Designing and scaling Instant Payment Systems: Lessons from Nigeria and Ethiopia

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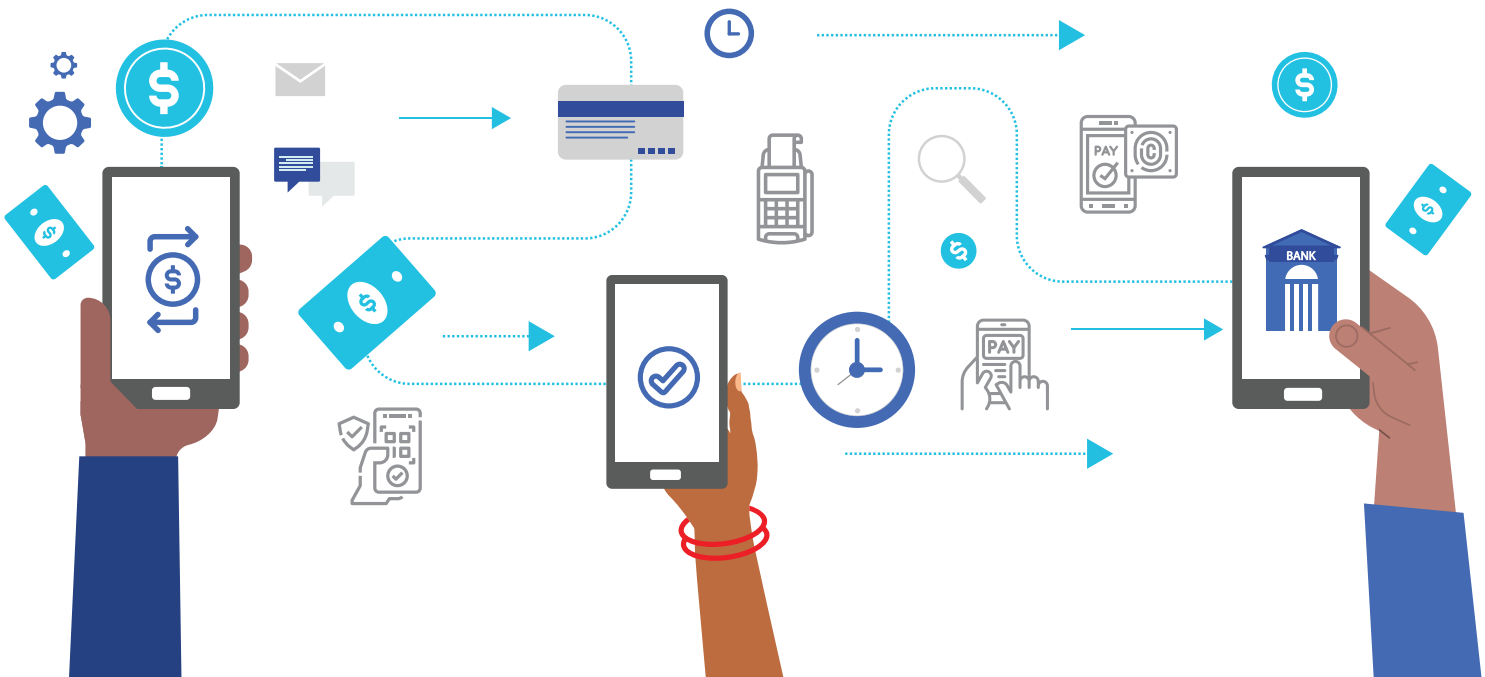
Table of contents

List of figures



Acknowledgements

This white paper is the product of a collaborative research effort between RegTech Africa and MSC (MicroSave Consulting). The authors are grateful to the individuals and institutions whose time, expertise, and engagement shaped the analysis.

From RegTech Africa, we extend our appreciation to Cyril Okoroigwe, Joy Chibuzo and Blessing Obiyomi for their guidance, contextual insights, and sustained support throughout this paper's development.

The research, writing, and analysis of this paper were led by Pallavi Balakrishnan and David Mathew of the MSC team, with support from Shrabasti Dhar. Disha Bhavnani, Brenda A. Oyugi and Akshat Pathak provided valuable review and feedback that materially strengthened the final paper. Rahul Ganguly, Bipasha Bhowmick, and Abha Das from MSC's in-house Editorial team and Dinesh Singh from MSC's Design team provided material support in the final draft and design of this paper.

We are grateful to the policymakers, regulators, payment system operators, and market participants in Nigeria and Ethiopia whose published work, public statements, and institutional documentation informed the case studies presented here. We also acknowledge the broader body of research and analysis produced by AfricaNenda, the World Bank, CGAP, the BIS, and the IMF, which provided essential reference points.

Finally, we express our sincere thanks to the readers and partners who continue to engage with the questions raised in this paper and, through that engagement, help advance the design of instant payment systems that are more inclusive, resilient, and sustainable.

List of abbreviations

Abbreviation	Full form	Abbreviation	Full form
AISP	Account information service provider	**NIP**	NIBSS Instant Payment
APIs	Application programming interfaces	**NPCI**	National Payments Corporation of India
ATM	Automated teller machine	**NPP**	New Payments Platform (Australia)
B2B	Business-to-business (payments)	**NPS**	National Payment Stack (Nigeria)
BVN	Bank Verification Number (Nigeria)	**NQR**	NIBSS QR (Nigeria Quick Response) payment standard
CBN	Central Bank of Nigeria	**P2B**	Person-to-Business (payments)
CoDi	Cobro Digital (Mexico's digital collection and instant payment platform)	**P2G**	Person-to-Government (payments)
CPF	Cadastro de Pessoas Físicas (Brazilian taxpayer ID)	**P2P**	Person-to-Person (payments)
DICT	Transaction Accounts Identifier Directory (Brazil, PIX)	**PAPSS**	Pan African Payment and Settlement System
DPI	Digital public infrastructure	**PIIs**	Payment Instrument Issuers
ETHQR	Ethiopia's national interoperable QR code standard	**PISP**	Payment Initiation Service Provider
FPS	Fast Payment System	**PIX**	Brazil's national instant payment system (scheme name)
FX	Foreign exchange	**POS**	Point-of-Sale (terminal)
G2P	Government-to-person (payments)	**PSD**	Payment Services Directive
GDP	Gross domestic product	**PSD2**	Second Payment Services Directive (EU)
IPS	Instant Payment System	**PSOs**	Payment System Operators
IVR	Interactive voice response	**RBI**	Reserve Bank of India
JAM	Jan Dhan–Aadhaar–Mobile (India's inclusion stack)	**RegTech**	Regulatory Technology
KYC	Know your customer	**RTGS**	Real -Time Gross Settlement
MPesa	Safaricom's mobile money service	**SEPA**	Single Euro Payments Area
MAS	Monetary Authority of Singapore	**SIIPS**	State of Instant and Inclusive Payment Systems
MDR	Merchant discount rate	**SPEI**	Sistema de Pagos Electrónicos Interbancarios (Mexico)
MFIs	Microfinance institutions	**SupTech**	Supervisory Technology
MMO	Mobile money operator	**TSA**	Treasury Single Account
NBE	National Bank of Ethiopia	**UPI**	Unified Payments Interface
NIBSS	Nigeria Inter-Bank Settlement System	**USSD**	Unstructured Supplementary Service Data
NIN	National Identification Number (Nigeria)		

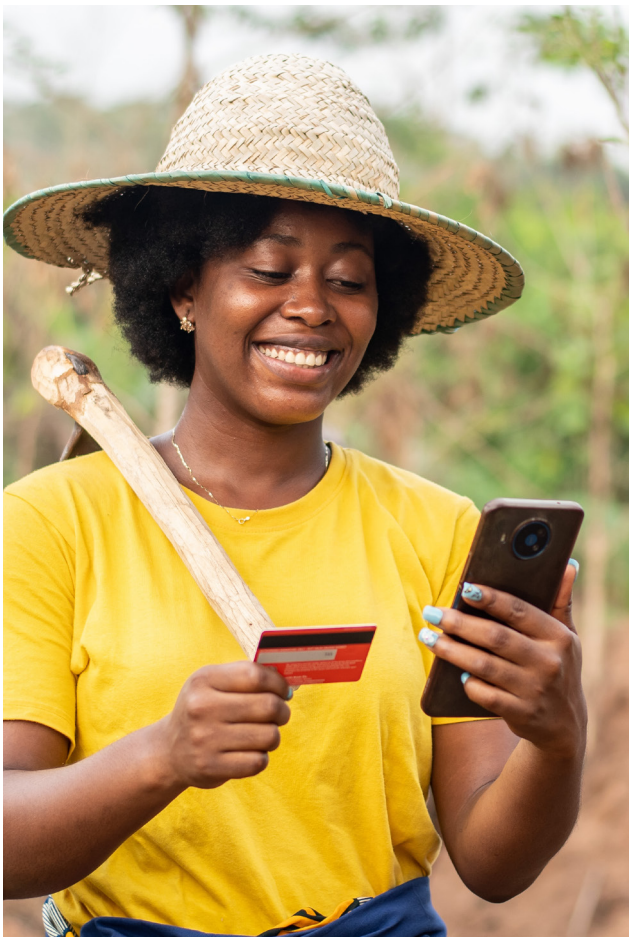
Instant payments as a backbone for African economies

Instant or fast payment systems have rapidly become part of the core infrastructure[1] through which modern economies move money between individuals, peers, businesses, and governments. Policymakers increasingly treat instant payments as a foundational public utility across low-, moderate-, and high-income countries alike. This shift is closely tied to the rise of digital public infrastructure,[2] which serves as a key pillar in a stack of solutions that deliver comprehensive, networked, and digital public services, from access to social protection to tax payments.

Because instant payment systems are a technical infrastructure, policymakers often approach them as if their success were primarily a matter of technical design. They assume that if they choose the right architecture, adopt the right messaging standard, and build the right switch, then scale will follow. However, payment systems do not scale simply because they are well-engineered. They scale when technical design is matched by pricing structures[3] users can afford, distribution channels they can access, governance arrangements participants trust, and use cases that make adoption worthwhile.

Worldwide, policymakers and the payments industry tend to look at existing successes as transferable models. They expect to identify a system that worked, replicate its architecture, and expect similar outcomes elsewhere, irrespective of the context of their markets. However, payment systems are not assembled in a vacuum.

What works in one market may fail in another[4] because the surrounding conditions are different. Ecosystem conditions vary, from the structure of the banking sector to the role of mobile network operators, or the politics of interoperability. Supply-side enablers vary across markets, such as the reach of digital identity infrastructure and the density of agent networks. Demand-side constraints, such as the degree of trust users place in formal finance, and the presence of enabling infrastructure, such as device access and network coverage, determine if digital payments are physically accessible. A one-size-fits-all payment system design is a weak theory of scale.



Some of the most important payment innovations did not begin as products of formal system design, but as responses to user behavior that institutions only later recognized and formalized. For instance, users, agents, merchants, mobile operators, banks, and regulators co-produced[5] the mobile money ecosystem by responding to incentives and frictions as they arose. That history reminds us that catalytic drivers of scale

lie in distribution networks, informal user practices, merchant behavior, or adjacent actors that operate outside the formal design perimeter.

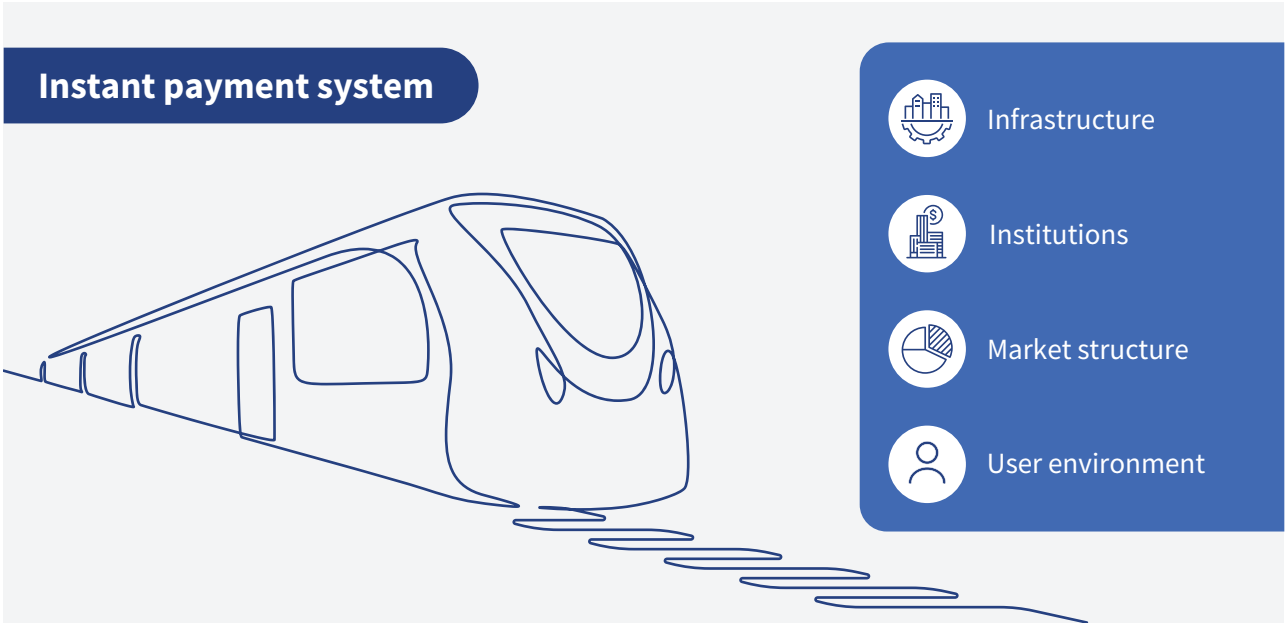


Figure 1: Key enablers that surround the fast payment system

When we use the term payment rails, we borrow from railway terminology to describe the underlying track on which value moves. While this metaphor is useful, it has its limits. Rails evoke order, direction, and controlled movement. They suggest that once the track is laid, the system's trajectory is set. In practice, payment systems do not develop in such a linear manner. If the infrastructure is designed too rigidly around the assumptions of its initial architects, it may fail to accommodate the actors, use cases, and behaviors that later prove decisive.

This white paper starts from that premise. It examines what it takes for fast payment systems to scale as an economic utility rather than remain a technical achievement. The paper uses a four-pillar framework that covers program design and infrastructure, governance and risk, market integration and inclusivity, interoperability, and cross-border connectivity. Together, these pillars provide a more holistic way of understanding scale as the outcome of how infrastructure, institutions, incentives, and user behavior interact over time.

This paper analyzes two large African markets, Nigeria and Ethiopia, which are building from very different institutional starting points and through different theories of change.

Selecting Nigeria and Ethiopia

Africa's instant payment systems have expanded rapidly. The continent now has 36 live systems operating across 31 countries that cumulatively processed 64 billion transactions worth nearly USD 2 trillion in 2024[6]. However, aggregate growth obscures a wide dispersion in design quality, participant depth, and genuine inclusion outcomes. The difference lies not in the existence of infrastructure and volume, but in the choices made around who can access it, on what terms, at what cost, and with what governance.

Nigeria and Ethiopia represent two large economies at different stages of that journey. The former is a market that has spent 15 years stress-testing its payment choices at scale. The latter is a market making these choices now in real time, with the benefit of that precedent, though with its unique context to build on. We unpack these two markets to illustrate two different ways to build a fast payments system.

Nigeria's NIBSS Instant Payment (NIP)[7], launched by the Nigeria Inter-Bank Settlement System PLC (NIBSS)[8] in 2011, developed through a model in which regulatory infrastructure preceded and enabled market competition. The Central Bank of Nigeria (CBN) established the oversight framework, set program rules, and shaped the pricing environment, while banks, FinTechs, and mobile money operators competed on distribution, product design, and customer acquisition on top of the system. Over time, the NIP became one of the continent's most deeply embedded instant payment systems, processing 11 billion transactions in 2024 alone. Its growth, however, has not eliminated persistent geographic, gender, and usage gaps, which suggests that scale in transaction terms does not automatically resolve inclusion constraints.

Ethiopia's model[9] differs in both timing and institutional orientation. EthSwitch is the national switch backed by the National Bank of Ethiopia and other financial-sector actors. It has spearheaded the development of a more centrally coordinated interoperability infrastructure, with EthioPay-IPS unveiled in late 2025 and launched operationally in February 2026. EthioPay-IPS enters a market where digital payments have expanded across bank and wallet ecosystems, but cross-provider interoperability remains incomplete. Its role is therefore less to digitize payments from scratch than to unify them on a common national payment system. Adoption at scale will depend on whether this infrastructure is matched by distribution, usage incentives, and routine uptake beyond state-led and institution-led channels.

Examined together, Nigeria and Ethiopia highlight the strategic choices that decide not just whether an instant payment system gets built, but who it reaches, at what pace, and on whose terms.

Goals of this white paper

This white paper seeks to equip policymakers and regulators with the analytical tools and practical guidance needed to design, evaluate, and strengthen instant payment systems that are genuinely inclusive and built to last.

It contains two tools drawn from global experience. The first is a playbook of lessons calibrated to the early, scaling, and mature stages of IPS development, which outlines what to keep in mind when designing an IPS. The second is a four-pillar framework that assesses whether a system is well-designed across infrastructure, governance, market reach, and interoperability, and operationalizes these lessons in practice. We then examine how these tools operate in practice, and why their application is rarely linear, through two African case studies of Nigeria and Ethiopia.

Nigeria is an example of a scaling market navigating the complexity toward becoming a maturing ecosystem, and Ethiopia shows the critical early stage where foundational choices will shape financial inclusion outcomes for a generation. Beyond system design mechanics, the paper broadens into development policy. It examines instant payment systems as digital public infrastructure and asks what it means to treat payment rails as a foundational layer of the digital economy, rather than a purely commercial service.

Chapter 1
An IPS playbook for policymakers

A set of interrelated design choices shapes the effectiveness of an instant payment system (IPS). These choices influence system performance alongside adoption, inclusion, and long-term sustainability. For policymakers, the central challenge is no longer to procure sophisticated technology alone. They must know what to do and in what order, given where their market actually is. This section translates lessons from global IPS experience into a practical playbook structured in two parts. The first part sets out 10 directives drawn from international experience. The second explains policy priorities sequenced across three stages of IPS maturity, which informs policymakers what to focus on and what to avoid at each stage of the journey.

10 principles for a successful IPS

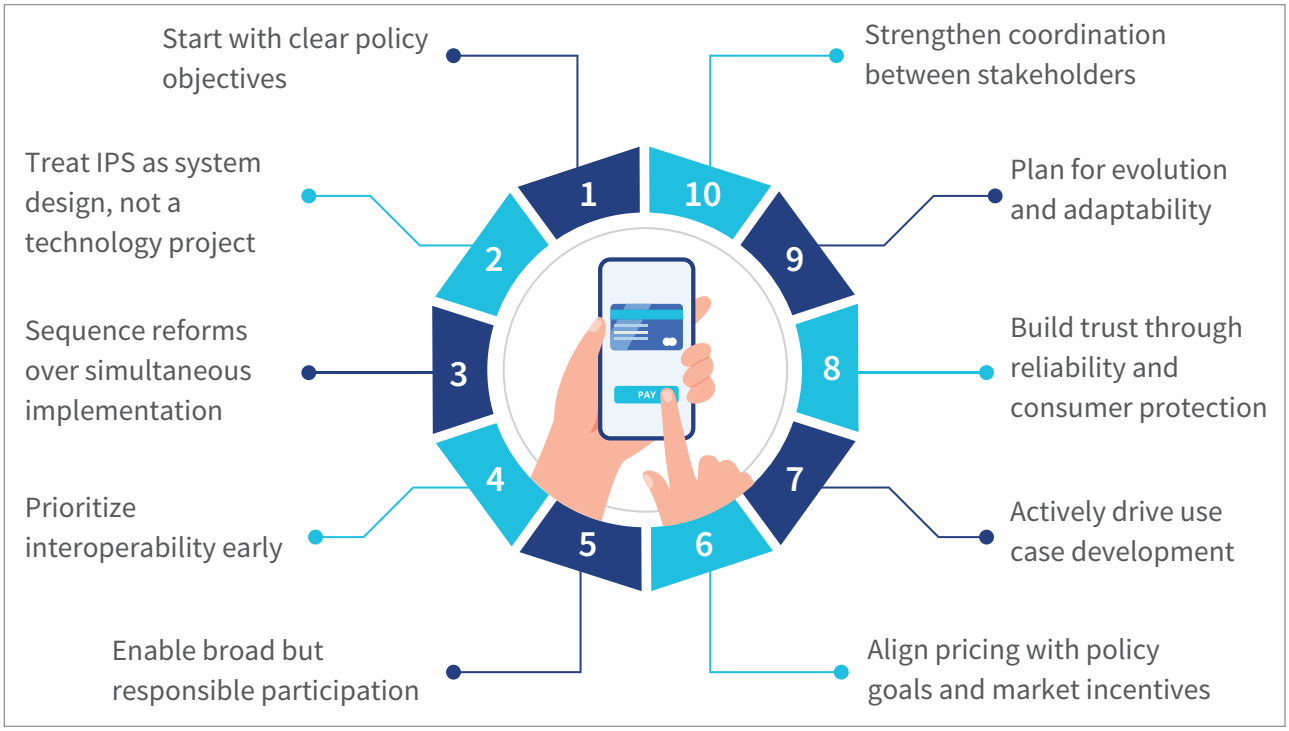


Figure 2: 10 principles for a successful IPS

1. Start with clear policy objectives

An IPS is often expected to serve multiple goals: Improve efficiency, expand financial inclusion, enable innovation, and support government payments. These objectives are not always aligned, and an attempt to optimize all of them simultaneously can lead to unclear priorities and inconsistent design choices. Policymakers should first define:

- The primary objective of the system in the near term;
- The desired long-term role of IPS within the financial system;
- How to account for the relative importance of inclusion, competition, and system stability.

For instance, India's UPI was conceived primarily for financial inclusion[10] and interoperability, and this clarity of purpose shaped subsequent design decisions, from zero-fee P2P transfers to mandated open APIs.[11] Brazil's PIX, by contrast, was explicitly positioned by the Banco Central as a competition and efficiency instrument, intended to break the dominance of card networks[12] and reduce the cost of electronic payments. Systems that lack this clarity tend to produce ambiguous design compromises,

which may slow adoption, such as early iterations of Mexico's CoDi, which sought to simultaneously serve inclusion, competition, and innovation mandates without clear prioritization.

2. Treat IPS as system design, not a technology project

The implementation of IPS is often approached as a technical exercise with the goal to build infrastructure. This approach underestimates the importance of governance, incentives, and ecosystem coordination. Effective implementation requires attention to:

- Institutional arrangements, which include roles and responsibilities;
- Regulatory frameworks, particularly for participation and oversight;
- Incentive structures, which affect provider behavior and user adoption;
- Coordination mechanisms that ensure alignment across stakeholders.

Kenya's M-Pesa illustrates what coordinated attention to the non-technical dimensions of system design can achieve. Though not a traditional IPS, its transformational adoption was driven by deliberate choices on agent network design, pricing, and user experience. These choices allowed it to reach 34 million Kenyans as of 2024. We should view IPS as a system design challenge that helps avoid situations where infrastructure is in place but underutilized.

3. Sequence reforms rather than attempting full implementation at once

IPS development is a multi-stage process. Attempting to address all design elements simultaneously can create complexity and delay implementation. Sequencing allows policymakers to manage trade-offs more effectively and adapt based on system performance. For example, reforms can:

- First, establish core infrastructure and governance arrangements;
- Then expand participation in a controlled manner;
- Enable interoperability across providers;
- Develop high-frequency use cases;
- And finally, work to refine pricing and incentive structures.

Brazil's PIX followed a deliberate sequencing strategy. The Banco Central[13] announced the system and established governance and technical standards in 2019. It onboarded participants under a clear regulatory mandate ahead of the November 2020 launch, and opened to P2P transfers, merchant payments, and government flows. Advanced features, such as PIX Saque (cash withdrawal at merchants) and PIX Troco (cashback at point of sale), were layered on in 2021.[14] Further innovations, such as PIX billing and enhanced security frameworks, followed in 2022.[15] This phased approach allowed each stage to build on proven foundations rather than overloading the system at launch.

4. Prioritize interoperability early

Interoperability is a key determinant of system usability and adoption. Systems that lack interoperability often struggle to achieve scale, as users cannot transact seamlessly across providers. Policymakers should:

- Establish clear interoperability requirements at an early stage;
- Promote common standards and protocols;
- Avoid the emergence of parallel, non-interoperable systems.

While interoperability can be phased in over time, delayed mandates tend to entrench dominant players before competitors can emerge. Kenya illustrates this as interoperability mandates arrived too late, which cemented M-Pesa's dominance[16] before Airtel Money or Telkom Kenya could mount a credible challenge. By the time regulators enforced true competition, M-Pesa commanded more than 90%[17] of the country's mobile money market. India's UPI avoided this trap by mandating interoperability from the outset, which ensured no single provider could capture the network before the rules were set.

5. Enable broad but responsible participation

Expanding participation beyond traditional banks can enhance innovation and improve access, particularly for underserved populations. However, suitable safeguards must accompany broader participation. Key considerations for regulators include ways to:

- Define eligibility criteria for participation;
- Implement tiered access models where appropriate;
- Strengthen supervisory capacity to oversee a diverse set of providers.

Brazil's approach to PIX participation is widely cited as a successful model for broad but disciplined participation. They admitted banks, payment institutions, FinTechs, and electronic money issuers under differentiated regulatory requirements.[18] This tiered approach enabled diversity from day one without sacrificing oversight. The European Union's revised Payment Services Directive (PSD2)[19] also expanded the regulatory perimeter to include third-party payment initiation service providers (PISPs) and account information service providers (AISPs). This inclusion broadened the competitive landscape and allowed new entrants to register and conduct requirements proportionate to the risks they pose. The objective was to enable competition and inclusion without compromising system integrity.

6. Align pricing with policy goals and market incentives

Pricing is one of the most powerful tools available to policymakers, but it is often underutilized or poorly calibrated. Pricing models should be designed with long-term sustainability in mind. Policymakers need to:

- Keep user-facing costs low enough to encourage adoption;
- Ensure that providers have sufficient incentives to participate and promote the system;
- Avoid pricing structures that discourage specific use cases, such as merchant payments.

India's experience illustrates the power and the issues of aggressive pricing. The zero-MDR (merchant discount rate) policy for UPI transactions drove explosive merchant adoption, but payment service providers went up in arms about the revenue model[20] for small-value transactions. The Indian government's subsequent introduction of a budgetary allocation to incentivize UPI providers[21] represented a partial correction, but the underlying tension between free usage and provider sustainability persists. In contrast, Australia's New Payments Platform (NPP), allowed market-determined pricing. This model preserved commercial incentives but led to slower consumer adoption than systems with lower user-facing costs.

7. Actively drive use case development

An IPS does not generate demand on its own. Adoption depends on the presence of relevant, frequent, and easy-to-execute use cases. Policymakers can:

- Integrate IPS into government payments, which includes transfers and collections;
- Support merchant acceptance through regulatory or incentive-based measures;
- Encourage innovation in payment applications and services.

India's decision to route direct benefit transfers through Aadhaar-linked bank accounts created an enormous, government-funded use case that introduced millions of previously unbanked citizens to formal finance and set the stage for digital payments. Brazil channeled COVID-19 emergency aid payments (Auxilio Emergencial) through Caixa Econômica Federal's digital social accounts.[22] PIX acted as an alternative payment option that provided critical social support and drove mass enrollment in the instant payment system. These examples show how government payment flows can serve as powerful catalysts for adoption. Focusing on use cases ensures that IPS becomes embedded in everyday economic activity rather than remaining a niche service.

8. Build trust through reliability and consumer protection

Trust is essential for sustained usage of IPS. Given the real-time and often irreversible nature of transactions, users must have confidence in the system. System failures or security incidents can quickly undermine trust. Policymakers should prioritize:

- High system reliability and uptime;
- Strong fraud prevention and monitoring mechanisms;
- Clear and accessible dispute resolution processes;
- Transparent communication with users.

The UK's experience with authorized push payment (APP) fraud underscores this point. Despite the technical success of the Faster Payment System (FPS), rising fraud volumes eroded consumer confidence until the payment systems regulator introduced a mandatory reimbursement regime in October 2024. [23] This required payment service providers to reimburse victims in most cases, with costs shared equally between sending and receiving firms. The lesson is that consumer protection frameworks must evolve in step with transaction volumes and act before trust erodes completely.

9. Plan for evolution and adaptability

An instant payment system is not static. As markets evolve, new use cases emerge, and technology advances, systems must adapt. Rigid systems that cannot evolve may become less relevant over time, even if they are initially successful. Policymakers should:

- Design systems with flexibility to accommodate future changes;
- Periodically review governance, participation, and pricing structures;
- Anticipate emerging issues, such as cross-border payments and fraud risks.

India's UPI has undergone several major iterations since its 2016 launch. It has added features, such as UPI Autopay for recurring mandates, UPI Lite for small-value offline transactions, and credit line functionality that links UPI to pre-sanctioned credit products. The system's modular, API-first architecture enabled each of these enhancements. It allowed new capabilities to be layered without disrupting existing functionality. Systems built on monolithic architectures face significantly higher costs and longer timelines when they attempt comparable evolution.

10. Strengthen coordination between stakeholders

The development of an IPS involves multiple stakeholders, which include central banks, financial institutions, payment service providers, government agencies, and development partners. Effective coordination is critical to:

- Align incentives and expectations;
- Avoid duplication of efforts;
- Ensure consistent implementation of policies and standards.

The development of Brazil's PIX model included a formal multi-stakeholder working group[24] convened by the Banco Central during the design phase, which gave banks, FinTechs, and consumer representatives input into system rules and technical standards. This consultative approach contributed to strong industry buy-in at launch. In contrast, systems where design is conducted primarily within the central bank, without structured industry consultation, can meet resistance or slow uptake from the institutions expected to promote the system to their customers.

Making choices based on the ecosystem's maturity level

An instant payment system does not operate in isolation. Its role and impact are shaped by its interaction with other elements of the digital and financial ecosystem. The guidance outlined above is not prescriptive. Different countries will make different choices based on their institutional context, market structure, and policy objectives. What distinguishes effective development is not adherence to a specific model, but the presence of clear objectives, coherent design choices, active management of trade-offs, and continuous adaptation based on outcomes.

While the principles outlined above provide a foundation for system design, policymakers need to translate them into concrete actions based on their individual system's maturity. Countries may not move linearly, but the structure provides a useful guide for prioritization.

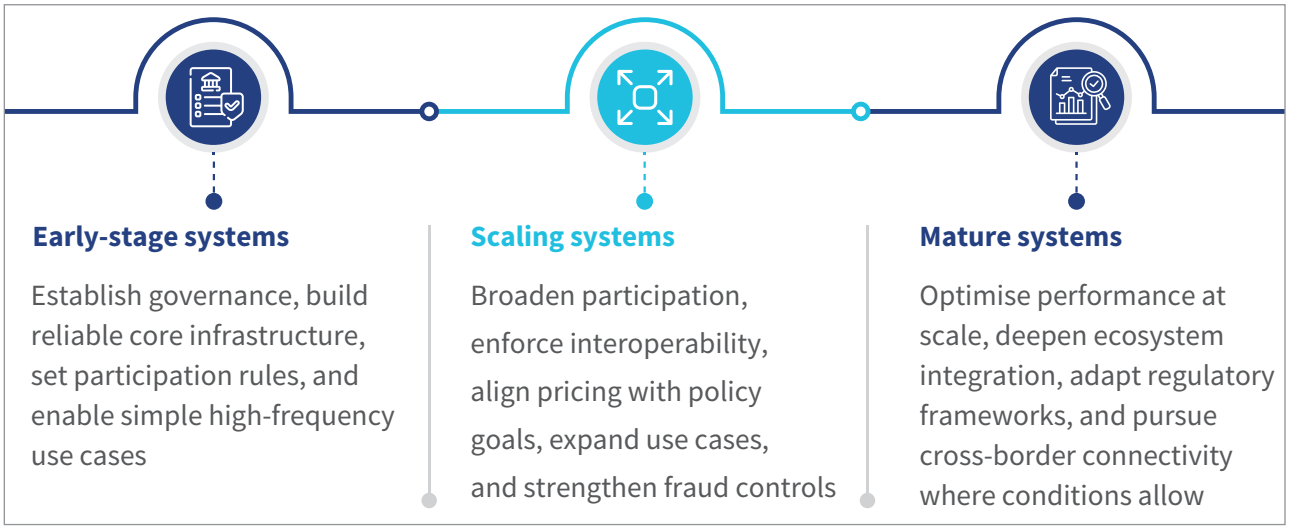


Figure 3: Priorities at each stage of IPS development

Stage 1: Early-stage systems

The priority at this stage is to establish a credible, functional instant payment system with clear governance and a viable operating model.

Policymakers must establish clear institutional responsibility, whether through a central bank-led approach or a hybrid approach. They need to define roles across the operator, regulator, and participants to prevent mandate confusion that can hamper early-stage deployments. Pakistan's Raast, launched in 2021,[25] benefited from the State Bank of Pakistan's decision to take direct ownership of system governance, operations, and rule-setting from inception. This provided a single point of accountability that accelerated decision-making during the critical early phase.

At this stage, policymakers must prioritize the construction of core infrastructure. The system must deliver real-time or near-real-time processing capability and be designed for reliability and continuous operation from the outset. Stakeholders should resist the temptation to overengineer. The initial build should focus on proven, robust technology that can be enhanced over time. While modest in initial functionality, Ghana's GhIPSS Instant Pay[26] launched with a stable core infrastructure that subsequently supported the addition of mobile money interoperability and QR-based merchant payments.

Policymakers and other system designers need to set the rules for participation. Firstly, they should start with a manageable group of participants and define clear eligibility and technical requirements. The

critical discipline is to avoid closed-loop systems from the beginning and ensure at least core interbank functionality. Early use cases should focus on simple, high-frequency transactions, typically person-to-person transfers, to ensure ease of use and basic functionality before expanding scope.

Policymakers must avoid fragmented or competing systems without interoperability, unclear governance, or overlapping mandates. They should also not overengineer the system before it can achieve basic adoption.

Stage 2: Scaling systems

In the second stage of maturity, the goal is to drive adoption, expand participation, and embed the instant payment system into everyday economic activity.

At this stage, policymakers should expand participation to include non-bank payment service providers where suitable. They can introduce tiered access models to balance inclusion and risk. Interoperability must be strengthened to ensure seamless transactions across all participants and enforce common standards and system rules. Brazil's PIX scaled rapidly because the Banco Central mandated participation for licensed financial and payments institutions with more than 500,000 accounts.[27] This created immediate network effects that voluntary adoption alone would not have achieved.

Aligning pricing and incentives is another priority at this stage. User costs must remain low enough to encourage adoption, while providers need sufficient incentives to actively promote usage. Pricing structures that discourage key transaction types, particularly merchant payments, should be identified and corrected. India's introduction of government subsidies for UPI merchant transactions[28] in 2021-2022 represented an attempt to address the commercial viability gap that had emerged from the zero-MDR policy. This highlights the importance of treating pricing as a dynamic instrument rather than a set-and-forget decision.

Use case development must expand beyond person-to-person transfers into merchant payments, government-to-person and person-to-government flows, and recurring and bill payments. Thailand's PromptPay integration into the national social welfare payment system[29] routed government transfers directly to beneficiaries' PromptPay-linked accounts. This step created a powerful adoption catalyst that exposed millions of new users to digital instant payments.

Policymakers must ensure trust and reliability through high system uptime and performance when they introduce stronger fraud monitoring and consumer protection mechanisms. Systems that do not invest in fraud management at this stage will find that rising transaction volumes attract rising fraud, a dynamic that can reverse adoption gains.

The key here is to avoid limited use cases that lead to stagnant adoption, pricing structures that discourage key transactions, such as merchant payments, and uneven participation where only a subset of providers drives usage.

Stage 3: Mature systems

Once the system reaches maturity, it should seek to enhance system efficiency, manage risks at scale, and expand the instant payment system into new domains. Mature systems must strengthen fraud and risk management. They can implement real-time monitoring and advanced analytics, and clarify liability frameworks and dispute resolution processes.

The UK's 2024 mandatory reimbursement regime[30] for authorized push payment fraud represents the kind of regulatory innovation that mature systems require. It shifted liability incentives and made both sending and receiving payment service providers accountable for fraud prevention. This created a structural incentive for investment in detection technology across the ecosystem.

System performance must be continuously optimized to handle high transaction volumes and ensure resilience under stress. India's United Payments Interface (UPI) processed more than 22 billion transactions in March 2026.[31] This scale has required continuous infrastructure upgrades, load balancing innovations, and new products, such as UPI Lite, a low-value, near-offline wallet channel designed to reduce core system strain.

Policymakers need to embed the instant payment system into digital platforms, commerce, and financial services to deepen ecosystem integration at this stage. They should enable data-driven innovation and ensure privacy and security. Regulatory frameworks must adapt to a more complex and diverse ecosystem, using data and technology to enhance oversight through RegTech approaches. Singapore's MAS has been a leader[32] in this area. It has deployed advanced data analytics for supervisory surveillance and published guidance on innovation that encourages responsible experimentation within clear regulatory boundaries.

Cross-border linkages become a realistic priority at this stage. Policymakers should assess readiness for regional or bilateral integration and address regulatory, technical, and foreign exchange considerations. The UPI-PayNow link[33] between India and Singapore, and the ongoing expansion of the Pan-African Payment and Settlement System (PAPSS) across Africa[34] represent different models, bilateral and multilateral, respectively. These work to extend domestic instant payment capabilities across borders.

Policymakers must ensure that rising fraud does not undermine user trust, regulatory rigidity does not limit innovation, and the system does not strain due to scale without corresponding infrastructure upgrades.

Cross-cutting principles across all stages

Regardless of system maturity, the initially discussed principles apply consistently. Clear objectives ensure that design choices remain anchored in defined policy goals. Interoperability by design prevents fragmentation, which reduces system value and is difficult to reverse. Balanced participation means that broader access is matched with suitable safeguards. Aligned incentives require that pricing and rules support both adoption and sustainability. Trust serves as a foundation, and reliability, security, and consumer protection are essential at all stages. Adaptability over time means that systems should be designed to evolve as market conditions change.

This playbook is not prescriptive. It intends to help policymakers identify their system's current stage, prioritize high-impact actions, and sequence reforms in a structured and coherent manner. The effectiveness of an instant payment system ultimately depends on how well these decisions are aligned with context, capacity, and long-term objectives.

Chapter 2
A four-pillar framework to operationalize a robust instant payment system

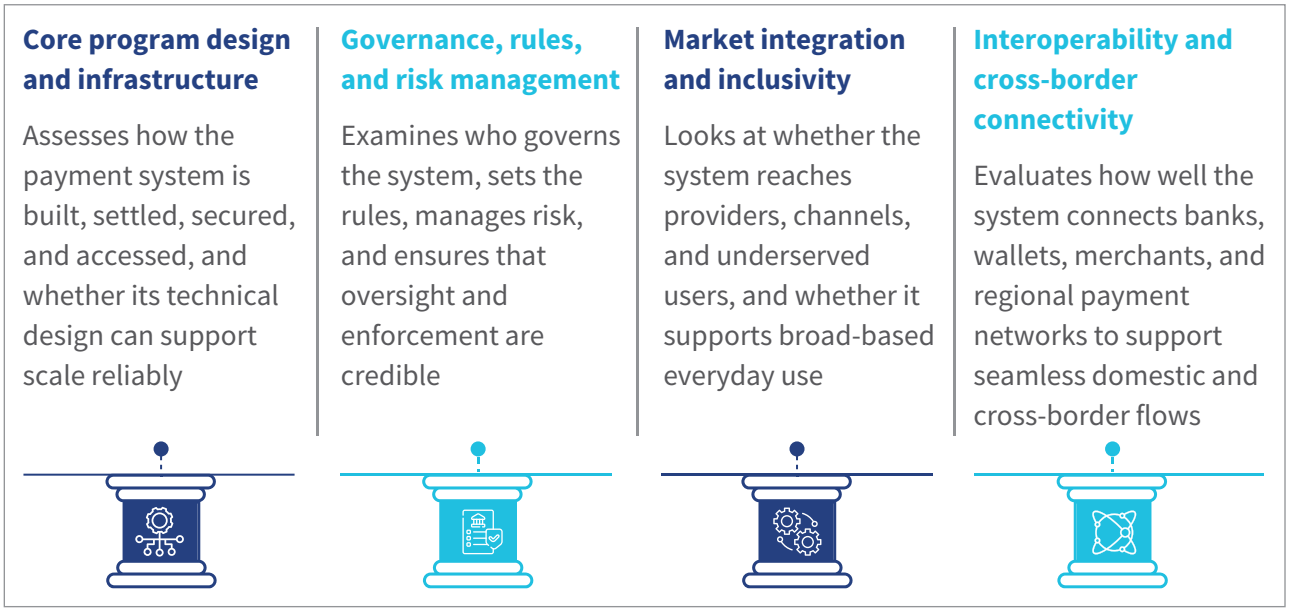


Figure 4: Four-pillar framework for a robust IPS

In the previous chapter, we set out a policy playbook for the best practices to follow for an instant payment system (IPS) to evolve from an early pilot to a mature, economy-wide infrastructure. The playbook focused on what needs to happen at each stage to build, scale, and refine an IPS. In this chapter, we turn to the "how." We use a four-pillar framework to organize the key questions and design choices that policymakers, regulators, and market participants must address to translate those high-level directions into concrete system architecture, rules, market integration, and connectivity decisions.

Two instant payment systems may both process payments in seconds, yet differ sharply in their access rules, governance, pricing, channel outreach, and ability to connect banks, wallets, merchants, and cross-border use cases. Those differences shape whether the payment system can truly reduce fragmentation in the payments ecosystem.

Our framework examines the instant payments system as infrastructure, a rule-setting institution, a market platform, and a link between domestic and cross-border payment flows.

2.1 Core program design and infrastructure

The first pillar assesses the basic design of the instant payment system (IPS). It examines how transactions move, how settlement is completed, how the system remains available, and how participants come in. It assesses if the infrastructure can handle scale without sacrificing speed, reliability, or control. A well-designed IPS can process payments in seconds, remain operational throughout outages, and settle obligations in a way that limits liquidity strain and counterparty risk. Weak design, by contrast, can create bottlenecks despite strong demand.

a. Architecture and operating model

The choice between centralized, distributed, and hybrid architecture determines governance, interoperability, and resilience. Policymakers should select a model aligned with their institutional capacity and market structure rather than defaulting to the most technically sophisticated option. Centralized switches simplify oversight and can accelerate interoperability, while hybrid models offer flexibility but demand stronger coordination frameworks.

Nigeria's NIP routes all transactions through the centralized Nigeria Interbank Settlement System (NIBSS) switch,[35] which simplified governance but initially constrained the diversity of participants. Thailand, on the other hand, uses a hybrid architecture[36] operated by the Thai Bankers Association and National ITMX under Bank of Thailand oversight to enable a unified system that has achieved more than 81 million registered users.[37]

b. Settlement design

Settlement design directly affects liquidity costs and finality. Policymakers must align the settlement model with the market's risk appetite and liquidity infrastructure, and be prepared to evolve the model as volumes grow. Prefunding provides strong finality but locks up working capital, while deferred net settlement eases liquidity pressure at the cost of introducing intraday credit risk.

SEPA Instant in Europe[38] requires participants to prefund positions, which yields immediate, unconditional finality, but places significant liquidity demands on smaller payment service providers. India's UPI, by contrast, uses deferred net settlement[39] linked to its RTGS infrastructure, which reduces liquidity strain while maintaining near-real-time fund availability for end users. Mexico's SPEI[40] operates on a real-time gross settlement basis for individual transactions. This offers strong finality guarantees but requires robust liquidity facilities from the central bank to support participant demand.

c. Resilience

Policymakers must establish non-negotiable uptime standards, robust cybersecurity protocols, and proven business continuity plans before going live, not after. Operational credibility is built early in a system's life. A single high-profile outage early in deployment can set back adoption and erode public trust, both of which are difficult to recover.

In Brazil, the Banco Central do Brasil designed PIX as a centrally operated infrastructure subject to cybersecurity and operational resilience regulations from launch, with stress-testing obligations[41] for participants subsequently strengthened over time. The system processed more than 30 million transactions[42] in its first month, and its consistent availability across weekends and public holidays was cited as a major driver of rapid consumer trust and adoption.

2.2 Governance, rules, and risk management

The second pillar of this analysis asks who controls the system, who writes the operating rules, and who handles disputes. Those choices determine whether the fast payment system functions as a neutral utility or as a controlled network with uneven access.

Governance models

Policymakers should treat governance as foundational infrastructure, designed before the technical build begins, with clear accountability, anti-capture mechanisms, and a mandate to serve the public interest. A central bank-led structure gives the public authority more control over monitoring and rule-setting. An industry-led model gives participants more say but can also produce conflicts of interest. Public-private and hybrid models split responsibilities across institutions. The model matters because it shapes accountability, speed of rule changes, and the extent to which the system serves the market.

Mexico's SPEI, operated by Banxico,[43] enabled rapid rule-setting aligned with financial inclusion objectives. Yet, it initially struggled to drive private-sector innovation due to limited industry stake and low revenue generation. Sweden's Swish,[44] governed as a private bank consortium with Riksbank oversight, achieved high adoption of more than 80%[45] of the Swedish population. This resulted from a combination of industry-driven product development with a regulatory backstop, though it remains open only to banks.

In contrast, Singapore's PayNow[46] is owned by the Association of Banks in Singapore[47], but under the regulatory supervision of the Monetary Authority of Singapore (MAS). This model has enabled rapid overlay development such as PayNow Corporate and cross border linkages, yet preserves strong regulatory alignment.

Rules and guidelines

Rules must be set with an eye toward long-term ecosystem viability, not short-term adoption metrics alone. Fee structures and transaction limits are policy instruments with direct distributional consequences. If they are set too high, they would exclude low-income users. In contrast, setting them too low without a sustainability plan risks provider exit. Fees and pricing determine who can participate on viable terms and who passes costs on to users. Transaction limits shape the types of use cases the system can support.

India's UPI initially adopted a zero-fee policy[48] for P2P transactions to drive adoption, which proved highly effective but created ongoing questions around the model's commercial viability for payment service providers. The government has since introduced incentive programs[49] to partially compensate providers, illustrating the need to design sustainability mechanisms alongside fee policy rather than as an afterthought. Brazil's PIX similarly launched with free P2P transactions for individuals, but the Banco Central explicitly permitted institutions to charge for merchant services,[50] which created a revenue layer that supported commercial participation from the outset.

Access rules

Access rules are a policy lever and not merely a technical standard. They determine who can connect and under what conditions. Onboarding processes, certification requirements, and technical standards shape participation. Restricting participation to incumbent banks may deliver short-term stability but will limit the diversity of use cases and the depth of financial inclusion. The challenge is to balance openness with discipline, so the system can widen scale without weakening resilience. A tiered licensing framework

that scales participation requirements to institutional capacity allows the system to broaden over time without sacrificing oversight.

Nigeria's NIP initially restricted direct participation[51] to licensed deposit-taking banks, which slowed early diversification of the ecosystem. Australia's NPP also restricted direct participation[52] to APRA-licensed banks during launch. Nonbank access only materialized years later, despite sustained pressure from FinTechs and the Productivity Commission. Brazil's PIX, on the other hand, admitted banks, FinTechs, payment institutions, and electronic money institutions as direct participants, but under a tiered regulatory framework supervised by the Banco Central.[53] This approach enabled a broader ecosystem of providers from day one and maintained supervisory accountability.

Risk management

Settlement risk must be contained so that participants can rely on finality. Liquidity risk matters when prefunding or intraday funding is required. Fraud controls, reversal rules, and dispute processes determine how the system handles loss events and user complaints. If those mechanisms are weak, adoption stays narrow regardless of technical performance. Robust fraud detection, clear liability allocation, and accessible dispute resolution mechanisms are therefore essential core design requirements. Weak risk frameworks will constrain adoption among the risk-averse populations, often low-income users, whom policymakers want to reach the most.

The UK's Faster Payments Service was launched in 2008, but it built strong consumer protection mechanisms, including a mandatory reimbursement regime for authorized push payment fraud,[54] only in October 2024. Brazil's PIX, on the other hand, embedded fraud monitoring obligations[55] on participants from the outset, demonstrating the value of anticipating risk frameworks rather than retrofitting them.

Compliance and supervision

The system needs clear oversight, consistent enforcement, and reporting that allows the regulator to see where risks are building. In practice, governance is what separates a system that works on paper from one that the market is willing to use. Policymakers should invest in regulatory technology (RegTech) infrastructure alongside the payment system itself to maintain supervisory visibility as participant numbers and transaction volumes grow.

The Reserve Bank of India has progressively tightened operational and cybersecurity reporting[56] obligations on UPI participants through the National Payments Corporation of India (NPCI). More advanced examples of supervisory innovation include Singapore's MAS, which has invested in data analytics infrastructure to enable near-real-time surveillance of payment system activity.[57] Meanwhile, the UK's approach to overseeing the Faster Payments reimbursement regime requires payment service providers to report compliance data monthly.[58] This illustrates how supervisory infrastructure can be embedded directly into the system's operating rules.

2.3 Market integration and inclusivity

The third test is whether an instant payment system reaches users in real transaction contexts. A system can be technically sound yet have limited value if it is not connected to the institutions, channels, and user groups that generate everyday payment activity.

Provider integration

A system that is open to a small set of large players may record transactions, but it will not broaden market access in a meaningful way. The ease and speed of onboarding also matter. If connecting a new participant is slow, costly, or uncertain, the system will grow in a narrow and uneven way. Policymakers should actively remove barriers that prevent FinTechs, MFIs, and non-bank payment service providers from connecting, including onboarding complexity, technical certification costs, and API opacity.

Brazil's PIX was designed from the outset to include banks, alongside payment institutions, FinTechs, and credit unions, as direct participants under a tiered regulatory framework supervised[59] by the Banco Central do Brasil. This contrasts with the experience documented across several African markets, where participation has not been opened[60] to all payment service providers, a pattern driven by the complexity and cost of integration requirements that smaller nonbank institutions have struggled to meet.

Channel reach

Users interact with payment systems through mobile apps, USSD, agents, QR codes, POS devices, and online banking interfaces. A system available only through one or two channels will exclude users whose transaction habits and device access differ from the urban, banked segment. Channel diversity is, therefore, an inclusion issue.

Tanzania's mobile money ecosystem is built on USSD technology accessible on basic feature phones without internet connectivity. It reached the majority of its population through mobile[61] rather than bank channels, which shows that channel design is as consequential as system design for inclusion outcomes. India's UPI was conceived primarily as a smartphone application, but also included a USSD channel (*99#), which acknowledged from early on that feature phone access was essential for inclusion. UPI 123Pay, launched in March 2022, went further and replaced the USSD interface with IVR and other offline methods designed to be usable for India's 250 million[62] feature phone users.

Inclusion design

Without deliberate inclusion design, high adoption rates can mask uneven distribution of actual usage. Tiered KYC and remote onboarding reduce account-opening friction. Digital ID can lower verification costs when it is integrated safely. Low-value pricing matters because the economics of small transactions differ from those of high-value transfers. Support for rural users, women, SMEs, and informal merchants depends on whether the system is designed around their transaction patterns and constraints.

India's Jan Dhan-Aadhaar-Mobile (JAM) stack demonstrates the power of integrating digital ID (Aadhaar), basic bank accounts, and mobile-based instant payments. The government linked these three systems to deliver direct benefit transfers to previously underserved individuals through the payments infrastructure as a financial inclusion lever rather than relying solely on organic market uptake. Pakistan's Raast system, launched by the State Bank of Pakistan in 2022, incorporated tiered KYC onboarding[63] from inception to allow users with simplified documentation to access basic instant payment services. This design decision was explicitly intended to reach a large share of the country's population outside the formal banking system.

2.4 Interoperability and cross-border connectivity

The final pillar measures whether the fast payment system can connect different stores of value and different institutions without friction. Interoperability expands the range of transactions the system can support. It also lowers switching costs, improves user convenience, and increases the value of participation for providers and merchants.

Domestic interoperability

A functional system should allow transfers across bank accounts, wallets, and, where relevant, cards. That requires common technical standards, consistent routing rules, and proxy addressing that lets users send payments using a phone number, alias, or other identifier instead of account details. QR standards matter for the same reason. They reduce the need for separate acceptance solutions and make merchant payments easier to scale.

Brazil's PIX launched with a mandatory, centralized Transaction Accounts Identifier Directory[64] (DICT), operated by the Banco Central do Brasil. The DICT allowed any user to register a phone number, CPF tax ID, email address, or randomly generated key as a payment alias accessible from any participating institution. This proxy-addressing layer removed the need for users to know account numbers, became a frequently cited factor in PIX's rapid adoption, and proved that seemingly technical choices can carry transformative inclusion consequences.

Thailand's PromptPay, launched in 2016, uses a similar proxy model[65] to link national ID numbers and mobile phone numbers to bank accounts. However, the linkage occurs through a decentralized mapping architecture managed by individual banks rather than a single national directory. In both cases, the effect is the same. Users transact using identifiers they already know and carry, which dramatically lowers the barrier to entry for first-time digital payment users.

Openness

A system that only moves money between accounts is limited. One that supports overlays, such as request-to-pay, bill pay, merchant collections, and other applications, creates room for product development on top of the core infrastructure. New players should be able to build useful services on the system without negotiating custom integrations each time. If they are unable to, the system may be interoperable in name but closed in practice.

India's UPI architecture allows any licensed third-party application to build payment products on top of the NPCI rails using standardized APIs. This openness generated an ecosystem of hundreds of UPI-enabled applications and use cases, including merchant QR payments, recurring mandates, and credit-linked flows, none of which required central co-development. This illustrates how a well-designed overlay framework multiplies the system's impact far beyond its core infrastructure. The European Payments Council's SEPA Request-to-Pay program[66] provides a standardized messaging layer that allows billers and merchants to initiate payment requests. However, adoption has been slower than anticipated, partly because overlay standards were introduced after the core instant credit transfer program was already operational.

Cross-border connectivity

Participation in regional payment systems, bilateral links, and settlement arrangements that make remittance and trade corridors more efficient speak to consumers' necessary use cases. They fulfill the relevant needs of cost, speed, reliability, and transparency in remittances and other international payments. A domestic system that cannot connect outward remains confined to internal flows, even if it performs well at home.

The bilateral link between India's UPI and Singapore's PayNow, launched in 2023, enables real-time, low-cost transfers across two large remittance corridors, with full traceability and compliance alignment between MAS and the RBI. The arrangement was possible because both domestic systems

had achieved strong operational maturity, legal finality frameworks, and robust AML/CFT compliance regimes. It underscores that cross-border connectivity is built on domestic foundations and not as a substitute for them.

The PAPSS, launched in January 2022 by the African Union and Afreximbank, represents a multilateral approach. It connects central and commercial banks across 18 African countries to enable instant cross-border payments in local currencies in a bid to reduce the continent's dependence on external correspondent banking networks. By early 2025, more than 115 commercial banks had been connected, though full continental coverage remains a work in progress.[67]

Core scheme design and infrastructure	• What architecture underpins the system, and how are transactions routed? • How does settlement work, and what risks or liquidity demands does it create? • How resilient is the system in terms of uptime, failover, and security? • Who can connect, and how demanding are the technical and onboarding requirements?
Governance, rules, and risk management	• Who owns, governs, and oversees the system? • How are rules on fees, limits, service standards, and participation set? • How are fraud, disputes, settlement risk, and liquidity risk managed? • How credible are supervision, reporting, and enforcement arrangements?
Market integration and inclusivity	• Which providers are connected, and how diverse is the participant base? • Through which channels do users access the system? • How easy is it for different user groups to onboard and transact? • Do pricing, KYC, and product design support inclusion in everyday use?
Interoperability and cross-border connectivity	• Can the system connect accounts, wallets, cards, and merchants seamlessly? • Are common standards in place for routing, QR, proxy addressing, and overlays? • Can new players build products on the rails without bespoke integration? • How well does the system connect to regional and cross-border payment networks?

Figure 5: Key questions addressed by each framework pillar

Chapter 3
Analyzing instant payment systems in Nigeria and Ethiopia

The previous chapters set out a policy playbook that sequences instant payment system (IPS) reforms from early choices regulators and players make to build and establish a strong infrastructure and extends to a more mature stage of optimization and integration. It then provides a four-pillar framework to analyze how an IPS achieves success. This chapter applies that framework to two case studies of Nigeria and Ethiopia to show how different design and governance choices map onto distinct positions on the maturity path.

The playbook distinguishes three indicative stages of IPS development.

1. **Early-stage systems** establish core infrastructure, clarify governance, and enable basic use cases.
2. **Scaling systems** broaden participation, deepen use cases, and strengthen trust as volumes grow.
3. **Mature systems** optimize performance, manage risks at scale, and embed IPS into a wider layer of digital public infrastructure.

Nigeria sits in the middle of this spectrum. It has progressed well beyond basic infrastructure, but still has to work significantly on inclusion, merchant acceptance, and risk management at scale. Ethiopia stands at a nascent point. The country has only recently launched a national IPS and is still building participation and usage around it.

Nigeria's NIBSS Instant Payment (NIP) program has operated since 2011 and now sits at the center of the country's retail payments landscape. AfricaNenda's SIIPS 2025[68] assessment classifies the NIP as the first IPS in Africa to reach the "mature" level of inclusivity, based on criteria that cover functionality, governance, accessibility, and consumer protection. This status reflects broad use-case coverage, low regulated fees for users, and an industry-wide dispute resolution platform that has strengthened recourse. At the same time, persistent gaps remain in rural reach,[69] small-merchant acceptance,[70] and the consistency of dispute resolution, which reveals a system that still needs to deepen its use and inclusion even after it has achieved scale.

The wider Nigerian payment mix reinforces this intermediate position. Card and POS-based payments remain important,[71] especially at physical points of sale, and cash still accounts for a large share of in-person spending[72] despite a steady decline. Account-to-account transfers over NIP[73] have become the leading method for digital commerce, and instant transfers now dominate remote person-to-person payments. By contrast, QR-based NQR payments have grown from a low base but still represent a small share of retail transactions,[74] and many rural and informal merchants continue to rely on cash or card-based acquiring.

This pattern of remarkably high digital volumes, multiple overlapping systems, and uneven last-mile usage corresponds to a system that has largely completed the build phase and is moderately advanced in scaling. However, it has not yet fully optimized channel integration and inclusive access. In 2025, the NIBSS launched the National Payment Stack (NPS)[75] as a new national platform to replace the NIP, connect banks and nonbank providers directly, and handle Nigeria's growing digital transaction volumes better.

Ethiopia is at a different point on the same path. EthSwitch, the national switch co-owned by the National Bank of Ethiopia (NBE) and financial-sector institutions, launched EthioPay-IPS in late 2025.[76] EthioPay-IPS connects banks, microfinance institutions, payment service operators, and wallet providers. It is designed to support real-time account-to-account and wallet-to-wallet transfers, interoperable QR payments through ETHQR, and alias-based addressing. However, live transaction data remains

limited, and current policy priorities focus on classic early-stage tasks, which are to stabilize operations, consolidate governance arrangements, and anchor the system in simple, high-frequency use cases.

This early-stage IPS sits within a state-led model of system building. Ethio Telecom's telebirr remains the dominant wallet.[77] EthSwitch operates the core interoperability layer as a utility in which the central bank is both owner and overseer. The National Digital Payments Strategy 2026–2030[78] positions IPS as part of a broader digital public infrastructure agenda that also includes digital ID and data-sharing initiatives. Yet broad-based merchant acceptance, dense agent networks outside major cities, and strong consumer protection mechanisms are still emerging. This is consistent with an IPS that has moved into the "build and establish" stage but has not yet entered a sustained scaling phase.

Taken together, Nigeria and Ethiopia illustrate two distinct approaches to IPS development along the same maturity framework. Nigeria's experience reflects a market-driven expansion around a hybrid public–private utility, where strong competition has driven rapid uptake but left inclusion and small-merchant usage uneven. Ethiopia's trajectory reflects a state-led strategy in which public authorities orchestrate the core payment systems and standards from the outset, but still need to align incentives, participation, and trust to move from infrastructure to usage. The two cases show how different choices on governance, participation, and use-case strategy map onto different stages of maturity and produce distinct patterns of risk, inclusion, and ecosystem development.

The remainder of this chapter examines these pathways in more detail. For each pillar of the framework for robust instant payment systems, we review evidence from Nigeria and Ethiopia. We highlight how their contrasting choices clarify the trade-offs that policymakers face when they design and sequence IPS reforms. The analysis moves from the inside out. It begins with the core technical and design decisions that define each system through the governance and rule-making arrangements that shape who controls it and on what terms. It then moves into the market integration and inclusion dynamics that determine who uses it, and finally to the interoperability and cross-border connectivity choices that define how far each system can ultimately reach.

3.1 Core program design and infrastructure

Nigeria

- The NIP was built as a centralized, account-to-account transfer system. The NIBSS runs a single switch, while the Central Bank of Nigeria sets the scheme rules, and licensed banks connect directly as participants. This design solved a specific problem,[79] where funds could move instantly between bank accounts in a market dominated by slow batch systems, using relatively simple technology that could be deployed quickly. Settlement is handled on a deferred net basis[80] against the RTGS system, which limits intraday liquidity strain for banks and keeps operating costs manageable, but also means that credit exposures build up between settlement cycles as volumes rise.

  Over time, the NIP has carried far more than its original designers anticipated, including high-frequency retail transfers and traffic from FinTech and MMO channels that connect indirectly through sponsor banks. The technical core has remained stable and has scaled to billions of transactions,[81] but its bank-centric design and batch-linked settlement model left little room for direct non-bank access or for richer message formats. The NIBSS is now working to replace it with the National Payment Stack (NPS),[82] a new platform intended to handle higher volumes and support a wider range of providers and use cases.

- In terms of system reliability and security, the NIBSS's own annual fraud landscape data show that actual losses from fraud rose 23% in 2023 even as the fraud volume ratio fell. This means the system is managing fraud better in relative terms, but the absolute stakes are rising sharply as volumes grow. NIBSS operates a national fraud desk, an Industry Fraud Reporting Portal, and publishes an annual fraud report.[83] These are meaningful controls, but public reports of NIP downtime episodes and unresolved transaction complaints[84] indicate that reliability and fraud management remain active concerns.

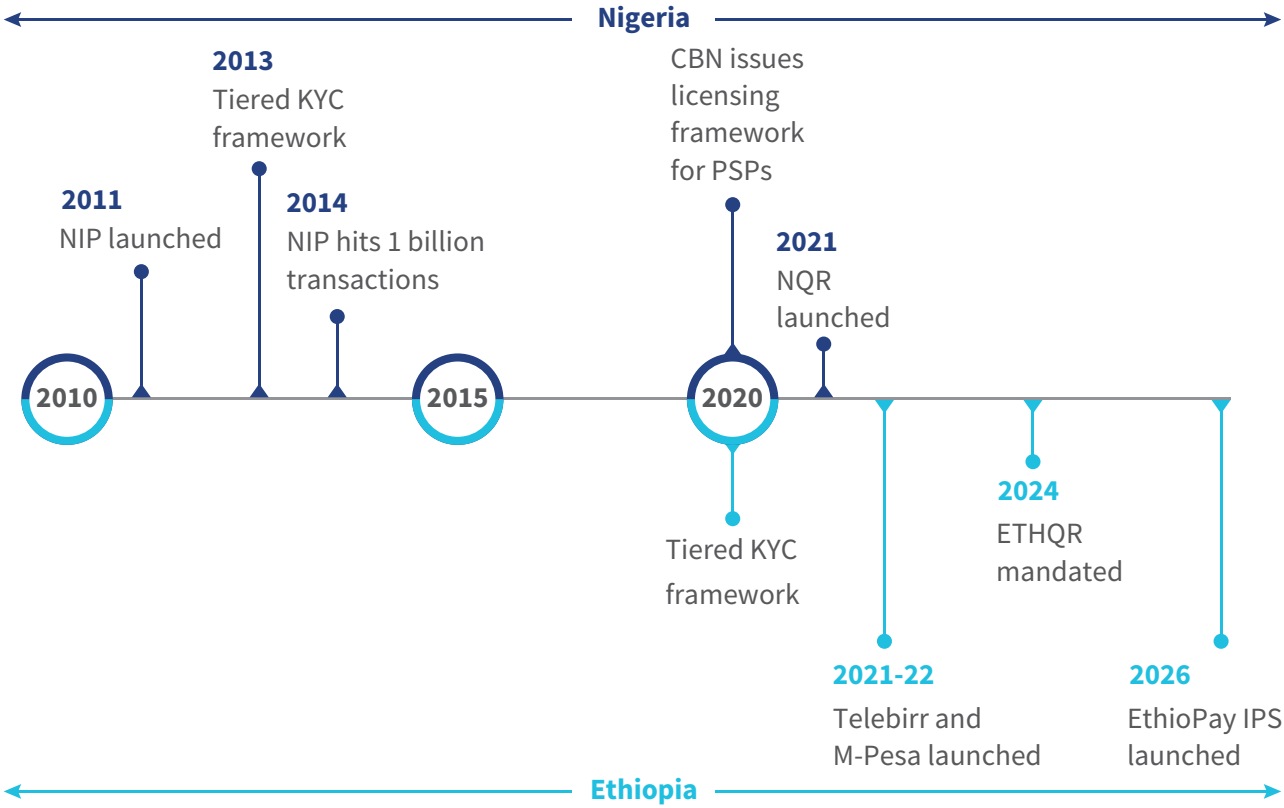


Figure 6: Evolution of the NPS and EthioPay-IPS

Ethiopia

- EthioPay-IPS was launched in 2026[85] as a fresh build rather than an upgrade, and it was designed from the outset as shared national infrastructure[86] rather than exclusively as a bank-to-bank transfer scheme. The system runs on a modern switching platform using ISO 20022 message formats[87], which allows richer payment information to move with each transaction and simplifies future links to other domestic and cross-border systems. EthioPay-IPS settles payments on a real-time gross basis in central bank money, so each transaction is final as soon as it is processed. This sharply limits inter-participant credit exposure but requires banks, MFIs, and wallet providers to manage their intraday liquidity more actively[88], which includes drawing on NBE facilities when needed.

  From its launch, the system has been open to a broad set of institution types,[89] such as commercial banks, microfinance institutions, payment system operators, and payment instrument issuers. All these are connected to a single hub that also supports alias-based addressing and the ETHQR standard for interoperable QR payments. Core resilience has been strengthened by relocating EthSwitch's data center, adding a dedicated disaster-recovery site, and obtaining PCI-DSS and related certifications.[90] However, EthioPay-IPS is still at the stage where its day-to-day operating record will determine whether users and providers treat it as dependable national infrastructure

- On reliability, EthSwitch has invested in data-center relocation, a dedicated disaster recovery site,[91] and ISO certifications to secure customer data.[92] These investments are responses to documented network failures in EthSwitch's earlier card-switching operations. Trust in EthioPay-IPS will be built through operating history, which is only beginning to accumulate.

3.2 Governance, rules, and risk management

Nigeria

- The NIP's access model has been tiered by regulatory category since its launch. Direct participation is available to institutions that take deposits, such as commercial banks, microfinance banks, payment service banks, and mobile money operators licensed by the Central Bank of Nigeria (CBN).[93] Nonbank payment solution providers, switching companies, and super agents connect indirectly through sponsoring banks.[94] A 2023 NIBSS directive tightened this further[95] as it instructed banks to delist switches, PSSPs, and super agents from NIP outward transfer channels, which would consolidate settlement accountability within the bank tier. The supervisory logic behind this structure is to limit direct settlement exposure to regulated deposit-takers.

  However, because indirect participants pay sponsoring banks for settlement access, and often compete with those same banks in retail payments, this arrangement raises distribution costs for non-bank providers, limits their operational autonomy within the program, and creates a structural disadvantage for the actors most responsible for expanding digital payment reach through agent networks and FinTech channels. NPS addresses this[96] by introducing API-based direct connectivity for FinTechs, telcos, and government agencies, but the governance and supervisory arrangements for this expanded participant base are still being developed.

- Two instruments govern pricing in the NIP ecosystem. The first is CBN's Guide to Bank Charges[97], which caps what banks can levy on retail customers for instant transfers. Under the April 2026 revision, transfers below USD 3.30 are free, transfers between USD 3.30 and USD 33 are capped at USD 0.007, and transfers above USD 33 are capped at USD 0.037.

The second is the NIBSS's inter-participant fee structure, under which program participants pay a flat fee of USD 0.0024 per transaction to NIBSS, down from USD 0.03 in 2021. AfricaNenda's State of Instant and Inclusive Digital Payment Systems in Africa (SIIPS) 2025 assessment[98] notes that this reduction enabled FinTechs and banks to offer free transfers to end users. These low, regulated fees are cited by SIIPS as a contributor to the NIP's mature inclusivity rating. Provider-side pricing is a more complex picture. The CBN has also maintained a zero-fee policy for merchant payments[99] in specific contexts, but NQR merchant adoption remains limited.[100] Research on QR payment adoption in Nigeria notes that the program's popularity remains relatively low, and the economics of merchant-side distribution have not yet achieved the acceptance density required by the policy goal.

- Stakeholder coordination in Nigeria operates primarily through the bank–regulator compact that governs NIBSS.[101] CBN sets program rules, approves participant categories, and arbitrates disputes that cannot be resolved within the NIBSS framework.[102] The NIBSS maintains a dispute resolution mechanism with defined timelines.[103] What this structure does not yet accommodate is the full range of non-bank actors whose operations are material to system performance. FinTechs, mobile money operators, and payment aggregators[104] collectively handle a large and growing share of Nigeria's digital transaction volume, but hold no formal representation in NIBSS governance.[105]

	Nigeria	Ethiopia
Regulator/ scheme layer	CBN + NIBSS → NIP NPS Instant payment system and interoperable switching infrastructure	NBE + EthSwitch → EthioPay IPS
Entity categories	Commercial banks Microfinance banks Mobile network operators Switches Superagents	Banks MFIs Payment system operators FinTechs Payment service providers
Enablement layer	NPS introduces API-led connectivity, sandbox testing, and faster certification, that widens direct access to FinTechs and telcos.	A middleware solution standardizes API and security requirements, which, in turn, lowers technical barriers for institutions that would otherwise struggle to connect independently.
Onboarding process	**Legacy NIP flow** • CBN licensing • Technical connectivity to the central switch • Web service development • Settlement account setup • Certification **Revised NPS flow** • Standardized and faster onboarding with API integration, testing, and validation	Participants must meet NBE licensing requirements and comply with EthSwitch technical standards. Onboarding is designed around controlled certification and standardized integration, which prioritize stability and interoperability, though practical access for smaller non-bank providers is still evolving.

Figure 7: Organizational structures and onboarding process for the NIP/NPS and EthioPay-IPS

Ethiopia

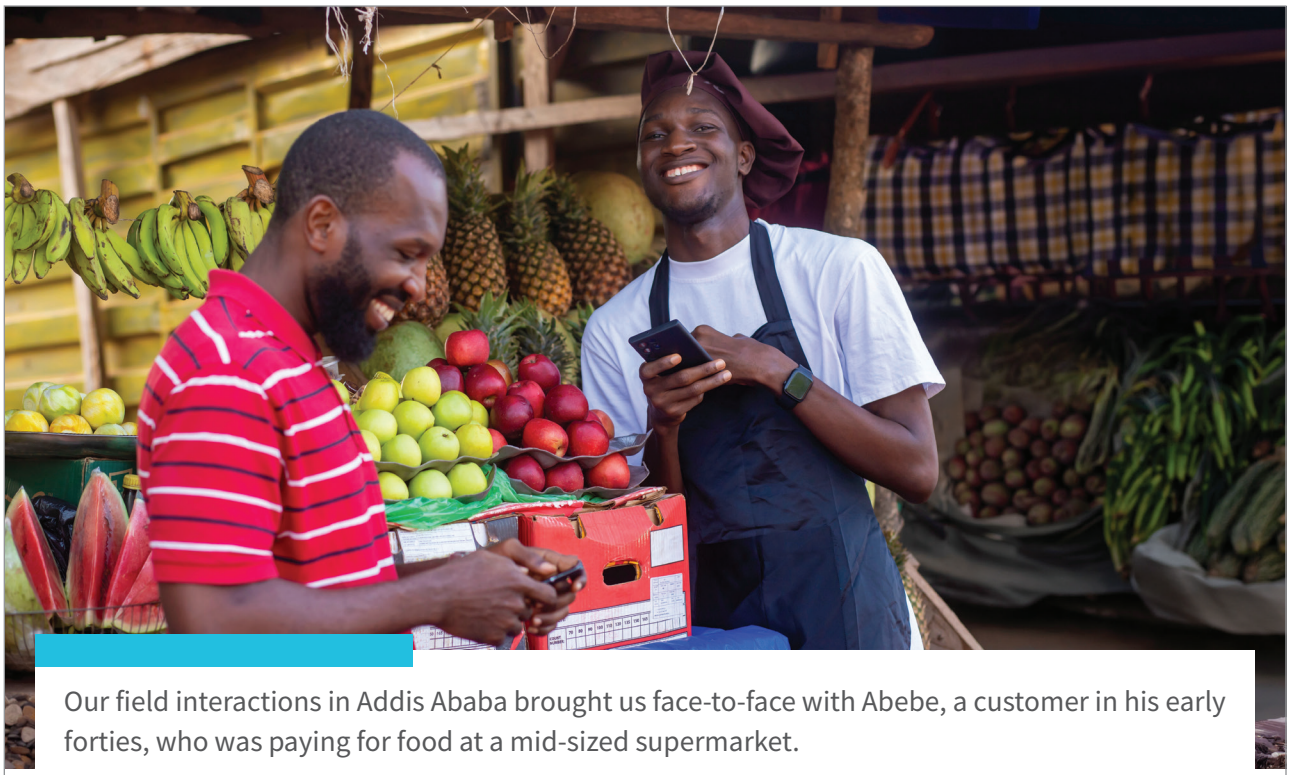
- A small number of institutions have historically dominated Ethiopia's payment system. Ethio Telecom's telebirr held a near-monopoly on mobile money[106] before NBE began to issue payment instrument issuer licenses more broadly. The issuance of a PIL License to Safaricom's M-Pesa[107] in May 2023 marked the first time a foreign-operated mobile money service received authorization to operate in the country. EthioPay-IPS was designed in this context to unify a market that was not fragmented by competing standards but siloed within provider-specific ecosystems.

  During its launch, the system connected 32 banks, 12 microfinance institutions, three payment system operators, and three payment instrument issuers[108] on a common interoperable system. Participation rules for EthioPay-IPS are governed by NBE's payment system directives,[109] which establishes licensing categories, capital requirements, technical certification standards, and operational risk controls as preconditions for program access.

  This framework is explicitly tiered. Different participant categories, such as banks, MFIs, PIIs, and PSOs, operate under different regulatory conditions. This reflects their risk profiles and systemic significance. The tiered approach is consistent with the best practices we outlined in Chapter 1 on broad but responsible participation, but the practical question is whether the compliance burden for smaller PSPs[110] and FinTechs are calibrated to the actual risk they pose, or whether uniform certification requirements create barriers that limit the diversity of the participant base over time.

- The NDPS 2026–2030 names affordability as a core objective.[111] The NBE reserves the right to approve or review tariffs for payment system services. telebirr's fee schedules have historically included zero or low fees on domestic wallet-to-wallet transfers[112]. The NBE's directives explicitly state that pricing should not create barriers to low-value payments. The gap that requires more attention is on the provider's side.

  Agents, MFIs, and smaller payment operators who operate in lower-density markets carry real distribution costs.[113] Those costs do not necessarily align with a pricing model anchored on low retail fees. If provider-side incentives are not addressed, the risk is that low user fees would support adoption in urban and peri-urban areas but fail to generate the distribution density needed for rural and last-mile inclusion.



Our field interactions in Addis Ababa brought us face-to-face with Abebe, a customer in his early forties, who was paying for food at a mid-sized supermarket.

Abebe described the process of paying with QR codes as simple. However, most small merchants prefer cash and if digital payments are used, they are more likely to involve wallet transfers, mobile money, bank transfers, USSD, or app-based payments, and not QR. QR may be seen in more formal retail settings, supermarkets, restaurants, or larger merchants, but not as a typical payment method for small merchants.

Abebe says paying by QR is also inconvenient due to poor network reliability. When mobile data coverage is weak, he prefers to switch to cash to avoid a failed transaction. He is also uncertain about reversals, as connectivity remains a constraint even as new instant payment and QR infrastructure are rolled out.

Thirdly, pricing remains a challenge in Ethiopia's digital payments market, especially for interoperable transactions. For an ETB 2,000 transfer (~USD 13.40), interoperable payments via mobile banking channels can cost as much as ETB 14 (~USD 0.09). While wallet-based interoperable transfers are generally cheaper, they can still carry charges of up to ETB 12 (~USD 0.08) through some players, which can add up for a small merchant.

- Stakeholder coordination in Ethiopia is more centralized than in Nigeria. The NBE's concurrent roles as regulator, shareholder, and policy authority[114] mean that the core IPS objectives, operating rules, and supervisory standards are effectively set by a single institution. This reduces the failures of coordination that can arise in more distributed governance structures. EthSwitch's 2025 governance benchmarking exercise with Nigeria's Interswitch signals an awareness that coordination structures need to evolve as the market grows.

3.3 Market integration and inclusivity

Nigeria

- The NIP launched as a single-purpose interbank transfer system and, over 15 years, expanded into a full-spectrum domestic payment utility. The system now supports P2P, P2B, B2B, G2P, and P2G flows[115] on a single centralized system, with the NIBSS e-BillsPay layer[116] extending reach into government collections and utility disbursements. Remita, the Federal Government's unified collections platform,[117] routes all government receipts through NIP-connected bank accounts, which makes government-to-system integration one of the NIP's most institutionally embedded use cases. G2P payments, which include salary disbursements and social transfer programs, have also progressively moved onto the NIP. [118] A 2026 CBN mandate linked government payments to National Identification Numbers, which added a further layer of formalization.

- The more commercially significant development happened on the merchant side, though not primarily through policy design. OPay and PalmPay, the two largest FinTech platforms by transaction volume, together handle an estimated 60–70% of Nigeria's mobile-money transactions by value[119] and collectively operate more than 1 million agent outlets.[120] This gives them roughly two-thirds of the country's agent banking infrastructure. Merchants who operate on these networks are effectively on NIP systems, even if the interface is a FinTech wallet or agent POS terminal rather than a bank-issued instrument. NQR, the CBN-mandated QR standard, has grown but lags in merchant adoption. This means that a significant share of small-merchant acceptance still runs through proprietary FinTech interfaces rather than the common national standard.

- The transaction data in Figure 8 below illustrates the outcome of this trajectory. The NIP processed USD 115 billion in 2020 and USD 781 billion in 2024. Transaction volumes increased from 2 billion to 11 billion over the same period, which means a fivefold increase in value and a near-sixfold increase in volume. This growth resulted from deeper use among existing users and expanded reach to new ones, driven substantially by the 2023 Naira shortage, caused by the NBE's redesign of the naira note.[121]

  Despite this, the demographic distribution of usage remains uneven. Inclusion surveys show that unbanked populations are concentrated in rural and northern states, and the December 2023 CBN directive requires BVN or NIN[122] for all account tiers tightened onboarding requirements for exactly the population segment that tiered KYC was designed to reach.

- The sequencing lesson Nigeria offers is largely one of accumulation rather than deliberate phasing. Core infrastructure and governance were established first, while use case expansion followed through a combination of regulatory intervention, competitive pressure from FinTechs, and demand shocks that forced behavioral change at scale. The reforms that most expanded market reach, such as FinTech access, agent banking density, and open banking guidelines, were not premeditated as a reform sequence but arrived under pressure and at intervals that market dynamics dictated.

The NPS represents the most deliberate reform attempt as a structured redesign that introduces direct FinTech connectivity and API-based onboarding in a single program. Whether that can compress the remaining inclusion gap more rapidly than the prior 15 years managed is the central question the system now faces.

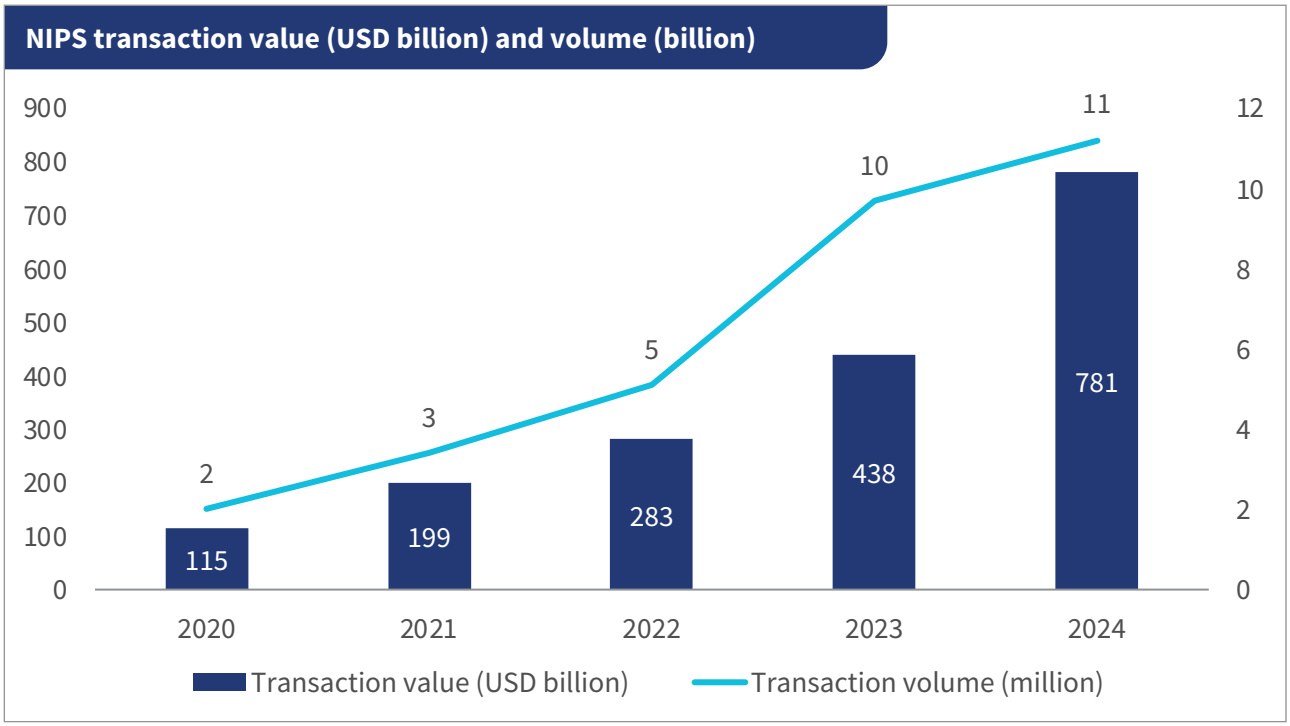


Figure 8: NIPS transaction value and volume (2020 - 2024)

Ethiopia

- EthioPay-IPS launched in February 2026 with a broader intended use case set[123] than the NIP had at an equivalent stage. The system supports P2P and wallet-to-wallet transfers, interoperable QR payments through ETHQR for merchant transactions, P2G payments that cover that covers utilities, taxes, and government fees, and card-based online payments for e-commerce. Government use cases are central to the strategy. The NDPS 2026–2030 targets a shared G2P disbursement hub connected directly to EthioPay-IPS.[124] It seeks to route 80% of all government social transfers through the system digitally by 2030 to allow beneficiaries to choose their receiving provider rather than being locked into a specific bank.
- The growth in EthSwitch's transaction data shown in Figure 9 reflects the pre-IPS period rather than EthioPay-IPS itself. It provides important context for the environment into which the IPS has launched. EthSwitch processed 6,715 million transactions in 2022 and 79,370 million in 2024, a nearly twelvefold increase in volume for more in two years, while the value of transactions grew from USD 1.1 billion to USD 4.8 billion over the same period. This growth can be attributed to EthSwitch's role in switching card and ATM transactions and, increasingly, wallet-based transfers, and demonstrates that the underlying market demand for digital payment services exists at scale. The question EthioPay-IPS must answer is if it can capture and consolidate that demand on an interoperable system rather than allowing it to remain distributed across provider-specific systems.
- The early evidence points to several conditions that will determine whether that happens. ETHQR, the NBE's mandated interoperable QR standard, is advancing in urban merchant contexts but has

limited penetration among smaller and rural merchants, which is precisely where the inclusion benefit of interoperability is most significant. telebirr's dominance in the wallet ecosystem, with more than 47 million subscribers and ETB 1.81 trillion (USD 11.6 billion)[125] in annual transactions, means that a large share of existing digital payment behavior sits within a single provider's closed loop. The government's P2G and G2P agenda,[126] including fuel, utility, and tax payments, represents the most structurally reliable early use case for EthioPay-IPS, because it creates mandatory touchpoints that generate habitual usage rather than relying on organic behavioral change.

- In terms of Ethiopia's sequencing position, the market has already demonstrated an appetite for digital payments through bank and wallet ecosystems. This means EthioPay-IPS is not digitizing from scratch but unifying an already-active market onto a single payment system.

  The questions considered around sequencing are not whether people will use digital payments at all. Instead, they ask if people will use the interoperable IPS rather than remaining within provider-specific ecosystems that are more familiar and, in the case of ONUS transfers, often cheaper. The NBE's challenge is to ensure that use case development, pricing incentives, and merchant acceptance investment advance in parallel rather than waiting for interoperable volumes to materialize organically.

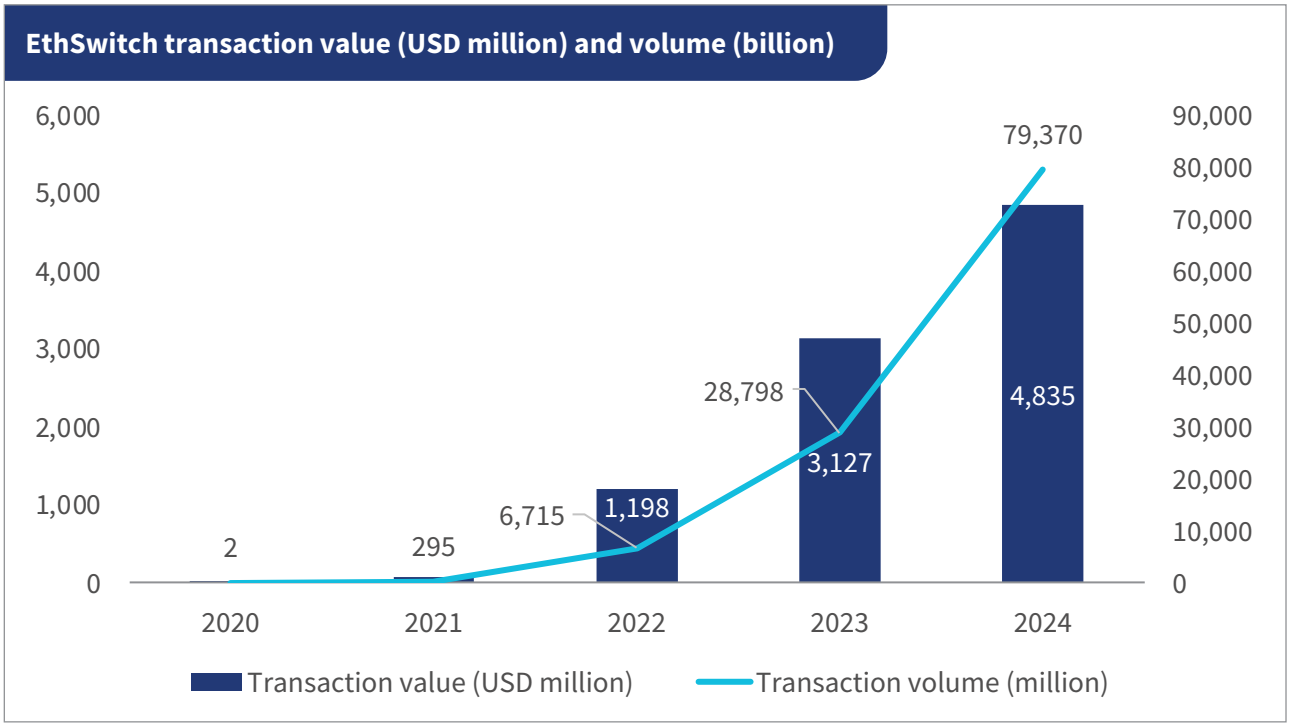


Figure 9: EthSwitch transaction value and volume (2020 - 2024)

3.4 Interoperability and cross-border connectivity

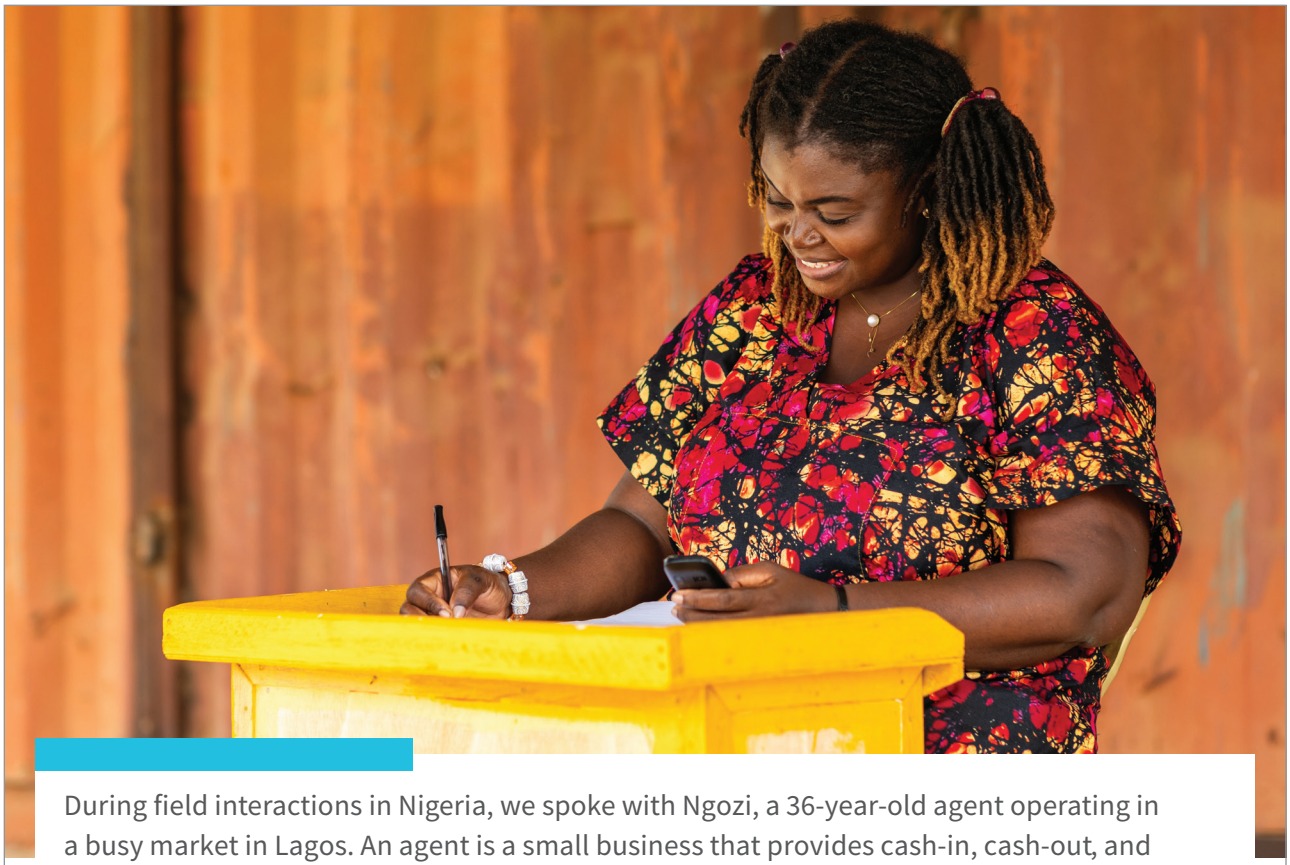
Nigeria

- By routing all instant transfers through a single national switch,[127] the NIBSS ensured that any account holder at any licensed bank could receive a transfer from any other, without bilateral agreements between institutions. This centralized model delivered interoperability by design, but did not resolve the boundary between bank accounts and non-bank wallets. For most of the NIP's operational history, transfers between a bank account and a mobile money wallet required workarounds. Transfers were typically routed through a bank account that the mobile money operator held at a commercial bank, rather than flowing through a direct interoperable pathway.

The 2023 NIBSS directive[128] that delisted PSSPs and switches from the NIP's inward transfer channels tightened this further, making it harder for wallet-based transactions to settle directly on the national IPS. The NPS's API architecture is designed to address this by giving nonbank providers direct connectivity, but the full interoperability outcome, where a user can transfer money to a mobile money wallet from a bank account as simply as transferring between banks, is still in progress.

Figure 10: Players in the Nigerian payment ecosystem

- On merchant payments, NQR provides a common QR standard in principle, but adoption has been uneven.[129] Most small-merchant digital acceptance in Nigeria runs through proprietary FinTech interfaces, particularly OPay and PalmPay POS terminals, or through account numbers[130], rather than through NQR acceptance points. This limits the interoperability benefit for merchants and creates a partial dependency on whichever FinTech platform a merchant has enrolled with.



During field interactions in Nigeria, we spoke with Ngozi, a 36-year-old agent operating in a busy market in Lagos. An agent is a small business that provides cash-in, cash-out, and payment acceptance services on a financial institution or payment provider's behalf. Many small merchants also act as agents and use their POS terminals to accept and record customer payments as deposits. Ngozi's experience shows that formal interoperability at the program level does not always translate into interoperability at the point of use.

Ngozi keeps several POS devices from different providers, including bank-linked terminals and devices from FinTechs, such as OPay and Moniepoint. This is because transaction success rates vary depending on which network a customer's card or account sits on. In practice, she chooses the terminal that will most likely process the payment successfully, based on uptime, network reliabiliy, settlement speed, dispute resolution processes, and transaction success rates.

An agent may need multiple terminals to manage uncertainty over routing and transaction completion. They also incur additional costs to maintain several POS devices, beyond rent, mobile data, cash float, receipts, and day-to-day operating expenses. For smaller agents and merchants, this raises the cost of participating in digital payments and can make acceptance harder to sustain. The market may be interoperable in principle, but from the agent's perspective, it still behaves like a set of overlapping networks with uneven reliability.

- Cross-border interoperability is Nigeria's most significant unresolved gap, and it is notable given the country's economic profile. Nigeria is the largest source of inbound remittances in Sub-Saharan Africa, with flows estimated at more than USD 20 billion annually[131]. The bulk of those flows arrive through international money transfer operators and informal channels rather than through NIP-connected pathways, which means the system that handles 11 billion domestic transactions per year plays a minimal role in the country's most important cross-border payment corridor. The NIBSS has participated in exploratory work on the Pan-African Payment and Settlement System (PAPSS), and the CBN is a member of PAPSS's governing council,[132] but Nigeria has not yet operationalized PAPSS connectivity to route significant remittance or trade volumes through the system.
- The adaptability question for Nigeria is how the system responds to a more complex and diverse ecosystem. The NPS represents the most structural reform attempt to date, as it introduced ISO 20022, real-time settlement, and open API access[133] in a single program. Yet, it is being deployed into a market that has already developed significant workarounds and proprietary layers on top of the existing rail. The risk is not that the NPS fails technically, but that the ecosystem it is designed to unify has become sufficiently entrenched in its current form that standardization takes longer than the architecture alone would suggest.

Ethiopia

- EthioPay-IPS was designed before the market fragmented,[134] which gave policymakers and EthSwitch the opportunity to set common standards before provider-specific ecosystems became entrenched. ETHQR is mandatory for all licensed payment providers.[135] It is designed to allow a merchant with a single QR code to accept payments from any bank account or wallet on the system, which removes the need for separate acceptance solutions per provider. Nigeria has yet to achieve this interoperability outcome at the merchant layer, while Ethiopia has designed it in from the outset.
- The practical question is whether mandated standards translate into actual usage at scale. Common standards require providers to implement the technical specification, merchants to accept and display QR codes, and users to understand how to initiate payments through them. The standards also require that the economic incentives for both merchants and providers make ETHQR adoption more worthwhile than alternatives.

  In Nigeria, the NQR faced exactly this adoption gap. It is a technically sound standard that has not achieved the merchant penetration it was intended to. This was partly because the FinTech platforms that dominate distribution had limited incentive to route transactions through a common standard rather than their own interfaces. Ethiopia is not immune to the same dynamic. telebirr's dominant market position gives it limited commercial incentive to foreground ETHQR if ONUS transfers within the telebirr network are cheaper[136] and more familiar to users.

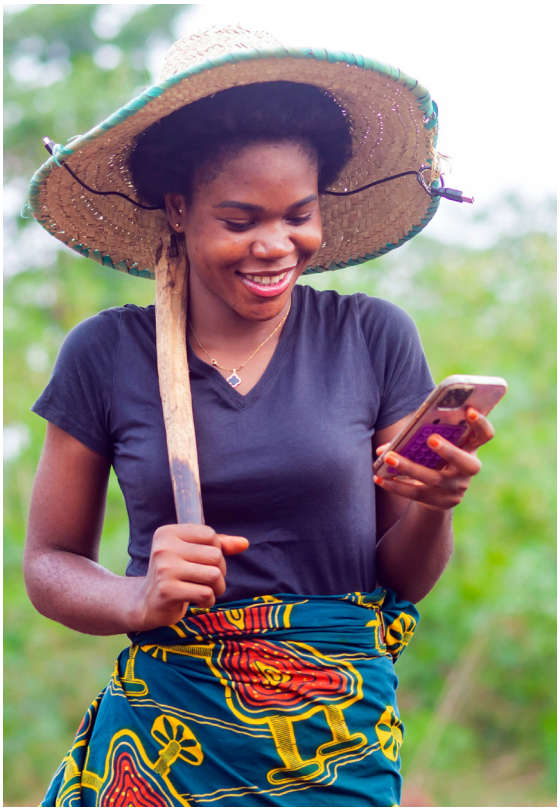
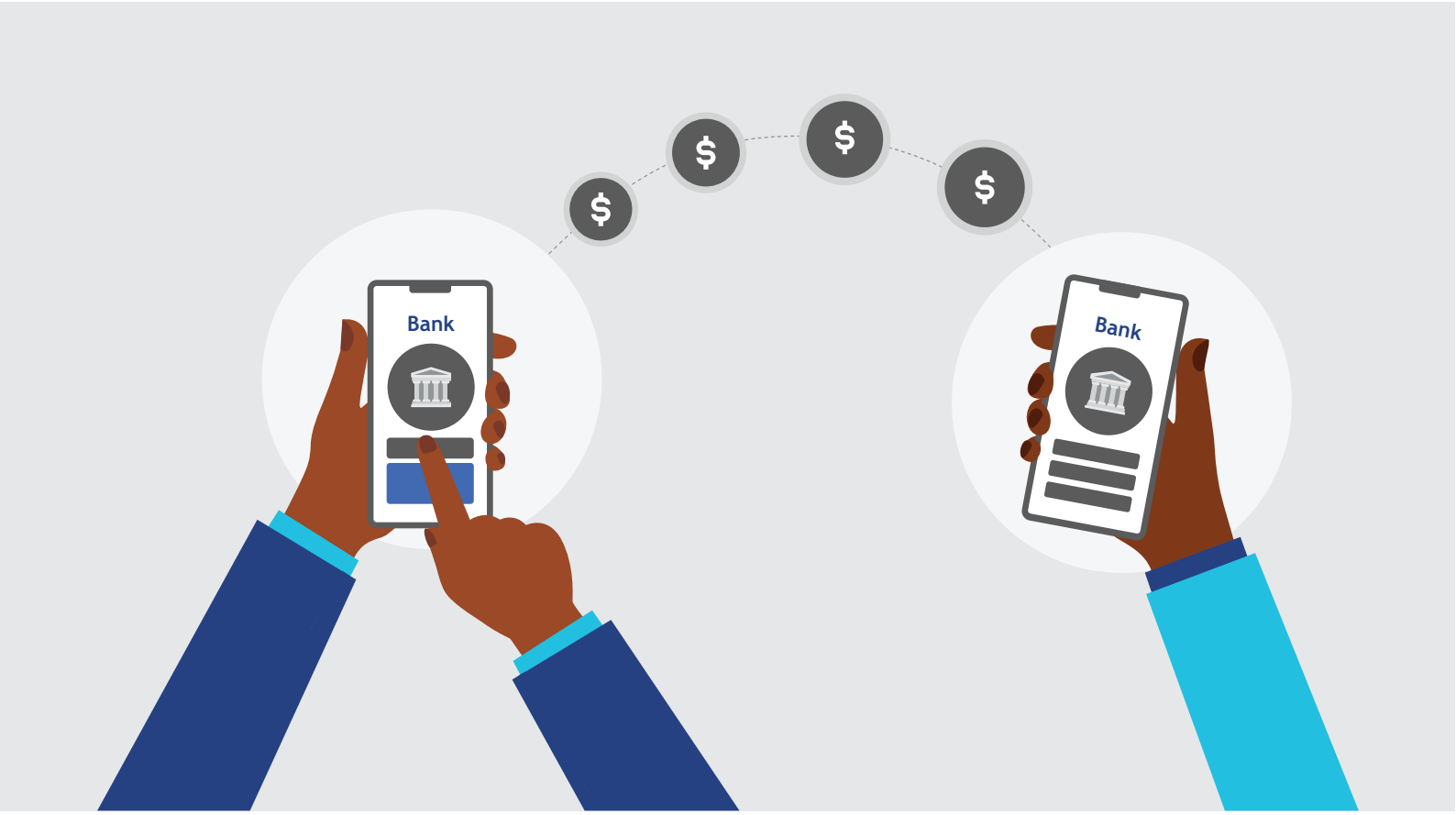


Figure 11: Players in the Ethiopian payment ecosystem

- More broadly, on domestic account-to-account interoperability, EthioPay-IPS connects banks, MFIs, and licensed wallet providers on a common rail, which is a significantly more integrated starting position than the NIP had at an equivalent stage. The remaining gap is at the provider fringe, smaller PSPs, FinTechs, and non-bank remittance service providers that are still navigating licensing and technical certification requirements before they can connect directly to the system. The NBE's

2025 amendment directive on payment instrument issuers targets this gap, but the conversion of regulatory intent into active participation takes time and depends on the pace of the NBE's certification processes.

- On cross-border connectivity, Ethiopia's most material corridor is inbound remittances, which the World Bank estimates at approximately USD 4.7 billion annually, equal to around 3.4% of the GDP.[137] Most of these flows arrive through banks and formal money transfer operators, but are not settled through EthioPay-IPS. PAPSS membership and bilateral connectivity discussions are at an exploratory stage, and the NBE has not yet operationalized a pathway for cross-border transfers to settle directly on the national IPS rail. The NDPS 2026–2030 references cross-border payments as a medium-term objective. Yet, the regulatory and foreign exchange conditions required to enable real-time cross-border settlement, particularly the managed float and strict FX controls that NBE maintains, represent structural constraints that go beyond payments policy alone.
- Ethiopia's adaptability advantage is that it is designing with NPS-era thinking from the outset. The current framework embeds ISO 20022 messaging, open API architecture, and a stated commitment to periodic review of participation and governance structures. The risk is different from Nigeria's. The system does not need to be redesigned to accommodate complexity. The challenge is not to redesign the system to accommodate greater complexity, but to build the institutional and supervisory capacity needed to manage that complexity as more providers, use cases, and cross-border connections come onto the platform.



Chapter 4
Looking ahead: Instant payments as DPI

The comparative analysis of Nigeria and Ethiopia shows that instant payment systems (IPS) are shaped more by design choices, governance, and market conditions than by technology. Both systems move money in real time, but they differ in who can participate, which use cases are supported, and how reliably users experience the rail. These differences point to a wider shift. Instant payment systems are now core elements of the digital public infrastructure (DPI),[138] not isolated financial-sector projects.

Instant payments within digital public infrastructure

Within DPI, an IPS sits alongside digital identity and data-exchange systems as the transaction layer that moves value between people, firms, and public institutions. When this layer is treated as shared infrastructure rather than a collection of proprietary products, it supports services at lower marginal cost. Nigeria's evolution from NIP to NPS and Ethiopia's launch of EthioPay-IPS illustrate two points on this path.

Nigeria is retrofitting a long-standing rail into a broader DPI agenda. Ethiopia is building its IPS as part of an integrated stack that includes Fayda digital ID and a national digital payments strategy. In both cases, the policy question is no longer whether to build an IPS, but how to align it with identity, data, and public-service systems so that it works as an enabling layer.

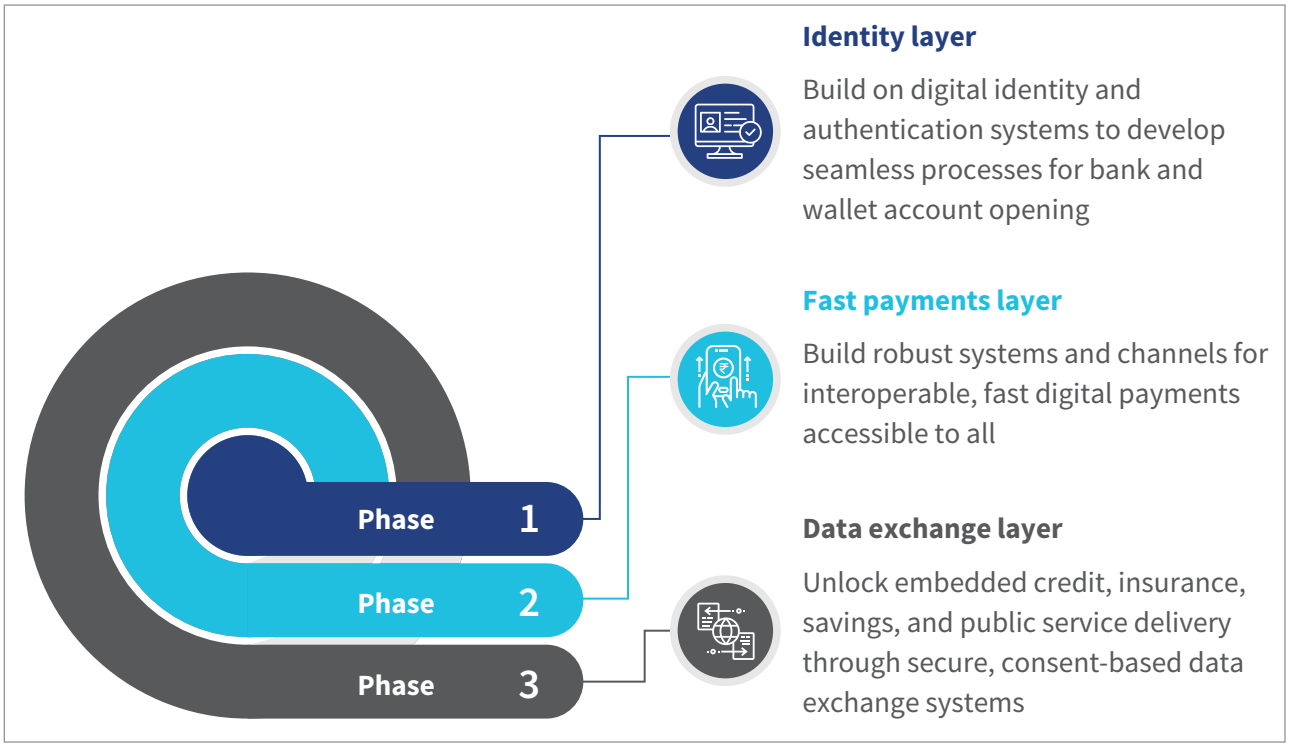


Figure 12: IPS as a part of the digital public infrastructure

Strong digital identity systems lower onboarding costs, support remote KYC, and route government payments directly to individuals rather than intermediaries. If governed under clear rules on access, consent, and reuse, transaction data can support credit, insurance, and merchant services that rely on reliable histories rather than collateral. Nigeria's decision to link salary and social payments to the national identity and Ethiopia's choice to anchor NDPS 2026–2030 in Fayda both reflect this direction, even though implementation remains incomplete.

Viewing IPS as part of the digital public infrastructure also sharpens its role in government payments and public services. Evidence from low- and moderate-income countries shows that digital G2P programs can reduce leakage, lower administrative costs, and improve the timeliness of transfers when they

run through inclusive digital rails. Nigeria's Treasury Single Account and the Remita platform, built on NIP-connected bank accounts, show how IPS can become part of core fiscal operations rather than an optional retail channel. Ethiopia's plan to route most social transfers through EthioPay-IPS and a shared G2P hub follows the same logic. When the government uses IPS consistently, it creates predictable transaction flows that support business cases for last-mile infrastructure and give users repeated exposure to digital payments.

Strategic priorities for the next phase of development

For policymakers who see IPS as digital public infrastructure, three forward priorities stand out.

1. **Maintain trust and resilience even as the system scales.** As volumes grow and systems become more embedded in fiscal operations, social protection, and commerce, the cost of outages and fraud rises sharply. Regional evidence shows that attempts at fraud and total losses have increased alongside digital payments, even as fraud rates per transaction have improved. This makes shared fraud-intelligence utilities, program-level dispute processes with clear timelines, and transparent liability rules central to IPS design. It also implies that, rather than relying on delayed reporting, supervisors will need better tools. These include near-real-time data feeds and analytics to spot anomalies, alongside RegTech and SupTech solutions that enable oversight to keep pace with 24/7 systems.

2. **Design access and pricing in a way that remains inclusive,** in an ecosystem where nonbank actors play a growing role. In many low- and middle-income markets, mobile money operators, FinTechs, super agents, and nonbank acquirers now carry much of the distribution burden, especially for low-income users and small merchants. IPS access rules that continue to assume a bank-only model can create structural frictions. Indirect access raises costs for exactly those providers that extend the rail to underserved users, and fee caps that do not reflect in program-level pricing can squeeze the economics of agent networks and merchant acquiring.

   A DPI approach implies open but controlled access. This means tiered licensing and supervision that are proportionate to risk, and pricing frameworks that keep user-facing costs low while preserving sustainable margins for the providers that invest in last-mile infrastructure. Without this balance, systems risk reinforcing existing gaps between urban and rural areas, and between large incumbents and smaller firms.

3. **Move from domestic rails toward connected systems in a deliberate, sequenced way.** There is a strong interest in using IPS to improve cross-border payments, whether through regional platforms, such as PAPSS, or through direct links between domestic systems. The potential gains include lower remittance costs, more efficient trade settlement, and closer regional financial integration. However, Nigeria and Ethiopia's experience shows that cross-border ambitions must be grounded in domestic realities.

   Nigeria's IPS carries billions of domestic transactions but handles only a small share of cross-border flows channeled through the PAPSS. Ethiopia's IPS is launching in an economy with tight foreign-exchange controls and evolving remittance regulation. For both, reliability, inclusion, and effective fraud management at home remain the binding constraints. Regional links are most likely to succeed once domestic systems are robust and foreign exchange and capital-flow policies align with the demands of real-time settlement.

IPS has become a central element of digital economies rather than a marginal or sectoral innovation. Systems that matter in the coming decade will combine solid technical design with governance that reflects the range of actors who depend on the rail. They will also build in access and pricing that support inclusive distribution, and supervision that uses data and technology to keep pace with market change.

Nigeria and Ethiopia follow different theories of change. One is more market-driven and the other more state-led. However, both show that technical capability is only one part of success. More decisive are the choices about who can connect, on what terms, at what cost, and with what protections in the event of transaction failure.

As instant payment systems become more tightly integrated into digital public infrastructure, they will influence how people pay, access public services, build financial histories, and participate in economic life. For policymakers, the central message is straightforward. Decisions about IPS involve the wider digital and financial architecture of the economy. Policymakers should not treat IPS as rails to be laid once and left in place, but as living systems that they must manage, adjust, and safeguard over time, in line with changing risks, opportunities, and societal expectations.

Glossary

Term	Definition
Instant payment system (IPS)	A retail payment system that clears and settles transactions in real or near-real time, 24/7, with funds available to the recipient within seconds
Fast payment system (FPS)	Alternative term for IPS, often used in global guidance (e.g., World Bank, BIS) to denote instant or near-instant retail payment infrastructure
Digital public infrastructure (DPI)	Foundational digital systems—typically identity, payments, and data exchange—which provide shared rails for public and private services at scale
Settlement	The process by which obligations between payment participants are finally discharged, usually by debiting and crediting accounts at a central bank or settlement agent
Settlement finality	The point at which a payment cannot be revoked or reversed, giving participants legal certainty that funds received are theirs.
Prefunding	A settlement model in which participants post funds in advance to a dedicated account or pool, and payments are processed against those prefunded balances
Deferred net settlement	A settlement model in which transactions are processed during the day, but participants' net positions are settled at set intervals, which reduces liquidity needs but creates intraday credit exposures
Real-time gross settlement (RTGS)	A settlement model in which each payment is settled individually in central bank money as it is processed, which eliminates net credit exposures but increases intraday liquidity demands
Liquidity risk (IPS context)	The risk that a participant cannot meet settlement obligations when due, even if solvent, because funds are not available in the right account at the right time
Settlement risk	The risk that a payment is not completed as expected, for example, because a participant defaults before their obligations are settled
Interoperability	The ability of different payment providers, platforms, and instruments to send and receive payments seamlessly using shared standards, routing rules, and identifiers
Alias-based or proxy addressing	A mechanism that allows users to send or receive payments using easy-to-remember identifiers, such as phone numbers, national IDs, or email addresses, instead of full account details
QR code payments	Payments initiated by scanning a quick response (QR) code that encodes the information needed to route funds to a merchant or recipient account
ETHQR	Ethiopia's national interoperable QR standard, designed to let a merchant accept payments from any connected bank or wallet using a single QR code

NQR	Nigeria's national QR standard, operated by the NIBSS, intended to provide a common QR acceptance mechanism across banks and payment service providers
Overlay services	Products and features built on top of core IPS rails, such as request-to-pay, bill payment, mandates, or merchant collections, which use standard APIs and messages rather than bespoke integrations
Open APIs	Standardized application programming interfaces that allow licensed third-party providers to connect to IPS rails and build payment services without custom, bilateral technical arrangements
Tiered KYC	A risk-based approach to customer due diligence, in which different account types or limits are linked to different levels of identity verification and documentation
Merchant discount rate (MDR)	The fee charged to merchants for accepting digital payments, usually expressed as a percentage of the transaction value
Agent network	A distributed network of third-party outlets (such as kiosks or shops) that provide cash-in, cash-out, and other financial services on behalf of providers, often critical for lastmile access.
Mobile money	Digital financial services offered primarily by mobile network operators, which allows users to store value and make payments using mobile wallets linked to phone numbers
Treasury single account (TSA)	A unified structure of government bank accounts that consolidates cash resources, typically used to route government revenues and payments through a single treasury-controlled system
Request-to-pay (R2P)	A messaging framework that allows a payee (e.g., a merchant or biller) to send a payment request to a payer, who can authorize the payment through their own provider or channel
Cross-border connectivity	Arrangements that link domestic IPS with regional or foreign systems (directly or via platforms, such as PAPSS) to support real-time, low-cost international payments
RegTech	The use of technology and data to improve regulatory compliance and supervision, including automated reporting, analytics, and real-time monitoring.
SupTech	Supervisory technology used by regulators to analyze large volumes of data, detect risks, and oversee payment systems and providers more effectively

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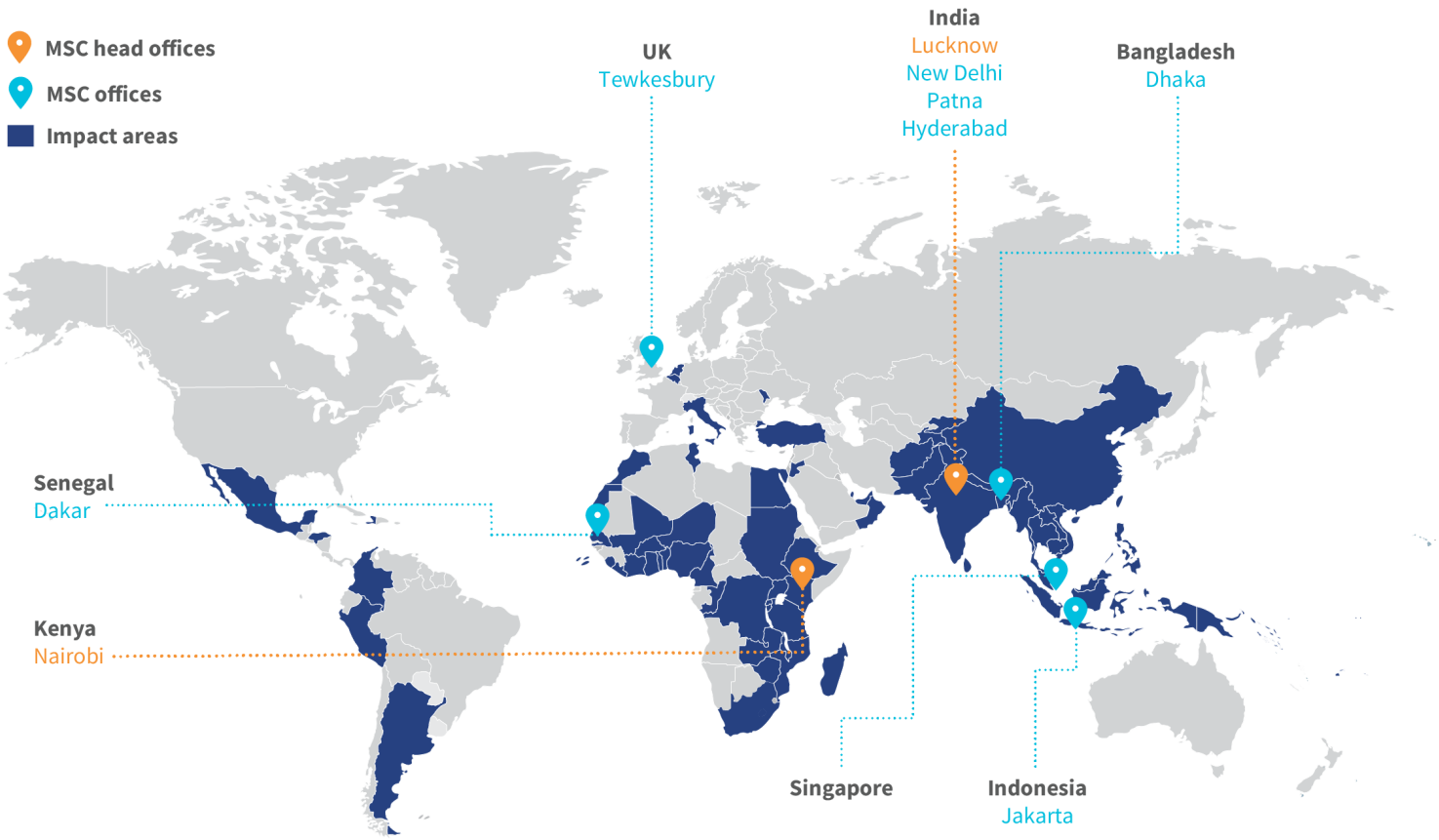

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