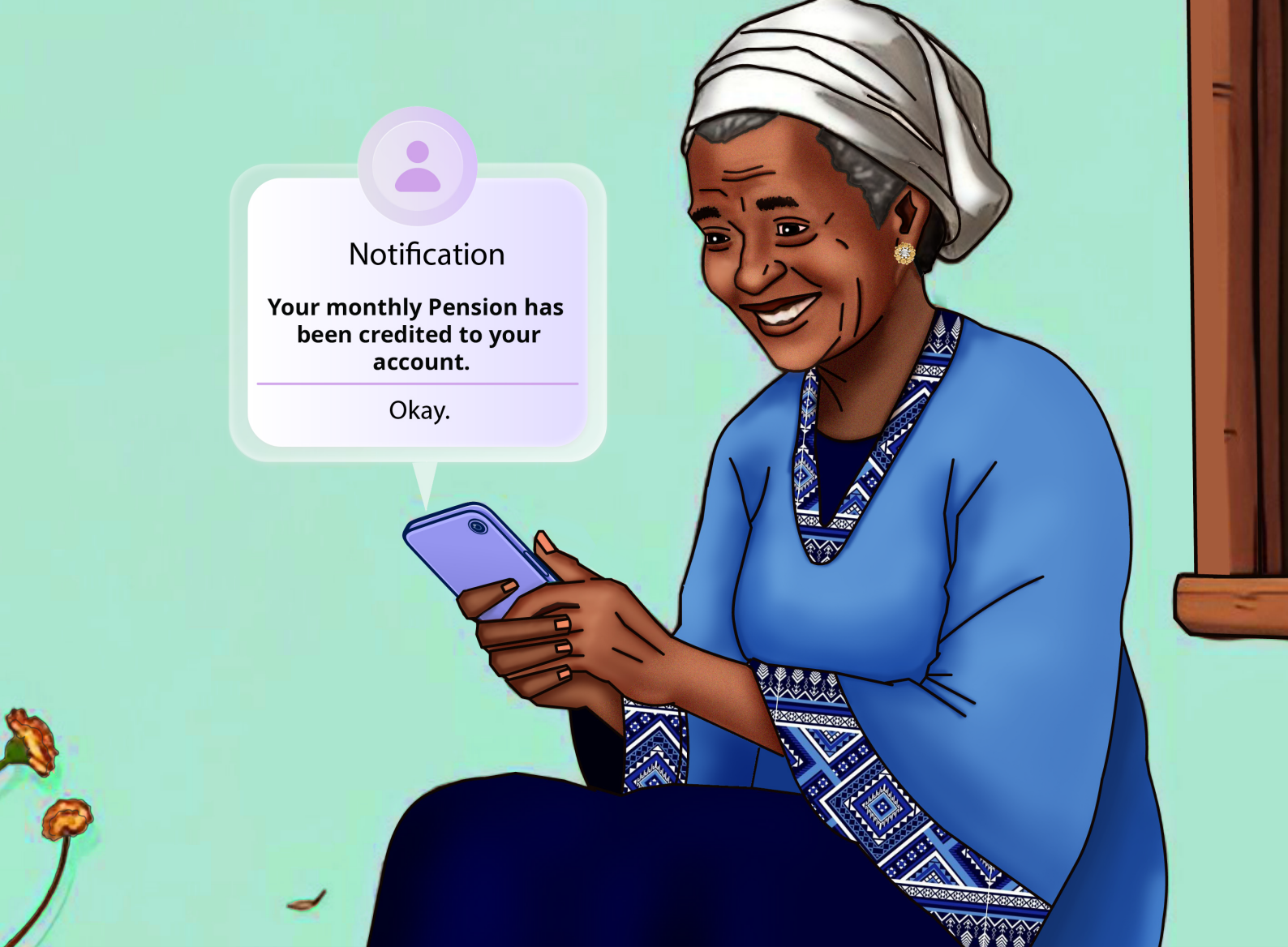




# THE STATE OF INCLUSIVE INSTANT PAYMENT SYSTEMS IN AFRICA

**SIIPS 2025** • Case Study

EthSwitch Ethiopia

## Origin story



### Challenge

Ethiopia has taken steps to digitally transform its payment sector, yet limited interoperability across payment channels has kept digital payments inefficient and costly. In 2011, the National Bank of Ethiopia (NBE) launched the Ethiopian Automated Transfer System (EATS), a modern digital clearing and settlement system (World Bank, 2019). In 2011, the National Bank of Ethiopia, in partnership with the country's banks and microfinance institutions (MFIs), established EthSwitch as a jointly owned share company. Additional participants, including mobile money providers and payment system operators, joined later.

EthSwitch began processing transactions in 2016, starting with ATM interoperability, followed in 2020 with support for POS payments. However, mobile banking and wallet services still operated in closed-loop systems. This limited users to transferring funds through expensive over-the-counter branch services. EthSwitch enabled interbank person-to-person (P2P) transfers using the existing card switch infrastructure in 2021. Yet the fragmented payment ecosystem created incentives for Ethiopians to use cash (UNCDF, 2024). As of 2021, 50% of adults across Sub-Saharan Africa had made or received a digital payment, but in Ethiopia, only 24% of men and 15% of women had done so (World Bank, 2021h). In addition, only 3% of adults used a mobile phone or the internet to pay bills, 5% to send money, 2% to make an online purchase, and 2% to make a digital in-store merchant payment.

To encourage digital payment adoption, EthSwitch launched a project to develop instant payment system (IPS) capabilities in 2022. The EthSwitch IPS went live in February 2024, enabling payments, transfers, and settlements between payment service providers (PSPs). Its capabilities address the fragmentation challenges in Ethiopia's payment ecosystem.

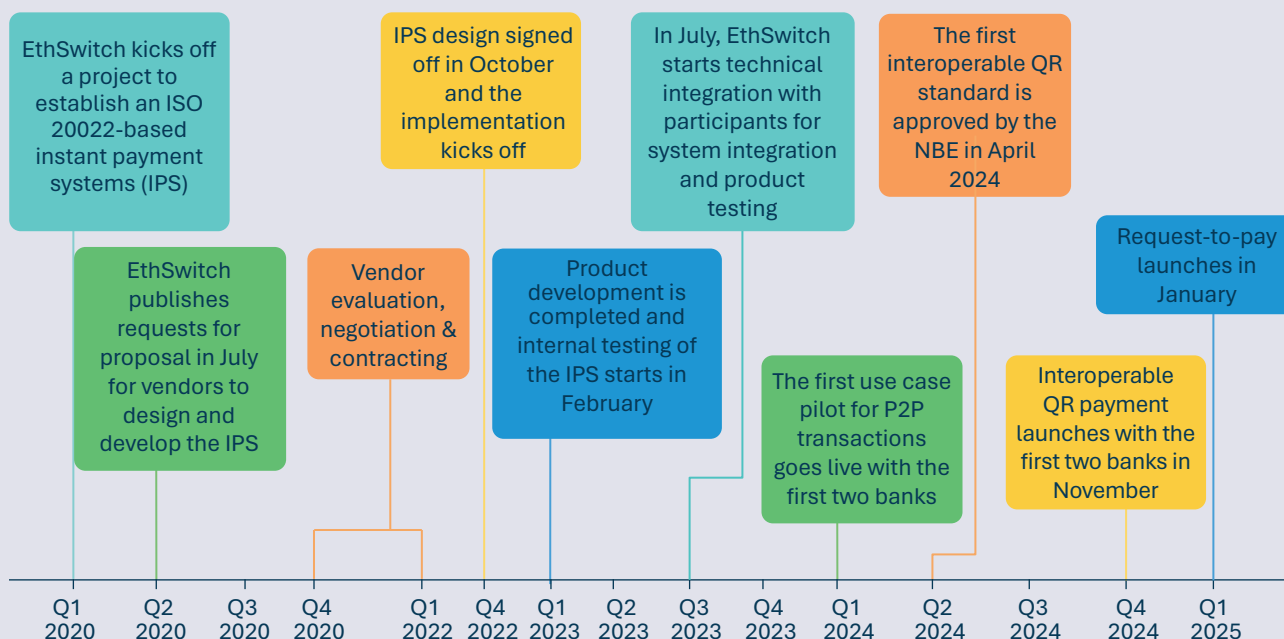


### Value proposition

EthSwitch is a unified platform for bank and non-bank providers (MFIs, MMOs, and PSOs) to connect directly or through sponsors to process payments. The EthSwitch IPS's value proposition is multifaceted, offering significant benefits to stakeholders within the Ethiopian financial ecosystem, such as:

- 1. Improved interoperability:** The central interconnection hub enables transactions between bank and non-bank financial institutions, allowing users to make payments digitally.
- 2. Expected efficient payment processing from shared services and infrastructure:** The shared unified platform reduces the need for individual institutions to invest in proprietary infrastructure to enable interoperable digital payments. Rolling out new use cases for all participants is expected to be easier and more cost-effective.
- 3. Improved affordability:** Transfer costs on the EthSwitch IPS are approximately 47% lower per transaction for end users compared to the cost of digital payments before its introduction. Additionally, QR code functionality offers a more affordable alternative to traditional point-of-sale (POS) terminals for small businesses.
- 4. Enhanced financial inclusion:** The system has the potential to extend digital financial services to unbanked populations through the participation of non-banks, including MMOs and MFIs. It could also improve usage through more accessible, affordable, and convenient payment options.

## EthSwitch Timeline



**Source:** EthSwitch stakeholder engagement, 2025.

Efforts to build an interoperable IPS began in February 2020, when EthSwitch developed an implementation roadmap for a technical architecture to support secure, interoperable, and real-time settlement. By mid-2020, EthSwitch had issued a request for proposal (RFP) to select a technical solution provider and establish a dedicated project office led by a program management director.

Phase one of the IPS implementation commenced in November 2022. It focused on establishing key modules (Instant Core Payments Switch, Operator, and Participant Portal) and enabling the first use case: Simple P2P Credit Push Transfer. Internal testing of the first builds provided by the IPS vendor began in February 2023.

Industry participant engagement began in July 2023 following a two-stage go-to-market strategy: onboarding and public launch. After confirming the P2P use case was secure and stable, EthSwitch distributed onboarding packs and engaged multiple banks in integration testing. The system went live

in February 2024 with the P2P use cases and two participating banks: Awash Bank and Amhara Bank.

In 2024, EthSwitch expanded functionality to include QR code payments and request-to-pay (R2P) transactions for merchants. In April 2024, the NBE had approved a standardized QR scheme and QR brand, ETHQR, creating a single standard for all participants. In November 2024, the NBE mandated that payment providers adopt the standard to promote public trust and interoperability and minimize consumer confusion.

Bulk transactions, alias payments, direct debit and e-mandate, and payment initiation service provider (PISP) connection functionality are all in the pipeline. EthSwitch plans to enable bulk payments in 2025, beginning with P2B and P2G transactions. Direct debit and e-mandate development was 50% complete as of December 2024 and will enable recurring payments using account or wallet numbers. The functional specification document for PISP/third-party connection functionality has been finalized.

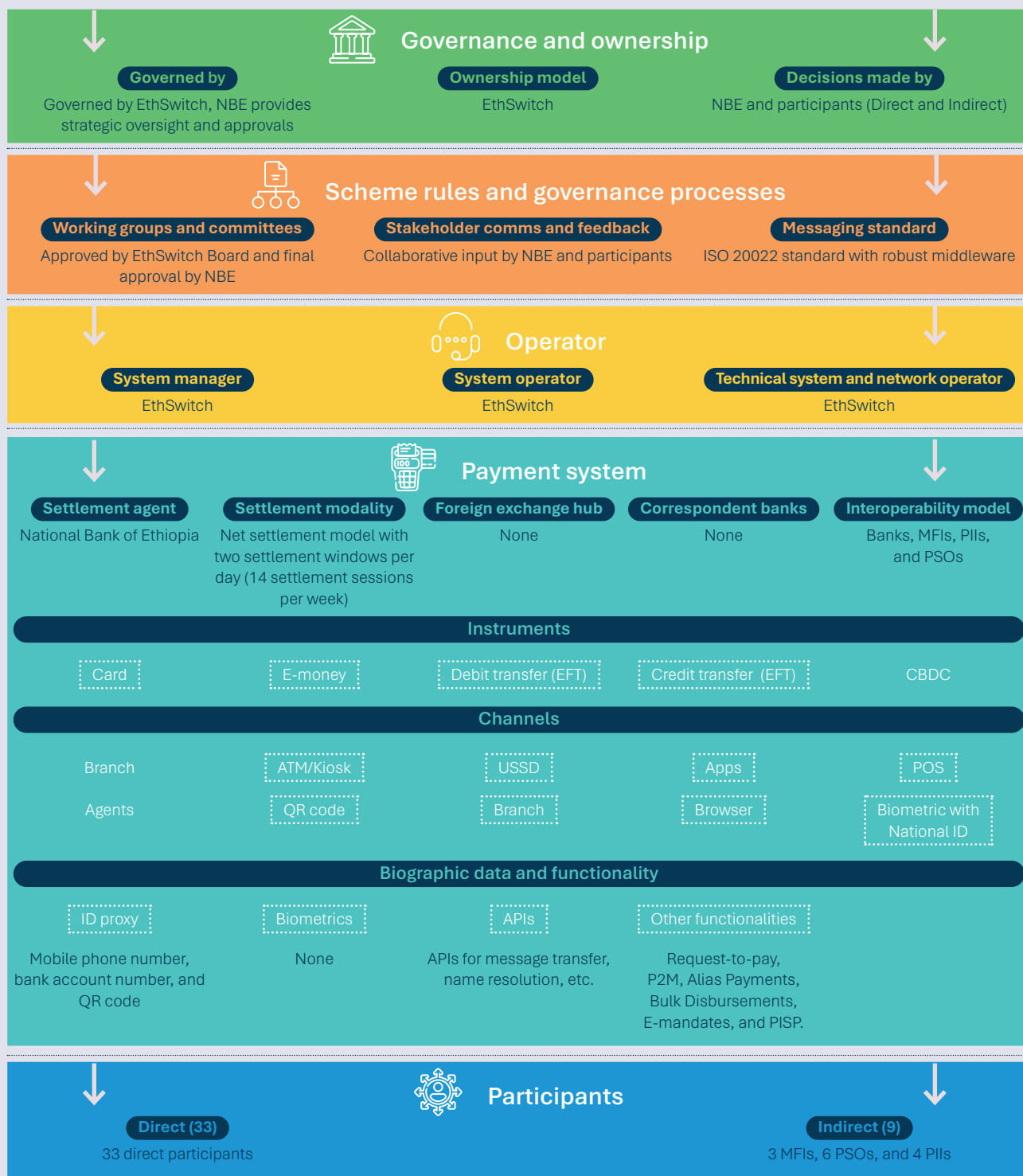
EthSwitch also has projects underway to enable cross-border payment functionality through integration with other IPS. These include a project with Aani, a central bank IPS in the United Arab Emirates, covering Dubai and Abu Dhabi; card integration has already started (Al Ethiad

Payments, 2025). Discussions with the Pan-African Payment and Settlement System (PAPSS) and Ghana Interbank Payment and Settlement Systems (GhiPSS) are ongoing to enhance cross-border payment capabilities.



# Governance and operations

## Payment system overview



The EthSwitch IPS has 33 direct participants (30 commercial banks, 1 e-money issuer, and 2 MFIs) and 9 indirect participants (4 MFIs, 2 DFS, and 3 wallets). As the market evolves, EthSwitch will continue onboarding new participants in line with the NBE's mandatory participation directive. The IPS uses standardized application programming interfaces (APIs) to enable integration between PSPs and technical service providers using ISO 20022 standards, as well as robust middleware for messaging formats, transaction types, and data validation rules, and to connect with participants that have not yet adopted ISO 20022. Also, EthSwitch integrates with the NBE's Real-Time Gross Settlement (RTGS) system, which does not fully support ISO 20022 messaging formats. Consequently, the IPS operates on a net settlement model with two daily settlement windows. Once the NBE migrates its system messaging to the ISO 20022 standard, the IPS intends to have up to seven daily settlement windows.



### Governance structure

The EthSwitch Share Company (EthSwitch S.C.) is a public-private entity jointly owned by the NBE and 33 payment providers, including 32 banks and 13 non-bank financial providers. New owners can join by buying shares. This shared ownership model aims to secure the input of every participant and align their interests. The IPS is a service provided by the company.

The IPS supports direct and indirect participation models through sponsorship arrangements. PSPs can participate by purchasing a share in EthSwitch or through an alternative participation model that requires an annual subscription fee. Banks operate as direct participants with settlement accounts at the NBE. Non-banks participate indirectly through sponsoring banks that can maintain settlement accounts at the NBE.

The National Payment System (NPS) Proclamation No. 718/2011, which provides the legal framework for Ethiopia's payment systems and grants the NBE regulatory authority, defines governance for all

EthSwitch solutions, including the IPS (more on the regulatory framework below).

EthSwitch is licensed as a payment system operator under the NBE Payment and Settlement Systems Directorate and is governed by a 12-member board of directors comprising CEOs from banks with ownership stakes (NBE, 2025a). The board makes IPS-related decisions under the NBE's regulatory guidance, with the NBE vice governor serving as the board chairman. This structure ensures input into key decisions from diverse stakeholders, including the NBE, IPS participants (both direct and indirect), and payment industry associations.



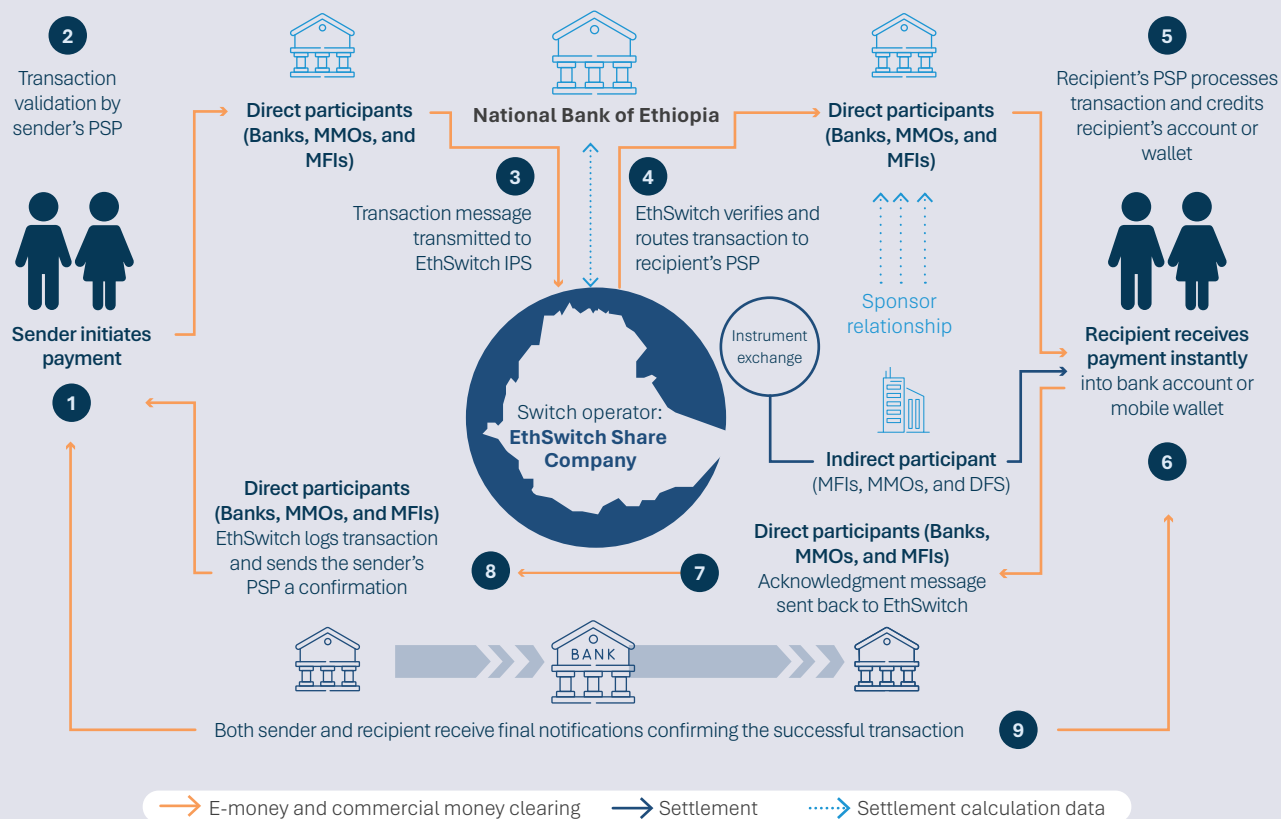
### Functionality

The EthSwitch IPS employs a channel-agnostic approach that supports diverse channels across bank and non-bank PSPs. The system accommodates feature phones and smartphones and enables transactions through web-based platforms, mobile applications (including USSD), QR codes, point-of-sale (POS) terminals, and automated teller machines (ATMs). The participants select the channels they offer based on customer needs.

EthSwitch supports multiple payment instruments to facilitate digital transactions. These include transfers between bank accounts through P2P credit push transfers, as well as all-to-all interoperability between bank accounts and mobile wallets (e.g., P2P wallet-to-wallet, wallet-to-account, and account-to-wallet transfers). The system enables Request-to-Pay (RtP) payment for P2B transactions through merchant-presented QR codes (both static and dynamic) as well as payee-presented QR codes for P2P transfers. The QR payment system maintains full interoperability, and the IPS has fully implemented RtP functionality.

The NBE is the Ethswitch settlement agent. The system leverages central bank liquidity by directly connecting to the NBE-managed RTGS system for final settlement.

## EthSwitch IPS transaction flow



The instant payment process begins with the sender initiating a payment through one of their PSP's supported channels. The sender's PSP validates the transaction details, including identity verification and funds availability. It then transmits the payment instructions, formatted in the ISO 20022 message standard, to the EthSwitch IPS via the PSP API. The IPS routes the message from the sender's PSP to the recipient's PSP using Bank Identification Numbers (BIN). After the recipient's PSP authenticates, authorizes, and verifies the account, the IPS forwards payment status to the sender's PSP, which notifies the consumer through mobile app and SMS channels. An acknowledgment message returns to the IPS for transaction logging and confirmation. The sender and the recipient receive final transaction confirmation from their PSPs.

EthSwitch is developing payment alias functionality for the IPS to enhance the user experience. By June 2025, the system enabled payments using aliases such as phone numbers, national IDs, or custom short codes linked to accounts. These aliases will

facilitate efficient and secure payment routing, ensuring that transactions connect to the correct accounts and wallets across the diverse ecosystem of banks and non-bank PSPs.



### Technical standards and use cases

The EthSwitch IPS uses ISO 20022 with a robust middleware message format for transmitting payment instructions between PSPs (see Box). Furthermore, all messages from PSPs to the IPS employ private key encryption with signature and digest protocols before transmission. The IPS decrypts these messages using public keys before forwarding them securely to other participants.

## ISO 20022 standard with robust middleware

EthSwitch has created a robust middleware layer that:

- Handles multiple message types, including ISO 8583 (for cards), ISO 20022 (for instant payments), EFT messages, QR specifications, and proprietary bank file formats.
- Converts messages from legacy formats (e.g., ISO 8583, local EFT standards, XML, JSON) into ISO 20022-compliant structures to ensure uniform processing.
- Supports bidirectional translation so that participants using older systems can still interact with IPS seamlessly.

**The middleware exposes standardized, unified API endpoints that abstract the underlying complexity. As a result, participants can integrate once with EthSwitch and automatically gain access to:**

- Payment initiation and acceptance
- Name resolution and alias lookup
- Settlement and reconciliation
- Request-to-pay flows
- Dispute and mandate management

By providing one API specification, EthSwitch reduces integration costs and accelerates onboarding for new participants.

Additionally, EthSwitch offers an API gateway with a unified API for PSP integration. Participants interact with a single endpoint while the IPS manages underlying routing and processing. This enables connectivity and access to system functionality, including name resolution, transfers, transfer reversal, settlement, service requests, messaging, and administrative functions.

EthSwitch implemented a phased deployment strategy for use cases, starting with P2P payments. It followed with P2B functionality through static and dynamic merchant-presented QR payment capabilities. The next development phase will introduce government-to-person (G2P) and person-to-government (P2G) use cases; in early 2025, the IPS began integrating with tax authorities and customs agencies for those purposes. The system will thereafter enable bulk credit disbursements for government worker salaries,

G2P, and large-scale transfers, and e-mandate management to allow recurring payments and third-party-initiated payments (PISP) to support innovation by fintechs and third-party providers.

Future development plans also include, as mentioned, cross-border functionality through integration with other payment systems.



### Business model

EthSwitch provided the initial capital investment to implement the IPS in Ethiopia, supplemented by the African Development Bank's Africa Digital Financial Inclusion Facility and the Gates Foundation. The IPS reports that it operates on a not-for-loss revenue model.



## Scheme rules

EthSwitch, in collaboration with the NBE, has developed specific rulebooks to govern IPS operations, including the IPS Rulebook, the Real-Time Payments (RTP) Rulebook, and the QR Card Scheme Book. These rulebooks define mandatory rules and standards for ecosystem participants. While the IPS scheme rules are restricted to ecosystem participants, the overarching System Rules of the National e-Payment Switch of Ethiopia outline the primary governance framework for all participating PSPs and remain publicly accessible.

EthSwitch maintains fraud management services for all transactions, which are governed by scheme rules. In addition, the IPS has consumer recourse

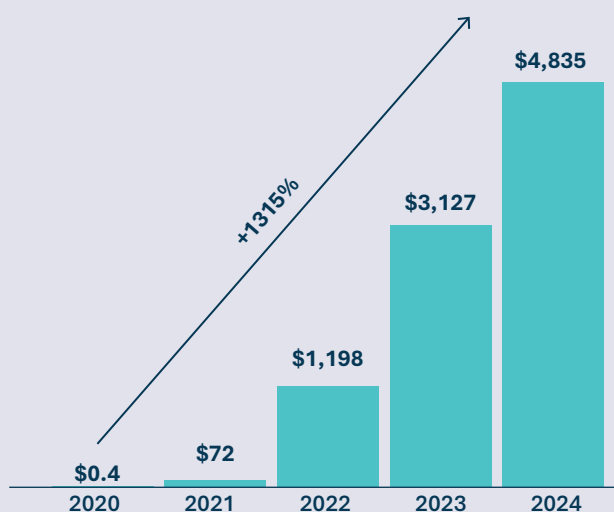
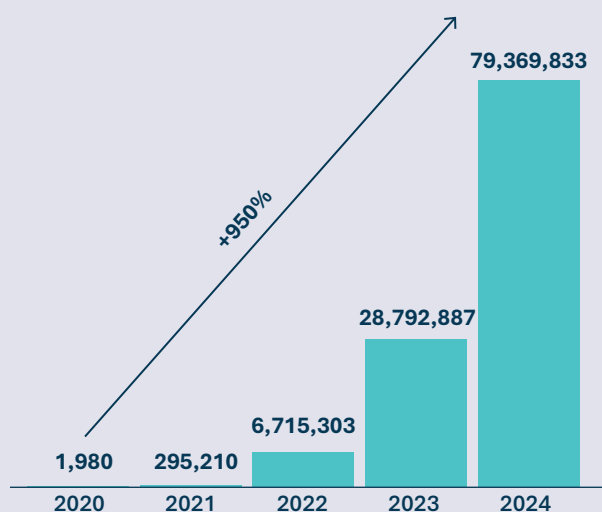
monitoring mechanisms and redress channels to ensure effective issue resolution for end-users. It features a dispute management platform for handling inter-institutional disputes. However, participants are required to address disputes raised by their clients.



## Volumes and values processed by the payment system

EthSwitch launched the cross-domain and interoperable IPS in February 2024, although its precursor scheme had been in operation for three years prior, supporting ATM and POS card payments. The figure below includes all those years, though note the change in capabilities resulting in the 2024 inflection, with the IPS processing approximately 79 million transactions, valuing a total of \$5 billion.

EthSwitch transaction volumes and values (millions)





## Regulatory framework

As the foundation for regulating payment systems in Ethiopia, the EthSwitch IPS and its participants operate under the purview of the National Payment System (NPS) Proclamation No. 718/2011. Subsequent amendments opened digital payment systems to foreign investment. Participating PSPs must comply with AML/CFT rules and regulations issued by the Financial Intelligence Agency to prevent illicit financial activities according to the

Prevention and Suppression of Money Laundering and the Financing of Terrorism PROCLAMATION NO. 780/2013.

As Ethiopia's primary payment system regulator, the NBE establishes directives, guidelines, and principles related to payment settlement systems. This includes, but is not limited to, the Payment Instrument Issuers (PII) Directive No. ONPS/01/2020, Payment Systems Operators (PSO) Directive No. ONPS/02/2020, Use of Agents Directive (FIS/02/2020), Personal Data Protection Proclamation No. 1321/2024, and Financial Consumer Protection Directive No. FCP-01-2020.



## Inclusivity learnings

Ethiopia's EthSwitch IPS is ranked at a progressed level on the AfricaNenda Inclusivity Spectrum, advancing from a basic level in the SIIPS 2024 report. The system now supports pro-poor governance mechanisms through joint decision-making. Board members are CEOs from bank participants with an ownership stake, and it incorporates input from all IPS participants, including indirect participants in decision-making. With this development, EthSwitch meets the criteria for progressed inclusivity.

### The following drivers of inclusivity have been identified for the EthSwitch IPS:

- **EthSwitch supports banking apps** as a payment channel for end-users, meeting the minimum primary channel requirement based on Ethiopia's bank-dominant market. EthSwitch enables P2P, P2B, and B2B use cases, which means the IPS meets the minimum use case functionality on the AfricaNenda Inclusivity Spectrum.
- **EthSwitch allows both bank and non-bank participants** and therefore meets the

cross-domain model criteria. Additionally, the IPS actively collaborates with the central bank, serving as the regulator and supervisory entity. NBE, specifically the vice governor, serves as the board chairman of the IPS. The central bank is also responsible for approving the IPS fee structure and scheme rules. With EthSwitch adopting a pro-poor governance model, the IPS meets the three requirements to gain status on the 2025 AfricaNenda Inclusivity Spectrum.

- **EthSwitch meets two of the three requirements for mature inclusivity by enabling additional recourse and achieving low costs for end users.** The IPS has a dispute management platform for handling interinstitutional disputes, which is managed by a dedicated team that monitors how participants address disputes raised by their clients. EthSwitch operates within a not-for-loss business model, charging low fees sufficient to generate revenue for cost recovery and ensure the sustainability of the IPS. To obtain a mature status on the inclusivity spectrum, EthSwitch needs to expand its use cases to enable B2P, B2G, and cross-border use cases.

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November 2025

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