



THE STATE OF INCLUSIVE INSTANT PAYMENT SYSTEMS IN AFRICA

SIIPS 2023 • **CASE STUDY**

ZAMBIA: NATIONAL FINANCIAL SWITCH



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Origin story



Challenge

The payment ecosystem in Zambia was characterized by limited interoperability, with both bank and non-bank payment service providers (PSPs) relying on bilateral agreements, resulting in a fragmented ecosystem. End-users were unable to consistently transfer payments digitally between PSPs of different types, leading to underutilization of digital retail payment methods by

end-users and low velocity of funds flowing through the national payment systems. In addition, all domestic card transactions switched outside of Zambia at international rates. Cash-based payment dominated and financial inclusion levels remained low (ZECHL n.d.). In 2009, before the commencement of the National Switch Project, 36% of Zambian adults had access to a financial account (World Bank 2014).



Value addition

In response to cash dominance and financial services silos, the Bank of Zambia (BoZ) published a National Payment Strategy with the aim of establishing a secure, cost-effective electronic retail payment platform in 2013 (Bank of Zambia 2013). The National Financial Switch (NFS) was designed to power the end-user transition to digital payment methods and encapsulate the flow of funds within Zambia, including for the international card brands Mastercard and Visa. Through the shared NFS infrastructure, PSPs would benefit from reduced infrastructure acquisition and platform ownership costs, resulting in lower charges imposed on the end-user, and increased uptake of digital payment channels (African Center for Economic Transformation 2019).



Timeline

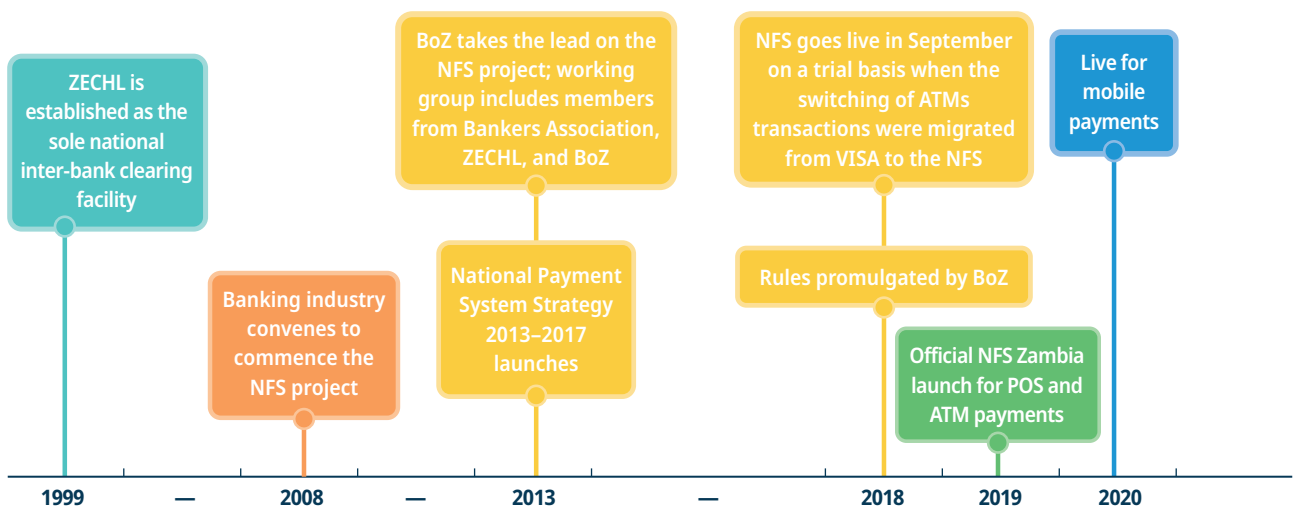
A public-private initiative ran system development. The banking industry attempted to develop its own interbank interoperability initiative in 2008 to create scale. However, the high costs involved with such a project and resistance towards the participation of non-bank PSPs led the BoZ to take the project over in 2013. The BoZ partnered with the Zambia Electronic Clearing House (ZECHL), a jointly owned entity by the banking industry and the BoZ, to spearhead the NFS project with the goal

of promoting a cross-domain system that would enable interoperability across all payment providers. The drive to implement a secure and efficient NFS was further cemented in the National Payment System Strategy of 2017, which laid out the BoZ’s goal of modernizing the national payment infrastructure (Bank of Zambia 2013).

The initiative took a two-phased approach to channel and instrument integration to buy time for industry-level discussions. The first phase incorporated ATM and POS card functionality; the second phase integrated e-money. In 2018, the NFS went live through the ATM stream. POS followed the next year, enabling the routing of domestic Mastercard and Visa payments through the local platform. The NFS was fully launched in 2019. By 2020, it had functionality to switch e-money transactions (Bank of Zambia 2019a). The integration of non-bank participants—namely MMOs, PSPs, and MFIs—happened in 2020.

ZECHL plans to introduce agent banking and a QR code standard and channel by 2024. ZECHL also has plans to launch a centralized eKYC platform within NFS’s services using existing proxy ID functionality (i.e., mobile phone numbers and Bank Identification Number (BIN)) along with limited biographic data. Integration with SADC’s TCIB has begun and integration with COMESA’s planned IPS is in the pipeline.

FIGURE H.4 | Zambia NFS timeline

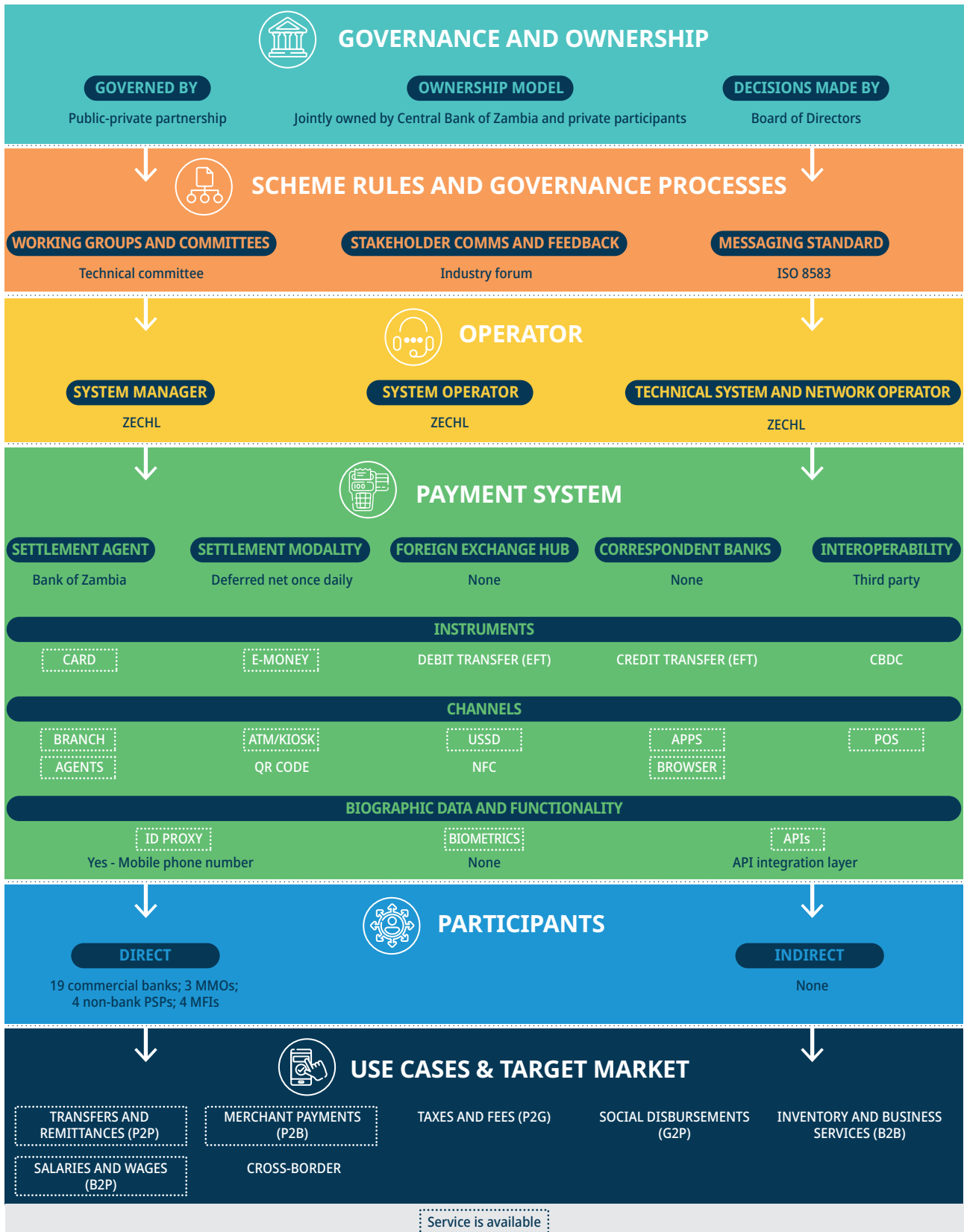


Sources: Bank of Zambia 2020; Bank of Zambia 2019b; Bank of Zambia 2014; Bank of Zambia 2012

Governance and operations

>> Payment system overview

FIGURE H.5 | Zambia NFS model overview



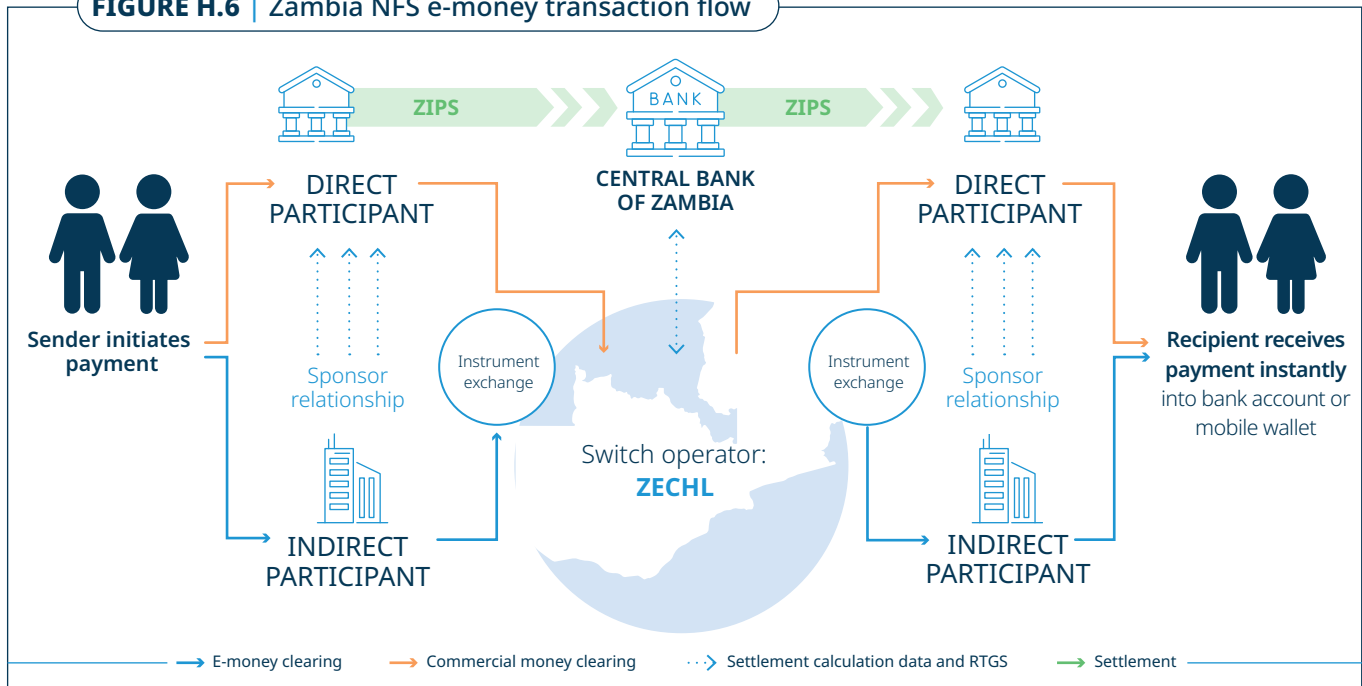
The NFS has been established as an interoperable real-time payment system which connects both banks and non-banks, including mobile money operators (MMOs) (Cooper, et al. 2019; Bank of Zambia 2019). Initially, NFS was designed as a banking industry system, but regulatory pressure and market forces compelled the creation of a payments facility for all actors in the payments sector. The NFS is operational 24 hours per day, 7 days a week (Stakeholder Interviews 2023; ZECHL 2018). The switch calculates net settlement positions and transmits settlement instructions to the BoZ, which acts as the settlement agent (ZECHL 2018). Settlement takes place once per day at 4:30pm through the Zambian Interbank Payment and Settlement System (ZIPSS), the BoZ’s RTGS (Stakeholder Interviews 2023).

The NFS has 30 participants, of which 19 are commercial banks, three MMOs, four MFIs, and four non-bank PSPs. There are an additional 10 non-bank PSPs in

the integration pipeline. Both commercial banks and non-banks can be direct participants and connect directly to the NFS for switching of transaction data. However, only commercial banks settle directly at the BoZ. Non-bank PSPs, therefore, rely on sponsor bank relationships for settlement; this makes them indirect participants in settlement.

The settlement arrangements are set out in the scheme rules. There is no limit on the amount a participating bank can settle. Collateral arrangements are in place to ensure soundness and stability with open payment obligations. If collateral has been depleted, the participating bank may apply to BoZ as the lender of last resort for a loan. This risk is constantly monitored by the BoZ. To date, there has not been an instance in which a bank has failed to settle its obligations at the end of the day (ZECHL 2018). The NFS has no cloud solutions available to date and outsources technical support to external companies.

FIGURE H.6 | Zambia NFS e-money transaction flow





Governance structure

The NFS is operated by ZECHL, a non-profit entity jointly owned by the BoZ and the banking industry. ZECHL was established in 1999 as the country's first and only national inter-banking clearing facility. The organization is overseen by a board of directors comprised of member banks, which collectively own a 50% share. BoZ chairs the NFS and owns the remaining 50% share. Shareholding proportions between member banks are not equal and larger, more established, banks hold more shares (ZECHL n.d.). The board is chaired by the BoZ, however, and each shareholding board member has an equal voice.

Revisions or amendments to the ZECHL scheme rules go through a review process that involves the ZECHL management and ZECHL board. If ZECHL stakeholders agree, the amendments go to the Bankers Association of Zambia (BAZ) for vetting. Thereafter, BoZ reviews and agrees to the changes; they must be signed by each of the participants (ZECHL General Rules 2022). It is unclear if each participant has effective veto power over the rules should they refuse to sign or whether the purpose of the signature is to acknowledge changes, not secure agreement. However, input from non-banks comes through their representation in the Payments Association of Zambia, of which the BoZ is also a member. Through this channel, non-banks are able to voice concerns and the Governor of the BoZ can ascertain whether those views have traction in the market. ZECHL consults

stakeholders in introducing or changing fees incurred using the NFS. The BoZ conducts oversight of the NFS and new developments in the payment landscape through a dedicated payments systems department (Stakeholder interviews 2023).



Functionality

The system supports e-money and card payment instruments. The system is card-based and does not include EFT, which is available on a different clearing system (EFT system). ATM functionality was rolled out first, followed by POS and interoperable e-money (Bank of Zambia 2019). For e-wallet transactions, users can use their mobile numbers as an ID proxy. Participant PSPs map proxy IDs to accounts. ZECHL plans to incorporate national ID numbers as a secondary form of proxy ID. The NFS is channel-agnostic and participant PSPs determine the channels they offer to end-users.



Technical standards and use cases

The NFS currently supports several use cases, including P2P and P2B. The technical functionality also supports social disbursements (G2P), however, no social disbursement programs are routed through ZECHL yet, as of June 2023 research deadline. Bulk payments through donor-based agencies flow through the platform (B2P).



The system currently supports the ISO 8583 messaging standard and participants are required to ensure their technical interfaces with the NFS comply with the standards as outlined in the system's interface specifications document. The NFS is evaluating a transition to the ISO 20022 messaging standard, which will depend on whether the system determines the switch will be useful and value-added for participants.



Business model

ZECHL is a non-profit corporate entity established to provide low-cost services to the payments industry. The revenue of the NFS comes from a one-time application fee, annual participation fees, and a per transaction fee, all charged to participants. Revenue from transactions covers approximately 60% of the operating costs and the remaining 40% is covered by ZECHL. The NPS is not currently amassing enough revenue to cover its expenses. ZECHL has embarked on a review of the current business model with the aim of making the switch self-sustaining. ATM, POS, and e-money transactions face a minimal flat switching fee, with e-money transactions only charged for transaction amounts above a certain threshold (ZECHL 2020). In terms of their membership requirements and in accordance with the scheme rules, each system participant is liable to pay or is entitled to receive the fees specified by ZECHL (ZECHL 2018). These fees refer to the agreed tiered interchange fee,

which is based on the various use cases of the system and between all PSPs. The exact fee structure is not publicly available.

Scheme rules



The scheme includes one set of rules for ATMs and POS, and another set for electronic money payments. For the latter, all relevant payment providers are required to follow them if they want to remain a member of the system.

To join, each participant must be designated by the BoZ to provide financial services and meet all general requirements for participation. Participants must either have a settlement account with the BoZ or provide proof of a settlement sponsorship arrangement with a settlement bank (ZECHL 2018; ZECHL 2020). The scheme rules also contain AML/CFT/CPF requirements for participants, including reporting suspicious activities to the Financial Intelligence Centre and maintaining updated customers/cardholder verification data, among others. All participants are required to adhere with the BoZ's AML directives and other applicable AML/CFT/CPF regulations (ZECHL 2018; ZECHL 2020). Moreover, the scheme rules require participants to adhere to Payment Card Industry Data Security Standards (PCI DSS; Bank of Zambia 2020).

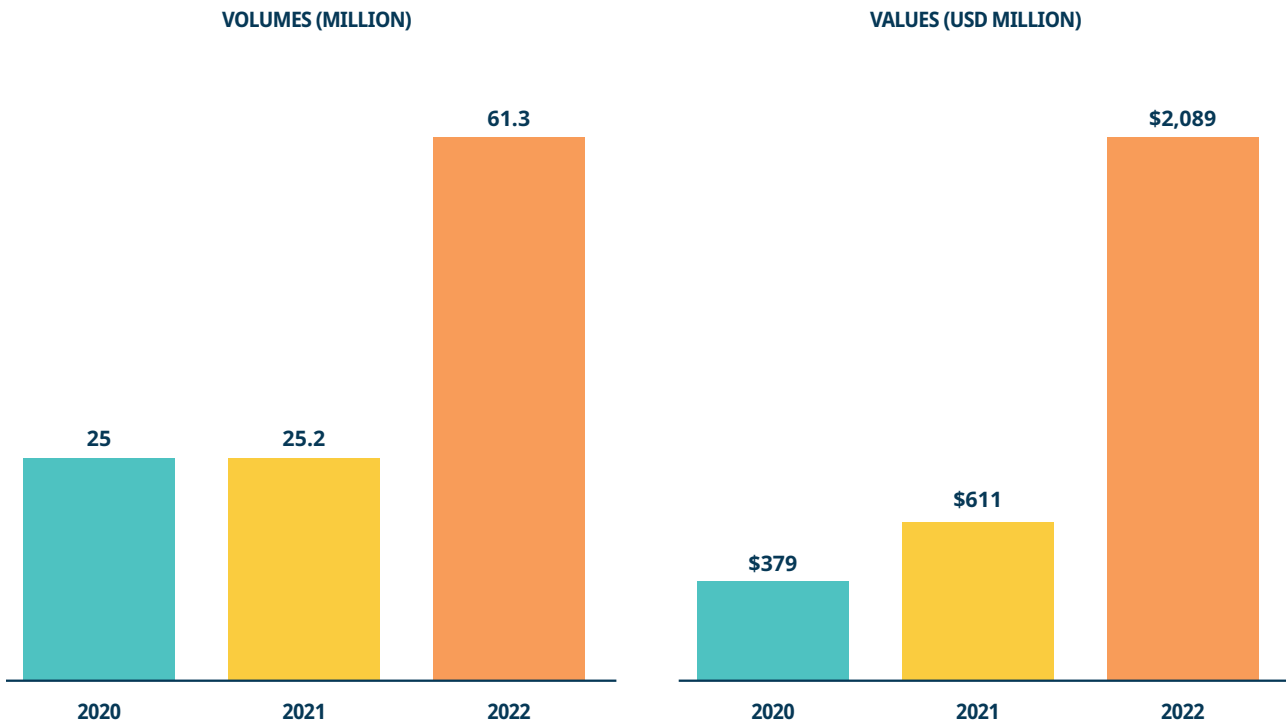


Volumes and values processed by the payment system

Usage of NFS has grown significantly since its launch in 2020, including a sharp incline in 2022. Volumes increased from 25 million transactions in 2020 to over 61 million in 2022, achieving

annual growth rates of 0.8% and 143% in 2021 and 2022, respectively. Values similarly rose from \$379 million (K8.1 billion) in 2020 to \$2.1 billion (K44.7 billion) in 2022, a 242% increase in 2022 alone. The average transaction size has increased from \$15 (K325) in 2020 to \$34 (K729) in 2022.

FIGURE H.7 | Zambia NFS transaction volumes and values



Source: Stakeholder interviews 2023



Regulation

Prior to the release of the NFS, the BoZ passed the National Payment System Act of 2007 which gave the BoZ authority to regulate and oversee the nation's payment systems (Bank of Zambia 2007). Moreover, the strategy sought a payment system that would reduce transaction costs and cash use (Bank of Zambia 2013). The system was instrumental in realizing the vision of the National Payment Strategy of 2013–2017, evidenced by the BoZ issuing regulations in 2017 which regulate banks and non-banks, including e-money issuers. For example, the Banking and Financial Services Act of 2017 stipulated

prudential and supervisory requirements, such as minimum capital requirements and the prohibition of unsafe and unsound practices for banks and financial service providers. The National Payment Systems Directives on Electronic Money Issuance governs the e-money issuers' operations (Bank of Zambia 2017; Republic of Zambia 2018).

Zambia has several regulations on AML/CFT/CPF, which include the Prohibition and Prevention of Money Laundering Act of 2001, Anti-Terrorism Act of 2007, the Financial Intelligence Centre Act of 2010, Anti-Corruption Act of 2010, and others.

Inclusivity learnings

Measured by the IPS Inclusivity Spectrum defined in Chapter 2, Zambia's NFS has a progressed level of inclusivity. In addition to the basic IPS criteria, the NFS is a not-for-loss system that is

characterized by inclusive functionality, supporting the most used channels and essential use cases (P2P and P2B).

The following learnings emerged in the design and rollout of NFS:

- **A joint initiative between the private sector and the public sector can facilitate the successful implementation and development of a system.** Initially, the banking industry could not commit sufficient capital to implement the NFS. For this reason, the BoZ took control of the project and continues to run it collaboratively with the banking industry. This highlights the importance of a joint implementation of a project requiring private sector involvement but intended to be a public utility with low costs.
- **Explicit demonstration of the value-add of interoperability between the banking sector and non-bank PSPs.** Commercial banks were opposed to the idea of interoperating with prospective non-bank members due to fears about added competition and diminished market power. However, ZECHL and the BoZ showed that cross-domain interoperability would lead to better commercial prospects for the banking sector, particularly by deepening the reach of entry-level deposit accounts and stabilizing the existing retail deposit base. Cross-domain interoperability has led to a greater array of payment modes that are fit-for-purpose for end-users.
- **A phased approach to non-bank integration reduced the complexity of multiple simultaneous configurations, which encouraged bank participants to join.** The NFS launched with bank-only channels and extended to mobile money after two years. This phased approach allowed the system to successfully pilot bank-specific channels and demonstrate the market-wide benefits of interoperability. This motivated participation by a diverse group of PSPs and significantly expanded the reach to end-users, resulting in NFS uptake.
- **Deliberate steps ensure industry voices are heard and considered, specifically those of non-bank participants.** The BOZ and most banking participants have a vote through their shareholding membership. Non-bank PSPs have a voice through the Payments Association of Zambia. These mechanisms of communication and decision-making allow for effective oversight from the BOZ and ensure that the entire industry gets a say, deeming it as inclusive as possible.
- **Cross-border PSP integration a challenge.** Despite a regulatory environment conducive to inclusive payments, regulations around data localization are a challenge to the integration of entrant PSPs based outside of Zambia.

AfricaNenda

13th Floor, Delta Corner Tower 2
Chiromo Road, Westlands
PO Box 13796-00800
Nairobi, Kenya

 www.africanenda.org

 info@africanenda.org

 [@africanenda](https://www.linkedin.com/company/africanenda)

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