulatory,

supervisory, oversight and compliance purposes) and regulatory innovations must be supported by the capacity to, for instance, perform penetration tests for cybersecurity.⁵²

There is an opportunity to further collaborate with the startup and local business community to develop innovative solutions that are fit for purpose. For example, some jurisdictions use or explore RegTech or SupTech applications to improve their functions. For example, in the UK, the FCA hosted one TechSprint in 2016 focused on ideas to help to improve the efficiency of regulatory reporting (Financial Conduct Authority, 2016). The FCA also recently hosted a policy sprint on open finance, including implementation and monitoring (FinTech Global, 2022).

Finally, the budget for technological capacity is an important aspect of the oversight functions. Financial authorities should consider budgeting investments for the proper supervision of open finance.

5.12.4.2 Implementation Entities

Authorities charged with implementing open finance also must ensure they have the technological capacity for their functions. It is crucial that this capacity is in place and ready for use at the very beginning of the implementation. As with regulatory authorities, it all starts with communications and the rapid dispersal of information. For example, a functional web page is critical from the start.

Implementation also requires technical resources, for example, to implement the directory or directories, payee confirmation applications, and API applications. Technical requirements will also necessarily extend to cybersecurity and counter-fraud tools for the participants within the ecosystem. Implementation activities have many functions that are tied to technology and that require high-level technology and updated equipment, skills, and talent.

As with regulators, increasing the technological capacity for implementing entities means budgetary assignments for the initial efforts and for their maintenance.

⁵² A penetration test is “A method of testing where testers target individual binary components or the application as a whole to determine whether intra or intercomponent vulnerabilities can be exploited to compromise the application, its data, or its environment resources.” NIST SP 800-95 under Penetration Testing from DHS Security in the Software Lifecycle. Available at https://csrc.nist.gov/glossary/term/penetration_testing.

5.13 Conclusions

Open finance offers a revolutionary concept that provides a broader spectrum of financial products and services to consumers based on the principle of sharing financial consumers' data. Open finance allows for secure and efficient mechanisms for financial consumers to grant authorized TPPs to access their financial data, enabling financial products and services that align with their specific requirements. The open architecture model facilitates the standardized exchange of information and services among regulated financial institutions and other providers, with the customer's explicit consent. The open finance ecosystem is complex and requires regulations and rules to be operated for the benefit of the financial consumers.

In LAC, the implementation of open finance is still in its genesis. As noted earlier, some countries in the region have put in place regulations: Brazil, Chile, Colombia, Ecuador, and Mexico. Each of these countries is taking different approaches to open finance (regarding governance, open data definition, API standardization, and other aspects), and each is at a different stage in implementation. In contrast, Argentina is an example of a market-driven approach to open finance. The industry across the LAC region, including both incumbents (banking associations) and new entrants (fintechs), generally see open finance as an opportunity to expand the supply for financial services and products, increase competition, and create an ecosystem. However, implementing open finance in the region comes with challenges.

This text has stressed that institutional capacity is the most important aspect of developing the ecosystem, and this capacity can be addressed as three fundamental, but interconnected issues: (i) institutional and legal framework, (ii) human talent, and (iii) technological capacity. Institutional capacity for open finance (including regulation, implementation, and oversight) entails the proper regulation, rules, and standards, and, overall, transparency and proper communication. Proper communication requires dialogue in and between the private and public spheres, communication with the public, financial education, and financial literacy at large. Specific efforts, beyond financial supervision alone, are necessary to implement and maintain the open finance ecosystem. That means, proper regulation granting powers, authority, and governance to those entities whose function is related exclusively to the open finance ecosystem.

Human capital, or talent, is absolutely necessary to the development of open finance. This means the legal, operational, and financial personnel who understand the ecosystem and its very specialized intricacies. This need for human talent is complemented by the need for technological capacity that will allow both the oversight and implementing entities to work properly. Finally, the above requires budgeting, and leveraging the capacities from the private financial sector is always an option to implement the ecosystem.

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