

A Consumer-Centric Approach for Inclusion in Digital Public Infrastructures

Digital Public Infrastructure and its Opportunities for Financial Inclusion

Policy brief

Authors:



Marina Meira
G20 digital policy advisor,
Consumers International



Hannah Draper
G20 Digital Strategy Advisor,
Consumers International



Camila Leite Contri
Co-coordinator, Digital
Rights & Telecommunica-
tions Program, Brazilian
Institute for Consumers
Defense (IDEC)



Luã Cruz
Co-coordinator, Digital
Rights & Telecommunica-
tions Program Brazilian
Institute for Consumers
Defense (IDEC)



Alexandre Costa Barbosa
Independent Researcher,
Universität der Künste Berlin
(Design Research Lab)

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Consumers International is the membership organisation for consumer groups around the world. We believe in a world where everyone has access to safe and sustainable products and services. We bring together over 200 member organisations in more than 100 countries to empower and champion the rights of consumers everywhere.



Idec (Instituto de Defesa de Consumidores) is a non-profit consumer association, independent of companies, parties or governments. Founded in 1987 by a group of volunteers, our mission is to guide, raise awareness, defend ethics in consumer relations and, above all, fight for the rights of consumer-citizens on a variety of fronts: health, finance, sustainable consumption and, among others, telecommunications and digital rights.

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The Design Reserach Lab at the Berlin University of The Arts works on interdisciplinary design research projects that mediate the gap between technological innovations and people's real needs. With more than twenty researchers, we are exploring smart textiles, human computer interaction as well as communities in our digital society.

ABSTRACT:

Digital public infrastructure (DPI) in financial systems increases access to bank accounts, loans, and discounts for using instant payment systems. DPI also benefits businesses, especially small- and medium-sized enterprises, offering a safer and cost-effective alternative to credit card commission fees.

While DPI promises improved access, it can exacerbate existing inequalities. Those without internet access are further disenfranchised. Consumers with low digital literacy are at increased risk of fraud, data mismanagement, and discriminatory automated decisions.

Low-income women and rural populations are disproportionately at risk of financial exclusion. Vulnerable consumers are not systemically accounted for in digital finance transformation, with consumer advocates worldwide participating in only 20% of their countries' deliberations about new technologies.

This article investigates the impacts of DPI, highlighting best practices and learnings from Pix Brazil's instant payment system, Pix. It argues that for inclusive digital financial transformation, DPI must adopt a consumer-centric perspective, safeguarding the mutual dependency between consumers and enterprises.

»DPIs are considered to be fundamental to accessible and inclusive digital interactions.«

»DPIs, especially digital payment methods, promise a range of societal benefits.«

To meet this objective, stakeholders should acknowledge consumers' interests and support them to exercise their rights. Governments should advance policies promoting digital and financial inclusion by investing in connectivity and literacy, regulating financial service providers to ensure trustworthy and transparent DPI, and prioritizing public solutions. Direct consumer participation and representation in relevant national policies and infrastructures should be fostered. Businesses should create safe and data-protected financial infrastructures with contextually adequate risk mitigation in compliance with legal requirements.

Ultimately, to advance the global economy and overcome inequalities, the G20 can set consumer-focused government and business standards for financial DPI, building on the *2022 G20/OECD High-Level Principles on Financial Consumer Protection* and examining Brazil's Pix system.

INTRODUCTION

While the definition of digital public infrastructure (DPI) is still evolving, its adoption across much of the globe is widely acknowledged. The United Nations Development Programme states that DPI is a combination of: "networked open technology standards built for a public interest,

enabling governance, and a community of innovative and competitive market players working to drive innovation, especially across public programs" (UNDP, n.d.). The World Bank, similarly, describes DPI as "digital platforms - including the institutional and legal frameworks around them - that enable the provision of essential society-wide functions and services" (T20 India 2023 - Official Engagement Group of G20, 2023), while 2023 G20 task forces came up with dozens of definitions. Nevertheless, a general agreement that DPI consists of three core layers has emerged: identification (ID), payments, and data exchange (World Bank, 2022).

DPIs are considered to be fundamental to accessible and inclusive digital interactions: they are designed to enable the provision of fundamental services through long-lasting, effective operating systems. Notably, there are also concerns that most DPIs, including digital payment methods, operate under centralized, techno-solutionist architecture (Morozov, 2013), and governance models that prioritize quick profit over consumer rights and accessible design. The latter places consumers at the risk of financial disenfranchisement and exacerbates existing inequalities. Meanwhile, the financial sector is cut off from potential business opportunities that can develop from DPI designed with consumer inclusion in mind.

In this article, we examine both the design and implementation of payment systems; and, in particular, their promise of improved inclusion and effectiveness for consumers, governments, and businesses. We use Pix, the Brazilian digital payment method, as a case study to examine the potential benefits and risks of DPI. Fur-

ther, we assert that financial DPI must be designed and implemented with a consumer-centric perspective if we are to see inclusive digital financial transformation and safeguard the mutual dependency that exists between consumers and enterprises. Finally, we provide recommendations for governments, businesses, and the G20 to support the advancement of inclusive digital finance infrastructure.

Case Study: Pix, Brazil

Pix is a digital payment method that facilitates instant payments between Brazilian bank accounts, operating 24/7 and transferring money in seconds. Since the Brazilian Central Bank launched Pix in February 2020, it has established itself as the payment method most used by Brazilians - surpassing cash and credit cards. From its inception, until September 30, 2023, Pix logged 26 billion transactions with a value of BRL\$12.9 trillion, approximately €2.37 billion (Banco Central Altera Regras De Limites Das Operações via Pix, 2022). Due to its success, Pix has become a point of national pride, also inspiring other countries to develop similar digital payment methods (Folha de São Paulo, 2023).

Pix is a strictly online payment method, free for individuals to use, and offers businesses very low rates for transactions (Governo Federal Não Mudou Regras De Tarifa Para Pix, 2024). It also provides the scheduling of payments, cash withdrawals, and a free alternative to wire transfers. Moreover, Pix encourages healthy money management¹ by consumers as a short description of transactions can be provided.

Pix is a more inclusive payment method for both businesses and consumers than credit or debit card systems, which often

require minimum transaction amounts and charge high commission fees to vendors. Fees on small purchases, which are common in Brazil and other Global South countries, especially impact economically vulnerable consumers; circumventing these charges also helps to foster market competition by lowering barriers to entry for small and emerging enterprises.

Pix has become a hallmark of open, integrated, and versatile technology. Only a bank account and a Pix "key" (ID, email, or random self-generated code) are necessary to use it - because a user's Pix key is linked to their account details, it's not necessary to share the personal data and account numbers typically needed for bank transfers. Every bank in Brazil with more than half a million customers² is required to make Pix available, encouraging the widespread adoption of this service across Brazil.

The success of Pix demonstrates that DPIs can offer popular, efficient, inclusive, and accessible alternatives to private solutions (such as WhatsApp Pay) for digital payment methods, without raising concerns about market concentration and its implications for consumers' rights and choices (Sutto, 2021; Idec, 2021; Pignati, 2023).

Unfortunately, the ease of the Pix user experience has brought new challenges. For example, Pix has emboldened some forms of online fraud, often through social media sites³, usually involving personal data more typically protected by banks.

Pix has also put a strain on previously existing public security issues. Criminals have taken advantage of the instant payment capability, through stealing phones to facilitate multiple transfers in a short space of time. In response, Pix implemented a control, creating a transfer limit

between 20:00 and 6:00. Users can also control daily and monthly limits, and register trusted contacts that can be paid outside of these limits. Pix is an online platform, but as a fraud prevention measure it requires users to make any substantive changes through an ATM.

Despite the challenges, Pix continues to be a popular, affordable, and inclusive digital payment system and has led to the development of solid security standards for DPI.

DPI AND THE PROMISE OF FINANCIAL INCLUSION

The extensive and expeditious payment systems made possible by DPI offer an array of potential benefits for various stakeholders, including consumers, businesses, and governments. In terms of benefits to consumers in particular, digital payment methods are intended to:

Drive financial inclusion

The primary promise of financial DPI is to facilitate access to banking services, such as opening bank accounts, loan disbursements, and discounts, thereby creating opportunities for new consumers. DPI can also facilitate access to insurance and credit. When interoperably operating on a supra-national scale, DPI may also facilitate international remittances, which are vital during emergencies and crises, thereby improving livelihoods (Ansar, 2023).

Democratize the digital economy

DPI is designed to support individual and informal retailers by enabling affordable financial tools for micro-financial management, driving economic development. Additionally, the more consumers experience

the material benefits of digital payment methods, the greater consumers understand the need to familiarize themselves with adequate mobile device use and to have a proper internet connectivity plan.

Promote convenience

Digital payment methods provide a demand-oriented consumer experience, improving accessibility in financial transactions through fast, straightforward, and easy-to-use design, as illustrated by the popularity of Pix (Siagan et al., 2022).

Alongside potential benefits to consumers, digital payment methods may support higher rates of economic circulation, as well as allow governments to improve the efficiency of social programs. If properly integrated with social information management systems through broad and multistakeholder oversight, DPI can facilitate G2P transactions. Reducing administrative overhead can significantly benefit every activity that involves cash transfers, such as social welfare programs.

For business, benefits of digital payment methods include:

Cost-effectiveness

As in the case of Brazilian Pix, DPI offers low transaction fees, as a result of institutional multi-stakeholder efforts and technology-enabled, streamlined financial processes, reducing frictions and fostering operational efficiency (India's Unified Payment Interface's Impact on the Financial Landscape, 2023).

Inclusive innovation

Digital payment systems can help to level the digital economy playing field: they are accessible even to micro-enterprises and

allow national companies to compete on fairer terms with international ones.

DPIs, especially digital payment methods, promise a range of societal benefits; however, it remains critical to properly identify and systemically mitigate the unintended effects of these infrastructures, to prevent their expansion from having a regressive impact on consumers (There Are Risks but Also Big Potential Benefits From Digital Payments, 2023).

Risks to consumers

Digital payment methods may have a range of deleterious effects on governments, businesses, and consumers – with consumers most likely to be disproportionately affected (Putrevu & Mertzanis, 2023). The most significant risks of digital payment methods to consumers include the following:

Financial exclusion and inequality

Despite some examples of offline payment methods, DPIs largely rely on internet connectivity, adequate devices, digital skills, networking infrastructure, and a consistent energy supply. Reliance on digital transactions may exacerbate inequalities, especially for women and those living in remote or rural areas, especially in Global South countries. Finally, relying on DPIs as the primary way for governments to connect to citizens may create technological lock-ins, impeding opportunities for future changes.

Expansion of data-driven societies

While the availability of consumer data can support customized and personalized financial services and products, it also increases the possibility for consumers

to be manipulated by governments and corporations. The extensive adoption of digital payment methods leads to cultural shifts in consumer behavior, which might have unintended consequences, such as subjecting consumers to data-extraction business models and making alternative digital economy models unviable.

Lack of transparent and participatory regulatory frameworks

Many countries, especially from the Global South, are encouraged by international agencies to implement DPI without adequate transparency mechanisms in place, for example regarding data flows and automated decisions (Access Now, 2021). Many countries implementing digital payment systems do not have data protection laws and the capacity to enforce them, or effective digital financial regulation.

Furthermore, the absence of participatory mechanisms in the development of such infrastructures can limit social participation and agency over the technology. As a result, policies may not appropriately address the needs of consumers.⁴

»**Substantial and meaningful efforts must nonetheless be made to mitigate any unintended negative impacts on consumers.**«

Increased exposure to security risks

As with any digital system, DPI is susceptible to cybercrimes, such as phishing attacks, and data breaches. Vulnerabilities can be exploited to steal personal and financial data, and lead to identity theft, financial loss, behavior-tracking, and non-consensual data trading (BC comunica vazamento de dados de 238 chaves Pix, 2023). The regular occurrence of these events also jeopardizes the trust building between DPI and the financial system as a whole (Haidar, Karcze-ski & Paschoalini, 2023).

»That these systems will function well and support the growth of economies.«

These security risks exist beyond the digital environment: the fast and easy money transfer capacity of financial DPI can be easily exploited to commit crimes such as street robbery, kidnapping, and extortion (Reuters, 2023).

While DPI in payment methods creates many opportunities for diverse stakeholders, substantial and meaningful efforts must nonetheless be made to mitigate any unintended negative impacts on consumers.

Recommendations for Inclusive and Accessible Digital Payment Methods

To ensure digital payment methods are drivers of inclusive digital transformation, we recommend that governments:

Design and implement financial DPI from a consumer-centric perspective

Ensuring that consumers are at the center of the design and implementation of financial DPI ensures that these systems will function well and support the growth of economies. Features such as transparency, access to redress, safety, and privacy should be central to all DPI-related policies and design. Risks should be assessed regularly and mitigating measures put in place.

Regulate financial service providers

In locations where there is already digital financial regulation, robust transparency and accountability mechanisms must be in place. In countries without existing relevant legal infrastructure, it is fundamental that rule of law-based regulations precede the development and deployment of digital payment methods, especially at a national scale.

Ensure consumer participation in national regulation

There is a need and opportunity to establish multi-stakeholder advisory committees with the participation of consumer protection bodies and consumer-rights civil society organizations, who can represent consumers' interests.

Governments can also benefit from the creation of open innovation laboratories to foster consumer and civil society engagement and prototype new solutions and improvements based on experimentation and collaborative design.

Consider previous financial technical infrastructures

Governments must assess existing infrastructure, and consult with technical and

human rights experts to ensure existing capabilities are appropriately adapted to meet current needs and maximize inclusion.

In alignment with the above recommendations, we further suggest businesses should:

Implement safe and data-protected infrastructures

Businesses must proactively establish complaint and redress mechanisms and ensure other consumer rights. The establishment of good practices and effective communication are critical factors in characterizing companies' social responsibility regarding DPI.

Coordinate with governments and consumers for smart investments

Private organizations have a central role in managing and operating DPI, especially in the context of digital payment methods. Therefore, the sector must act in a coordinated and organized manner in conjunction with governments and consumer protection bodies to allocate investments for financial technologies effectively and produce results for all parties.

Commit to mitigating the risks to consumers

Companies can be drivers of inclusive digital transformation by adopting an approach based on mitigating risks to consumers from conception. Technological development processes must consider consumer principles from conception for this to occur.

Lastly, the G20 can play a key role in setting consumer-focused government

and business standards for financial DPI, for example, by building on the 2022 G20/OECD High-Level Principles on Financial Consumer Protection (OECD, 2022). Furthermore, the G20 can coordinate the development of a framework for an interoperable, open-source, and consumer-centric payment method based on evidence of benefits and risks from existing systems, such as the Brazilian Pix, assuring that the advancement of financial DPI and digital transformation is inclusive.

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⁴ For example, only one out of five national technology-related decisions made worldwide involve organizations working with consumer rights. This proportion can be greater with the introduction of highly centralized DPI technology and governance structures. See: *Fair Finance - Consumers International*. (n.d.). <https://www.consumersinternational.org/what-we-do/fair-finance/>