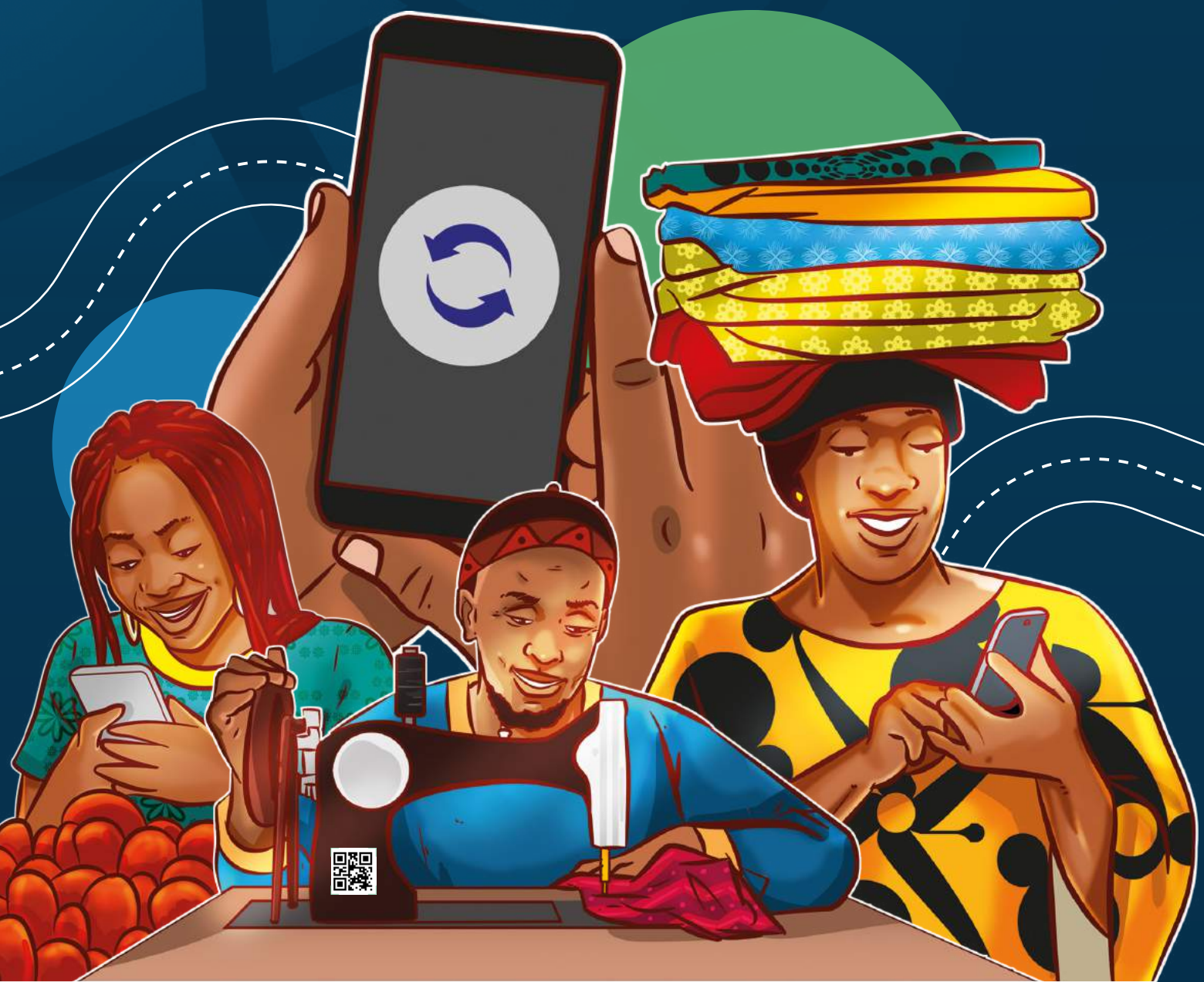


# THE STATE OF INSTANT AND INCLUSIVE PAYMENT SYSTEMS IN AFRICA

SIIPS 2022



**This report was made possible through the partnership involving AfricaNenda, the World Bank, and the United Nations Economic Commission for Africa (UNECA). Cenfri conducted the research.**

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## About this report

The State of Instant and Inclusive Payment Systems in Africa report, SIIPS – Africa 2022, is at its first edition and will be repeated annually. The report aims to inform public-sector and private-sector players in Africa and beyond about the developments in the instant retail payment system (IPS) ecosystem in Africa, including an assessment of the inclusivity of such systems, both in functionality (accessible to all end-users) and governance (all licensed payment providers have fair access and design input opportunities). For this report, only systems with live transactions and functionality as of June 2022 were included.

The data in this report was gathered from publicly available resources from March to July 2022, and it was supported by extensive stakeholder interviews during the same period. The consumer research was conducted between May and June 2022.

## FOREWORD



**Dr Robert Ochola,**  
Chief Executive Officer  
AfricaNenda

The continent has witnessed a dynamic transformation over the last two decades, a period that unseated the slow growth from the 1980s to the 2000s. The fast-paced confluence of political, social, and economic changes brought about a strong sense of optimism and indeed a positive outlook. The phrase “African solutions to African problems,” coined by the eminent political economist George Ayittey rings true and is largely driven by partners who have supported the continent’s growth agenda.

While most African countries have overcome the most emergent issues behind face-to-face interactions with COVID-19, the baseline for digital interactions have increased. The deepened reliance and comfort with digital technologies has led to increased demand for automation across all sectors of the economy, and especially with payments. Rather than allow for backsliding to cash predominance, we want to accelerate the momentum within financial services.

The paucity of information on digital financial services significantly impairs the ability of private entities to evaluate returns on investments and for governments to perform evidence-based policy making. The launch of the State and Instant and Inclusive Payment Systems in Africa report, SIIPS – Africa, begins to close that gap, providing a reliable source of information to assess progress. The first iteration of our keystone annual report will continue to expand and adapt as the digital financial services solutions evolve.

Today, while we see some successes, of the nearly 30 IPS systems in Africa, most continue to be geared toward a limited group of financial institutions and rely on high transaction values. In economies operating predominantly in cash, there is significant untapped commercial and social opportunity for these financial services providers to extend their customer reach and expand their balance sheets. When presented with solutions that meet populations where they are, both physically and mentally, individuals move to formal financial services regardless of income level. Only when digital financial services reach scale are they then able to significantly aid in the development of their respective countries.

The more than 350 million financially excluded Africans\*, in addition to the many financially underserved, are tangible proof that the current products and systems do not fit their needs. We believe access to payment systems and transaction accounts via instant payments are the first step for inclusion and self-empowerment. Providing a method to individuals that mirrors the convenience of cash helps to break the

dependency on physical currency. However, the effort requires coordination to digitize the flow of funds across the ecosystem, from the vendor selling plantains amongst traffic to paying bills for electricity or rent—making industry collaboration a cornerstone of AfricaNenda’s strategy.

As Africa pivots towards a digital economy, driven simultaneously by regional and continental integration, it is requiring a new level of openness and transparency at a domestic level. As cross-pollination improves the health of agriculture, so too can information exchange improve the financial inclusion outcomes. Across the continent, there are countless untold stories of the innovations built by governments and commercial entities to overcome barriers in rolling out digital financial services. Finally, several countries have commenced their own journeys towards instant payments. These countries would benefit greatly from inviting peers to collectively discover solutions that catalyze development.

Our work is especially geared to vulnerable individuals, in particular women and the poor. Rather than considering the last mile, we focus on solutioning for the last step. Current structures restricting them from access, adoption, and use of digital payments, create real economic costs due to lost productivity and travel expenses to conduct a transaction. These costs become magnified into the broader financial system, lowering the digital savings rate and starving credit markets.

We envision a future of a cashless Africa, where individuals can rely on digital means to pay and to be paid regardless of the purpose or location. We share this vision with our counterparts at the World Bank Group and United Nations Economic Commission for Africa (our partners for this report), identifying how to best deploy resources to promote the development of financial services.

Beyond a baseline, this report is a call to action. While recognizing the progress to date, the journey to full financial inclusion is long, and the current trajectory will not suffice. At AfricaNenda, we strongly believe in the potential for Africans to power the transformation of the continent. It will take the collective knowledge of governments, development entities, and private-sector partners to promote innovative approaches and enduring solutions.

\* Among African economies surveyed in the Findex 2021 round.

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## ACRONYMS

|                    |   |               |  |
|--------------------|---|---------------|--|
| <b>AACB</b>        | Association of African Central Banks                    | <b>EFT</b>    | Electronic funds transfer                      |
| <b>ACH</b>         | Automated Clearing House                                | <b>EMI</b>    | Electronic money issuer                        |
| <b>Afreximbank</b> | African Export-Import Bank                              | <b>FGD</b>    | Focus group discussion                         |
| <b>AML</b>         | Anti-money laundering                                   | <b>Forex</b>  | Foreign exchange                               |
| <b>API</b>         | Application programming interface                       | <b>FPS</b>    | Fast payment system                            |
| <b>ATM</b>         | Automated teller machine                                | <b>FSDK</b>   | Financial Sector Deepening Kenya               |
| <b>AWS</b>         | Amazon Web Services                                     | <b>FSDT</b>   | Financial Sector Deepening Tanzania            |
| <b>B2B</b>         | Business-to-business                                    | <b>FSP</b>    | Financial service provider                     |
| <b>B2P</b>         | Business-to-person                                      | <b>G2P</b>    | Government-to-person                           |
| <b>BA</b>          | BankservAfrica  | <b>GHS</b>    | Ghanaian cedi                                  |
| <b>BCEAO</b>       | Central Bank of West Africa Economic and Monetary Union | <b>GhIPSS</b> | Ghana Interbank Payment and Settlement Systems |
| <b>BoP</b>         | Balance of payments                                     | <b>GIP</b>    | GhIPSS Instant Pay                             |
| <b>BoT</b>         | Bank of Tanzania  | <b>GNI</b>    | Gross National Income                          |
| <b>BVN</b>         | Bank verification number                                | <b>ID</b>     | Identity                                       |
| <b>CBDC</b>        | Central bank digital currency                           | <b>IDI</b>    | Individual discussion interview                |
| <b>CBK</b>         | Central Bank of Kenya                                   | <b>IIPS</b>   | Instant and inclusive payment system           |
| <b>CBN</b>         | Central Bank of Nigeria                                 | <b>IPS</b>    | Instant payment system                         |
| <b>CCBG</b>        | Committee of Central Bank Governors                     | <b>IPSL</b>   | Integrated Payment System Limited              |
| <b>CDD</b>         | Customer due diligence                                  | <b>ISO</b>    | International Organization for Standardization |
| <b>CEMAC</b>       | Central African Economic and Monetary Community         | <b>IT</b>     | Information technology                         |
| <b>CEO</b>         | Chief executive officer                                 | <b>KBA</b>    | Kenya Bankers' Association                     |
| <b>CFT</b>         | Combatting the financing of terrorism                   | <b>KES</b>    | Kenyan shilling                                |
| <b>COMESA</b>      | Common Market for Eastern and Southern Africa           | <b>KYC</b>    | Know-your-customer                             |
| <b>CPMI</b>        | Committee on Payments and Market Infrastructures        | <b>MauCAS</b> | Mauritius Central Automated Switch             |
| <b>DFSP</b>        | Digital financial service provider                      | <b>MFB</b>    | Microfinance bank                              |
| <b>DNS</b>         | Deferred net settlement                                 | <b>MFI</b>    | Microfinance institution                       |
| <b>DRC</b>         | The Democratic Republic of the Congo                    | <b>MFS</b>    | Mobile financial services                      |
| <b>EAC</b>         | East Africa Community                                   | <b>MMI</b>    | Mobile Money Interoperability                  |
|                    |   | <b>MMO</b>    | Mobile money operator                          |



|              |   |
|--------------|---|
| <b>MNO</b>   | Mobile network operator                   |
| <b>MSME</b>  | Micro and small enterprise                |
| <b>NFC</b>   | Near-field communication                  |
| <b>NGN</b>   | Nigerian naira                            |
| <b>NIBSS</b> | Nigeria Interbank Settlement System       |
| <b>NIP</b>   | NIBSS Instant Payment                     |
| <b>NPS</b>   | National payment system                   |
| <b>NQR</b>   | New Quick Response                        |
| <b>OTP</b>   | One-time password                         |
| <b>OCT</b>   | Original credit transfer                  |
| <b>P2B</b>   | Person-to-business                        |
| <b>P2G</b>   | Person-to-government                      |
| <b>P2P</b>   | Person-to-person                          |
| <b>PAPSS</b> | Pan-African Payment and Settlement System |
| <b>PF</b>    | Proliferation financing                   |
| <b>PISP</b>  | Payment initiation service provider       |
| <b>POS</b>   | Point-of-sale                             |
| <b>PPP</b>   | Public-private partnership                |
| <b>PSOC</b>  | Payments System Oversight Committee       |
| <b>PSP</b>   | Payment service provider                  |
| <b>QR</b>    | Quick response                            |
| <b>RCSO</b>  | Regional clearing and settlement operator |
| <b>RFID</b>  | Radio-frequency identification            |
| <b>RTC</b>   | Real Time Clearing                        |
| <b>RTGS</b>  | Real-time gross settlement                |
| <b>RTP</b>   | Request-to-pay                            |

|              |   |
|--------------|---|
| <b>RTPS</b>  | Real-time payment system                    |
| <b>SADC</b>  | Southern African Development Community      |
| <b>SIMO</b>  | Sociedade Interbancaria De Mocambique       |
| <b>SSA</b>   | Sub-Saharan Africa                          |
| <b>SYRAD</b> | Système de Règlement Automatisé de Djibouti |
| <b>TCIB</b>  | Transactions Cleared on an Immediate Basis  |
| <b>TIPS</b>  | Tanzania Instant Payment System             |
| <b>USD</b>   | United States dollar                        |
| <b>USSD</b>  | Unstructured supplementary service data     |
| <b>WAEMU</b> | West African Economic and Monetary Union    |
| <b>WAMZ</b>  | West African Monetary Zone                  |
| <b>ZAR</b>   | South African rand                          |
| <b>ZECHL</b> | Zambia Electronic Clearing House Limited    |
| <b>ZIPIT</b> | Zimswitch Instant Payment Interchange       |

## GLOSSARY OF TERMS

|                                   |   |
|-----------------------------------|---|
| <b>Agents</b>                     | Informal and formal service points where customers can access e-money issuers, bank, or mobile money services such as cash in, cash out, and pay for goods and services (FinMark Trust, 2019).  |
| <b>Branch</b>                     | Cash deposits, withdrawals, and payment for goods and services take place by the customer making use of a bank's storefront location with a bank teller.  |
| <b>Apps</b>                       | A mobile app is a front-end in-between service that authorizes and processes payments between a user's payment portal (mobile device) and a vendor's bank or financial intermediary, including non-banks. It performs the encryption of cardholder data, authorization of payment requests, purchases confirmation, etc. (Slesar, 2022).  |
| <b>ATM</b>                        | Computerized telecommunications devices that provide financial institution clients with access to financial transactions in a public place (World Bank, 2020a).   |
| <b>Available</b>                  | A system is available for use 24 hours a day, 365 days of the year, excluding planned maintenance or system downtime.   |
| <b>Bank IPS</b>                   | Typology term for the purpose of this report. A system that only provides access for banks and that supports instruments associated with bank accounts. Includes microfinance banks in Nigeria.   |
| <b>Bilateral interoperability</b> | Participants have direct connections to one another. Transactions between linked entities are typically cleared and settled through pre-funded accounts that PSPs hold with one another. Establishing bilateral interoperability can be cost-effective and serve as an interim step towards a more centralized approach. However, a multitude of bilateral connections results in complex processes, together with scheme continuity risks as multiple interoperability arrangements must be maintained independently. Ideally key thresholds, in terms of numbers of participants and volume of transactions, should be established upfront with a view to a timely transition to multilateral interoperability. |
| <b>Bilateral prefunding</b>       | When "nostro" accounts are prefunded by connected payment service providers. These accounts are then debited as transactions occur between parts of connected providers <sup>a</sup> (CGAP, 2021).  |
| <b>Bill payments (P2B/P2G)</b>    | A payment made by a person from their bank, mobile money accounts, or other financial stores of value to a biller or billing organization via a digital payment platform in exchange for the services provided (GSMA, 2021a).   |
| <b>Branch</b>                     | A financial institution's physical storefront location where consumers can make cash deposits, withdrawals, and payments for goods and services supported by a teller.  |
| <b>Browser</b>                    | Access for a consumer to make a payment electronically via a web page, linking the payer to the account details of their bank or financial service provider.  |

<sup>a</sup> Nostro accounts are accounts owned by one financial institution but housed within another, where the financial institution could be a bank, MMO, or other payment service provider with stored value accounts.

|   |  |
|---|--|
| <b>Central bank digital currency (CBDC)</b>   | A digital form of a central bank liability denominated in an existing unit of account, which serves as a medium of exchange, a store of value, and a means of payment (BIS, 2018a). CBDC may be transferred either on a peer-to-peer basis or through an intermediary, which could be the central bank, a commercial bank, or a third-party agent (BIS, 2018a).  |
| <b>Central-bank IPS</b>                       | Typology term for the purpose of this report. The IPS is governed by the central bank.   |
| <b>Credit card</b>                            | A payment instrument linked to a credit facility through a card channel and network, with defined scheme acceptance rules, specified functionality, and consumer redress protocols for the channel.  |
| <b>Credit Electronic Funds Transfer (EFT)</b> | The message created whenever a payment instruction via various delivery channels (e.g., the internet) is issued, crediting a customer's transaction account, to make an electronic payment to a third party (PASA, 2022a). Credit EFTs are therefore by definition push payments.  |
| <b>Cross-border</b>                           | The movement of funds between financial institutions within two distinct countries. The cross-border transaction, which can be a range of payment use cases, often require intermediaries operating in multiple jurisdictions (BIS, 2018b).  |
| <b>Cross-domain IPS</b>                       | Typology term for the purpose of this report. System that provides access for banks and non-banks and that supports transactions from both bank accounts and mobile money accounts.  |
| <b>Debit card</b>                             | A payment instrument linked to a depository account, such as an on-demand deposit account, a savings account, or a transfer account. Can be used to make both debit and credit transactions between accounts, as well as between cards (PASA, 2022b). Although technically a pull payment, the locus of control is often with the payer, which means debit cards can essentially function as a push payment. |
| <b>Debit Electronic Funds Transfer (EFT)</b>  | A payment instrument that allows the recipient to collect money from the sender's transaction account without the sender having to do anything but provide written, electronic approval through a debit order mandate (PASA, 2022b). Debit EFTs are, by definition, pull payments.   |
| <b>Deferred net settlement (DNS)</b>          | The process for transaction obligations that are not settled immediately but at some later stage according to a predefined cycle, either daily or more frequently (World Bank, 2021a).   |
| <b>Digital</b>                                | IPS definition term for the purpose of this report. A system is electronic, and the services are accessible on digitally enabled devices.  |
| <b>E-money</b>                                | An electronically transactable currency instrument and a claim against a licensed e-money issuer, supported by commercial bank deposits or by a direct claim upon a commercial bank.   |
| <b>E-money issuer (EMI)</b>                   | A financial institution (bank or non-bank) that is permitted to issue e-money funds, provide payment services or offer funds storage (CGAP, 2012b).  |

|  |   |
|--|---|
| <b>Fintech company</b>                       | Financial technology company aiming to replace or enhance financial services provided by existing financial institutions.   |
| <b>IIPS</b>                                  | Open-loop payment systems that enable the transmission of irrevocable, low-value and digital push payment messages through a set of procedures, rules, and technical standards. The final funds are available to the payee in near real time and as near to 24 hours a day, seven days a week (24/7) as possible. A IIPS single scheme may encompass one or more systems in which licensed payment service providers participate through open-loop and multilateral interoperability arrangements. Licensed payment service providers have fair access to the system and scheme, and participants have equal input opportunities into the system and scheme. The central bank has a role in system and scheme governance to ensure pro-poor outcomes. End-users have access to a full range of use cases and channels, as well as transparent and fit-for-purpose recourse mechanisms, and transactions are low-cost. |
| <b>Independent corporation</b>               | Where the system is owned by shareholders who are not necessarily users of the system (World Bank, 2021b).  |
| <b>Inventory and business services (B2B)</b> | Monetary transfers between two business entities. The size of the payment ranges from large-value payments associated with large intra-industry transactions to retail payments between small, medium-sized and large enterprises (the focus of this report)—for instance, payment for inventory supplies provided by one business to another (World Bank, 2021c).  |
| <b>IPS</b>                                   | Open-loop payment systems that enable the transmission of irrevocable, low-value, and digital push payment messages through a set of procedures, rules, and technical standards. The final funds are available to the payee in near real time and as near to 24 hours a day, seven days a week (24/7) as possible. A single IPS scheme may encompass one or more systems in which licensed payment service providers participate through open-loop and multilateral interoperability arrangements.  |
| <b>Irrevocable</b>                           | Transactions cannot be reversed by the payer in the normal circumstances of business. Exceptions may exist for specific consumer recourse events (e.g., fraudulent or erroneous transactions).  |
| <b>ISO 20022</b>                             | Introduced in 2004, the ISO 20022 messaging standard has become the standard exchange of electronic messaging between financial institutions to share information on payment and nonpayment transactions (World Bank, 2021d).   |
| <b>ISO 8583</b>                              | The most common messaging standard for card payments that was established by the International Organization for Standardization (ISO) in 1987 (World Bank, 2021d).  |
| <b>Jointly owned</b>                         | Where the central bank and private participants own the infrastructure jointly (World Bank, 2021b).   |
| <b>Low-value payments</b>                    | IPS definition term for the purpose of this report. Transactions of less than USD 5.  |
| <b>Merchant payments (P2B)</b>               | Retail payments associated with the purchase of goods and services from a business, irrespective of the size of the business, where the payer is a consumer and the payee is a business (World Bank, 2021a).  |
| <b>Mobile app</b>                            | A front-end in-between service that authorizes and processes payments between a user's mobile device and a bank, financial intermediary, or non-bank. It performs the encryption of cardholder data, authorization of payment requests, purchases confirmation, etc. (Slesar, 2022).  |

|                                       |  |
|---------------------------------------|--|
| <b>Mobile money</b>                   | A service in which the mobile phone is used to access financial services, where value is stored virtually in a transaction account issued by an e-money issuer.  |
| <b>Mobile money IPS</b>               | Typology term for the purpose of this report. A system that only provides access for mobile money providers and that supports instruments associated with mobile money accounts.   |
| <b>Mobile money operator (MMO)</b>    | A mobile network operator, or an entity that has partnered with a mobile network operator, that provides mobile money services, a pay-as-you-go digital medium of exchange and store of value that operates independently of the traditional banking network (IMF, 2022).  |
| <b>Multilateral interoperability</b>  | The permission structure for payment instruments belonging to a given scheme to be used in platforms developed by other schemes, including in different countries (World Bank, 2012). Multilateral interoperability involves the coexistence of multiple attributes, which can be combined in various ways. These attributes fall into three broad dimensions: technical, semantic, and business interoperability <sup>b</sup> (BIS, 2021). The nature of the business interoperability rules determines whether a payments system is multilateral, not necessarily the number of providers, platforms, schemes, or jurisdictions. |
| <b>Near-field communication (NFC)</b> | A standards-based, short-range (i.e., a range of a few centimeters) wireless connectivity technology that enables simple and safe two-way interactions between electronic devices, allowing consumers to perform contactless transactions, access digital content and connect electronic devices with a single touch (BIS, 2020).  |
| <b>Open API</b>                       | The method for software programs to communicate with one another that is designed to conform to published data formats and standards and is made widely available, allowing other companies to integrate seamlessly into the payment system (CGAP, 2022).  |
| <b>Open-loop</b>                      | At least a multilateral or third-party transparent interoperability arrangement, excluding closed-loop, on-us systems.   |
| <b>One-time password (OTP)</b>        | A feature of two-factor authentication security: when an end-user attempts to access a service protected by two-factor authentication they will present an OTP to submit as confirmation of their identity (GMS, n.d.). OTPs in payments systems are frequently numerical pins.  |
| <b>Overseer</b>                       | Continually monitors the system and assesses how safely and efficiently it is operating (BIS, 2016). They are responsible for assessment and monitoring of the system and enforcement of law and regulation to promote safe and efficient payments (CGAP, 2021).   |
| <b>Participant-owned</b>              | Where the system is owned privately by its participants (World Bank, 2021b).   |
| <b>Partially owned</b>                | Where ownership of components of the system is split between the central bank and private participants (World Bank, 2021b).  |

<sup>b</sup> Technical interoperability involves the technical connections and exchange of data, whereas semantic interoperability requires data to be interpreted and acted upon consistently (BIS, 2021). Business interoperability involves commercial agreements that provide standing rules and assurances for the exchange of different commercial instruments and associated risks between different schemes, platforms, and participants, including in different jurisdictions (World Bank, 2012).

|   |   |
|---|---|
| <b>Payment system</b>                       | A set of instruments, procedures and inter-account funds transfer systems that enable the circulation of money (BIS, 2003).   |
| <b>Platform operator</b>                    | Responsible for transmitting payment instructions, calculating settlement positions and other operational activities such as ensuring the quality of service, operational risk mitigation, and the maintenance of standards (CGAP, 2021).                                       |
| <b>Point-of-sale (POS)</b>                  | A specialized device that is used to accept the payment (e.g., a card reader) at a retail location where payments are made for goods or services (GSMA, 2021a).   |
| <b>Private-association IPS</b>              | Typology term for the purpose of this report. The IPS is governed by an association made up entirely of private-sector participants.  |
| <b>Proxy ID</b>                             | An identifier (e.g., e-mail address, mobile phone number) that may be used in lieu of the payer's or payee's transaction account information. These allow the public and the business sector to transact in a seamless manner while initiating a payment (World Bank, 2021e).   |
| <b>Public-Private Partnership (PPP) IPS</b> | Typology term for the purpose of this report. The IPS is governed by a partnership arrangement consisting of the Central Bank and a representation of private IPS participants.   |
| <b>Pull payment</b>                         | The payee initiates (pulls) the transfer of funds from the payer's account (BIS, 2016).   |
| <b>Push payment</b>                         | The payer initiates (pushes) the transfer of funds from an account to the payee (BIS, 2016).  |
| <b>Quick response (QR) code</b>             | A square-shaped pattern consisting of a set of unique white and black blocks, representing information on the recipient, or other transaction details. QR codes can be scanned by any smart device or can be entered manually into a USSD to support transactions (BTCA, 2021). |
| <b>QR code standards</b>                    | Common QR specifications defined by regulators, central banks, or payment councils to overcome logistical constraints of supporting multiple QR codes (World Bank, 2021g).  |
| <b>Real time</b>                            | The value transfer is assured to be instant (within seconds).   |
| <b>Real-time gross settlement</b>           | The continuous (real-time) settlement of funds or securities transfers individually on an order-by-order basis (without netting) (World Bank, 2012).  |
| <b>Recourse mechanisms</b>                  | The mechanisms in place for consumers using the IPS to raise grievances and have them heard and resolved or redressed (CGAP, 2013).   |
| <b>Regulator-owned</b>                      | Where the central bank determines the procedures, and it controls the associated technical infrastructure (World Bank, 2021b).  |
| <b>Salaries and wages (B2P)</b>             | Periodic transactions from businesses to compensate employees for work rendered (e.g., payroll and other compensation-related incentives) (World Bank, 2021a).  |
| <b>Scheme participants</b>                  | Service providers whose customers can access and use the IPS directly through the service provider.   |
| <b>Scheme governance body</b>               | Responsible for overall scheme management, rule writing, and strategic direction, including any explicit inclusivity mandate (pro-poor governance) (CGAP, 2021).  |
| <b>Settlement agent</b>                     | Responsible for moving final funds between scheme participants (CGAP, 2021).  |

|   |  |
|---|--|
| <b>Social disbursements (G2P)</b>                     | A payment by a government to a person's transaction account, often for social disbursements, such as grant or subsidy payments (GSMA, 2021a).  |
| <b>Sovereign currency IPS</b>                         | Typology term for the purpose of this report. Central bank digital currency (CBDC) IPS combines a sovereign currency instrument and value transfer scheme that can provide a unified digital value transfer mechanism between commercial instrument schemes, institutional stakeholders, and individuals within an economy.  |
| <b>Taxes and fees (P2G)</b>                           | Obligations that individuals pay to central, regional, and local public administrations, such as tax payments or utility payments (World Bank, 2021a).   |
| <b>Third-party interoperability</b>                   | The foundation for interoperability of IPS participants via a centralized switching or clearing layer, facilitated by a third party. In some, but not all, countries the third party is an aggregator (CGAP, 2016a). The third party can be a private entity or government owned. Interoperability is achieved when providers connect to the switch.   |
| <b>Techfin company</b>                                | A technology company which traditionally has been providing software solutions that are not primarily finance related, and now seeks to launch financial services (Su, 2021).  |
| <b>Transaction account</b>                            | Any account that holds consumer funds, provisioned by a bank or licensed non-bank financial institution, and capable of sending and receiving payments.  |
| <b>Transaction receipts</b>                           | Notifications sent to consumers, via text, email, or other communication methods, that confirm the initiation or completion of a transaction. It should include information about the DFSP, the location, the amount of the transaction and identification detail, as well as details of the counterparty (World Bank, 2021a).   |
| <b>Transfers and remittances (P2P)</b>                | Transfers of money to family members or friends without an underlying economic transaction, e.g., remittances, sent from one person's transaction account to another (World Bank, 2021a).  |
| <b>Unstructured supplementary service data (USSD)</b> | Part of the GSM protocols for second-generation digital cellular networks and devices. This communications channel was adapted to accommodate financial transactions by enabling customers to send defined instructions to mobile financial services providers along with their personal identification number for authentication, while enabling the provider to send responses to clients and confirm transactions (CGAP, 2015). |

# EXECUTIVE SUMMARY





# INSTANT AND INCLUSIVE RETAIL PAYMENT SYSTEMS ARE CORE TO FINANCIAL INCLUSION IN AFRICA

**Instant and inclusive retail payment systems can play a pivotal role in creating universal access to financial services for all Africans.** The rise of mobile transactions has been a key driver of the substantial gains in the reach of the financial services sector in recent years (World Bank Findex, 2022). Payment services also provide the rails for and gateway to other formal financial services such as savings, insurance, and credit, of which usage remains low in Africa. This means that greater uptake of retail payment services can simultaneously help to bridge the broader financial inclusion gap in Africa. Moreover, the ability to transact and exchange value is at the heart of people's daily economic lives. Thus, by facilitating more secure, lower-cost daily transactions, instant and inclusive payment systems form a powerful mechanism for grassroots economic

empowerment in Africa, and even more so for overlapping vulnerable groups like women, rural populations, and the poor.

**Significant progress is already being made in transitioning to digital retail transactions but changing end-user behavior towards digital means takes time.**<sup>1</sup> To become the basis of everyday exchange of value, digital transactions must provide a compelling value proposition for all transaction needs. To do that, they must be broadly and immediately available, easy to use, and affordable, and they must reach scale to create network effects. The transaction process must also be as quick and reliable as cash. In short, to underpin universal access to formal financial services, payment systems must be both **instant** and **inclusive**.

## What is an instant payment system, and when does it become inclusive?<sup>2</sup>



**Instant payment systems (IPS)** are retail payment systems that are multilateral and open loop and that enable digital push payments in near real time for use 24 hours a day, 365 days a year, or as close to that as possible.



**Instant and inclusive payment systems (IIPS)** process retail transactions digitally in near real-time and are available for use 24 hours a day, 365 days a year, or as close to that as possible. They enable low-value, low-cost push transactions that are irrevocable and based on open-loop and multilateral interoperability arrangements. Licensed payment providers have fair access to the scheme, and participants have equal input opportunities into the scheme. The central bank has a role in scheme governance. End-users have access to a full range of use cases and channels, as well as transparent and fit-for-purpose recourse mechanisms.

## What does it take to build truly inclusive instant payment systems?

To date, there has been limited information on the state of IPS and indeed, by extension, IIPS in Africa and the extent to which these systems are inclusive, especially for lower-income and no-income end-users.

This report is published by AfricaNenda and its partners, the World Bank and UNECA, as the first of a series of

annual reports to assess the landscape and inclusivity of open-loop, instant payment systems in Africa. It combines a desktop-based cataloguing of IPS in Africa with consumer research in seven countries, insights from expert interviews, and detailed case studies to conclude on key trends, barriers, and opportunities for IPS in Africa.

<sup>1</sup> The latest global Findex survey shows that 46% of all African adults with transaction accounts had made or received at least one digital payment in 2021, compared to 33% in 2017 (World Bank Findex, 2022).

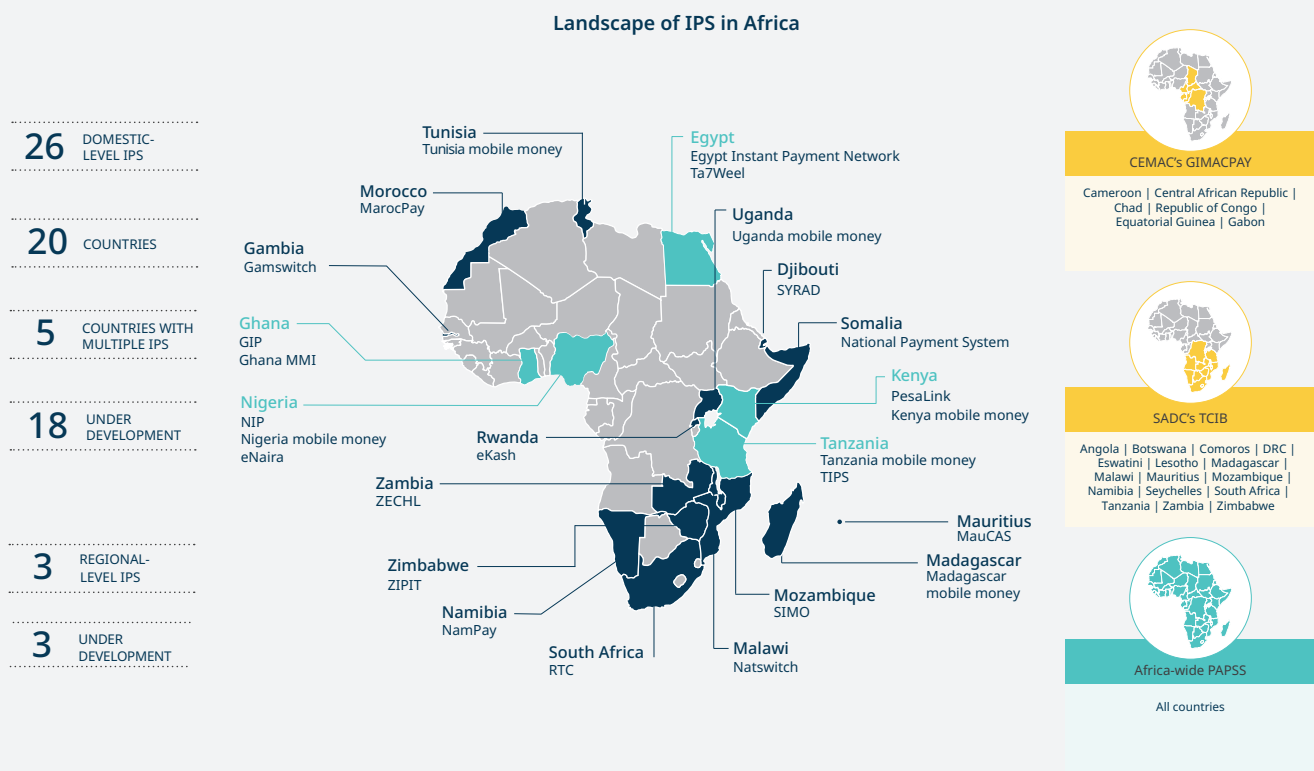
<sup>2</sup> The definitions used in this report are in principle aligned with the definition of the Committee on Payments and Market Infrastructures (CPMI) but seek to emphasize a few specific aspects that are relevant from a financial inclusion context in several low-income countries – notably mobile money account and push payments. Given this, even solutions that enable mobile money users of different mobile money providers to make and receive transfers in real-time are considered under this definition. Though the limitations of such arrangements are recognized in the different categorizations of IIPS.

# RAPID RISE

The need for reliable and efficient payments has spurred significant growth in IPS across Africa (Figure 1), with

on average two new IPS introduced per year during the past decade:<sup>3</sup>

**FIGURE 1. Landscape of domestic and regional IPS in Africa**



The growing landscape of provision has seen substantial traction among users:

### Key trends

- Approximately 16 billion transactions processed in 2021 with a total value of over USD 930 billion
- 32% average annual growth in total transaction volumes since 2018; 40% average annual increase in total value
- Two out of three end-users make digital transactions on a weekly basis<sup>4</sup>
- Women achieve similar access, despite facing greater constraints<sup>5</sup>

3 The mobile money categorization (i.e., a country name followed by "mobile money") in the graph shows the countries with multilateral mobile money interoperability that operate without an independent commercial name. Mobile money IPS systems such as these may be invisible to the end-users, apart from the ability to transact across multiple mobile money providers.

4 Among the sample of end-users covered in the consumer research for this study, MSME respondents transact digitally more frequently than individuals, and digital transaction usage is more common among younger users and those with more predictable incomes.

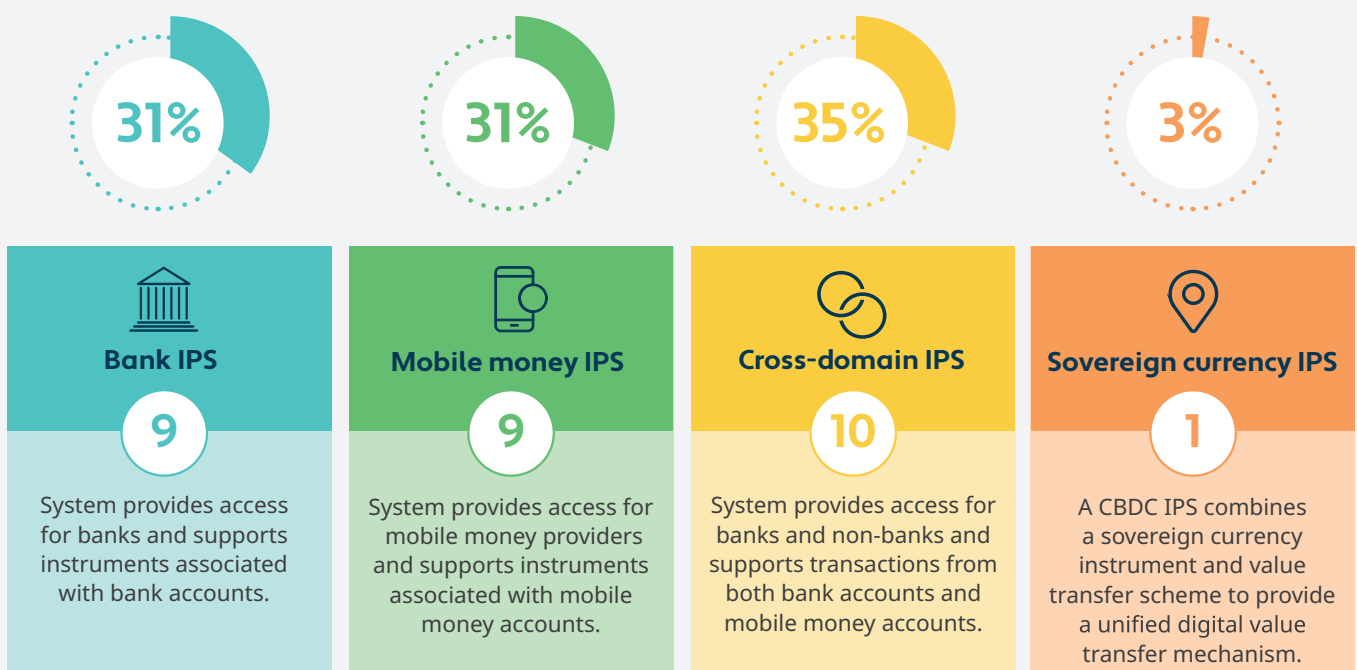
5 In the sample of end-users surveyed for this study there is no gender gap for individual women, but women MSME respondents are less likely to make regular digital transactions than male MSME respondents.

## FOUR MAIN IPS TYPES

The 29 mapped IPS (26 domestic and three regional) can be divided into four IPS types (Figure 2). Mobile money-only and bank-only IPS traditionally dominated. However, cross-domain schemes that enable the instant transfer

between bank accounts and mobile wallets have caught up with siloed systems and now make up the largest number of systems (ten IPS in total). There is also one case of a sovereign currency scheme:

**FIGURE 2. IPS types and definition**



Of the nine identified mobile money IPS, four interoperate through a third party (e.g., a switch or clearing layer), while the remaining five integrate directly with one another

(i.e., through multilateral interoperability). All bank IPS and cross-domain IPS are established through third-party interoperability arrangements.

## BROAD FUNCTIONALITY

The functionality of an IPS dictates to what extent end-users' payment needs are met: **channels, instruments and use cases** determine an IPS's inclusivity.

### USSD



#### USSD is the most prominent channel, but others are gaining traction.

Across domestic and regional systems, USSD is the most prominent channel, offered by 62% of IPS. Given that less than half (48%) of mobile connections in sub-Saharan Africa are via smartphone and only 28% of the population is connected to the mobile internet (GSMA, 2021a), a technology such as USSD, which does not require either, is vital to inclusivity. It should be noted that while USSD will remain an important channel for the foreseeable future, its costs in several countries are prohibitive for end-users, and require attention. Bank systems primarily focus on browser (online banking), ATM and POS functionalities, with a rising number of apps and QR code solutions. Mobile money IPS also increasingly offer payment via apps. In addition, close to 60% of IPS offer branch or agent channels. Cross-domain IPS support the highest number of channels, on average 5.7, compared to the 4.6 channels on average supported by bank-based IPS and 3.3 by mobile money IPS.



#### E-money instruments are the most common; banks focus on credit EFT.

E-money instruments are supported most by cross-domain and mobile money IPS, while banks largely focus on credit electronic fund transfers (EFTs), since they are lower-cost, lower-risk and easier to integrate into core banking systems. Pull-payment instruments such as debit cards and debit EFTs are often available as secondary instruments, mainly offered by bank and cross-domain IPS.



#### P2P use cases are widely enabled, followed by P2B.

Seventy-two percent (72%) of IPS support both person-to-person (P2P) and person-to-business (P2B) payments. P2P payments are the easiest to facilitate, from a technical perspective. Merchant payments are particularly time-sensitive and trust-dependent, thus instant functionality offers a compelling value proposition. All IPS have opted to roll out use cases incrementally rather than integrating all from the start: Only three countries (GhIPSS Instant Pay (GIP) and Mobile Money Interoperability (MMI) in Ghana, MarocPay in Morocco, and NIBSS Instant Payments (NIP) in Nigeria) have so far made business-to-person (B2P), person-to-government (P2G), and government-to-person (G2P) payments possible in addition to P2P and P2B. G2P payments have the scope to drive larger scale through the system and to serve as drivers of first-time use. However, only seven IPS currently integrate G2P payments.





## THE EVOLVING LANDSCAPE OF ACTORS

Across the continent, **banks** and **mobile money operators** (MMOs) are key IPS participants: Standard Chartered, Ecobank, the Standard Bank Group, and Absa Bank (formerly known as Barclays) are participants in most of the IPS that enable bank payment instruments, while most MMOs fall under four mobile network operators: Vodafone, MTN, Airtel, and Orange. Of these, Airtel is the mobile money operator that features in most IPS. **Fintechs** are also increasing in prominence: as direct participants, third-party service providers, or aggregators.

Finally, a few other private-sector players are proving influential in IPS development across the continent, notably **BankservAfrica**, a switch operator and clearing house for the Real Time Clearing (RTC) system in South Africa and the regional IPS serving the Southern Africa Development Community (SADC) region, Transaction Cleared on an Immediate Basis (TCIB).

## GOVERNANCE RESTING LARGELY WITH CENTRAL BANKS AND COMMERCIAL BANKS

The governance of a scheme determines how all processes within the IPS are carried out and sets the rules for a collaborative space for participants that is important to drive inclusivity. In the African IPS landscape, scheme governance and operator rule-setting are usually performed by the same entity.

**Central banks** oversee most IPS: 60% of IPS are either directly governed by the central bank or through a **public-private partnership** (PPP). Central banks also usually provide the settlement system.

In all of these schemes, **decision-making largely rests with central banks and commercial banks**. Of the 10 central-bank-led IPS, only Tanzania's TIPS has an explicit process to obtain participant inputs into decisions, while in all nine PPP models identified, the partnership is between the central bank and commercial banks only, thereby excluding non-bank participants. Apart from central-bank-based and PPP-based IPS, twelve IPS in Africa are governed by a **private association**.

## DIVERSE TECHNICAL SPECIFICATIONS

ISO 20022 and ISO 8583 are the most prevalent messaging standards across IPS in Africa, each used by five of the eleven systems where information is available. Tanzania's TIPS uses a proprietary standard. Open APIs are enabled by at least nine IPS. This can boost the inclusivity of instant

payments through providing access to different use cases and value-added services (World Bank, 2021a). QR standards have also been established in nine IPS. Ten domestic-level IPS explicitly specify proxy identities. Among them, mobile-phone numbers are the most common proxy ID used.

## ARE AFRICAN IPS TRULY INCLUSIVE?

**Many IPS fulfil some inclusivity criteria, but none have reached mature inclusivity yet.** While the rise of IPS is a substantial achievement, the analysis of the IPS landscape shows significant constraints to inclusivity. Not all IPS offer access to channels that are most in demand; most do not yet enable cross-domain interoperability for greatest end-user choice, and the majority of them do not

allow non-banks to participate in decisions. Many of them also only offer limited use cases, and only a handful have integrated B2P, P2G, and G2P payments. These limitations are challenging the ability of IPS to scale. When assessed for inclusivity, only five IPS are classified as moving towards mature inclusivity, and none are deemed fully inclusive yet (Box 1).

### BOX 1. Classification of IPS in Africa by assessed level of inclusivity

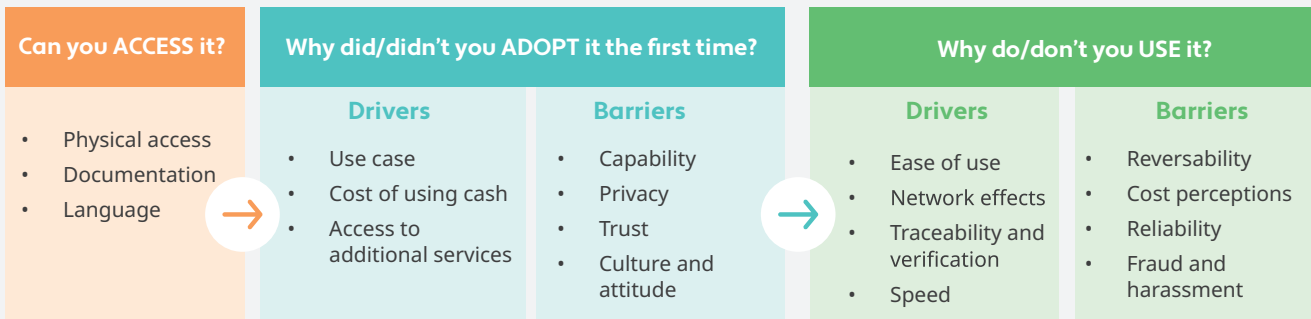
|  |  |
|--|--|
| <p><b>13</b> <u>IPS</u></p> <p>Not ranked</p>  | <ul style="list-style-type: none"> <li>do not enable P2B transactions or</li> <li>do not offer channels that are most used</li> </ul>  |
| <p><b>11</b> <u>IPS</u></p> <p>Basic inclusivity level</p>   | <ul style="list-style-type: none"> <li>enable channel currently most used</li> <li>enable P2B and P2P use cases</li> </ul>   |
| <p><b>5</b> <u>IPS</u></p> <p>Progressed inclusivity level</p>   | <ul style="list-style-type: none"> <li>enable interoperability between all channels (allow all licensed PSPs access to the scheme)</li> <li>allow input into decision-making and design by all licensed PSPs</li> <li>involve central bank as part of governance framework</li> </ul>  |
| <p><b>5</b> <u>IPS</u></p> <p>Moving towards mature inclusivity level</p> <p><small>*the set of systems in Ghana, GIMACPAY in CEMAC, Natswitch in Malawi, TCIB in SADC, and ZEHL in Zambia</small></p> | <p>Aspirational state:</p> <ul style="list-style-type: none"> <li>reached if the full range of payment use cases has been integrated</li> <li>if provisions are made for transparent and efficient consumer recourse mechanisms, and these are enforced</li> <li>cost of a digital payment transaction for the end-user is as low as feasibly possible (within a not-for-profit business model)</li> </ul> |

## END-USER INSIGHTS CONFIRM FUNCTIONALITY CHALLENGES TO INCLUSIVITY

**Functionality pain points erode trust.** The lack of inclusivity translates into sub-optimal usage. Although digital payment adoption is rising, consumer research in Kenya, Nigeria, Ghana, Tanzania, Zambia, the DRC, and Egypt suggests that many end-users use digital payments only for limited use cases, such as sending and receiving

money between friends and family. Consumer payments to merchants remain under-digitalized: Only 44% of individual respondents make P2B payments digitally. The qualitative research highlights factors that drive **access** to, initial **uptake**, and ongoing **usage** of digital payments (Figure 3):

**FIGURE 3. Pathway toward continued digital payment usage**



Given that cash transactions often have no implicit attached fees or are perceived to be free, consumers are highly sensitive to transaction charges and consistently noted them as a major barrier to digital payment usage. Network outages result in negative customer experiences, deterring individuals and MSMEs from using digital payments. They also introduce transaction failures or delays and undermine the instant component of IPS design. Furthermore, digital payment users are concerned about their ability to quickly reverse transactions that they made in error and are frustrated when systems do not support key use cases that they value.



*Sometimes you can pay using your phone, but it won't indicate [the payment on the other side]. It takes long to indicate [on the other side] so you would rather pay cash.*

— Focus group discussion respondent in Zambia

## KEY BARRIERS TO INCLUSIVITY

These challenges are the result of four underlying barriers to IPS inclusivity in Africa:

### 1 Value proposition is limited for participants and lower-income end-users:

Larger players are often unwilling to integrate and competitive forces deter the integration of new and smaller players. This results in limited use case and channel integration observed across the IPS landscape. Complex payment processes constrain first-time and early end-users of digital payments.

- **Result for end-users:** Limited options for users constrain uptake and usage.

### 2 Cost drivers undermine business and use case:

Infrastructure and digital constraints in most countries combined with limited consumer literacy create a high-cost base that limits access and drives the cost of delivery to providers, which requires scale for sustainable delivery. However, the duplication of infrastructure across providers fragments scale. This drives up per-transaction costs. The staggered rollout of use cases observed across the IPS landscape further limits scale and means that the value proposition to end-users is undermined. These elements are fueled by the processing load and variation on data standards and fields stemming from required messaging standards, as well as by digital transaction levies, which can dampen digital financial service providers' business models. Moreover, some IPS have complex trade-orientated forex models not suited for IPS transactions and response times.

- **Result for end-users:** The various cost drivers result in high transaction fees for end-users, which affect the level of end-user engagement.

### 3 Regulatory hurdles affect competition and innovation, and delay implementation:

Scheme governance frameworks are set up to favor participation in decision-making by larger players, specifically banks. This creates an unlevel playing field. This can be a result of a PSP licensing regime that curtails the access to payment infrastructure for new entrants. A second regulatory barrier exists among the requirements for customer due diligence and that implementation of such requirements differ across jurisdictions and between participants. Finally, if there is no oversight of financial institution recourse processes, individuals are less likely to use the IPS in general.

- **Result for end-users:** An unlevel playing field can fuel mistrust in digital payments, which stifles uptake and usage. Inconsistent onboarding processes affect usability. Recourse mechanisms that are unclear, difficult, or costly to navigate undermine user trust.

### 4 Risk of fraud and cybercrimes:

The digital and instant nature of IPS makes them vulnerable to financial cybercrime and fraud, especially via mobile channels.

- **Result for end-users:** Perceived fraud and security risks erode end-user trust in IPS, which impedes adoption and usage.

### Reaching greater inclusivity will mean converting barriers into opportunities.

If not checked, these barriers can become self-reinforcing. Exclusion of a significant population from the system drives down scalability, sustainability, and the overall utility of the system. A fragmented digital ecosystem leads to rising costs and fees, further disincentivizing uptake among the vulnerable population. However, if addressed, each barrier becomes an opportunity for reaching scale and inclusivity:

- **Overcoming the limited value proposition:** The value proposition challenges present an opportunity for IPS stakeholders to articulate a vision to demonstrate the market and ecosystem value proposition, and to consult and bring in digital financial service providers to drive scheme buy-in. As part of this vision, emphasis is needed on use cases and channels that match consumers abilities and preferences.
- **Keeping transaction costs down:** By critically assessing existing payment infrastructure and standard adoption, and by analyzing market contexts to understand what it would take to appropriately integrate use cases aligned with end-user needs, key cost drivers can be reduced to unlock opportunities for scale.
- **Overcoming regulatory hurdles:** Taking a pro-poor governance stance where all digital financial service providers have an equal opportunity for input into scheme rules and decisions, promoting consolidation between participants on a risk-based customer due



diligence approach, and providing clarity for end-users on how to access recourse mechanisms in a cost-effective way will ensure that regulatory hurdles do not stifle competition and innovation.

- **Mitigating cybersecurity threats:** The rising risk of fraud and cybercrime present a system design

opportunity to ramp up consumer protection mechanisms and utilize additional tools, such as transaction receipts, to boost consumer awareness and protection from bad actors.

## TRENDS

**As underlying technology and user-needs evolve, cognizance is needed of emerging trends that will shape the IPS ecosystem.** A few emerging trends at the scheme, market, and end-user level are likely to shape the

African IPS ecosystem in the coming years and determine the scope for inclusivity (Table 1). For IPS in Africa to optimize inclusivity, these trends need to be accounted for both in the design and implementation phases.

**TABLE 1. Key IPS trends for Africa**

|                        | Trend  |
|------------------------|--|
| <b>Scheme trends</b>   | <ul style="list-style-type: none"> <li>• Rise in cross-domain IPS</li> <li>• Enabling merchant acceptance</li> <li>• Participant involvement in the design phase</li> <li>• Utilization of open-source software</li> <li>• Transition toward open API and cloud computing</li> <li>• Movement toward ISO 20022 messaging standard</li> <li>• Emergence of original credit transfers (OCTs) in card networks</li> </ul> |
| <b>Market trends</b>   | <ul style="list-style-type: none"> <li>• Payment technologies that emphasize convenience</li> <li>• Increased risk of fraud and cybercrime</li> <li>• Market entry by social media platforms</li> <li>• Increasing 3G, 4G, 5G rollout, impacting USSD functionality</li> <li>• Utilization of data through data mining</li> </ul>  |
| <b>End-user trends</b> | <ul style="list-style-type: none"> <li>• Greater flow of value and volumes through IPS reflecting consumer uptake</li> <li>• Rising consumer security concerns and the importance of consumer protection</li> <li>• Increasing smartphone adoption</li> </ul>  |
| <b>CBDC trend</b>      | <ul style="list-style-type: none"> <li>• Exploration of retail CBDC and potential co-existence with existing IPS</li> </ul>  |

## THE ROAD AHEAD

**The foundation is there.** Instant payments already have a foothold in Africa. IPS have made substantial efforts to extend access to lower-income populations. However, more is needed. To truly transform the way that African citizens and MSMEs transact to meet their daily needs, deliberate steps are needed to make the IPS landscape even more inclusive.

**To close the inclusivity gaps, all payment system stakeholders must collaborate to design IPS that meet end-user needs.** Considerable efforts are underway to

increase instant payments' capacity in Africa. This report shows the importance of ensuring that the increase in the number of operational IPS in Africa results in more access for lower-income populations to achieve scale and long-term sustainability for IPS. The significant challenges encountered call for a collaborative effort between public and private stakeholders to ensure optimal inclusivity. Reaching sustainable scale and triggering market-wide lower-income, end-user adoption will require inclusive governance as well as inclusive functionality:



**Inclusive governance** provides open access for all licensed PSPs to shared payment infrastructure and invites all players to contribute to scheme rule books and decision-making. Effective stakeholder motivation to join an IPS depends on a clear rollout plan spearheaded by a champion that can effectively incorporate both public- and private-sector interests. To ensure that commercial interests do not dominate, a leading role for central banks in scheme governance will remain essential.



**Inclusive functionality** incorporates designs to provide a compelling value proposition for all use cases relevant to end-users within the digital payment ecosystem. The choice of IPS capacity, full use-case rollout, and technology standards all need to be fit for purpose to achieve a sustainable business model and a seamless end-user experience that works for all. Doing so also requires a re-evaluation of infrastructure use: by considering IPS within the broader context of a market-wide digital transition, stakeholders can leverage existing, and often underutilized, infrastructure to speed the implementation process and assess where it would be appropriate to decommission duplicated infrastructure that fragments scale and drives up per-unit costs.

**AfricaNenda**, the **World Bank**, and **UNECA** will continue to engage on the agenda for making digital instant transactions accessible and useful for all. In this agenda, there is a need for even greater data transparency among existing players, to allow effective tracking of the progress and performance of the IPS landscape in Africa and to inform the collaborative agenda for greater inclusivity.

# INTRODUCTION

1

CAKE AND MORE



**Digital retail payments in Africa have been driven by mobile money for over a decade.** Africa has been a pioneer in enabling digital retail payments via mobile phones. Mobile money originated in Kenya in 2007 and is a prime example of a digital payment instrument that is instantly available, meeting the distant payment need of both higher-income and lower-income consumers. The ability to make and receive payments via mobile wallets, especially over distance for remittances, has been the main driver of financial inclusion. In 2021, 33% of the adult population in Africa had a mobile money account, which is up from 23% in 2017. Through access to mobile money, consumers have realized the benefits of using instant digital payments (World Bank Findex, 2022).

**Economic development and digitization have required a shift to more open instant retail payment systems that can enable a range of use cases.** Siloed, closed-loop payment systems are insufficient to support African development needs given the changing landscape of digital payments with new types of payments products and providers. Digital payment end-users in Africa are increasingly embracing digital devices and non-traditional payment channels. As a response, countries and regions are upgrading their retail payment systems to enable open-loop instant payment systems (IPS), i.e., schemes that enable

the sharing of payments infrastructure between a larger number of participants based on transparent rules. The full range of payment service providers (PSPs)—including banks, mobile money operators (MMOs), electronic money issuers (EMIs), microfinance institutions (MFIs) and fintechs—are developing solutions to enable the real-time exchange of payments, especially to move toward cash-light or cashless economies. Inclusive payment systems are needed to realize the potential of such innovation for development outcomes.

**Emerging instant payment systems need to be inclusive to be relevant.** Fifty-four percent (54%) of Africa's adult population still prefer cash for payments (World Bank Findex, 2022). Cash is instant, does not require electronic devices, and can be perceived to be free or at least lower cost by consumers. However, cash has safety drawbacks, among other disadvantages, and the transition to digital payments has continued to increase: roughly 41% of adults in Africa with transaction accounts made a digital payment in 2021, compared to 27% in 2017 (World Bank Findex, 2022). IPS can advance the inclusivity of a digital payment ecosystem if PSPs can use the rails to offer fit-for-purpose digital payment products and services to all, including lower-income consumers, at a low cost and with the adequate consumer protection measures in place.

### *An instant retail payment system is defined as follows, for the purpose of this report:*

- **Real-time:** The value transfer is assured to be instant (within seconds).
- **Digital:** The system is electronic, and the services are accessible on digitally enabled devices.
- **Available:** The system is available for use 24 hours a day, 365 days of the year, excluding planned maintenance or system downtime.
- **Open-loop:** At least a multilateral or third-party transparent interoperability arrangement, excluding closed-loop, on-us systems.
- **Enabling push payments:** The system enables credit push transactions.<sup>6</sup>
- **Irrevocable:** Transactions cannot be reversed by the payer in the normal circumstances of business. Exceptions may exist for specific consumer recourse events (e.g., fraudulent or erroneous transactions).
- **Enables low-value payments:** There is no minimum transaction amount.

<sup>6</sup> Debit pull-only systems that do not support credit push transactions at a minimum are excluded. Instant debit pull transfers will likely play an important role, especially for recurring person-to-business payments with trusted businesses and where convenience is at a premium, in the future, but they are currently not widely available. They are therefore not a focus in this year's report.

**What is the current state of instant and inclusive payment systems in Africa?** To date, there has been limited information on the state of IPS developments in Africa and the extent to which African systems are inclusive for the ecosystem, and especially for lower-income and no-income consumers. The purpose of the report is to landscape and assess the inclusivity of open-loop, instant retail payment systems.

**Definition of instant and inclusive payment systems for the purpose of this report.** The term “IPS” used throughout this report refers to instant retail payment systems domiciled in Africa that are open-loop and

that enable digital push transactions in real time. This categorization therefore explicitly excludes proprietary, on-us instant payment systems, including most card schemes.<sup>7</sup> IPS are also referred to as “faster payment systems” (FPS) or “real-time payment systems” (RTPS), and these terms can therefore be used interchangeably.

**Aspirational definition of inclusive and instant payment systems.** To assess the inclusivity of the selected systems, the following benchmark of instant and inclusive payment systems (IIPS) has been adopted drawing on the work of AfricaNenda (2021), CGAP (2021), World Bank (2021a), Level One Project (2019b), and BIS (2016):<sup>8</sup>

Instant and inclusive payment systems (IIPS) process payments **digitally in near real time** and are available for use **24 hours** a day, **365 days** a year, or as close to that as possible. They enable **low-value, low-cost, push** transactions that are **irrevocable** and are based on **open-loop multilateral** interoperability arrangements. Licensed payment providers have **fair access** to the scheme, and system participants have **equal input** opportunities into the scheme. The **central bank** has a role in scheme governance. End-users have access to a **full range of use cases and channels**, as well as transparent and fit-for-purpose **recourse** mechanisms.

## 1.1 | METHODOLOGY

A mixed-method research approach was adopted to develop this report, as set out below:

- **Landscaping of IPS in Africa:**
  - Desktop research spanning data from instant payment systems, government, and private-sector resources, as well as development partner literature, was consulted to inform a view of the IPS.
  - A detailed database was developed to map the continent’s IPS according to typologies on functionality, technology, governance models and inclusivity.
- More than 25 interviews with key informants (including payment system experts, regulators, IPS providers, IPS operators, and PSPs) between April and July 2022 informed the key trends, barriers, opportunities, typologies, and insights for the analysis.

<sup>7</sup> Other quasi-payment systems such as MFS Africa are connecting many end-users regionally and are playing a crucial role in the digital retail payments ecosystem. Similarly, Wave in francophone West Africa is gaining a strong foothold in Africa. However, such systems currently fall outside the open-loop core definition and are not included in this year’s assessment.

<sup>8</sup> See Chapter 2 for an analysis of the definition terms.

- **Consumer research:**
  - Extensive in-country qualitative and quantitative research to understand end-users' perspectives of digital payments, including constraints and drivers of access, adoption, and usage.
  - The qualitative and quantitative research covered both low-income adult individuals and micro-, small, and medium-sized enterprises (MSMEs), across seven countries selected to create a representative sample of Africa: the Democratic Republic of the Congo (DRC), Egypt, Ghana, Kenya, Nigeria, Tanzania, and Zambia.<sup>9</sup>
  - The quantitative surveys included 1,200 respondents across the study countries. The qualitative research sample comprises 200 respondents for individual discussion interviews (IDIs) and immersions and 50 focus group discussion (FGDs) with four to six respondents each (detailed country sample breakdowns are in Annex B).
- **Case studies:**
  - Four case studies were prepared for a closer look into IPS. Three domestic and one regional: Kenya's PesaLink, Nigeria Interbank Settlement System (NIBSS) Instant Payment (NIP), Ghana Interbank Payment and Settlement System (GhIPSS) Instant Pay (GIP), and Southern Africa Development Community's (SADC) Transactions Cleared on an Immediate Basis (TCIB). These case studies can be found in Annex A.
  - Typologies adopted in the landscaping method were similarly used as the basis of case study information collection. An emphasis was placed on governance models and development of the schemes.
  - Interviews with case study participants were used to form a detailed understanding of the scheme history, data flows, operations, constraints, and future plans.

## Report outline.

The remainder of the report is set out as follows:

**Chapter 2** catalogues the IPS landscape in Africa at the domestic and regional levels, respectively. It also highlights core elements of each IPS (including typologies on its functionality, governance, and technology), and it assesses the level of inclusivity of each IPS.

**Chapter 3** explores key insights derived from qualitative and quantitative research among low-income individual users and MSMEs, respectively, in seven African countries.

**Chapter 4** identifies key barriers to inclusivity and the opportunities to improve the inclusivity of IPS design for the main stakeholders in the ecosystem.

**Chapter 5** sets out the trends from the scheme side, the market side, and the demand side in the instant payment systems sector.

**Chapter 6** concludes the report and summarizes the call for action.

**Annex A** provides a detailed overview of the four case studies.

# THE LANDSCAPE OF IPS

2



## 2.1 | IPS TYPES

Four IPS types were identified based on payment instruments supported as well as interoperability arrangements. IPS in Africa are diverse and can be assigned into four different categories, as outlined

in Table 2. The type of payment instruments the system supports and how interoperability is achieved are key distinctions for analysis.

**TABLE 2. IPS type and interoperability definitions**

| IPS types                            |   |
|--------------------------------------|---|
| <b>Bank IPS</b>                      | A system that only provides access for banks and that supports instruments associated with bank accounts. Includes microfinance banks in Nigeria.   |
| <b>Cross-domain IPS</b>              | A system that provides access for banks and non-banks and that supports transactions from both bank accounts and mobile money accounts.   |
| <b>Mobile money IPS</b>              | A system that only provides access for mobile money providers and that supports instruments associated with mobile money accounts.  |
| <b>Sovereign currency IPS</b>        | Typology term for the purpose of this report. Central bank digital currency (CBDC) IPS combines a sovereign currency instrument and value transfer scheme that can provide a unified digital value transfer mechanism between commercial instrument schemes, institutional stakeholders and individuals within an economy.  |
| Interoperability arrangements        |   |
| <b>Bilateral Interoperability</b>    | Participants have direct connections to one another. Transactions between linked entities are typically cleared and settled through pre-funded accounts that PSPs hold with one another. Establishing bilateral interoperability can be cost-effective and serve as an interim step towards a more centralized approach. However, a multitude of bilateral connections results in complex processes, together with scheme continuity risks as multiple interoperability arrangements must be maintained independently. Ideally key thresholds, in terms of numbers of participants and volume of transactions, should be established upfront with a view to a timely transition to multilateral interoperability.   |
| <b>Multilateral interoperability</b> | The permission structure for payment instruments belonging to a given scheme to be used in platforms developed by other schemes, including in different countries (World Bank, 2012). Multilateral interoperability involves a situation in which payment instruments that belong to a given scheme may be used in platforms developed by other schemes, including in different countries (World Bank, 2012). Multilateral interoperability involves the coexistence of multiple attributes, which can be combined in various ways. These attributes fall into three broad dimensions: technical, semantic, and business interoperability <sup>10</sup> (BIS, 2021). The nature of the business interoperability rules determines whether a payment system is multilateral, but does not dictate the number of providers, platforms, schemes, or jurisdictions. |
| <b>Third-party interoperability</b>  | The foundation for interoperability of IPS participants via a centralized switching or clearing layer, facilitated by a third party. In some, but not all, countries the third party is an aggregator (CGAP, 2016a). The third party can be a private entity or government owned. Interoperability is achieved when providers connect to the switch.  |

<sup>10</sup> Technical interoperability involves the technical connections and exchange of data, whereas semantic interoperability requires data to be interpreted and acted upon consistently (BIS, 2021). Business interoperability involves commercial agreements that provide standing rules and assurances for the exchange of different commercial instruments and associated risks between different schemes, platforms, and participants, including in different jurisdictions (World Bank, 2012).

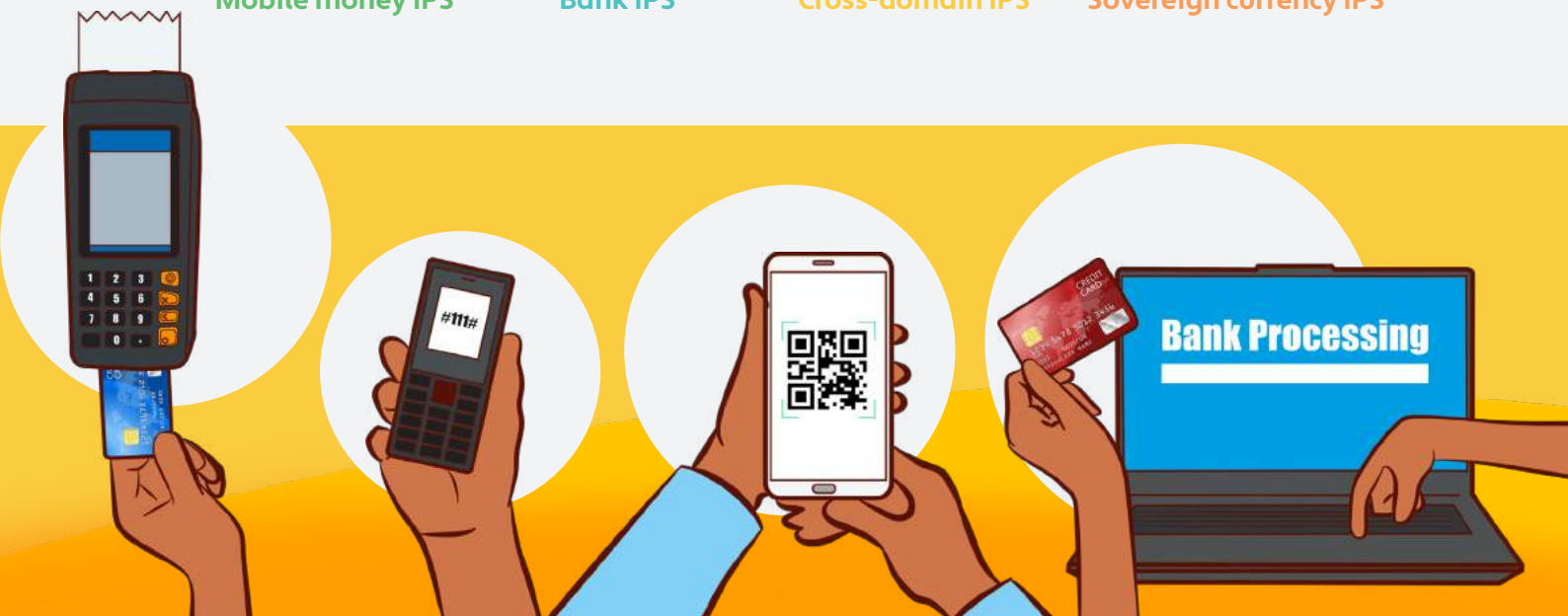
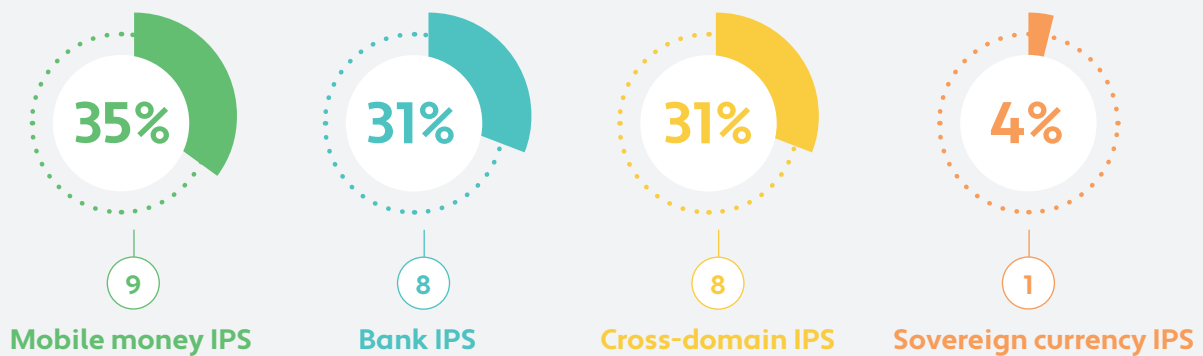


**Twenty-six (26) domestic IPS identified, of which eight are cross-domain to enable instant bank-mobile interoperability.**

Figure 4 categorizes the active IPS identified as of June 2022. Mobile money IPS are the most common type, with nine systems facilitating open-loop interoperability between MMOs. Similar to the eight bank-only IPS, mobile money IPS are an evolution from closed-loop schemes. Both are limited in their potential for scalability, as payment channels and providers evolve. The ability to send funds between different types of providers and channels, e.g., from bank accounts to mobile accounts and vice versa, can scale quicker and meet the needs of

a larger range of end-users. Eight of these cross-domain IPS were identified in Africa. Other non-bank payment service providers, such as fintechs and MFIs, are indirect participants in nine IPS. There is one sovereign currency IPS, the eNaira in Nigeria. This type of system can present a further evolution of efficiency in instant payments, as there is not only interoperability in CBDC channels but rather one universal sovereign instrument that could interlink all payment channels, with a market-wide implementation. Whether a retail central bank digital currency (CBDC) system will bring the intended benefits is currently being determined in CBDC pilots worldwide, including in Nigeria.

**FIGURE 4. Breakdown of domestic IPS by type (n=26)**

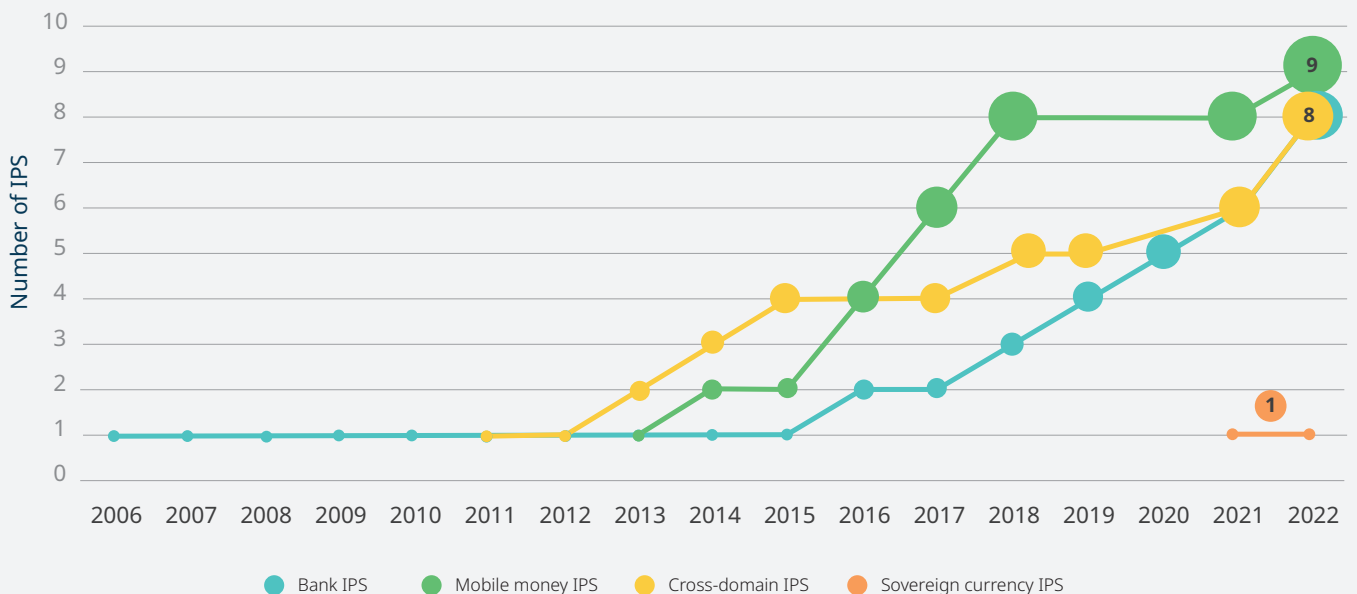


**Multilateral interoperability arrangements are common in mobile money-led markets.** Of the nine identified mobile money IPS, four interoperate through a third party (e.g., a switch or clearing layer), while the remaining five integrate directly with one another<sup>11</sup>. Third parties include, for example, Zimswitch in Zimbabwe and R-Switch in Rwanda. All bank IPS and cross-domain IPS are established through third-party interoperability arrangements, for example through entities such as BankservAfrica.

**IPS in Africa grew on average by more than two new systems per year during the past decade, with a recent focus on cross-domain interoperability.** IPS are not a new phenomenon in Africa: real-time clearing (RTC) was established in South Africa as early as 2006, as Figure 5 shows. The total number of IPS increased on average by 2.4 systems each year during the past ten years. Mobile money IPS saw significant growth from 2015 to 2018. The growth in the need to enable a smoother customer experience in markets with two or more mobile money schemes, as well as the increased need for

competition in the mobile money industry fueled the rise in mobile money IPS. More recently, previously closed-loop bank systems are upgrading and are increasingly open to all banks in the market. In addition to an improved customer experience, the increase in bank systems, especially from 2017, is likely a response to the success of mobile money interoperability schemes and instant payment technology advances. Systems are also not static. Since Nigeria's system launched as a bank system, it has evolved into a successful cross-domain IPS, NIP. A further overview of NIP is provided in Box 2 and Annex A.b. The continued rise in cross-domain schemes in some markets highlights a growing trend toward integration for scale through different payment providers. Regulators have played a key role in ensuring a competitive market that delivers value to consumers, for example the Bank of Tanzania made the decision to mandate interoperability in the Tanzania Instant Payment System (TIPS) to promote competition in the market. Yet, mobile money and bank-only systems are also still on the rise, which demonstrates the constraints to achieving fully inclusive interoperability of payments.

**FIGURE 5. Growth of domestic IPS in Africa, by type (n=26)**



<sup>11</sup> Ghana MMI, Nigeria mobile money, Tunisia mobile money, and Uganda mobile money interoperate through a third party. Madagascar mobile money, Tanzania mobile money, Ta7Weel (Egypt), Kenya mobile money, and eKash (Rwanda) have multilateral interoperability arrangements.

**BOX 2. NIBSS Instant Payments (NIP) in Nigeria as of June 2022 (full case study available on p.90)**



## NIBSS INSTANT PAYMENT (NIP) | NIGERIA

An integrated ecosystem of instant payments

Established 2011

**Value proposition**

**For consumers:** Convenient, instant, low-cost digital payment  
**For providers:** No need for complex bilateral arrangements and access to additional service offerings

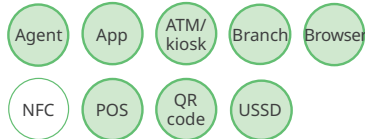
**Inclusivity ranking**

**Basic:** Serves most use cases and offers many payment channels, but governance structure does not allow for inclusive decision-making

**USE CASES**



**CHANNELS**



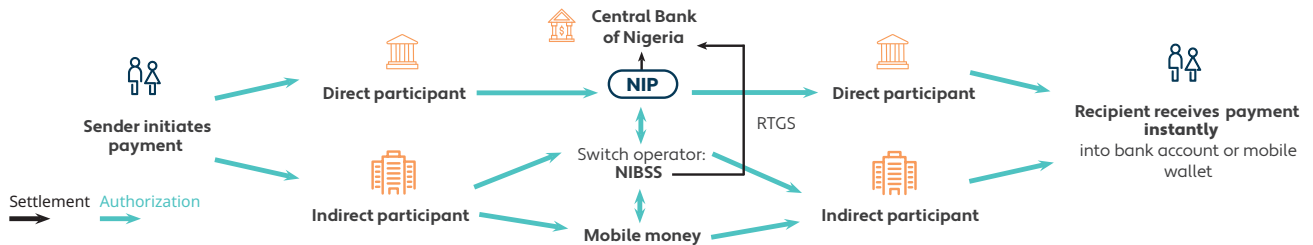
**PARTICIPANTS**

- 1 central bank (direct)
- 25 commercial banks (direct)
- 7 MMOs (direct)
- 200+ MFBs (direct), fintechs and super agents (indirect)

The CAGR between 2019 and 2021 for volumes and values were 74% and 61%, respectively.

230+

**TRANSACTION FLOW**

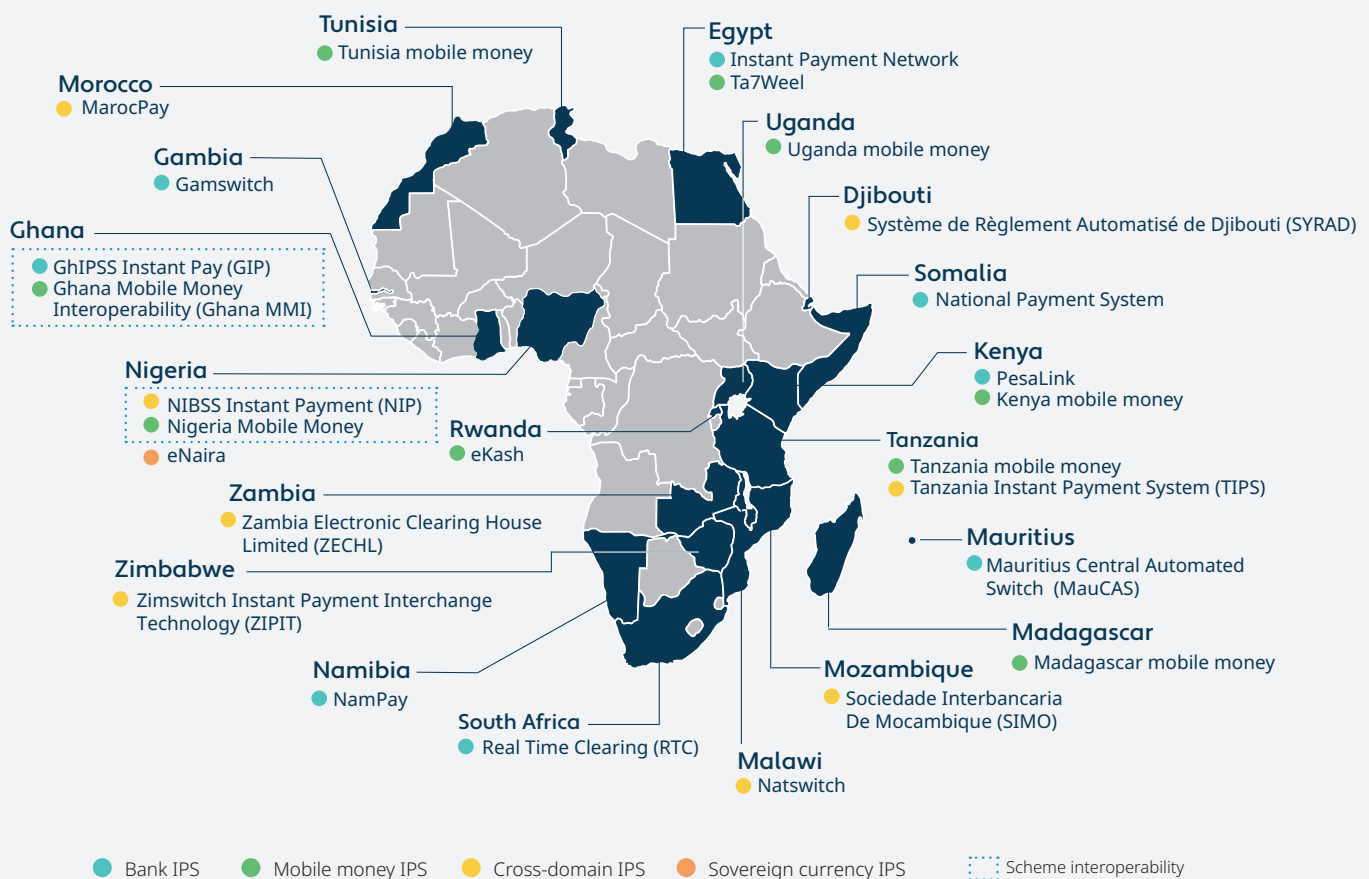


## 2.2 | IPS GEOGRAPHY

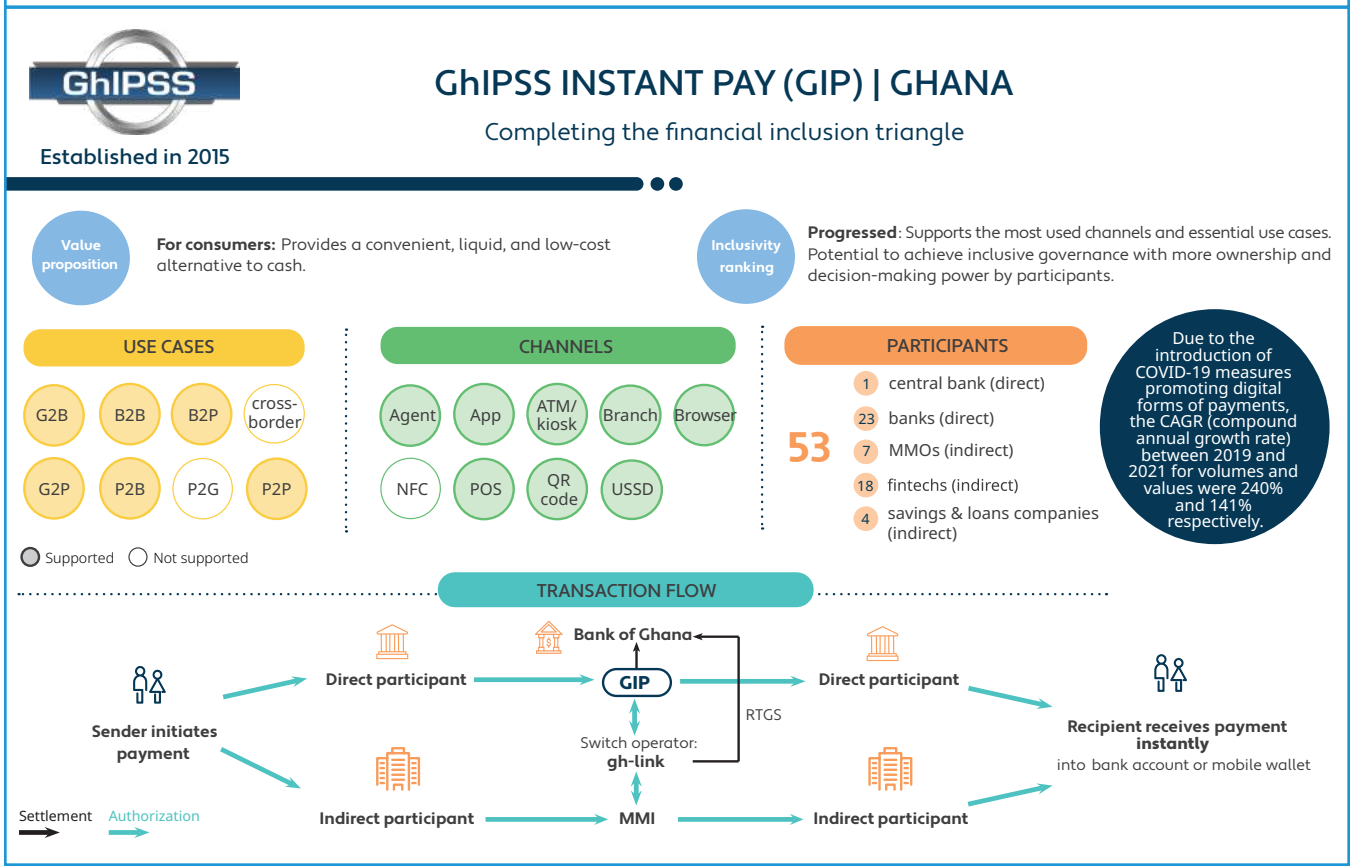
**Domestic IPS identified in 20 countries; five countries have multiple IPS.** As Figure 6 shows, there are five countries with multiple IPS, namely Nigeria (3), Ghana (2), Egypt (2), Kenya (2), and Tanzania (2). The Central Bank of Ghana has opted to enable interoperability between its different schemes rather than creating a new, centralized system (see Box 3). Nigeria also allows for interoperability between its systems. Further insights into the IPS in Nigeria

and Ghana can be found in Annex A. The mobile money categorization (i.e., a country name followed by “mobile money”) in Figure 6 shows the countries with multilateral mobile money interoperability that operate without an independent commercial name. Mobile money IPS systems such as these may be invisible to the end-users, apart from the ability to transact across multiple mobile money providers.

**FIGURE 6. Map of active domestic IPS in Africa as of June 2022**



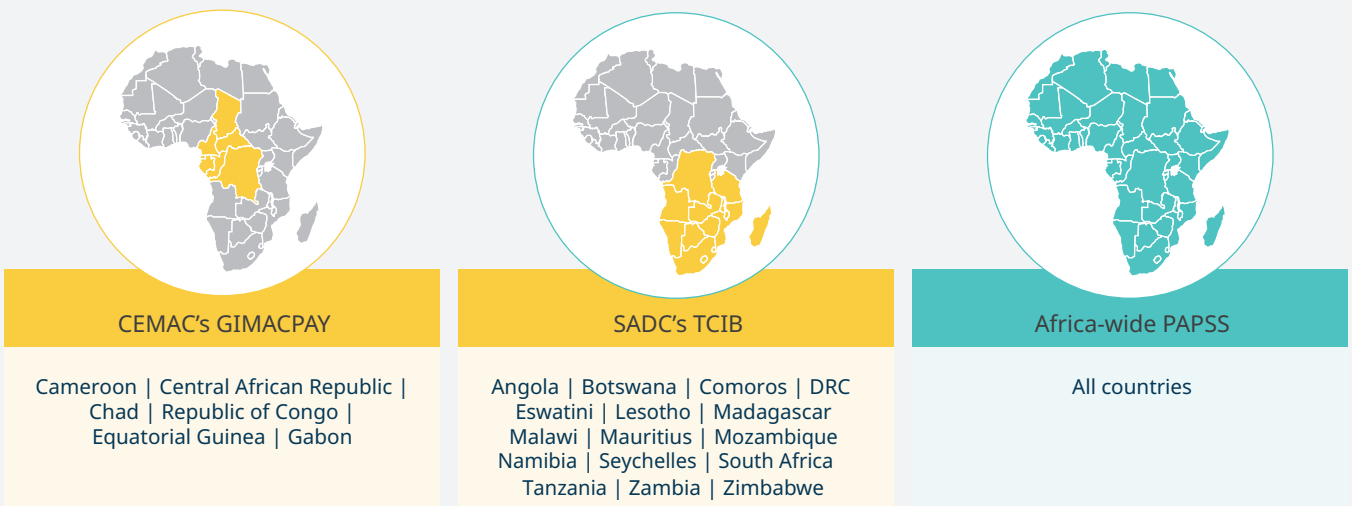
**BOX 3. GhIPSS Instant Pay (GIP) in Ghana as of June 2022 (full case study available on p. 83)**



**Three young multi-country systems: two cross-domain and one bank-only.** Figure 7 highlights the three regional systems that are active in Africa, all of which were established within the last two years. The IPS in CEMAC, GIMACPAY, was launched in 2020. Box 7 provides further insight into this payment system.

TCIB went live in 2021 and covers SADC (see Box 4). TCIB's rules allow for the entry of non-bank providers. The Pan-African Payment and Settlement System (PAPSS) is a bank-only system as of June 2022. PAPSS launched in 2022 and aims to extend access across the African continent (see Box 5).

**FIGURE 7. Map of active regional IPS in Africa, as of June 2022**



**BOX 4. Transactions Cleared on an Immediate Basis (TCIB) in SADC as of June 2022 (full case study available on p.102)**



**TRANSACTIONS CLEARED ON AN IMMEDIATE BASIS (TCIB) | SADC**

Multi-country collaboration for inclusion

Established 2021

Value proposition

**For providers:** Improves the cross-border payment process, standardizes compliance requirements, and removes the need for complex bilateral arrangements.

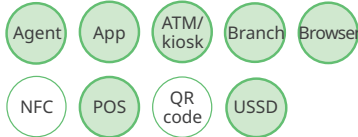
Inclusivity ranking

**Not ranked** but shows considerable promise. It has inclusive governance, but does not offer P2B.

**USE CASES**



**CHANNELS**



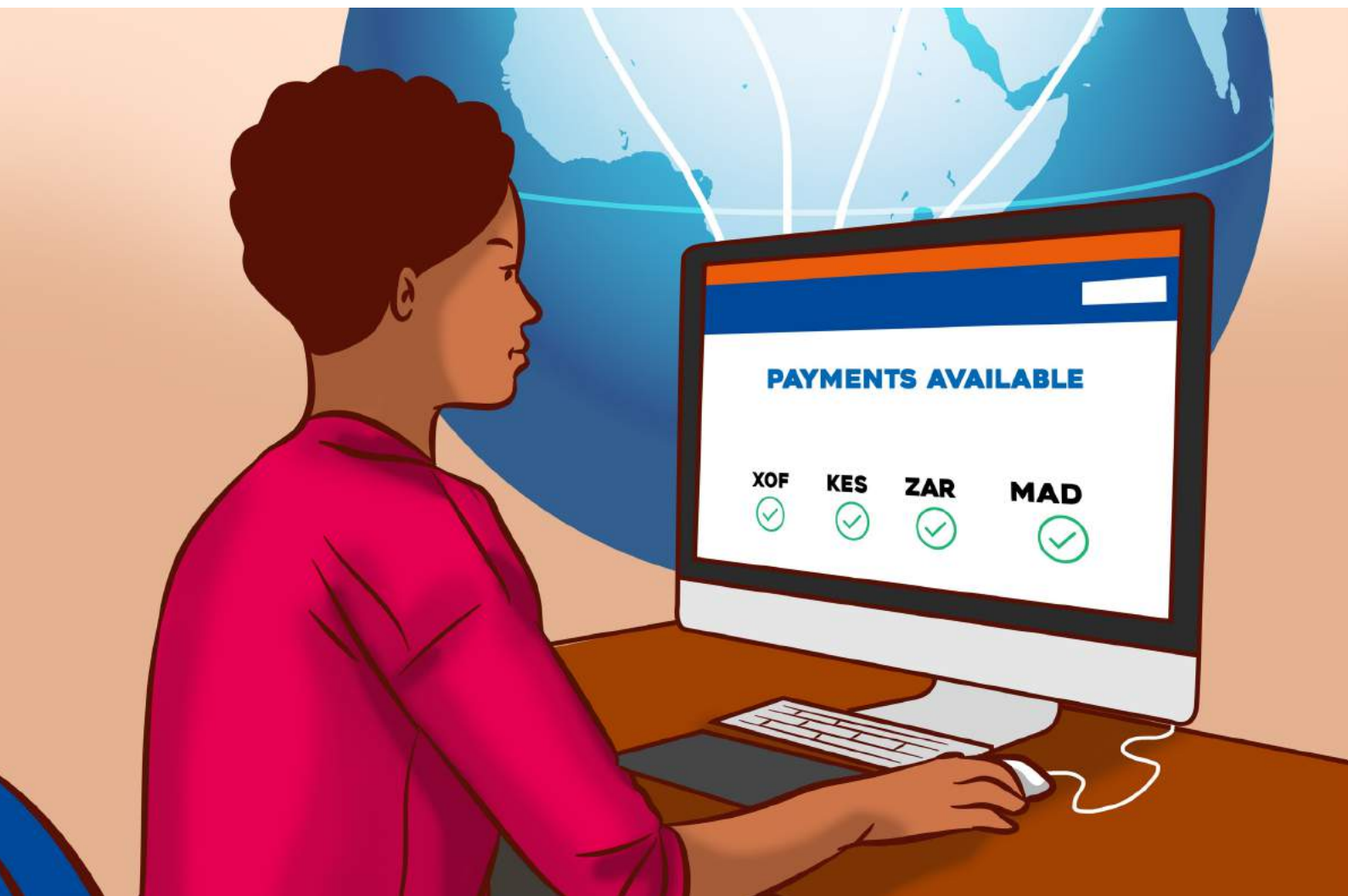
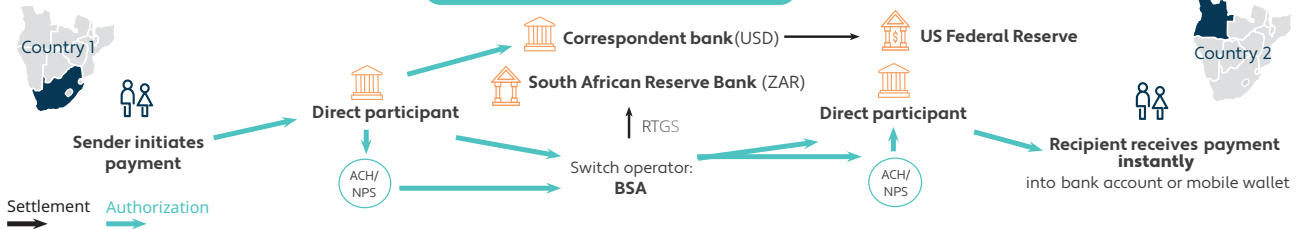
**PARTICIPANTS**

- 1 bank
- 1 PSP
- 12 member countries

No values and volumes available yet due to young age but significant integration pipeline of participants.

● Supported ○ Not supported

**TRANSACTION FLOW**

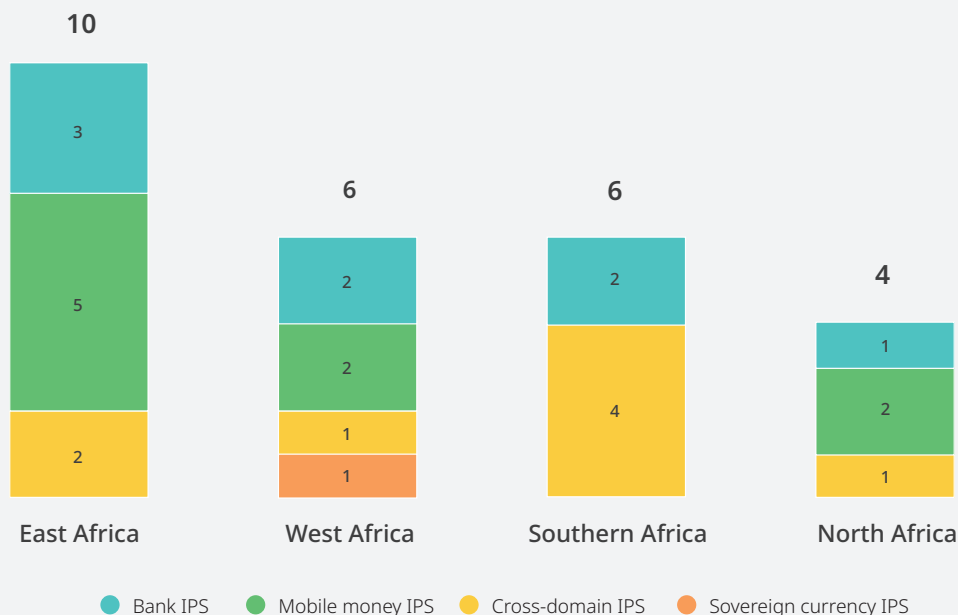


**BOX 5. PAPSS—Continent-wide, cross-border instant payments**

An initial pilot of PAPSS was rolled out in 2021 in the six countries that make up the West African Monetary Zone (WAMZ): the Gambia, Ghana, Guinea, Liberia, Nigeria, and Sierra Leone. After the successful completion of the pilot, PAPSS began commercial rollout in January 2022 with the vision of eventually being operational across Africa (Usman & Csanadi, 2022). PAPSS aims to offer cross-border solutions for transfers and remittances, merchant payments, as well as business-to-business transactions. Six central banks and 36 commercial banks are live on the system as of June 2022.

**East and West Africa have the higher number of IPS, with North Africa potentially underserved.** Ten of 26 national IPS (38%) are found in East Africa, spread over eight countries. Nearly 60% of the countries in the region have their own IPS.<sup>12</sup> As shown in Figure 8, 70% of these systems support mobile money transactions, with half being mobile money-only systems. In contrast, Southern Africa only has bank and cross-domain IPS, reflecting the lower and later uptake of mobile money compared to East Africa.<sup>13</sup> With six IPS, West Africa has the second-highest number of systems (joint with SADC); however, these are spread over only three countries (the Gambia, Ghana, and Nigeria).<sup>14</sup> The West African Economic and Monetary Union (WAEMU) central

bank, Central Bank of West Africa Economic and Monetary Union (BCEAO), is planning the launch of a cross-domain regional IPS, further described below, which has capacity to switch domestically as well as regionally. North and Central Africa are the regions with the lowest number of national IPS.<sup>15,16</sup> North African nations have not announced plans for a regional system, and there are also fewer published plans for domestic IPS implementation compared to the other regions. Central Africa currently has no domestic IPS; however, proprietary payment solutions do exist, such as Flash international's payment platform, which is currently available in the Democratic Republic of the Congo and in Congo Brazzaville, in addition to Côte d'Ivoire in West Africa.

**FIGURE 8. Number of IPS per region (n=26)**

12 East Africa: Burundi, the Comoros, Djibouti, Eritrea, Ethiopia, Kenya, Madagascar, Mauritius, Rwanda, the Seychelles, Somalia, South Sudan, Sudan, Tanzania, and Uganda.

13 Southern Africa: Angola, Botswana, Eswatini, Lesotho, Malawi, Mozambique, Namibia, South Africa, Zambia, and Zimbabwe.

14 ECOWAS: Benin, Burkina Faso, Cabo Verde, Côte d'Ivoire, the Gambia, Ghana, Guinea, Guinea-Bissau, Liberia, Mali, Niger, Nigeria, Senegal, Sierra Leone, and Togo.

15 North Africa: Algeria, Egypt, Libya, Mauritania, Morocco and Tunisia.

16 Central Africa: Cameroon, Central African Republic, Chad, Congo Republic, the Democratic Republic of the Congo, Equatorial Guinea, Gabon, and São Tomé and Príncipe.

## 2.3 | FUNCTIONALITY

The functionality of an IPS dictates to what extent end-users' payment needs are met: channels, instruments, and use cases determine an IPS's inclusivity. Table 3 outlines the different definitions across these three core functions. Chapter 3 further investigates the needs of end-users via

consumer research in select markets to inform IPS design. This chapter provides an overview of the current usage of select IPS as a proxy indicator for their respective market reach before assessing the three key functional areas—channels, instruments, and use cases.

**TABLE 3. Functionality definitions**

| Channels  |  |
|---|--|
| <b>Agents</b>   | Informal and formal service points where customers can access EMI, bank, or mobile money services such as cash-in or cash-out and pay for goods and services (FinMark Trust, 2019).  |
| <b>Automated teller machine (ATM)</b>                 | Computerized telecommunications devices that provide financial institution clients with access to financial transactions in a public place (World Bank, 2020a).  |
| <b>Branch</b>   | Cash deposits, withdrawals, and payment for goods and services take place by the customer making use of a bank's storefront location with a bank teller.   |
| <b>Browser</b>  | Access for a consumer to make a payment electronically via a web page, linking the payer to the account details of their bank or financial service provider.   |
| <b>Mobile app</b>                                     | A front-end in-between service that authorizes and processes payments between a user's mobile device and a bank, financial intermediary, or non-bank. It performs the encryption of cardholder data, authorization of payment requests, purchases confirmation, etc. (Slesar, 2022).   |
| <b>Near-field communication (NFC)</b>                 | A standards-based, short-range (i.e., a range of a few centimeters) wireless connectivity technology that enables simple and safe two-way interactions between electronic devices, allowing consumers to perform contactless transactions, to access digital content, and to connect electronic devices with a single touch (BIS, 2020).   |
| <b>Point-of-sale (POS)</b>                            | A specialized device that is used to accept the payment (e.g., a card reader) at a retail location where payments are made for goods or services (GSMA, 2021a).  |
| <b>Unstructured Supplementary Service Data (USSD)</b> | Part of the GSM protocols for second-generation digital cellular networks and devices. This communications channel was adapted to accommodate financial transactions by enabling customers to send defined instructions to mobile financial services providers along with their personal identification number for authentication, while enabling the provider to send responses to clients and confirm transactions (CGAP, 2015). |
| <b>Quick response (QR) code</b>                       | A square-shaped pattern consisting of a set of unique white and black blocks, representing information on the recipient or other transaction details. QR codes can be scanned by any smart device or can be entered manually into a USSD to support transactions (BTCA, 2021).   |
| Instruments   |  |
| <b>Central bank digital currency (CBDC)</b>           | A digital form of a central bank liability, denominated in an existing unit of account, which serves both as a medium of exchange, a store of value, and a means of payment (BIS, 2018a). CBDC may be transferred either on a peer-to-peer basis or through an intermediary, which could be the central bank, a commercial bank, or a third-party agent (BIS, 2018a).  |
| <b>Credit card</b>                                    | A payment instrument linked to a credit facility through a card channel and network, with defined scheme acceptance rules, specified functionality, and consumer redress protocols for the channel.  |



| Instruments                                   |  |
|---|--|
| <b>Credit electronic funds transfer (EFT)</b> | The message created whenever a payment instruction via various delivery channels (e.g., the internet) is issued, crediting a customer's transaction account, to make an electronic payment to a third party (PASA, 2022a). Credit EFTs are therefore by definition push payments.  |
| <b>Debit card</b>                             | A payment instrument linked to a depository account, such as on-demand deposit, savings, or transfer account. Can be used to make both debit and credit transactions between accounts as well as between cards (PASA, 2022b). Although technically a pull payment, the locus of control is often with the payer, meaning debit cards can essentially function as a push payment. |
| <b>Debit electronic funds transfer (EFT)</b>  | A payment instrument that allows the recipient to collect money from the sender's transaction account without the sender having to do anything but provide written, electronic approval through a debit order mandate (PASA, 2022b). Debit EFTs are, by definition, pull payments.   |
| <b>E-money</b>                                | An electronically transactable currency instrument and a claim against a licensed e-money issuer, supported by commercial bank deposits or by a direct claim upon a commercial bank.   |
| Use cases                                     |  |
| <b>Bill payments (P2B/P2G)</b>                | A payment made by a person from their bank, mobile money accounts, or other financial stores of value, to a biller or billing organization via a digital payment platform in exchange for the services provided (GSMA, 2021a).   |
| <b>Inventory and business services (B2B)</b>  | Monetary transfers between two business entities. The payment size ranges from large-value payments associated with large intra-industry transactions to retail payments between MSMEs (the focus of this report)—for instance, payment for inventory supplies provided by one business to another (World Bank, 2021c).  |
| <b>Merchant payments (P2B)</b>                | Retail payments associated with the purchase of goods and services from business, irrespective of the size of the business, where the payer is a consumer and the payee is a business (World Bank, 2021a).   |
| <b>Salaries and wages (B2P)</b>               | Periodic transactions from businesses to compensate employees for work rendered (e.g., payroll and other compensation-related incentives) (World Bank, 2021a).   |
| <b>Social disbursements (G2P)</b>             | A payment by a government to a person's transaction account, often for social disbursements, such as grant or subsidy payments (GSMA, 2021c).  |
| <b>Taxes and fees (P2G)</b>                   | Obligations that individuals pay to central, regional, and local public administrations, such as tax payments or utility payments (World Bank, 2021a).   |
| <b>Transfers and remittances (P2P)</b>        | Transfers of money to family members or friends without an underlying economic transaction (for example, remittances, sent from one person's transaction account to another (World Bank, 2021a).   |

### 2.3.1 Transaction flows

**Approximately 16 billion transactions processed through Africa's IPS in 2021, with a total of over USD 930 billion.** In 2021, more than 16 billion transactions were processed across the IPS identified in Africa. Data was not available for all IPS, and so the aggregated information may underestimate the total transaction flows (see Box 6 for details around missing transactions).<sup>17</sup> Per Figure 9, this number has been increasing rapidly, with an average annual growth rate of 32% over the past three years. Most

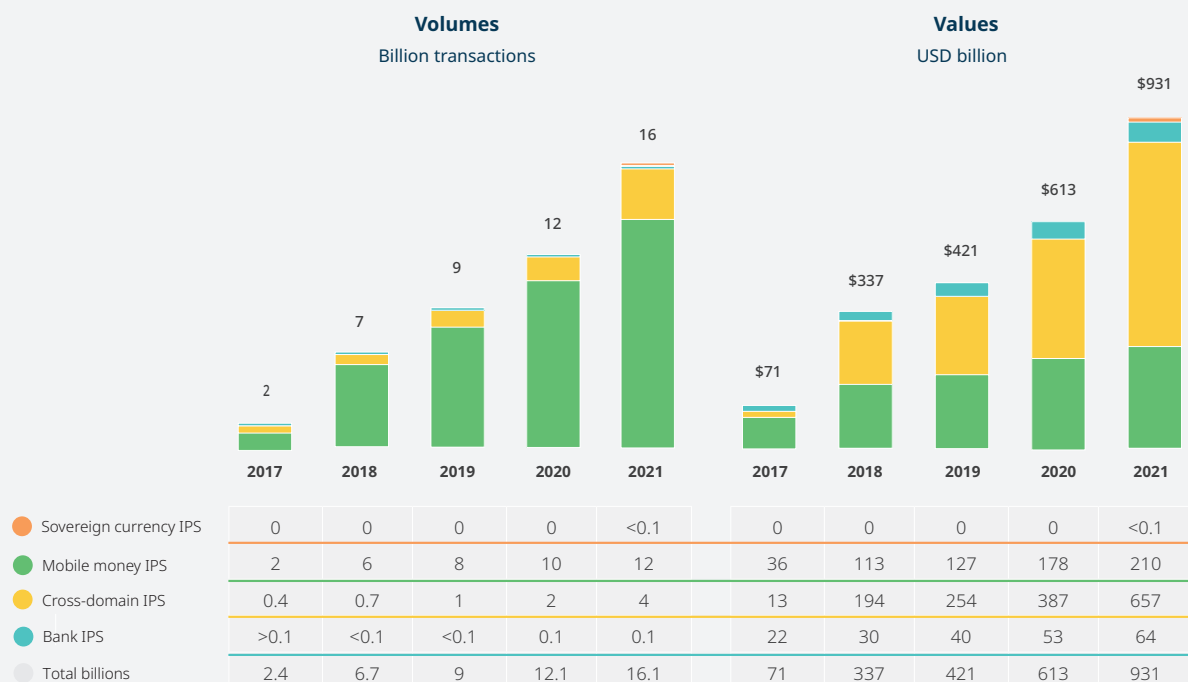
of the transaction volumes (82%) are accounted for by transactions through mobile money. However, growth has been most rapid in cross-domain IPS, which have grown at a rate of 75% per year, compared with 47% for bank IPS and 39% for mobile money IPS. The total value of transactions increased by 40% per annum over the past three years to reach a total value of USD 931 billion in 2021, due to the combined growth of existing systems and the new IPS launching each year.

#### BOX 6. Missing information on payment values and volumes

For seven IPS (listed below), there was no information publicly available on transaction flows. For certainty in the DFS market, transparency on IPS performance is paramount. The disclosure of information for these systems should be prioritized going forward:

- Gamswitch (the Gambia)
- Madagascar mobile money
- NamPay (Namibia)
- Sociedade Interbancaria De Moçambique (SIMO, Mozambique)
- Ta7Weel (Egypt)
- Tunisia mobile money
- Zimswitch Instant Payment Interchange Technology (ZIPIT, Zimbabwe)

FIGURE 9. IPS transaction volumes and values (n=14)



<sup>17</sup> Internal estimates for those IPS with no published data, summed to <0.4 billion transactions, with associated estimated value of USD 14 billion. While not insignificant in its own right, it would only adjust the African total by <2%.

**Mobile money IPS are used more for low-value, high-frequency payments.** While mobile money IPS are the most common IPS type observed in Africa, the share in transaction volumes is substantially higher than the share in system numbers (82% vs. 31%). Mobile money IPS tend to be used for lower-value payments

when compared to bank and cross-domain IPS, as shown in Table 4. Bank IPS have the highest average value per transaction, driven in particular by high values for RTC in South Africa and PesaLink in Kenya. However, this has been declining sharply over the past five years, even in nominal terms.

**TABLE 4. Average value per transaction per IPS type (n=14)**

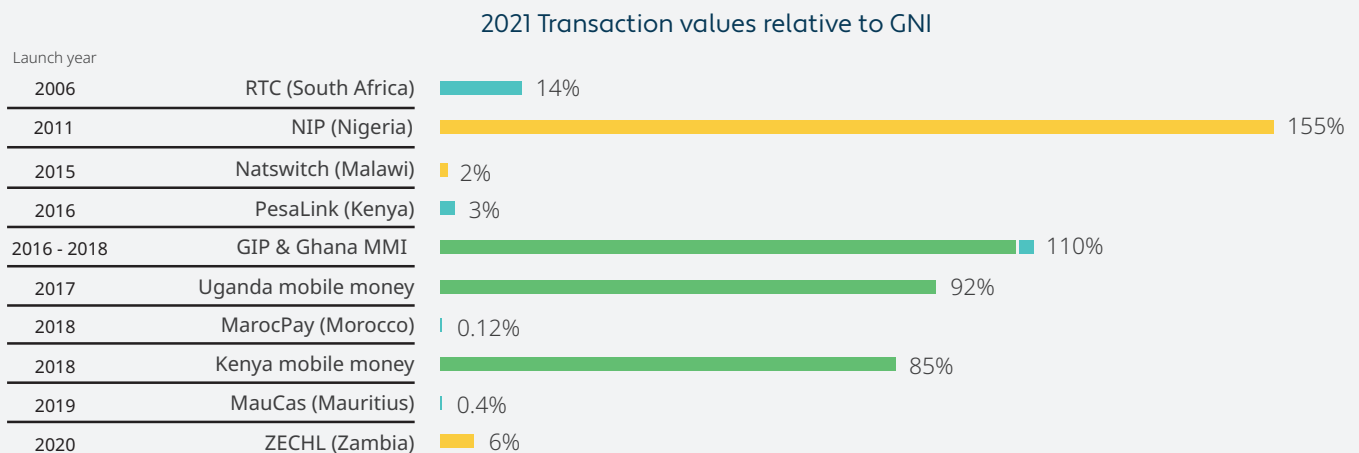
Average transaction value (in USD)

|                  | 2017 | 2018 | 2019 | 2020 | 2021 |
|------------------|------|------|------|------|------|
| Bank IPS         | 653  | 586  | 445  | 410  | 418  |
| Cross-domain IPS | 34   | 126  | 110  | 71   | 73   |
| Mobile money IPS | 43   | 27   | 22   | 24   | 23   |

**Four systems have significant value flow.** The value of transactions relative to gross national income (GNI) indicates how much economic activity the system supports, the utility it provides to the end-user, and how important the IPS is to the national economy. Figure 10 shows the IPS transaction values relative to their respective country's GNI in 2021 for those IPS where data was available. It highlights that mobile money systems in Ghana, Kenya, and Uganda have achieved widespread use, given their large payment values in aggregate.<sup>18</sup> Additionally, Nigeria's NIP

(a cross-domain IPS) has achieved payment transactions that are at levels far greater than the country's GNI. What is clear is that mobile money systems and particularly those supporting mobile data-lean channels, such as USSD, are used substantially more than bank systems such as RTC in South Africa, PesaLink in Kenya, and GIP in Ghana—correlating with the much larger numbers of mobile money wallets compared to bank accounts. Additionally, the age of an IPS is not a reliable indicator for its scalability.

**FIGURE 10. 2021 IPS transaction values relative to GNI (n=12)**



<sup>18</sup> The countries not included are the regional payment systems where values relative to GNI levels are not comparable, as well as the nine IPS that went live after January 2021 and did not have a full year of transaction volumes.

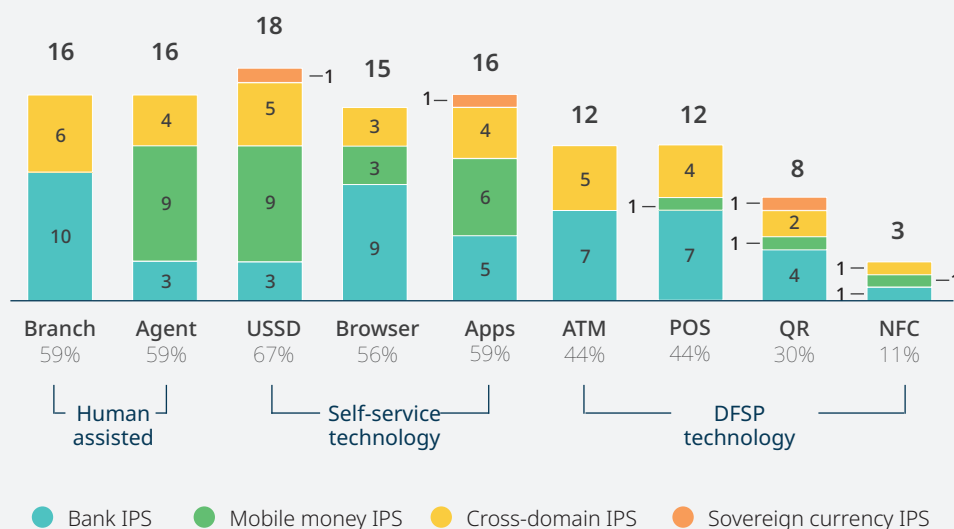
## 2.3.2 Channels

### USSD is the most prominent channel, but not offered by all IPS.

While USSD is the most prominent channel across IPS, supported by 67% of the domestic IPS in Africa, few bank IPS offer USSD payment options. USSD offers the advantage of being accessible even on feature mobile phones and has proven instrumental in the popularity of digital transactions. This is particularly important in Sub-Saharan Africa (SSA) where less than half (48%) of mobile connections are via smartphone and only 28% of the population are connected to the mobile internet (GSMA, 2021c). USSD is a channel typically used by the end-user to communicate a payment initiation with the provider, for example the MMO. If the provider does not have access to the IPS, the end-user cannot benefit from real-time USSD payments via the IPS. There are no instances of the IPS included in this landscaping providing participants directly with USSD access, e.g., through a centralized USSD gateway facilitated by the IPS. It should be noted that the cost of using USSD can be prohibitive for end-users, which requires attention by IPS, payment providers, and the central

banks. The cost is often subsidized by MNOs for their respective MMO affiliates. Bank systems primarily focus on browser (online banking), automated teller machine (ATM), and point-of-sale (POS) machine functionalities, with an increasing number of apps and QR code solutions. Mobile money IPS also increasingly offer payment via apps in line with rising smartphone adoption across the continent. Almost all IPS allow for transactions to be made via an agent or a physical branch instead of requiring a digital device (human assisted), as shown in Figure 11. However, the extent of reach of agent and branch networks especially into rural areas remains limited in most African countries, restricting the accessibility for rural end-users: 20% of adults in Africa cite not having a mobile money account due to an excessive distance to the nearest agents (World Bank Findex, 2022). Self-service technology (USSD, browser solutions, and apps) is also widely supported. Technologies provided by digital financial service providers (DFSPs), such as ATM, POS, QR codes, and near-field communication (NFC), are comparatively less available to consumers.<sup>19</sup>

FIGURE 11. Channels facilitated by domestic IPS, multiple mentions (n=25)



<sup>19</sup> Data not available for SYRAD in Djibouti.

**Cross-domain IPS offer the broadest range of channels.** Domestic cross-domain IPS support the highest number of channels with an average of 5.7 channels, compared to bank or mobile money IPS, which support on average 4.3 and 3.3 channels, respectively. This highlights how cross-domain IPS offer a wider range of choices for

end-users. The regional systems typically offer a wide range of channels. The continent's first regional IPS, GIMACPAY, went live in Central African Economic and Monetary Community (CEMAC) region in 2020, and was the first active cross-domain regional system, and envisions to support all channels (see Box 7 for more information).

#### BOX 7. GIMACPAY—Africa's first regional IPS, providing interoperability across channels

GIMACPAY, a cross-domain IPS in Central Africa, went live in 2020 and is available in six countries in the Central African Economic and Monetary Community (CEMAC) region: Cameroon, the Central African Republic, Chad, Equatorial Guinea, Gabon, and the Republic of the Congo. None of the countries in the CEMAC region have a national IPS, and therefore the regional integration and switching capacity between different channels and instruments fulfills a relevant need and does not run the risk of duplication of infrastructure or scale fragmentation (Stakeholder interviews, 2022).

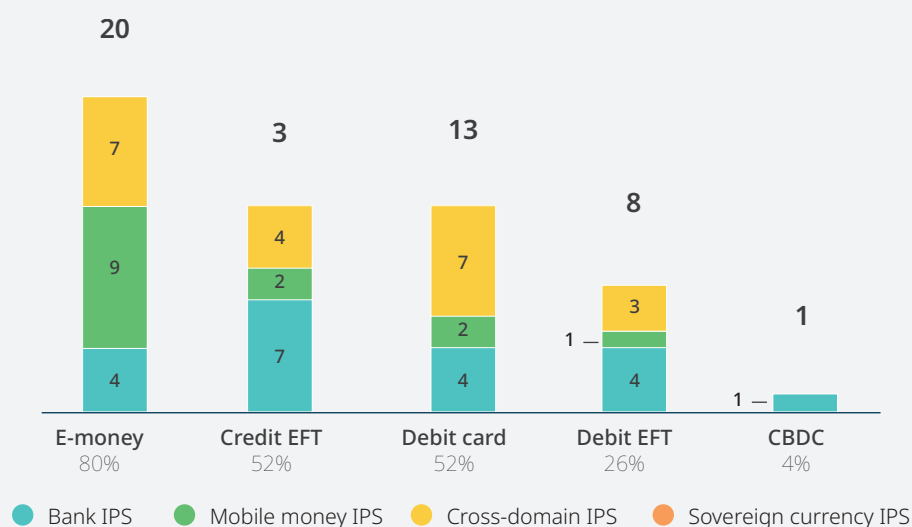
GIMACPAY was established with a vision to boost financial inclusion in the CEMAC region and to ensure that the scheme aligns with the needs of individuals. The design was preceded by a comprehensive needs analysis of each country's population. In its first eight months, GIMACPAY processed approximately two million transactions with a total value surpassing USD 50 million (Stakeholder interviews, 2022).

### 2.3.3 Instruments

**E-money instruments the most common, with banks being focused on credit EFTs.** Credit transfers (via electronic fund transfers (EFT)) and e-money (mobile money) are push payments that allow full control by the end-user and that are thus considered more inclusive compared to pull payments (World Bank, 2021a). EFT credit instruments are lower risk, lower cost and simple to integrate into existing core banking systems. Many mobile money schemes can be based on card platforms due to the instant processing and proxy functionality. Card systems can split transaction processing between an instant (authorization) adjustment to a balance file and then process transactions in bulk to the consumer account subsidiary ledgers. Card platforms can introduce higher fixed costs due to intricate card functionality not yet utilized by e-money systems. The integration of card systems can also be costly where core systems do not have

real-time subsidiary ledgers. This particularly affects smaller institutions with legacy technology or with highly modified or even proprietary mobile money systems. However, card platforms can provide significant integration opportunities between e-money and card instruments, as well as EFT if implemented within one platform. Figure 12 shows that e-money instruments are supported most by cross-domain and mobile money IPS, while banks largely focus on credit EFTs as their main instrument.<sup>20</sup> Pull-payment instruments such as debit cards and debit EFTs are often available as secondary instruments, mainly offered by bank and cross-domain IPS. CBDC is both its own scheme and an instrument that enables direct interlinking of both channels and instruments as each provider operates on the same specification of the digital currency and can hence utilize the single sovereign instrument within the CBDC channel, or between instruments and channels.

20 Data not available for SYRAD in Djibouti.

**FIGURE 12. IPS instruments supported, multiple mentions (n=25)**

### 2.3.4 Use cases

Use cases show how consumers are able to use IPS to meet their payment needs. Use cases are therefore an important consideration when looking to ascertain the inclusivity of the different IPS. The consumer research in Chapter 3 provides greater depth into understanding the payment needs of particularly lower-income consumers in select markets.

#### **P2P use cases are most common followed by P2B.**

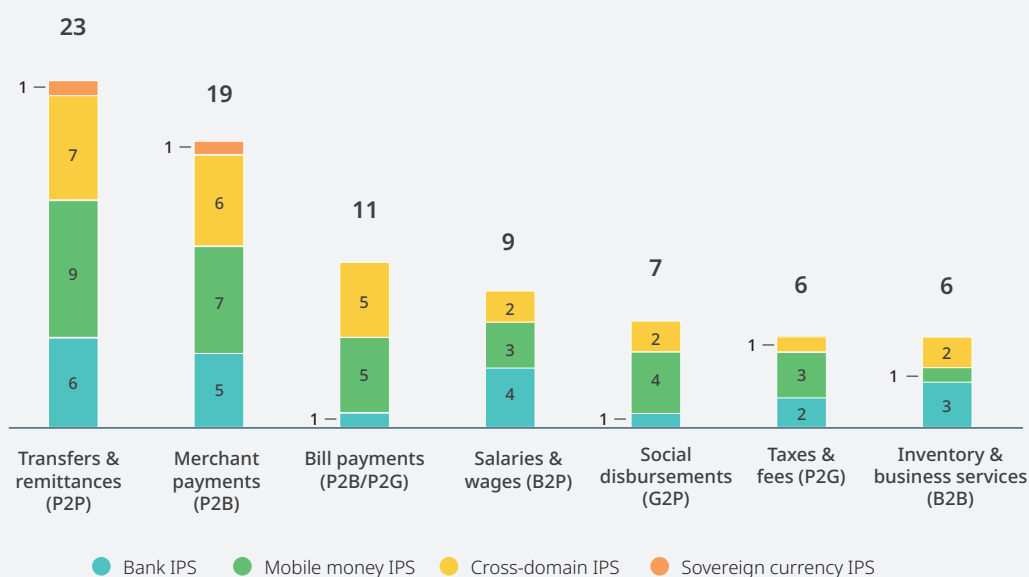
Figure 13 shows the breakdown of use cases offered by each IPS. 72% of IPS support both person-to-person (P2P) and person-to-business (P2B) payments.<sup>21</sup> P2P payments are easiest to facilitate from a technical perspective, and merchant payments are particularly time-sensitive and trust-dependent, i.e., the utility for both merchants and

end-users for P2P and P2B instant payments is particularly high. This is further discussed in Chapter 3. In contrast, only 10% of systems (GIP and Ghana MMI, and MarocPay in Morocco) have made business-to-person (B2P), person-to-government (P2G), and government-to-person (G2P) payments possible in addition to P2P and P2B. Overall, all African IPS have opted to roll out use cases incrementally rather than integrating all from the start. PIX in Brazil, an IPS with rapid uptake and usage, is an example of an IPS that was rolled with all integrated use cases at launch.

**G2P payments are supported by few IPS.** Only seven IPS currently integrate G2P payments.<sup>22</sup> These payments drive larger scale through the system and serve as catalysts of both initial access and sustained use of digital payments.

<sup>21</sup> For three domestic IPS, no information was available on use cases: Instant Payment Network (Egypt), Somalia National Payment System, and SYRAD in Djibouti.

<sup>22</sup> GIP (Ghana), Ghana MMI, Madagascar mobile money, MarocPay (Moroc), Nigeria mobile money, Uganda mobile money and ZIPIT (Zimbabwe).

**FIGURE 13. Enabled use cases by IPS type, multiple mentions (n=23)**

### 2.3.5 Main actors

Table 5 defines the typical main actors within an IPS. Clear oversight, effective governance, reliable switch operations, and timely settlement are preconditions for IPS to achieve

scale (AfricaNenda, 2021; CGAP, 2021; World Bank, 2021a). Scheme participants can take a wide range of roles, and the main actors highlighted below can also be participants.

**TABLE 5. Actor definitions**

| Main actors                   |   |
|-------------------------------|---|
| <b>Overseer</b>               | Continually monitors the system and assessing how safely and efficiently it is operating (BIS, 2016). They are responsible for assessment and monitoring of the system and enforcement of law and regulation to promote safe and efficient payments (CGAP, 2021). |
| <b>Scheme governance body</b> | Responsible for overall scheme management, rule writing, and strategic direction, including any explicit inclusivity mandate (pro-poor governance) (CGAP, 2021).  |
| <b>Platform operator</b>      | Responsible for transmitting payment instructions, calculating settlement positions and other operational activities such as ensuring the quality of service, operational risk mitigation, and the maintenance of standards (CGAP, 2021).                         |
| <b>Settlement agent</b>       | Responsible for moving final funds between scheme participants (CGAP, 2021).  |
| <b>Scheme owner</b>           | Responsible for and entitled to receive all the benefits and risks associated with ownership of the scheme (BIS, 2003)  |
| <b>Scheme participants</b>    | Service providers whose customers can access and use the IPS directly through the service provider  |

**Central banks oversee almost all IPS in Africa.** In 24 of the 26 domestic IPS, the regulator (i.e., the central bank) performs the role of overseer given the importance of payment schemes for the financial stability of an economy. The central banks have a particularly strong role in Djibouti, the Gambia, Ghana, Mauritius, Somalia, Tanzania, and Tunisia. In all these countries, the central bank plays the role of overseer, scheme governance, operator, and settlement agent. Interviews with several key stakeholders involved in setting up some of these systems revealed an acknowledgment of the benefit of involving participants in leadership for the system; however, there are concerns over the difficulty in ensuring that the system aligns with the countries' socio-economic objectives without a strong regulatory hand. The remaining two schemes are governed by multilateral agreements without an overseer.<sup>23</sup> Without direct regulator scheme oversight, participants do not have a clear oversight body, and the settlement of disputes relies on national policy, international standards, and legal frameworks rather than being able to be resolved within the payment system structures.

**Same entity usually performs scheme governance and operator roles.** The scheme governance body and the operator can be played by the central bank or could be filled by a private company, private association, public-private partnership, or non-profit organization. In 22 IPS for which this information was available, the scheme governance

and operations are performed by the same entity. Two exceptions stand out: RTC in South Africa and MarocPay in Morocco where the scheme governance position is held by a private-sector association while the operator is a private technology company<sup>24</sup>. For operational efficiency and effective integration, both governing and operating an IPS seem most logical. However, the effectiveness depends on the capacity and technical expertise of the entity to hold both positions to satisfy both participant and end-user needs. In instances where the central bank or other central entity is already stretched in terms of resources and/or capabilities, a split could be considered to speed up integration.

**Central banks usually provide the settlement function.** Settlement has significant implications for the efficiency of an IPS, as well as the financial risks associated with the scheme. The central bank performs the role of settlement agent in 21 of the domestic IPS (81%). Settlement in central bank money significantly reduces the possibility of compounding or concentrating risks associated with settlements in commercial bank or other forms of money. For the remaining eight IPS, four settle through bilateral or multilateral relationships, settling obligations directly using pre-funded liquidity deposits within each other's subsidiary ledgers. The regional IPS active in Africa operate through a centralized single clearing model; however, they differ slightly in how this is set up (see Box 8).

### BOX 8. Settlement agents in multi-country IPS

Under the centralized single clearing model, there is a single regional settlement bank and a single clearing platform. It is the most common setup for regional payment systems around the world.

- For TCIB in SADC, the South African Reserve Bank performs the role of the regional settlement bank. The system relies on a single regional clearing platform; however, the scheme rules of TCIB allow for additional integrations to clearing platforms, similar to the Single Euro Payments Area (SEPA).
- For PAPSS, the main settlement agent is the African Export-Import Bank (Afreximbank), a trade finance bank that then works with settlement agents in each member country which are the national central banks.
- The countries in the CEMAC region have a shared central bank, the Bank of Central African States (BEAC), which is the settlement agent for GIMACPAY.

<sup>23</sup> Madagascar mobile money and Uganda mobile money.

<sup>24</sup> South Africa's RTC is operated BankservAfrica while the Payments Association of South Africa is the scheme governance body. HPS Switch is the operator and is an economic interest grouping (an association formed on the basis of the contract of formation) is the scheme governance body for MarocPay (Morocco).



**Standard Chartered, Ecobank, Standard Bank Group, and Absa Bank participate in most IPS enabling bank payment instruments.**

The initial IPS were bank IPS, and banks perform core functions in financial systems beyond their role in facilitating payments. The number of banks observed to be participating in each IPS ranges from a minimum of eight (NamPay in Namibia) to a maximum of 31 (PesaLink in Kenya). There are several multinational banks that operate across different country jurisdictions and that are therefore participants in multiple domestic IPS. Standard Chartered, headquartered in the United Kingdom, has operations in 16 African countries and is a participant in 75% of the 15 countries that have either a bank IPS or a cross-domain IPS (Standard Chartered, 2022). Ecobank, headquartered in Togo, has the biggest footprint across Africa, with operations in 36 countries (65% of the continent). Ecobank is present in 60% of the 15 countries that have either a bank or a cross-domain IPS in place (Ecobank, 2022). Two South African headquartered banks, Standard Bank Group and Absa Bank (formerly known as Barclays), are present in 20 and 12 countries respectively and also achieve a 60% presence in countries that have a bank or cross-domain IPS in place. Five countries—Ghana, Kenya, South Africa, Tanzania, and Zambia—with either a bank IPS or a cross-domain IPS have all four of the above-mentioned banks present; and only three countries—Djibouti, Morocco, and Somalia—do not feature any of them.

**Airtel features in more IPS than any other mobile money operator.**

Although there are as many as 21 MMOs, as observed in Nigeria's mobile money IPS, the average number of MMO participants in an IPS is three. Most MMOs fall under four overarching mobile network operators: Vodafone, MTN, Airtel, and Orange. Vodafone is well known in this space due to its pioneering success of M-Pesa in Kenya via its subsidiary Safaricom. Orange has rolled out mobile money services in 17 countries across the continent, giving it the biggest footprint in terms of operational countries. However, it is Airtel which participates in the greatest number of IPS, with the provider featuring in seven of the 17 IPS with mobile money participants (41%). Vodafone and MTN each participate in six IPS (35%). Orange, despite its biggest footprint where mobile money services are provided, featured the lowest participation within IPS across the four providers (24%). A combination of these four main mobile money providers operates in seven

countries.<sup>25</sup> Only in Djibouti and Zimbabwe, do none of them participate in the IPS. There is no system that includes all four leading MMOs.

**Fintechs have the potential to be major players in IPS in Africa, are increasing in prominence, and fulfilling a multitude of different roles in the provision of IPS services.**

Despite being able to provide innovative solutions that are affordable for low-income consumers, fintechs (e.g., non-bank, non-MNO entities) are in many cases not able to directly participate in IPS due to the inability to obtain licenses. Only six of the IPS in Africa explicitly allow for direct fintech participation.<sup>26</sup> If the IPS were more accessible for fintechs, they could become major players across Africa, where some are already achieving a wide footprint across the continent. Fintechs have been exploring the use of technology to, for example, target underserved individuals and offer value-added services to complement digital payments, such as microcredit. Though these services are increasingly explored and offered by MMOs across the continent, in many cases it was fintechs that first developed the innovation (Adjo, 2022). The exclusion of mobile network operators from Nigeria's NIP created the space for fintechs to provide solutions to payment needs usually served through mobile money. This has resulted in a thriving fintech sector with start-ups reaching scale and expanding operations across Nigeria's borders. One example is Flutterwave, that has rolled out its services in 12 countries in Africa. Of these countries, ten have a domestic IPS; however, Flutterwave is only a participant in four due to the remainder barring the participation of fintechs in the payment system<sup>27</sup>. There are valuable lessons from Flutterwave and similar fintech trailblazers, such as Wave, MFS Africa, and Moov Money, which point towards the potential of fintechs to contribute to overall financial services efficiency.

**Private-sector firms play key roles in IPS operations across the continent.**

Fintechs are performing other roles in IPS beyond participants in the system. In some countries, fintechs are operating as aggregators for the payment system. In Ghana, Nsano, a fintech, provides an aggregator role for the mobile money IPS. Pegasus in Uganda performs the scheme aggregator role. Electronic clearing houses are another important player in IPS, performing the role of switch operator in IPS such as RTC in South Africa, TCIB in the SADC region (both BankservAfrica), and ZECHL in Zambia.

25 Egypt (Vodafone, Orange); Ghana (Vodafone, MTN); Madagascar (Orange, Airtel); Nigeria (MTN, Airtel); Rwanda (MTN, Airtel); Tanzania (Vodafone, Airtel); Uganda (MTN, Airtel).

26 Domestic IPS: PesaLink (Kenya), Instant Payment Network (Egypt), TIPS (Tanzania), and NatSwitch (Malawi); regional: TCIB (SADC), PAPSS (Africa-wide).

27 Flutterwave is a participant in PesaLink (Kenya), TIPS (Tanzania), NatSwitch (Malawi), and Instant Payment Network (Egypt).

**Development organizations provide an important coordination role.** Many interconnected players are involved in the provision of instant payment services. To ensure effective delivery, coordination is particularly important during the system development phase, an

established space for development organizations. Examples of where this has been done include the Bill & Melinda Gates Foundation and FSD Africa with TIPS in Tanzania, the World Bank with Malawi's Natswitch, and the International Finance Corporation with Tanzania's mobile money IPS.

## 2.4 | GOVERNANCE

The governance of a scheme determines how all processes are carried out within the IPS and sets the rules for a collaborative space for participants (Level One Project, 2019b). The institutional arrangements, the rule book, sets the parameters for the interaction between participants in the system (North, 1990; Ostrom, 2005). IPS decision-

making can be delegated to different structures, yet there is usually an overarching governance body that holds the ultimate decision authority and that is accountable to the regulator for the overall scheme operations and risk management. Table 6 defines five types of governance of IPS, as well as the three different settlement modalities.

**TABLE 6. Governance typologies**

| Governance typologies                       |  |
|---|--|
| <b>Central-bank IPS</b>                     | An IPS governed by the central bank.   |
| <b>Public-Private Partnership (PPP) IPS</b> | An IPS governed by a partnership arrangement consisting of the central bank and a representation of private IPS participants.  |
| <b>Private-association IPS</b>              | An IPS governed by an association made up entirely of private-sector participants.   |
| Ownership structures                        |  |
| <b>Independent corporation</b>              | Where the system is owned by shareholders who are not necessarily users of the system (World Bank, 2021b).                     |
| <b>Jointly owned</b>                        | Where the central bank and private participants own the infrastructure jointly (World Bank, 2021b).                            |
| <b>Participant-owned</b>                    | Where the system is owned privately by its participants (World Bank, 2021b).   |
| <b>Partially owned</b>                      | Where ownership of components of the system is split between the central bank and private participants (World Bank, 2021b).    |
| <b>Regulator-owned</b>                      | Where the central bank determines the procedures, and it controls the associated technical infrastructure (World Bank, 2021b). |

### Central banks playing a prominent role in the governance, yet scheme success relying on diverse participant involvement.

More than a quarter (28%) of all IPS identified (domestic and regional) are central-bank-governed, as shown in Table 7. A further 31% of IPS are governed through public–private partnerships. With their involvement in 60% of all IPS in Africa, the central banks are powerful shapers, not only regulating and supervising in many countries but actively driving operational decisions of IPS.<sup>28</sup> This proactiveness tends to align the schemes with inclusivity objectives, creating a level playing field between participants to compete on products and services rather than infrastructure and payments rails (Stakeholder

interview, 2022). There are several examples across the continent where market readiness assessments and working groups have been established to engage participants on the scheme rules and operations. However, in the majority of purely central-bank-governed IPS, there is no established channel for participants to be involved in decision-making. Of the eight central-bank-led IPS, only Tanzania's TIPS has an explicit process of obtaining participant inputs into decisions. It is important to note that governance models may change as an IPS develops. For example, GIP in Ghana is currently a central-bank-governed IPS; however, there is an explicit plan to bring participants into the governance structure.

**TABLE 7. IPS governance map**

| 8 CENTRAL-BANK IPS  | 9 PPP IPS  | 12 PRIVATE-ASSOCIATION IPS   |
|---|--|--|
| <ul style="list-style-type: none"> <li>● GIP (Ghana)</li> <li>● MauCAS (Mauritius)</li> <li>● Somalia National Payment System</li> </ul> <hr/> <ul style="list-style-type: none"> <li>● Ghana MMI</li> <li>● Tunisia mobile money</li> </ul> <hr/> <ul style="list-style-type: none"> <li>● SYRAD (Djibouti)</li> <li>● TIPS (Tanzania)</li> </ul> <hr/> <ul style="list-style-type: none"> <li>● eNaira (Nigeria)</li> </ul> | <ul style="list-style-type: none"> <li>● Gamswitch (The Gambia)</li> <li>● Instant Payment Network (Egypt)</li> <li>● PAPSS (Regional, Africa)</li> </ul> <hr/> <ul style="list-style-type: none"> <li>● Nigeria mobile money</li> <li>● Ta7Weel (Egypt)</li> </ul> <hr/> <ul style="list-style-type: none"> <li>● NIP (Nigeria)</li> <li>● ZECHL (Zambia)</li> <li>● GIMACPAY (Regional, CEMAC)</li> <li>● TCIB (Regional, SADC)</li> </ul> | <ul style="list-style-type: none"> <li>● PesaLink (Kenya)</li> <li>● RTC (South Africa)</li> <li>● NamPay (Namibia)</li> </ul> <hr/> <ul style="list-style-type: none"> <li>● Madagascar mobile money</li> <li>● Tanzania mobile money</li> <li>● Kenya mobile money</li> <li>● Uganda mobile money</li> <li>● eKash (Rwanda)</li> </ul> <hr/> <ul style="list-style-type: none"> <li>● ZIPIT (Zimbabwe)</li> <li>● SIMO (Mozambique)</li> <li>● MarocPay (Morocco)</li> <li>● Natswitch (Malawi)</li> </ul> |
| <ul style="list-style-type: none"> <li>● Bank IPS</li> <li>● Mobile money IPS</li> <li>● Cross-domain IPS</li> <li>● Sovereign currency IPS</li> </ul>  |  |  |

<sup>28</sup> The exceptions where IPS are not governed by the central bank are PesaLink (Kenya), RTC (South Africa), Madagascar mobile money, ZIPIT (Zimbabwe), Tanzania mobile money, NamPay (Namibia), and Natswitch (Malawi).

**BOX 9. Market readiness**

Market readiness can be measured according to the size of the addressable market, including both market size and usage of digital payments among the population (BFA Global, 2022). These assessments can take various forms. Some examples noted in calls with stakeholders include:

- Engagements facilitated by BCEAO which included a market readiness assessment conducted by consulting company PricewaterhouseCoopers;
- An in-depth study initiated by GIMAC to identify customer payment needs in order to inform the design of GIMACPAY;
- The development of a financial model by the Kenyan Bankers' Association (KBA) and Financial Sector Deepening Kenya (FSDK) to measure the impact of PesaLink on member banks' existing product revenues;
- A controlled live test period by BankservAfrica and TCIB with two banks in 2021 to test the market's response.

Source: Stakeholder interviews, 2022

**The private-association model ensures participant involvement in decision-making but currently excludes all non-bank PSPs.**

The PPP model offers a more balanced approach to creating a level playing field through providing equal input opportunities by all PSPs to set common goals. Yet, in all nine PPP models identified, the partnership is between the central bank and commercial banks only, excluding non-bank PSPs in decision-making, even where the IPS is a mobile money IPS. A similar situation is observed for the private association where the association representation is skewed toward the banking sector and is run by them. Box 10 outlines three distinct approaches within this model, while Box 11 dives deeper into the PesaLink structure. This setup

can further compound power differentials between banks and non-banks, hindering interoperability and inclusivity of systems (Level One Project, 2019a). The one exception is Malawi's Natswitch, which affords equal shareholding to participating banks and MMOs. By being purely governed by the private sector, private-association systems can also be driven by profit maximization rather than inclusivity objectives. Notably, to avoid purely commercial outcomes, all three regional IPS have chosen a PPP governance and ownership model, leveraging participant input into rules while relying on the leadership of the respective national central banks to support and drive buy-in to the system. Box 12 highlights the three different setups.

**BOX 10. Private-association governance in IPS**

Although there are different implications in terms of the rights and capabilities of the association, in all three cases the association is controlled by the participants:

- Kenya's PesaLink, Zimbabwe's ZIPIT, and Mozambique's SIMO are governed by an association that is itself a private-sector entity made up of participating commercial banks.
- For South Africa's RTC, Namibia's NamPay, and Morocco's MarocPay, a state-owned entity was established with full legal rights and obligations, but which is also fully run by private-sector participants.
- All five mobile money IPS falling under the private association governance model are governed by an association made up of the scheme participants, all being MMOs. Although there are different implications in terms of the rights and capabilities of the association, in all three cases the association is controlled by the participants.

**BOX 11. PesaLink in Kenya as of June 2022 (full case study available on p.96)**

Established 2017

**PESALINK | KENYA**

The banking industry's real-time platform

Value proposition

**For consumers:** Low-cost alternative to M-Pesa for bank customers  
**For providers:** Competition between banks and M-Pesa

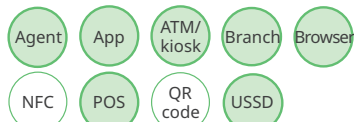
Inclusivity ranking

**Not ranked:** Does not support P2B payments or access to widely used channels. Provides for equal input opportunity for participants in decision-making, but lacks clear governance role for the central bank and pro-poor mandate.

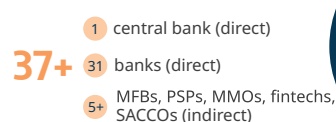
## USE CASES



## CHANNELS

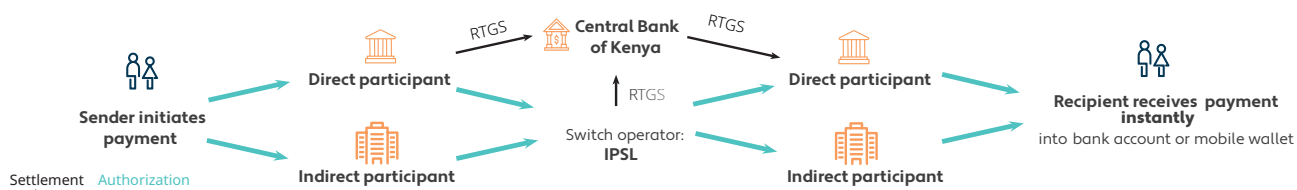


## PARTICIPANTS



The CAGR between 2019 and 2021 for volumes and values were 15% and 29%, respectively.

## TRANSACTION FLOW

**BOX 12. Governance of regional IPS**

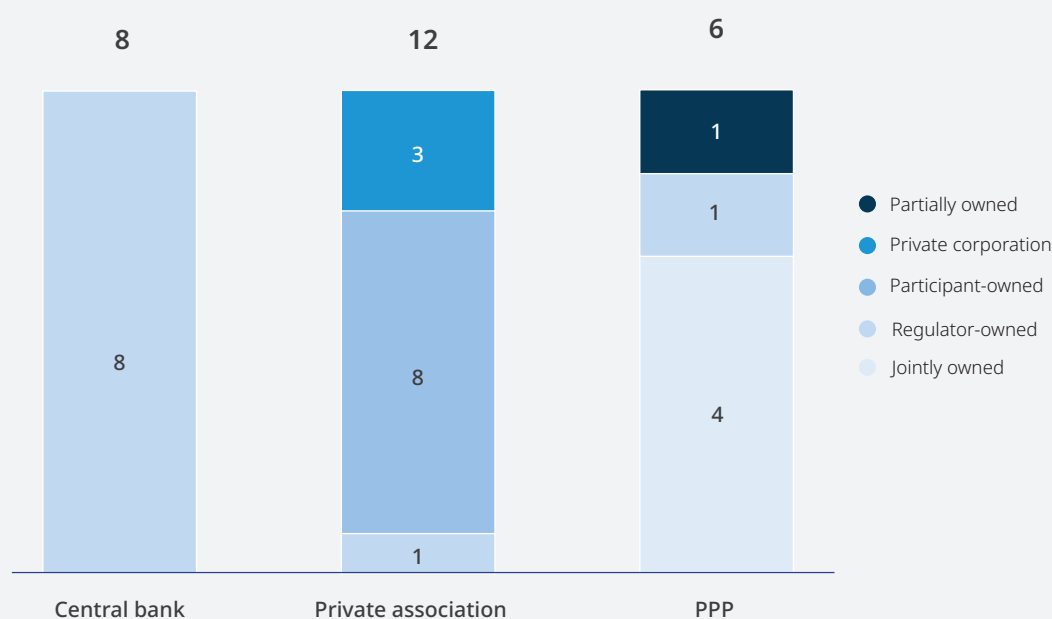
The governing bodies making decisions for the regional IPS identified in Africa are structurally different; however, in all cases, they feature both public-sector and private-sector components.

- GIMACPAY is governed by GIMAC, which is defined as an economic interest group made up of the regional central bank, national public treasuries, and banks operating in the region (Stakeholder interviews, 2022).
- TCIB is governed by the Rules Committee, which is made up of industry participants, the SADC Committee of Central Bank Governors, and the operator BankservAfrica (BA).
- PAPSS is governed by the PAPSS Governing Council, which is made up of representatives from member central banks, the Association of African Central Banks (AACB), the African Export-Import Bank (Afreximbank)<sup>29</sup>, the African Development Bank, and the African Union.

**Ownership dictates risk and reward responsibilities—complex for some.** Ownership entails being accountable for the scheme, ensuring liquidity and ultimately benefiting or losing out as a result of the scheme's performance. While it is preferred practice for payment scheme ownership and scheme governance to be kept at arm's length to promote independence, this is often not feasible in nascent markets, meaning that ownership, governance, and other functions are often bundled within the same entities. Central banks and smaller participants can struggle with the capital requirements

to expand or manage risks, which that can constrain scheme development. A mix of different ownership arrangements are observed across the IPS. All central-bank-governed IPS are owned by the central bank, with a mixture of ownership arrangements under other governance typologies. All of the central-bank-governed IPS are also owned by the central bank, as highlighted in Figure 14. Most of the PPP-governed IPS have a joint ownership arrangement, with the remaining ones having partial ownership arrangements or being owned by the central bank.

<sup>29</sup> The African Export-Import Bank (Afreximbank) is a for-profit multilateral trade finance institution operating across Africa where it looks to stimulate trade growth. The bank has an extensive management structure with multiple directives and four tiers of stakeholders. Tier "A" includes African governments, central banks, African regional institutions and sub-regional institutions, Tier "B" includes African private investors and financial institutions, Tier "C" includes non-African financial institutions, export credit agencies, and private investors, and Tier "D" can include anyone else who meets the USD 5 billion capital requirement (Afreximbank, 2022).

**FIGURE 14. Ownership structure of domestic IPS by governance typology (n=26)**

**Voting rights show different power balances existing within IPS where participants are part of the main governance body.** The importance of voting rights varies across the different governance typologies:

- **Central bank governance model:** decisions are made within the central bank structure without the need to have consensus among different governing parties (e.g., GIP in Ghana).
- **PPP model:** the voting rights can determine the level of influence the central bank has relative to the private-sector entities involved in the governance structure. In cases like NIP in Nigeria, the central bank holds a majority share in the PPP governing body and hence has a strong sway in decision-making for the payment system. In contrast, ZECHL (Zambia) there has been a drive toward independence. While the central bank chairs the industry forum where decisions are made, they receive the same representation as each participant in voting processes. All three regional IPS are PPP-governed.
- **Private association model:** the governance rests in a group of private-sector players, the nature of voting rights determines the relative power balance between the different service providers. For RTC in South Africa, participants vote proportionate to their transaction flows; and for Gamswitch, voting rights are proportionate to investment amounts and associated shareholdings in Gamswitch. In both these cases, the larger players (who are more exposed to the risks and upside in the system) have greater power in decision-making processes. An alternative

is to provide equal voting rights to each organization, as is the case for NamPay in Namibia, Natswitch in Malawi, and Tanzania's mobile money IPS. This provides a level playing field where smaller players and new entrants have direct input to how the system is run.

The optimal choice of voting structures ultimately depends on the main objectives of the payment system, particularly the relative importance of industry competitiveness versus inclusive growth, as well as the eligibility criteria of the system and the licensing controls in place.

#### **Limited information on IPS financing models available.**

Financing strategies are a core consideration for IPS and are influenced by factors like the owner of the scheme, the nature of participants, and the priorities of the regulator. The revenue model and the profit neutrality of the system determine whether the system imposes joining fees, annual fees, or transaction fees (World Bank, 2021a). These fees influence the price of using the system and hence the affordability and accessibility for certain consumers. Little information is publicly available on financing models adopted. Annex A provides insights into the financing models of the four case-study IPS, revealing a variety of approaches:

- GIP in Ghana and TCIB in the SADC region operate on a strict cost-recovery model.
- NIP in Nigeria operates on a cost-recovery model but with moderated profit for shareholders.
- PesaLink in Kenya operates on a for-profit basis.

## 2.5 | TECHNICAL ASPECTS

Table 8 outlines the various definitions of technical specifications that can influence the inclusivity of a system. The choice of messaging and data security standards dictate the relative ease to integrate with a scheme from a provider perspective and also ultimately influence the end-user trust in the digital payment ecosystem. Messaging standards specify the manner, the format, and the content of payment messages sent between participants on the

scheme. Open application programming interfaces (APIs) and the availability of proxy identifiers via the IPS can enable a higher degree of innovation from a product and end-user convenience perspective. Rules around recourse mechanisms ensure that consumers can trust that their issues will be heard and resolved. Settlement models influence the degree of trust by providers into the scheme and the risk to the financial system.

**TABLE 8. Technical aspect definitions**

| Messaging standards                           |   |
|---|---|
| <b>ISO 8583</b>                               | The most common messaging standard for card payments, ISO 8583 was established by the International Organization for Standardization (ISO) in 1987 (World Bank, 2021d).   |
| <b>ISO 20022</b>                              | Introduced in 2004, ISO 20022 has become the standard exchange for new instances of electronic messaging and is used by most financial service providers for payment as well as non-payment transactions (World Bank, 2021d).   |
| Technical accessibility                       |   |
| <b>Open API</b>                               | The method for software programs to communicate with one another that is designed to conform to published data formats and standards and is made widely available, allowing other companies to integrate seamlessly into the payment system (CGAP, 2022).                     |
| <b>Proxy ID</b>                               | An identifier (e.g., e-mail address, mobile phone number) that may be used in lieu of the payer's or payee's transaction account information. These allow the public and the business sector to transact in a seamless manner while initiating a payment (World Bank, 2021e). |
| <b>QR code standards</b>                      | Common QR specifications defined by regulators, central banks, or payment councils to be used across channels to overcome logistical constraints of supporting multiple QR codes (World Bank, 2021g).   |
| Settlement models between scheme participants |   |
| <b>Bilateral prefunding</b>                   | When "nostro" accounts are prefunded by connected payment service providers. These accounts are then debited as transactions occur between parts of connected providers (CGAP, 2021). <sup>30</sup>   |
| <b>Deferred net settlement (DNS)</b>          | The process for transaction obligations that are not settled immediately but at some later stage according to a predefined cycle, either daily or more frequently (World Bank, 2021a).  |
| <b>Real-time gross settlement</b>             | When transactions are settled continuously as they occur (World Bank, 2021a).   |

<sup>30</sup> Nostro accounts are accounts owned by one financial institution but housed within another, where the financial institution could be a bank, MMO, or other payment service provider with stored value accounts.

### ISO 20022 and ISO 8583 are the most prevalent messaging standard for IPS.

In determining the way payment messages are sent between participants on the scheme, messaging standards dictate the level of efficiency of the system. The information on messaging standards is only available for 13 IPS. Seven IPS are based on ISO 20022, five are based on ISO 8583, and one uses proprietary standards. Five of the domestic IPS (45%) follow the ISO 20022 messaging standard, four of which are bank IPS, and one is a cross-domain IPS. TCIB and PAPSS, regional IPS, also use ISO 20022. ISO 20022 was mandated in some jurisdictions, creating a regulatory drive for change, with the highest impact on under-capacitated institutions having to either upgrade their older core banking systems, move to outsourced systems, implement ISO 20022 translation gateways, or consolidate operations with other institutions. While ISO 20022 is the most recent of the ISO messaging standards observed, it was developed in 2004, before any of the IPS in Africa were established. This means that the ISO 20022 standards are generally out of touch with recent developments in payment systems and the technology and infrastructure employed (World Bank, 2021d). Of the five domestic IPS (45%) that follow the ISO 8583 standard, three are cross-domain IPS, one of is a bank IPS, and one is a mobile money IPS. TIPS in Tanzania, a cross-domain IPS encompassing a wide range of players, is the only instance of proprietary messaging standards observed. The trade-offs between ISO and proprietary messaging standards are discussed in Chapter 4.

### Usage of open APIs and QR standards enable innovation.

Eight of the twelve IPS where this information is available offer open APIs, while four explicitly do not.<sup>31</sup> QR standards have been established in nine IPS, with ten explicitly not having them available, of the 19 IPS where information was available.<sup>32</sup>

### Mobile phone numbers leveraged most commonly as the form of proxy ID.

There are 10 domestic IPS where proxy identities are specified explicitly by the scheme, and three IPS which explicitly do not allow them. The most common type of identifier was a mobile phone number, specified by seven of the ten systems.<sup>33</sup> Other identifiers included email addresses (2), usernames (2), and biometrics (1).

### Trade-off between liquidity and risk in settlement.

The choice of settlement model and particularly its detailed specifications, directly affects efficiency and can have material implications on the liquidity requirement for participants as well as the continuity of the IPS process. Where information was available, it emerged that four IPS in Africa settle via a Deferred Net Settlement (DNS), five settle in real time, and five via bilateral funding. The DNS model does not require continuous settlement, and hence no replication of the individual transaction flows within a sovereign currency system is needed. The effective implementation of a DNS settlement process requires appropriate risk-management measures to ensure that build-up of debit positions does not result in material counterparty risk or systemic risk to the entire scheme should one party fail. These risks can be mitigated through intra-day settlement windows that strike a balance between operational challenges for higher frequency of settlements and counterparty risks for any participants value exposure. The risks can further be mitigated through the ringfencing of securities in line with expected daily maximum settlement limits. Static settlement liquidity, securities positions, or exposure caps per settlement window can risk the temporary suspension of an IPS participant within a settlement window if breached. Continuous settlement processes which are not ideally designed for IPS, could expose the settlement system and IPS participants with lower capacities to operational risk given 24/7 availability and outsized transaction volumes. Real-time systems, which are separated from domestic RTGS systems, are able to settle transactions continuously in sovereign currency through ringfenced liquidity (settlement account) or securities mechanisms. These types of systems can overcome some of the risks inherent in DNS systems and with fewer IPS liquidity stoppages than possible by dynamically updating ringfenced liquidity or securities. However, DNS systems with appropriate settlement windows and dynamic securities management can be an effective mechanism to strike the balance between liquidity and counterparty risks as well as effective operational risk management outside of core financial working hours.

31 IPS that have forms of open APIs: PesaLink (Kenya), TCIB (SADC), PAPSS (Africa-wide), MauCAS (Mauritius), Instant Payment Network (Egypt), Ghana MMI, Uganda mobile money, and Gamswitch (the Gambia). IPS that do not have open APIs: RTC (South Africa), ZIPIT (Zimbabwe), eNaira (Nigeria), and Natswitch (Malawi).

32 IPS with QR code standards: NIP (Nigeria), GIP (Ghana), MauCAS (Mauritius), Instant Payment Network (Egypt), Ghana MMI, GIMACPAY (CEMAC), Tunisia mobile money, Gamswitch (the Gambia), eNaira. IPS that do not have QR standards: PesaLink (Kenya), TCIB (Africa-wide), RTC (South Africa), Somalia National Payment System, ZECHL (Zambia), ZIPIT (Zimbabwe), Nigeria mobile money, NamPay (Namibia), TIPS (Tanzania), and SIMO (Mozambique).

33 GIP (Ghana), PesaLink (Kenya), PAPSS (Africa-wide), MauCAS (Mauritius), MarocPay (Morocco), TIPS (Tanzania), and SIMO (Mozambique).



### Recourse processes a critical component of IPS in low-income markets, has very limited information available.

Recourse is at the core of consumer financial protection and is particularly important for lower-income consumers (CGAP, 2013). Information on the available recourse channels was not always available but was obtained for 16 domestic IPS (52%). Of these systems, seven (44%) provide recourse channels specifically for the scheme. Of the seven, three offer a recourse channel as a “last point of call,” requiring consumers to first approach their service provider. Two prescribe recourse channels that need to be set up by the service provider, and two offer a recourse

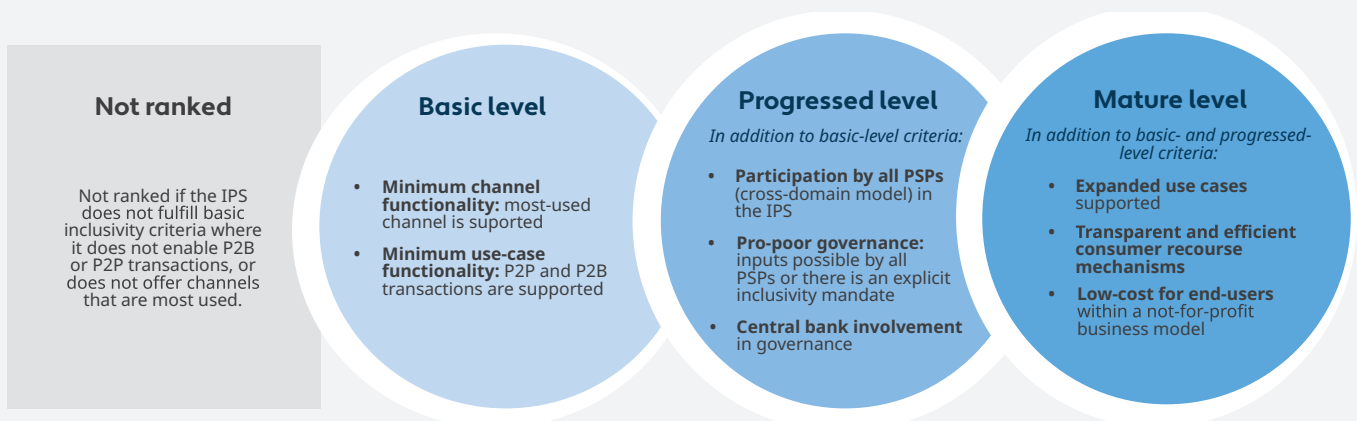
channel that is open to consumers without needing to first try and resolve with the service provider. For the remaining nine, the only recourse available is via general financial sector protections. This latter approach usually involves consumers needing to log a complaint with the service provider, who then has a limited number of days to address the issue before being escalated to the broad recourse mechanisms for the financial sector, usually via the central bank. Having recourse channels set up within IPS can help to ensure that the channels are appropriate for consumers and can build trust in the system if issues are resolved efficiently and effectively.

## 2.6 INCLUSIVITY

The insights from the preceding chapters allow us to draw first conclusions about the state of inclusivity of individual IPS in Africa today. This section considers the inclusivity tiers based on the scheme design of each IPS. From an end-user perspective the clearest indicator is the breadth and depth of sustained use of the IPS. As shown in the functionality section earlier in this chapter, only four systems show considerable transaction flows relative to the size of the economy, with measured transaction values in excess of 75% of GNI: Uganda mobile money, Kenya mobile money, Ghana MMI, and NIP in Nigeria. Of the remaining systems, only two have transaction flows reaching more than 10% of GNI, with most others registering in low-single digits. This

indicates that most systems in Africa remain underutilized. A combination of factors plays into this underutilization, including the young age of the systems, partial use-case rollout to date, lack of network and electricity reliability, barriers in end-end-user adoption as further investigated in Chapter 3, and pricing structures, among others. While age does not equate to scale, 17 IPS are fewer than four years old, and their rollout in terms of functionality and participant integration is ongoing. The usage of systems is therefore expected to increase considerably in the coming years, with appropriate adjustments. This section offers a categorization of inclusivity of all current IPS in Africa according to three levels, which are outlined in Figure 15.

**FIGURE 15.** Categorization of inclusivity levels



**Three levels differ according to depth of inclusion indicators.** IPS on the **basic inclusivity level** fulfill a minimum set of functionalities that are vital for the inclusion of lower-income end-users.

- The IPS enables channels that are currently most used by the population within its geography, e.g., mobile money transactions via the IPS are supported in markets where mobile money is the preferred channel currently.
- In addition, the IPS enables at a minimum P2B and P2P use cases, the former providing scale for an efficient business model and meeting the most pressing needs to rival cash in merchant payments, while the latter provides speed and safety in addition to scale for personal P2P transactions.

For an IPS to be included in the **progressed inclusivity level**, in addition to inclusive functionality at the basic level, the system design contains the following three inclusive governance principles:

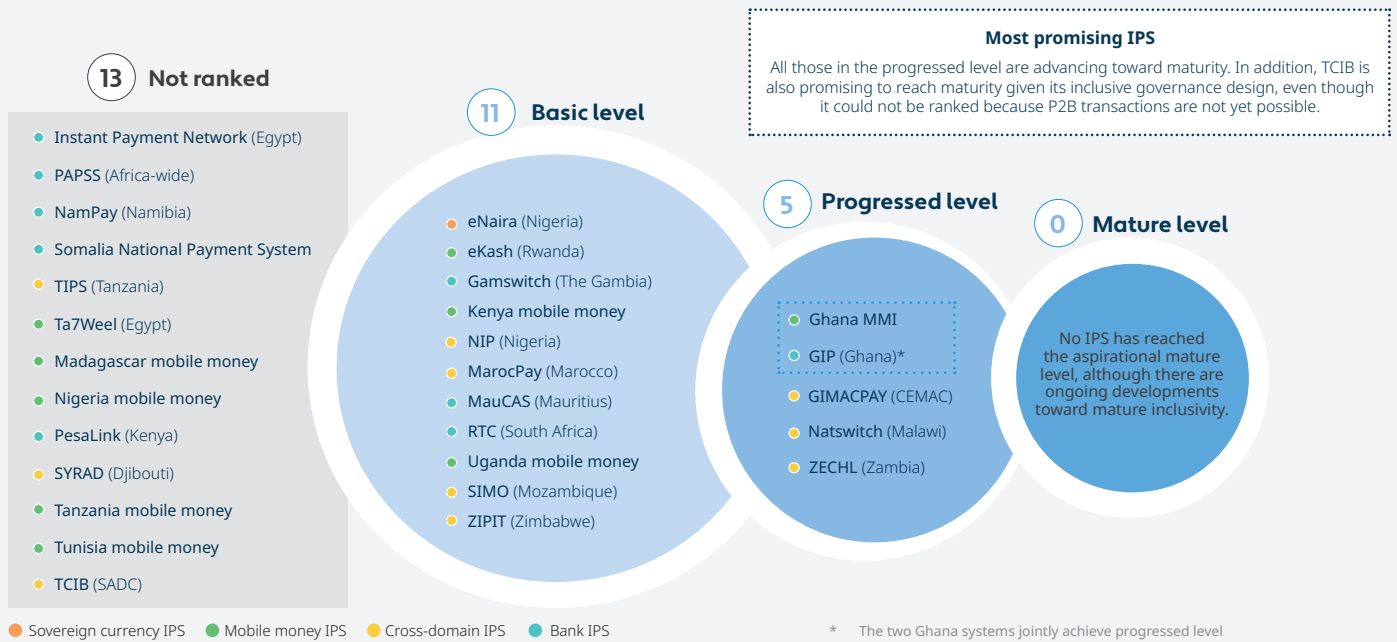
- The IPS enables interoperability between all channels by allowing all licensed PSPs access to the scheme (i.e., has a cross-domain operating model).
- The IPS has established provisions to allow all licensed PSPs' input into decision-making and design of the scheme or has an explicit inclusivity mandate (pro-poor governance).
- In addition, the central bank is part of the governance framework, to ensure elevation of inclusivity goals and to champion the use of and integration into the scheme by all PSPs. Supervision and effective regulation are crucial, but a specific focus on ensuring that the system governance is inclusive is vital to prevent dominance of commercial interests.

The **mature inclusivity level** is accessible for IPS that surpass the full spectrum of both inclusive functionality and governance and that also meet the following three conditions:

- The full range of payment use cases has been integrated in addition to P2P and P2B, including G2P and P2G, B2B and B2P, B2G, and G2B, to create a holistic digital payment ecosystem that enables the circulation of liquidity mirrored in the broader economy. Interlinking use cases are aimed at enhanced digital utility for a spectrum of end-users and where the choices of use cases do not cause pockets of stagnation of liquidity but rather the aggregation and flow of capital between layers of the economy.
- The IPS made provisions for and enforces transparent and efficient consumer recourse mechanisms, in line with or in addition to consumer protection and data privacy or cybersecurity laws that mitigate the risk for end-users around fraud and abuse through the system.
- The cost of a digital payment transaction for the end-user is as low as feasibly possible within a not-for-profit business model. The end-user pricing by participants is continuously monitored and non-compliance or excessive pricing is revised.

**A complex inclusivity picture unfolds, with many IPS fulfilling basic criteria and few progressed.** Figure 16 maps each of the IPS to their respective levels. Table 19 in Annex C provides more detail by showing a full view of how each IPS performs against the eight criteria spanning the three levels. There are currently 13 systems that are IPS but that do not fulfill the basic criteria of inclusive functionality, predominantly because they have not yet added P2B functionality. This is the case for eleven of the systems that are not ranked; four of which also do not offer the preferred digital channel. The remaining two enable P2B, yet do not provide end-users with their preferred digital channels. Eleven systems are at the basic level, and five systems meet the progressed criteria. The distribution between the different inclusivity levels will likely change considerably in the coming years given the ongoing developments and integrations within the individual IPS.

FIGURE 16. Inclusivity mapping



### Five IPS show promising developments toward mature inclusivity, though fall short of the threshold.

Currently, no IPS is fully mature in terms of inclusivity, mostly due to their relatively young age and due to shortcomings around inclusive governance.<sup>34</sup> Most of the systems either lack the explicit equal opportunity for input by all PSPs in design or decision-making or do not provide for cross-domain interoperability. This hampers a system's ability to scale and meet end-users' needs. Collaboration in system design and rules with fair access to the infrastructure rails is essential in driving innovation and competition toward inclusive outcomes. Five systems show considerable progress toward the maturity level: the CEMAC regional scheme GIMACPAY, the Ghana system, Malawi's Natswitch, SADC's TCIB, and ZECHL (Zambia). It

should be noted that the Ghana system consists of two IPS and an additional card-system called e-zwich that meet the progressed level criteria as they are combined—highlighting the potential to integrate existing systems to achieve inclusivity. TCIB in SADC currently does not yet offer P2B payments but has leading inclusive governance arrangements. The Ghana system is the only one among the five that already supports G2P payments; however, like the other four in this list, it does not yet fully support all the other expanded use cases. Given the limited publicly available information for effective consumer recourse and transparency around, or assessment of, end-user prices as well as incomplete use-case rollout processes, further disclosure will be necessary to assess the different inclusivity indicators.

34 End-user pricing and effective recourse could not yet be determined and requires further evaluation.

# EVOLVING DIGITAL PAYMENT CUSTOMER BEHAVIOR

3



To truly understand the state of IPS inclusivity across Africa and to inform their design, end-users' perspective need to be heard. How do end-users experience their interaction with digital payments? What will make them integrate digital payments in their daily lives? And how can IPS best support digital payment usage?<sup>35</sup> This section presents the cross-country insights from consumer research in seven sample countries (the DRC, Egypt, Ghana, Kenya, Nigeria, Tanzania, and Zambia) to inform how IPS can be designed to better meet the needs of end-users.<sup>36</sup> Note that, as the sample is not nationally representative, it is not possible to extrapolate the findings to the overall population of individuals and MSMEs in the seven study countries.

This chapter first maps digital payments use in the study countries in aggregate and across specific user groups. The findings suggest that there has been an increase in how many people have digital wallets or accounts (breadth of access). While there has been a significant uptake in the adoption of

digital payments, sustained and frequent usage is often lacking (depth of usage). It then assesses the most frequently occurring payment needs to show where gaps or opportunities for digital adoption exist—day-to-day payment needs such as buying groceries or paying for transport are largely still cash based. Next, the chapter considers the factors influencing or driving digital payment access, adoption, and use to conclude on the implications of the consumer research for IPS design in Africa.

Across the study countries, access is impeded by a lack of network connectivity, limited documentation, and language barriers. Adoption of digital payments has been driven by the need to undertake specific payment digitally and out of safety concerns, but challenges remain—including privacy concerns, prevailing social norms which entrench cash use and low levels of trust in digital financial service (DFS) usage. Finally, the degree of usage is influenced by the prevalence of network effects, real and perceived costs, and the traceability and speed of digital payments.

### Box 13. Consumer research methodology overview

**A mixed-method approach.** The insights in this chapter are based on both quantitative and qualitative consumer research methods, conducted across the DRC, Egypt, Ghana, Kenya, Nigeria, Tanzania, and Zambia between April 2022 and June 2022. The quantitative component provides insights into the adoption and usage of digital payments across the continent. The qualitative component combines in-depth interviews (IDIs), focus group discussions (FGDs), and immersions to derive nuanced insights on behavior and perceptions around the key drivers of digital payments uptake and usage. The detailed methodology can be found in Annex D.

**Study population: mostly urban low-income consumers and micro and small businesses.** The quantitative sample covers a total of 1,200 respondents and the qualitative sample comprises 200 respondents for IDIs and immersions and 50 FGDs with four to six respondents each (detailed country sample breakdowns are in Annex D). As this report aims to inform inclusive design of IPS, the sample was selected to focus on low-income earners and MSMEs. The sample focused on urban-based respondents and on digital payment users—75% of the quantitative component and 90% of the qualitative component were recruited to be included (defined as at least one formal payment made or received in the past month). The consumer research sample is therefore not nationally representative, and any inferences made on a country-by-country basis are with respect to the sampled respondents.<sup>37</sup>

35 For the purpose of this chapter, "consumers" refers to both individuals and MSMEs' digital payment users.

36 In so doing, it adds to the literature on cross-country insights on digital payment usage in Africa. Several studies have investigated the behavioral components of digital payment uptake in specific African countries. However, few studies have conducted in-depth country comparisons. Notable examples are IFC (2018), BFA (2020), and Caribou Digital (2021).

37 The 1,200 respondents across seven different markets are not sufficiently large to make nationally representative inferences. For comparison purposes, World Bank Findex (2022) has a sample of 1,000 respondents per country.

## 3.1 CURRENT STATE OF DIGITAL PAYMENTS USE

### 3.1.1 Use of digital payment instruments: cross-country view

#### Digital payments broadly adopted in some countries.

According to the latest Findex survey, 56% of people in Africa made or received a digital payment in 2021, up from 33% in 2017 (World Bank Findex, 2022).<sup>38</sup> Among the sample countries, Kenya leads, with 78% of the population using digital payments, followed by Ghana at 66%. However, in some countries like Nigeria, the DRC, and Egypt, the vast majority of the population is still not using digital payments. The first line of Table 9 indicates the Findex findings on breadth of usage across the sample countries.

#### Further extension of depth of usage will be needed.

While including more individuals and MSMEs is critical to achieve inclusive digital payment systems, the entrenchment of digital payments into everyday transactions is an important step toward developing the wider DFS ecosystem. On average, 66% of respondents indicated that they made a transaction via digital means in the past seven days, but with considerable

variation across countries, as indicated in the second row of Table 9. As network effects create scale, higher rates of account ownership (breadth) correlate with increased depth, with significant headway possible in both measures for Tanzania, Zambia, Nigeria, the DRC and Egypt.

**Mobile money-based instruments dominate the digital payment landscape.** Table 9 also indicates the types of digital payment instruments that those in the sample engage with most often. Except for Nigeria, mobile money is by far the most used digital payment instrument for both individuals and businesses.<sup>39</sup> All seven countries sampled have an active IPS that allows the use of the preferred payment instrument in that country, by consumers. On apps, consumers tend to use EFT payments, predominantly bank-to-bank; USSD is the most commonly used channel for mobile money among respondents. Kenya is the exception, where apps are predominantly used for mobile money transactions.

TABLE 9. Digital payment usage across the sampled countries

|                         |  | Leading cluster |                     | Emerging cluster     |                      |                      | Nascent cluster     |                      |                    |
|-------------------------|--|-----------------|---------------------|----------------------|----------------------|----------------------|---------------------|----------------------|--------------------|
|                         |  | Kenya           | Ghana               | Tanzania             | Zambia               | Nigeria              | DRC                 | Egypt                |                    |
| <b>Breadth of usage</b> | Proportion of population using digital payments over past month [Findex 2021]      | 78%             | 66%                 | 50%                  | 46%                  | 34%                  | 22%                 | 20%                  |                    |
| <b>Depth of usage</b>   | Proportion of digital payment users that use digital payments at least once a week | 29%             | 19%                 | 21%                  | 28%                  | 229%                 | 14%                 | 15%                  |                    |
| <b>Digital payment</b>  | Ranking of instruments based on proportion of respondents using it                 | 1.              | Mobile money [USSD] |                      | Mobile money [USSD]  | Mobile money [agent] | Bank [USSD/app]     | Mobile money [USSD]  |                    |
|                         |  | 2.              | Bank [USSD/app]     | Mobile money [agent] | Mobile money [agent] | Mobile money [USSD]  | Card [POS/browser]  | Mobile money [agent] | PSP [USSD/app]     |
|                         |  | 3.              | Bank [agent/branch] | Bank [USSD/app]      | Bank [agent/branch]  |                      | Mobile money [USSD] | Bank [agent/branch]  | Card [POS/browser] |

Consumer friendly terms had to be used in the fieldwork which means that a more clear-cut differentiation between instruments was not possible. Instrument names are abbreviated to - Mobile money: commercial e-money scheme; bank; interbank ETF debit/card, card: debit card. Where there is a % between instruments then that means that there was no information available from the consumer research on which channel is more common.

- Integrated into IPS
- Not integrated into IPS

38 As the consumer research conducted for this study does not present a representative picture of usage across Africa, the World Bank Global Findex survey is consulted to establish the overall level of digital payments usage. Findex does not include data on Angola, Burundi, Comoros, Djibouti, Eritrea, Eswatini, Eritrea, Guinea-Bissau, Côte d'Ivoire, Libya, São Tomé and Príncipe, Senegal, Seychelles, Somalia and Somaliland. Many of these countries are among the UN's list of least-developed countries and likely would lower the continent-level rate of financial inclusion.

39 While mobile money is the primarily used payment instrument in Egypt, usage lags relative to the other markets, with just above a quarter of respondents noting its use. In the context of Egypt, third-party payment providers are increasingly gaining traction, which underlines the importance of ensuring that they can easily integrate with Egypt's recently launched Instant Payment Network.

**Three clusters of countries emerge.** As also indicated in Table 9, three country clusters emerge based on digital payment adoption and usage:

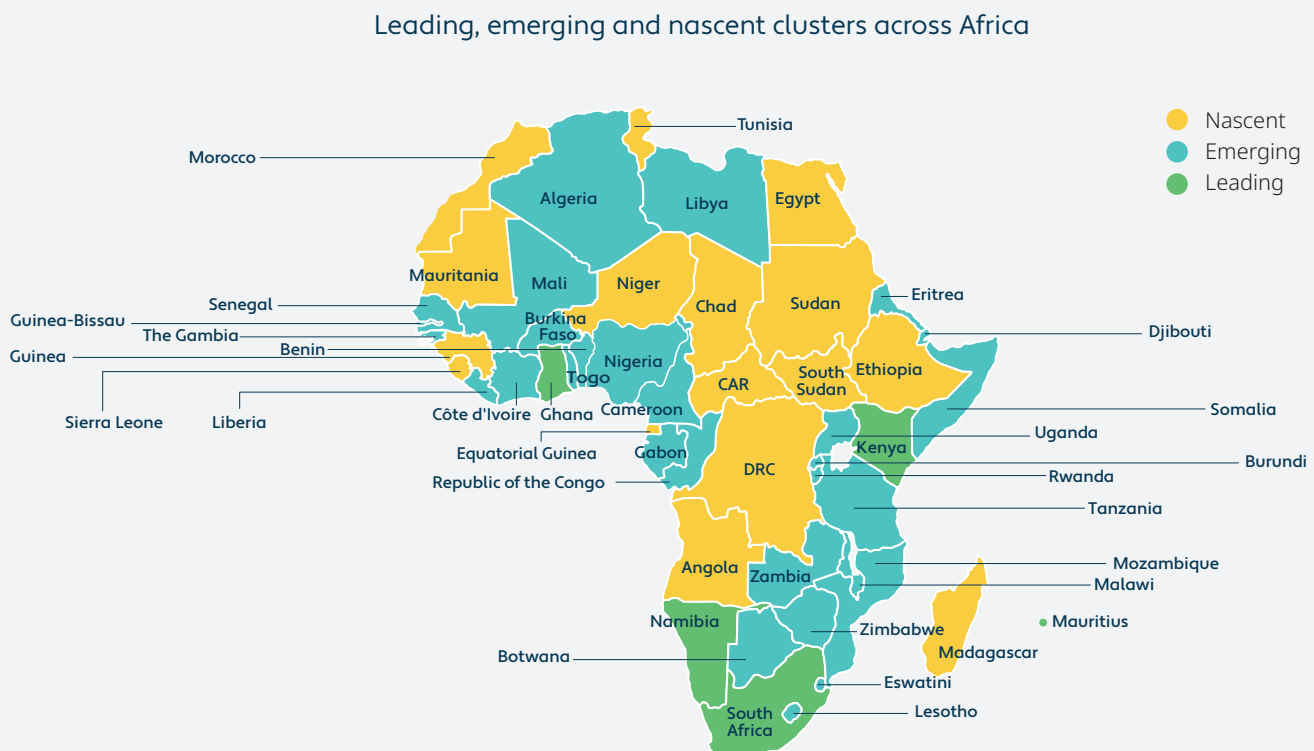
- **Leading cluster:** Kenya and Ghana. An increasing number of people are using digital payments in their everyday lives, with payment innovations adopted across a range of use cases. In Kenya, digital payment users are increasingly adopting apps to conduct digital transactions instead of USSD.
- **Emerging cluster:** Tanzania, Zambia, and Nigeria. Only half or less than half of the population use digital payments. Of the users, a significant share does not use digital payments at least once a week in Zambia and Tanzania, whereas in Nigeria, digital payment users integrated digital payments into their everyday lives. Mobile money drives usage for Tanzania and Zambia, while in Nigeria banking applications and cards dominate.

- **Nascent cluster:** Egypt and the DRC. In these markets, both the uptake and the regular use of digital payments is still nascent. The main instrument to facilitate digital payments is mobile money.

More country-level perspectives are provided at the end of this chapter.

Figure 17 provides a bird's-eye view of digital payment usage across Africa by extrapolating the three clusters that have emerged from the seven sample countries to countries with similar profiles from the Findex survey.<sup>40</sup> The map shows that only five countries can be considered in the leading cluster, all of which are in SSA (South Africa, Mauritius, Kenya, Namibia, and Ghana), and that especially Central African countries tend to have predominantly nascent digital payment usage.<sup>41</sup>

**FIGURE 17.** Map of digital payment usage clusters across Africa



<sup>40</sup> Note that this is a stylized representation that does not account for individual country and regional nuances.

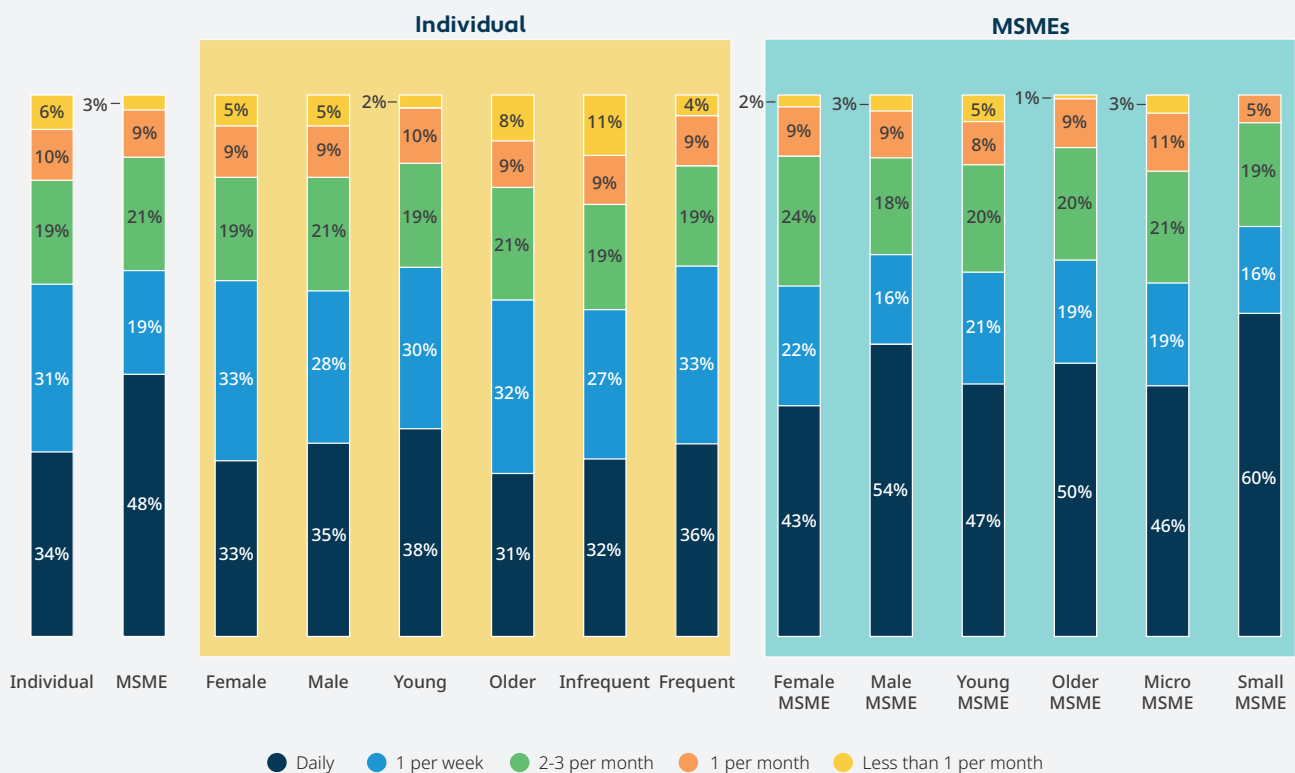
<sup>41</sup> The method applied to measuring cluster specific thresholds looks at the percentage of individuals that use digital payments within that country. Clustering is divided into three respective categories and are measured as 0% to 30% usage for "nascent" clusters, between 31% and 65% usage for "emerging" clusters, and 66% usage and above for "leading" clusters.

### 3.1.2 User group insights

**Different user groups have different needs and degrees of usage.** Beyond a country perspective, the research was able to segment consumers across the sample countries into different groups of users to understand where the greatest needs, pain points, or opportunities lie. Figure 18 sets out the different

segments of users and compares the depth of digital payment usage between user groups based on the data collected for the seven sample countries. For each group, the diagram shows the proportion of respondents in that group who use digital transactions at different time intervals:

**FIGURE 18. Depth of digital payment usage across different user groups<sup>42</sup>**



**MSMEs make digital payments more frequently than individuals.<sup>43</sup>** A larger proportion of MSME respondents use digital payments on a daily basis than individuals in all of the sample countries. This trend is especially pronounced in Tanzania, where 31% of MSME respondents use digital payments on a daily basis, whereas only 9% of individual respondents do so. A similarly sharp difference can be observed in Nigeria, where 56% of MSME respondents versus 29% of individual respondents use digital payments daily.

**Digital payments usage is more common among younger users.** Younger respondents are on average more likely to be frequent users of digital payments. The largest gap between older and younger consumers is in Zambia, where only 13% of the older respondents but 47% of the younger respondents use digital payments on a daily basis. At an aggregate level, age does not seem to influence digital payment usage frequency for sampled MSMEs; however, there are some clear country-level generational

<sup>42</sup> Young users are younger than 30 years old; frequent income earners are those that receive their income on a regular basis and a monthly turnover cut-off of USD 1,000 was applied to differentiate between micro enterprises and small enterprises. Frequent income earners are those who get paid monthly, weekly, or daily and infrequent income earners are those who get paid only when they get work to do and those that do not get income. Young individuals are between the ages of 18-29 and young MSME refers to the MSME owned by a young individual. Older individuals are 30 years and above.

<sup>43</sup> For the consumer research section, MSMEs simply refer to small and micro-enterprises, no medium-sized businesses were included in the survey sample.



differences—in particular in Egypt, where young MSME owners drive digital payment use in comparison to older MSME owners—50% of young MSMEs use digital payments at least once a week compared to 13% of older MSMEs.

**Consistency of a consumer’s income has a differential effect on digital payment usage between countries.**

Respondents with consistent income streams (which can be regarded as a proxy for those who are relatively more affluent) are more likely to use digital payments on a daily and weekly basis. This is the case in Ghana, Kenya, Nigeria, and Tanzania. It is most pronounced in Ghana, where 64% of frequent income earners vs. 34% of infrequent income earner respondents use digital payments daily. However, in Zambia and Egypt, infrequent income earner respondents use digital payments more frequently than those that receive their income regularly.

**Gender gap persists for MSMEs.** No clear gender gap is observed in the quantitative data for individual usage across the seven markets.<sup>44</sup> For MSMEs, however, a higher proportion of male than female respondents use digital payments daily, largely driven by the gender gap in MSME

usage in Zambia (40 percentage point gap) and the DRC (27 percentage point gap).

**Micro-enterprises use digital payments less often than small businesses.** Within the MSME sample, small enterprises are more likely to use digital payments on a daily basis (60%) than micro-enterprises (46%). The strongest differences are observed in Tanzania and Zambia, where the gap is 20 percentage points and 15 percentage points respectively.



*Some people earn very little. A garbage collector expects to collect... four hundred shillings... if you send him money through M-Pesa then it won't be 400 because of the transaction costs.*

— Female respondent in Kenya



<sup>44</sup> While there may be no conclusive quantitative evidence for consumers specifically, there are different behavioral drivers, as will be discussed in the next section.

### 3.1.3 Payment needs insights



After considering the overall digital payment landscape and the nuances across user groups, the discussion turns to the main payment needs for individuals and MSMEs in the study countries, and the extent to which pertinent payment needs or use cases are already digitalized.

#### Individuals

Table 10 sets out the most prevalent payment use cases among respondents in each country and the

extent to which such use cases are digitalized. For each country, the top five payment use cases are indicated, with a darker shade to indicate a higher proportion of respondents using digital payments for that use case. Further detailed below, sending and receiving money are the most digitalized use cases. Significant potential remains to digitalize P2B use cases, such as paying for household goods or services and transport payments.

**TABLE 10. Top five payment use cases for individuals and the most digitalized use case**

|  <b>INDIVIDUAL-LEVEL</b>                         |                             |  |                 |                 |                 |                 |                  |                 |
|---|-----------------------------|--|-----------------|-----------------|-----------------|-----------------|------------------|-----------------|
|   |                             | Kenya  | Ghana           | Tanzania        | Zambia          | Nigeria         | DRC              | Egypt           |
| Rank of the top 5 payment types based on the percentage of individual respondents that have the payment need at least once a week | 1                           | Airtime  | Airtime         | Airtime         | Airtime         | Airtime         | Transport        | Transport       |
|   | 2                           | Transport  | Transport       | Receive money   | Household goods | Transport       | Charity          | Household goods |
|   | 3                           | Household goods  | Household goods | Send money      | Transport       | Household goods | Household goods  | Send money      |
|   | 4                           | Send money   | Receive income  | Household goods | Charity         | Receive income  | Airtime          | Receive money   |
|   | 5                           | Receive income   | Send money      | Transport       | Receive money   | Receive money   | Receive money    | Receive income  |
| <b>Most digitalized payment type overall</b>  | Pay for government services | Receive money  | Receive money   | Send money      | Send money      | Receive money   | Purchase airtime |                 |

#### Long-distance P2P transfers drive payment digitalization.

Across the individual sample, sending and receiving remittances is the most digitalized payment need, with 83% of respondents sending money to and 80% of respondents receiving money from family and friends digitally. As will be discussed in Chapter 3.2.2, distance is an important driver of the value that digital payments provide in comparison to cash.

#### Untapped opportunities for household shopping and transport payments digitalization (P2B).

Table 10 shows

that household shopping and daily transport payments are two frequently mentioned payment needs that have yet to be digitalized across a large proportion of the sample. In particular, the percentage of individuals conducting household shopping via digital means (26%) is still relatively low compared to the proportion of people who use digital payments more broadly. Even in Kenya, with a very mature mobile money ecosystem, P2B payments are lagging, with only 34% of individual respondents using digital payments for this use case.

### Receiving income digitally likely to drive day-to-day payment digitalization.

P2P payments are the most digitalized use case for both frequent digital payment users (those using digital payments at least once a week) and infrequent users (those who use digital payments less than once a week), but these two groups differ in terms of their additional digital payment use cases. For frequent users, the receipt of salaries and of government payments are highly relevant digital payment use cases: 68% of frequent users receive income digitally, and 64% of frequent digital users receive digital government payments. For the more infrequent digital payment users, on the other hand, airtime payments are a key digital payment use case alongside settling recurrent bills and utilities (at 59%, 47%, and 46%, respectively, for each



*If the person that I want to pay the money is far from me, I just pay using M-Pesa.*

— FGD respondent in Kenya

of these three use cases). While the directionality was not explored in this report, digital income reinforces a digital ecosystem and supports network effects of digital payments.

**TABLE 11. Top five payment use cases for MSMEs and most digitalized use case**

| MSME-LEVEL  |   | Level of digitalization                               |  |                                      |                                |   |                                |                                |
|---|---|---|--|--------------------------------------|--------------------------------|---|--------------------------------|--------------------------------|
|   |   | Very low <span style="float: right;">Very high</span> |  |                                      |                                |   |                                |                                |
|   |   | Kenya   | Ghana                                  | Tanzania                             | Zambia                         | Nigeria   | DRC                            | Egypt                          |
| Rank of the top 5 payment types based on the percentage of MSME respondents that have the payment need at least once a week | 1 | Receive customer payments                             | Receive customer payments              | Receive customer payments            | Receive customer payments      | Receive customer payments   | Receive customer payments      | Receive customer payments      |
|   | 2 | Supplier payments                                     | Supplier payments                      | Supplier payments                    | Supplier payments              | Supplier payments   | Supplier payments              | Send staff money for transport |
|   | 3 | Send staff airtime                                    | Send staff money for transport         | Utility payments                     | Send staff money for transport | Send staff money for transport                                      | Send staff money for transport | Send staff airtime             |
|   | 4 | Send staff money for transport                        | Send staff airtime                     | Send staff airtime                   | Send staff airtime             | Send staff airtime  | Send staff airtime             | Supplier payments              |
|   | 5 | Utility payments                                      | Utility payments                       | Loan repayments                      | Receive money                  | Utility payments  | Utility payments               | Loan repayments                |
| Most digitalized payment types overall  |   | Loan repayments                                       | Send staff airtime and loan repayments | Pay for business government services | Pay for utilities              | Send staff airtime, send staff money for transport, loan repayments | Send staff airtime             | Send staff airtime             |

### Small and micro businesses

Table 11 shows the comparative picture for the small and micro-business sample. Again, the top five payment use cases and the extent of digitalization of each are indicated for each country, alongside the most digitalized use case overall:

**Staff airtime payments and supplier payments frequently represent leading digital payment use cases for MSMEs.**<sup>45</sup> Digital airtime payments are required frequently, are simple to conduct, and are well integrated into mobile channels. This is especially the case for infrequent digital payment MSME users for whom staff airtime is the second-most important digital payment use case, with 68% of respondents conducting this payment digitally. Supplier payments are another frequently occurring, and often digitalized, payment use case (76% of

respondents do such payments digitally). Digital supplier payments limit cash management costs, enable traceability of payments, and create a reliable transaction record. When looking at the less frequently occurring payment use cases, loan repayments and the payment for government services are the most digitalized use cases.

**Receiving customer payments remains an underserved use case.** Receiving payments from customers is the most frequent payment need among MSME respondents, with 70% of MSME respondents noting this as a frequently occurring use case. Yet less than 50% of MSME respondents indicate that they received digital payments from a consumer during the past week. This mirrors the individual sample finding that payments for household goods and services are largely cash based. In Ghana and Nigeria, the receiving of customer payments digitally is pervasive amongst MSMEs—with just over 90% of MSMEs in each country noting digitalization of this use case.

## 3.2 FACTORS INFLUENCING DIGITAL PAYMENT ACCESS, UPTAKE, AND USAGE

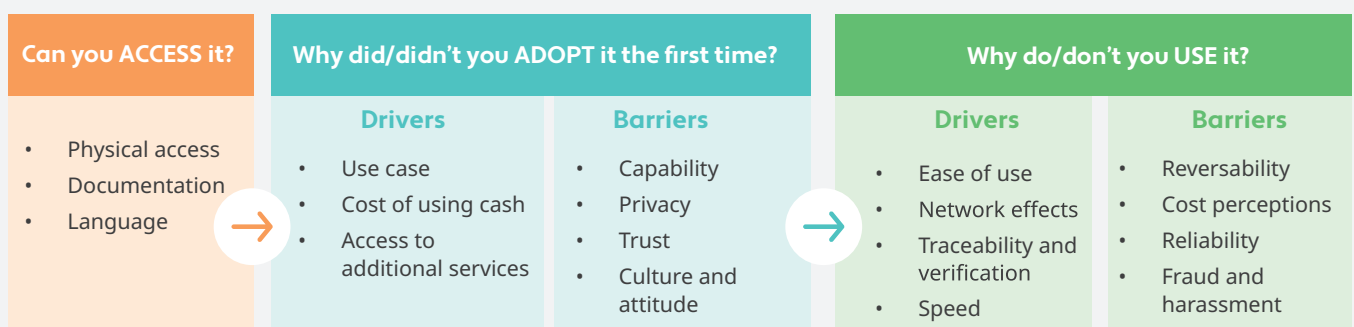
Despite the broad-based uptake of digital payments in the sample countries, there is still ample opportunity to broaden the group of individual and MSME users who make frequent digital payments, as well as to expand the set of payment needs covered by digital payment solutions. What explains this picture, and what can be done to trigger more frequent and diverse use of digital payments?

The rest of this chapter draws on the insights from the qualitative consumer research to show the different factors at play in consumers' and small businesses' initial

decision to take up digital payment solutions and then, importantly, their decision to continue or to intensify their use of digital payments over time. Understanding the drivers of initial and ongoing usage can identify constraints and opportunities to deepen the degree of payment inclusion.

**A three-step pathway to sustained usage:** Figure 19 indicates three key steps toward sustained digital payment usage and the main determinants of each as explored through the qualitative research:

**FIGURE 19.** Pathway toward sustained digital payment usage



<sup>45</sup> 'Staff airtime payments' refers to MSMEs paying airtime to their shop attendants or staff for communication. For example, a shop attendant may need to call a supplier to request refills or even call the owner to report something, hence it is customary for some MSMEs to facilitate such airtime payments for their workers.

- **Access:** The entry point for the user is the baseline ability to open digital payment products offered by formal financial institutions (Alliance for Financial Inclusion, 2019). This means the individual or business can meet and navigate the necessary registration requirements, and the accounts are connected to the core infrastructure needed to conduct digital payments. It also means that the user does not face barriers in physical access or language that prevent them from registering.
- **Adoption:** An individual must still decide to complete the account opening process or register for the service and, once registered, to begin to use it (some users may leverage their accounts solely for cash-out withdrawals).<sup>46</sup> There must be a clear payment need and a value proposition to initiate digital payments in relation to cash, with the decision to adopt a digital payment instrument depending on the balance between the perceived costs versus the perceived benefits of using it, including behavioral biases and preferences. Furthermore, awareness, user capability, and trust are critical for willingness to adopt.
- **Usage:** For digital payments to become embedded in daily life, they must be used consistently and frequently by individuals and businesses. Among the range of factors that impact whether digital payments are habitually used, three determinants stand out from the qualitative research: network effects, reliability, and speed
- **The importance of context in shaping the pathway.** The rest of this section applies the framework outlined in Figure 19 as an analytical lens to understand what aids consumers and MSMEs to progress toward sustained usage. The user journeys shown in the User Experience 1 and User Experience 2 boxes below illustrate the variations of outcomes and perceptions, depending on aspects such as the specific payment instrument, country context, and individual characteristics.

## User Experience 1: Drivers of digital payment usage for a female enterprise owner

In Abilosai's retail store, digital payments provide spending discipline—*"if my customers give me cash I might spend the money... so I prefer the money be paid into my WEMA Bank account"*. Moreover, digital payments help Abilosai to keep an accurate history of her previous transactions. Not having to keep and collate receipts manually can save her time—*"I can keep track of my payments and income through statements."* Finally, she finds the instant nature of payments to be beneficial: *"Another advantage is that I can pay to any bank and the amount is instantly received."*

## User Experience 2: Drivers of digital payment usage for of a female user

For Jessica, the perceived and real cost of transacting ultimately determines which mobile money provider she uses: *"Equitel is cheap as compared to when I have money in my MPesa, I transfer the money from M-Pesa to Equitel."* She appreciates the safety of digital payments—*"I like using cashless means because I don't have to carry cash with me... When your money is in the account, it is safe."* Jessica also noted that digital payments need to be transparent and provide recipient verification prior to making a payment. This is another reason for her choice of mobile money provider: *"When I am paying to an MPesa till number [using Equitel] they don't give you a confirmation with the name. The confirmation [of beneficiary information] only comes as a message after the transaction."*

*"The network is the frustration. The Equitel network should always ensure that there is full network coverage because the transaction goes hand in hand with network. If there is no network, you cannot carry out that transaction."*

46 This is especially common for recipients of social disbursements and those receiving remittances.

### 3.2.1 Access

Prospective digital payment consumers face several constraints that limit their ability to access the digital payment products offered. Barriers to access are typically binary, with individuals and businesses either being able to access digital payments or not. The foundational features of a DFS ecosystem include network connectivity, ownership of mobile devices, possessing the necessary documentation, and being able to access agent or branch networks. The qualitative research confirms the importance of these factors:

- **Physical access to agents, devices or infrastructure.**

For most consumers, either their mobile phones or mobile money or banking agents and physical bank branches are the gateway for access to digital payments. Given the importance of cash-in and cash-out (CICO) transactions, a lack of access to agents creates an access barrier to digital payments.

A lack of individual ownership of a mobile phone is also a significant access barrier, especially in rural areas. There is a significant gender difference in phone ownership —75% of women vs. 88% of men in SSA have a mobile phone (GSMA, 2021a). Reliable network coverage is equally important.

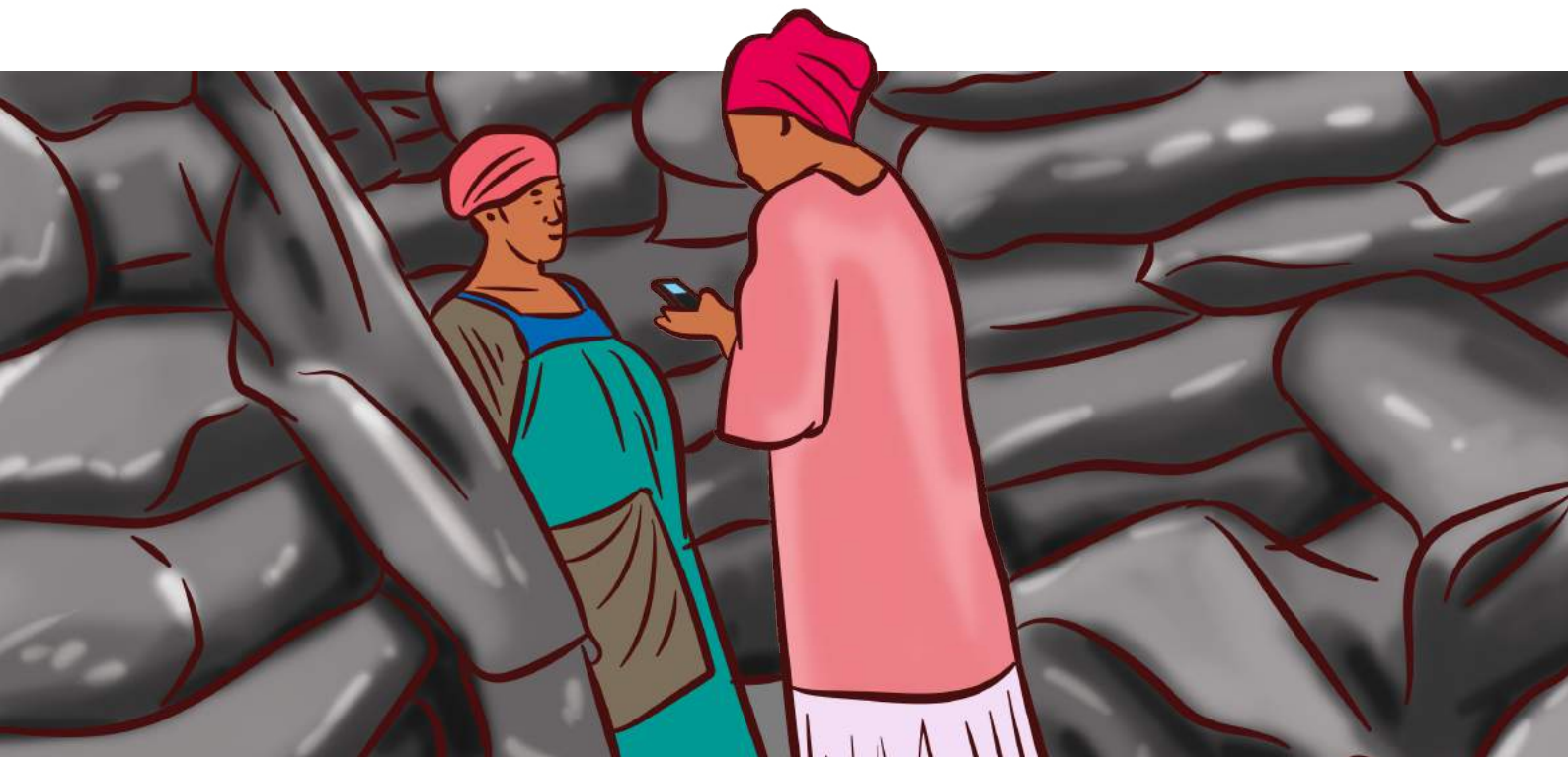
- **Documentation.** With 24% of excluded adults in SSA stating lack of the necessary documentation as



*If you want to send or receive money and you don't have an account, you can go to the POS people<sup>46</sup> and use their own accounts to make the transfers. So, I believe everybody has access to instant payment thanks to the POS guys.*

— Male respondent in Nigeria

a barrier to open a mobile money account and 13% of excluded individuals not having an ID (World Bank Findex, 2022). This is confirmed by the qualitative consumer research. Young respondents in Kenya noted that a lack of national registration documents for SIM card registration restricted them from access to mobile money-based payment instruments. Again, there is a gender gap, with women in Africa being nine percentage points more likely than men to be excluded as well as to not have an ID (World Bank Findex, 2022).



47 The colloquial term for a mobile money or bank agent.

### 3.2.2 Adoption

The willingness of individuals and MSMEs to adopt digital payments for the first time is influenced by a range of factors. Meeting a specific payment need that is more suited to digital payment means than cash stands out as an adoption driver from the qualitative research, along with safety and security. However, adoption is an intricate decision where several other factors are also at play: possessing the skills and capability to use digital payment instruments, concerns related to privacy, the ability of the digital payment to open up access to other types of services, prevailing social norms regarding cash use and low levels of trust in DFS usage. Below, the main adoption drivers emerging from the qualitative research are considered in turn.

**Use case.** The first driver of adoption is the presence of a clear and tangible benefit that a potential user expects from using digital payments. For these payment needs, the time and cost savings in undertaking these payments digitally are a strong driver of adoption and usage. The most often cited payment needs for which digital payments are perceived as convenient and beneficial are:

- **Long-distance transfers.** Digital payments are a time-saving and convenient way to send money to beneficiaries over a distance—both domestically and across borders. Conducting long-distance transfers in cash is costly and slow, and it often requires the help of a risk-prone third-party intermediary to deliver the cash. This is also relevant for businesses that sell goods and services online and that serve customers across the country.

- **Recurrent payments.** The qualitative research shows that digital payments are also convenient when making recurrent payments such as school fees and paying for utilities.



*I started using this service four years ago because it's easy and costs less than going to the utility company to make payments.*

— Female respondent in Zambia

- **P2G payments.** A government-led ecosystem that pushes for and facilitates digital P2G payments can play a key role in adoption. For instance, policy directives and initiatives that support the use of digital payments for payments to government-related institutions helped to expand consumer adoption in Zambia. As is highlighted in the quote below, respondents noted that these government mandates drive their adoption of digital payments.



*They have stopped taking cash at school. You have to go to the bank and do the transaction and it will show at school*

— FGD respondent in Zambia<sup>47</sup>



*There are customers who come as far as Moyale. I cannot travel all the way and take the products to them and get the money. You just send the products, and once the client receives the items, they send me the money.*

— Female respondent in Kenya

- **Risks of using cash.** Since cash does not have explicit usage fees, the implicit costs of cash become relevant in driving digital payment adoption. The qualitative research suggests that risk and fear of losing money through theft, fake currency, and other fraudulent means is a major contributor to the uptake and use of digital payment methods among respondents. The emphasis on this driver scaled up with the likelihood of crime.

Moreover, during the start of the COVID-19 pandemic, handling cash was discouraged due to health risks. Hence, consumers changed their behavior toward digital payment instruments.



*During COVID-19 people didn't want to use cash. I also didn't want to touch cash... before COVID-19 we were using cash, but when it came, we moved to M-Pesa.*

— Male respondent in Kenya

- **Capability.** The qualitative research suggests that low-income users are familiar with cash and may find digital payments daunting initially. When they encounter difficulties in making digital payments or do not understand the interface, agents are often the first port of call. The quality of customer service provided by agents thus affects the willingness of consumers to adopt digital payments.



*You may send someone money and they don't understand how to withdraw money. I tell them to go to the agent, and I will speak to the agent, and the agent will withdraw [the money]*

— Female respondent in Tanzania

- **Access to additional services.** Access to additional services can trigger first-time use and also incentivize continued usage. A number of respondents across all markets noted access to credit as one of the most desired value-added services for both individuals and businesses.



*I started using M-Pesa when I saw my friends getting loans.*

— FGD respondent in Kenya<sup>49</sup>

Further value-added features that were noted include the ability to deposit funds into fixed-term savings accounts (with defined interest rates), tools to plan and manage personal finances and business income, and the ability to separate personal from business funds (as further explored in User Experience 3). There is limited awareness of digital savings products among low-income populations, and many accounts require minimum balances to generate interest.



## User Experience 3: A payment product with value-added services

Chris is an M-Pesa user and retail store owner. He enjoys that M-Pesa gives him access to additional services. He facilitates customer payments through Pochi la Biashara to enhance his business operations, as well as to ensure that the funds he generates are not spent on anything else other than relevant business-related payments. Pochi La Biashara is a product offered by Safaricom, which allows business owners like Simon to receive and separate business funds from personal funds in their M-Pesa wallet. Moreover, customers cannot reverse payments that were processed using Pochi La Biashara.

He also finds the Mshwari service that is integrated into the M-Pesa interface beneficial. Mshwari provides access to a savings account and the ability to receive a credit line. *"I can send money from my M-Pesa to Mshwari and withdraw savings from Mshwari to M-Pesa. I can also lock my savings for a specific time and earn interest like a fixed deposit account."*

Chris's main qualms regarding digital payments through M-Pesa are Safaricom's weak network strength and slowdowns. Though he uses multiple services, he finds the user experience of the app to be complex and, with too many steps required to complete payments.

**Lack of data privacy.** Digital transactions require sharing of personal data, which could create the risk of fraud. Concerns related to privacy are top of mind for respondents and leave some respondents with a sense of unease.

**Cultural norms.** Prevailing cultural norms can directly affect people's attitude toward digital payment instruments. Some communities prioritize transactions in cash. For example, respondents noted that among the Somali ethnic group in Kenya, transactions are more likely to be done in cash to convey respect and transparency between the parties. Moreover, in some countries, the adoption of certain digital payment solutions can be related to socio-economic ambitions. In Egypt, the possession of credit cards is considered aspirational for consumers.

**Low trust.** Trust was highlighted in the qualitative research as cutting across all the other adoption indicators. Trust is a composite of several experiences, including perceptions of efficiency, soundness of the financial sector, and appropriateness of the channel to users' needs as well as external environment drivers. In the DRC, a 2018 bank crisis led to institutional distrust and to consumers' lasting reluctance to embrace digital payments for fear of losing money. Trust is also strongly influenced by the experience of others, so fraud and harassment incidents also negatively affect adoption (discussed further in the usage section).

**Language.** Availability in the local language could be a further impediment to the accessibility of a digital payment solution by individuals and MSMEs. However, this was only raised as a problem in Tanzania, where some banking applications and digital payment solutions are not available in Swahili.

### 3.2.3 Usage

The qualitative research highlights many factors that influence the extent to which individuals and MSMEs continue to use digital payments after first adoption, including ease of use, network effects, reliability, and speed, each of which is discussed below. It also shows growing sophistication of usage over time. At the start of their digital payment usage journeys, respondents tended to use digital payments for less frequent transactions, including for the receipts of salaries and wages or sending remittances to family members. As users become more accustomed to digital payment, there is a transition to

more frequent usage, including the payment of utilities such as electricity and water, as well as high-value purchases of goods. Finally, once usage is entrenched, digital payments become synonymous with day-to-day life, with grocery purchases and transport payments being digitalized.

The case study example in User Experience 4 highlights how regular use requires all aspects to be working in harmony and how gains in one area can be eroded by the failings in another.

## User Experience 4: Ecosystem factors needed to enable regular use

Hakimu uses mobile money products because they are easy to use, especially for utility payments: “Electricity is the easiest payment to do. Everything is straightforward and open. When you open the application, it tells you exactly what to do.” The interface also allows him to use his mother language: “the language is in Swahili and I am a Swahili, so it is fresh [cool].”

“However, poor connectivity can erase these benefits as it interrupts the transaction: *“what annoys me is when you encounter a network challenge, you don’t get that electricity.... I once bought electricity worth TZsh500, and trust me even now as I speak, I haven’t received it. I have tried to look for the token, but I haven’t been refunded.”*

**Ease of use.** Many respondents have encountered digital payment solutions with superfluous steps and complex user interfaces. In Kenya, some respondents noted that the complicated design of app-based services which require several steps prior to initiating a transaction has disincentivized usage. Similarly, USSD codes require several screens of numerical prompts before a user can transact, with little room to correct errors.

**Network effects.** The level of adoption of digital payments within an ecosystem has a strong influence on whether consumers use cash or digital payment instruments. This is because the value of digital payments to users increases as more users join the network and more merchants accept digital payments. Consumers who have embraced digital payment methods struggle to maintain cashless habits in markets where merchants mainly accept cash. Merchants have voiced similar complaints regarding customers not willing or able to pay digitally.



*When the person comes and says I want to pay in cash, I just receive the cash.*

— Male respondent in Ghana

**Reliability.** Reliable infrastructure is fundamental for routine processing of transactions and confirmation of the completion of a transaction. As illustrated in User Experience 4 above, limited network or unreliable network coverage is consistently noted by users as a severe inconvenience when attempting to make a digital payment, as it leads to queued or failed transactions. Many of the respondents expressed considerable frustrations in this regard.



*You might try even up to five times, and it is still telling you that the transaction has failed yet the money has already been sent five times to that person.*

— Male MSME respondent in Tanzania



## **User Experience 5: Effects of network availability on choice of digital payment product**

Such is the importance of network connectivity that users choose their digital payments product based on the availability of the network. This has paved the way for innovations such as Korba in Ghana to give users additional choices to existing network providers. Korba is an interoperable platform that enables the movement of funds across multiple platforms including all mobile networks and banks. Korba also allows users to buy airtime and data bundles for any network of their choice. Korba services are accessed via the Korba mobile app. Users find that they are not limited to one network compelling: *“I prefer using Korba to Vodafone because you avoid network issues. Sometimes at night Vodafone network is usually jammed, so you cannot buy data bundles. MTN also has data bundle offers at night that are cheaper than daytime and that’s when most people prefer to buy data and browse which jams the network, so I prefer using Korba even though it comes with a little more charge because it’s a third party.”*

In some cases, respondents are willing to pay more to overcome network challenges—by leveraging third-party platforms to conduct a digital payment, as described in User Experience 5.

**Speed.** Except for long-distance transfers, respondents perceive cash transfers as being instant. Where there is latency in transaction completion, digital payments are not able to mirror the instant nature of cash, which results in negative perceptions of digital payments. Even when

clearing is instant, slow internet connectivity or unreliable network coverage can cause delays and timeouts, which undermines perceptions of speed. The importance of speed is especially pronounced for P2B use cases where immediate transfer and verification are needed to allow a customer to leave with goods.

Where digital payments are perceived as being fast, it increases the convenience of digital payments, as illustrated in User Experience 6.

## **User Experience 6: Digital payments are fast and convenient for MSMEs**

Naphthali values the speed and efficiency gains associated with the usage of digital payments, particularly when receiving his salary. *“Before I opened a bank account my customers would pay me in cash and then I would go to a mobile money agent to deposit the cash to my Airtel Money wallet. Now I use my FNB account to receive money and save money through Airtel Money. I use this because it is easy and fast. I save my money on Airtel Money because I am busy, and I don’t have time to move around much going to the bank to deposit savings.”*

Being able to seamlessly transfer money between bank and mobile accounts is also important to Naphthali: *“There are zero charges when transferring money from your bank account through your phone to your mobile money wallet (Airtel Money). It’s free of charge to transfer money from your bank to your phone so I can use the service without worrying about the charges.”*

**Traceability.** For businesses, digital payments provide an easy method to report transaction history and help them to track sales and monitor finances. Moreover, digital payment users appreciate receiving a transaction receipt as proof of payment. The use of bank-based instruments, in particular, is perceived as delivering an indisputable proof of payment when needed. This is often due to banks in many markets having cultivated a reputation of being reliable and trustworthy.



*You can send money and it keeps your record. You can receive all this details by requesting your bank statement.*

— Female respondent in Nigeria

**Cost perceptions.** The perception of charges drives behavior more than the charges themselves. Cash is perceived to be free, as implicit costs are rarely considered, so users are sensitive to any digital payment usage charges. Across the sample countries, transaction costs are perceived as being a major barrier to digital payment usage. Especially for low-value transactions, cash is often preferred to avoid incurring transaction charges on digital payments. This is often the case for micro-enterprises, who often only handle small transactions and, from the qualitative research, might be disincentivised by transaction fees that seem disproportionately large. Taxation of digital payments, such as the recently introduced e-levy tax in Ghana, also curtail the use of digital payments despite consumers previously preferring mobile money payments.



*Before the introduction of the e-levy, we preferred Momo.*

— Female respondent in Ghana

**Fairness of pricing.** In Kenya, transaction charges are perceived to be excessive due to the absence of competition. Consumers responded that they feel exploited given their reliance on a sole provider. Moreover, transparency and simplicity of the pricing and fee structures play an important role in how high consumers perceive digital transaction charges or the implicit costs of using digital payments (e.g., withdrawal fees) to be. Consumers are afraid of being over-charged or not being able to pay fees when they struggle to understand fee structures. For instance, ad valorem fees that require users to calculate the absolute value paid based on the value of the transaction taking place, may result in perceived costs to be higher than actual costs.<sup>50</sup>



*They must lower the withdrawal fees which vary from day to day. And above all, harmonize it.*

— Female respondent in the DRC

**Fraud and harassment.** Respondents across all markets are cognizant of fraud and have either personally experienced it or know others who have. Moreover, low-income and first-time users of DFS often lack the awareness of the responsible use of financial services. Cybercrime is increasing through social engineering and phishing scams, resulting in digital payment users being concerned about the safety of using digital payments.



*Digital payments are good... but the disadvantage are cyber criminals. There are certain people who hack other people's accounts. I've heard about a friend of mine... whereby his account was hacked, so [mobile network providers] need to work on that.*

— FGD respondent in Zambia<sup>51</sup>

50 Fees that are proportional to the transaction value.

51 Gender not available.

When conducting digital transactions through agents, users are concerned that agents have access to sensitive personal information such as full names, phone number, and ID details, exposing them to the risk of fraud and harassment. Women respondents feel especially vulnerable to the latter, which may deter them from using digital payments.



*My mother has a mobile money account. A mobile agent asked if he could 'configure it.' When she received the money we had already sent her, this [mobile money agent] asked my mother for her code and took everything.*

— FGD respondent in the DRC<sup>52</sup>

### Recipient information confirmation and reversibility.

Respondents are wary of making errors when paying beneficiaries and then being unable to correct the mistake or having to go through an onerous process to reverse the transaction. For instance, making payments via USSD mobile money instruments creates opportunities for user errors given the complex, multi-step procedure, which can lead to mistakes and result in payments being sent to the wrong recipient.



*In trying to purchase something from a shop I made the payment and unfortunately, entered a wrong digit. We tried calling the bank to reverse the transaction, but they said they can only do this if the "wrong recipient" returned the money back... I have never received my money back to this day.*

— FGD respondent in Kenya<sup>53</sup>



Instant verification of recipient details and transaction confirmations are important drivers that emerge from the qualitative research. Moreover, digital payment users expect a timely handling of their transaction errors and instant reversal of transactions. Reversals have the opposite effect on merchants—they are hesitant to accept digital payments if there is a chance that payments will be reversed, leaving them without recourse.

52 Gender not available.

53 Gender not available.

### 3.3 | SUMMARY OF CONSUMER RESEARCH FINDINGS

**Similar cross-country picture surfaces on usage behavior.** Table 12 combines the quantitative and qualitative insights per country into a summary overview. Although there are differences between specific countries and across user groups, the summary table sketches a consistent overarching picture: one where there is a need for further growth of initial digital payment adoption and ongoing frequent usage of such payments, across a broader suite of payment use cases. While some payment needs (notably distance transfers and airtime purchases) are already well digitalized, there are distinct payment needs across the sample countries that remain untapped, merchant payments in particular.<sup>54</sup>

**Clusters face common usage drivers and pain points.** The research shows that digital payments offer considerable convenience for consumers due to time and cost savings, especially for long-distance transfers and recurrent payments. The ability to access additional services that enable partitioning of users' funds and access to credit or savings is a significant incentive for individuals and businesses to adopt digital payments. Additionally, especially for larger-value transactions, users of digital payments value that they can access transaction receipts easily. However, the positive effect of these key drivers can be eroded by pain points that users experience. Given that cash transactions have no explicit fees, consumers are highly sensitive to transaction charges and consistently noted them as a major barrier to digital payment usage. Network outages result in negative customer experiences, deterring individuals and MSMEs from using digital payments and induce transaction failures or delays that undermine the instant component of IPS design. Digital payment users are also concerned about their ability to quickly reverse transactions that they made in error and are frustrated when systems do not support key use cases that they value.

**Women are disproportionately affected by access barriers and exploitative agent behavior.** A gender gap in frequent usage of digital payments is only observed among MSMEs. However, across the clusters, obtaining access to digital payments remains more difficult for women than men due to lack of documentation and lack of individual device access or

ownership. Moreover, mobile money products were not designed with female users in mind, requiring phone numbers as aliases, which results in fraudulent and exploitative behavior by agents and serve as a disincentive to use digital payments.

**Country context matters.** While cross-cutting trends are emerging from the research, it is important to bound them in distinct country nuances and dynamics.

- **Leading cluster: Kenya and Ghana.** A wide range of use cases has been digitalized; however, especially among individual users there is further scope for digitalizing key use cases such as transport and P2B payments. In Kenya, frequent digital payment usage is relatively inclusive, whereas in Ghana, a large gap between frequent and infrequent income earners was observed. Adoption within the leading cluster is increasingly driven by the desire to access additional services. Most consumers use digital payments as an entry point to gain access to more sophisticated digital financial services, such as short-term credit and interest-bearing saving products. Furthermore, the presence of comprehensive network and agent coverage lays the foundation for digital payments in users' everyday lives. However, the e-levy in Ghana and a combination of data privacy and fraud concerns are constraining a further deepening of usage in this cluster.
- **Emerging cluster: Nigeria, Tanzania, and Zambia.** While digital payment users in Nigeria have integrated digital payments into their everyday lives, a large proportion of the population have yet to adopt digital payments. In Tanzania and Zambia, an increase in both the breadth and depth of usage will be crucial. Similar to Kenyan and Ghanaian profiles, infrequent income earners in Tanzania are not using digital payments as frequently as those who have a more regular income. In Zambia, a sharp gap exists between female-owned and male-owned MSMEs in terms of frequent usage, whereas in Nigeria, micro-enterprises are using digital payments much less frequently than small enterprises. Limited exposure to

<sup>54</sup> Note that the findings are indicative only, as the consumer research samples were not nationally representative.

technology and lack of awareness of digital payments continue to challenge adoption. Lack of network reliability is a major usage barrier across the countries in this cluster.

- **Nascent cluster: the DRC and Egypt.** The countries in the nascent cluster are at the starting point of digital payment adoption and usage, with only a small portion of the population having adopted digital payments and an even smaller group of users performing digital payments on a regular basis despite a comprehensive agent network in

the DRC and a range of payment products being available in Egypt. In the DRC, a large gender gap exists for MSMEs. In Egypt, younger business owners are considerably more willing to adopt and use digital payments than older ones. One of the common issues impeding adoption in this cluster relates to deeply rooted socio-cultural issues. In the DRC, the bankruptcy of financial institutions has created lasting distrust of many formal financial services, while in Egypt a strong cultural preference for cash persists.

**TABLE 12. Digital payment usage across the sampled countries**

|                |  | Leading                                    |   | Emerging   |  |  | Nascent   |   |
|----------------|--|--|---|--|--|--|---|---|
|                |  | KENYA                                      | GHANA   | TANZANIA   | ZAMBIA   | NIGERIA  | DRC   | EGYPT   |
| Landscape      | Unique landscape characteristic  | One player dominates mobile money (M-PESA) | MSMEs have adopted mobile money more than individuals     | Multiple players in mobile money                 | Govt. legislation is pro-electronic payments                     | Mobile money operators are recent entrants into market     | BIAC bankruptcy (2018) affects consumer trust             | Variety of payment applications available                           |
|                | IPS  | Bank and Mobile money                      | Bank and Mobile money                                     | Mobile money                                     | Bank and Mobile money  |  |   |   |
| Usage behavior | Proportion of digital payment users that use digital payments at least once a week | 29%  | 19%   | 21%  | 28%  | 29%  | 14%   | 15%   |
|                | Main payment provider(s) used  | Mpesa, Airtel Money, Equitel, T-Kash       | Vodafone cash, MTN Mobile Money, Airtel Money, Tigo Money | Vodacom Mpesa, Tigo Pesa, Ezy Pesa, Airtel Money | Airtel Money, MTN Mobile Money, Zamtel Mobile Money, Zoono, Zazu | Sure Padi, EazyMoney, U-Mo, Firstmonie, Airtel Money, Momo | Vodacom Money, Orange Money, Airtel Money, Africell Money | Fawry, Paymob, Meeza, Tpay, Vodafone Cash, Etisalat Cash, Visa Card |
|                | Main payment instrument [channel]  | Mobile money [USSD]                        |   | Mobile money [Agent]                             | Mobile money [USSD]  | Bank [USSD/app]  | Mobile money [USSD]                                       |   |
|                | User group differences [size of gap]   | Youth > older individuals (15% difference) | Male > female (11%)                                       | Youth > older individuals (15%)                  | Male > female (34%)  | Frequent > infrequent (6%)                                 | Male > female MSMEs (13%)                                 | Young MSMEs > older MSMEs (16%)                                     |
|                | Most digitalized use case for ind.   | Receive money                              |   | Receive money                                    | Send money   |  | Receive money   | Purchase airtime  |
|                | Most digitalized use case for MSMEs  | Send staff airtime                         |   | Pay suppliers                                    | Send staff airtime   | Pay staff  | Save business income                                      | Pay suppliers   |

|                           |               | Leading  |  | Emerging   |  |   | Nascent   |   |
|---------------------------|---------------|--|--|--|--|---|---|---|
|                           |               | KENYA  | GHANA  | TANZANIA   | ZAMBIA   | NIGERIA   | DRC   | EGYPT   |
| Drivers of usage behavior | Main drivers  | <p><b>Access:</b><br/>Wide network coverage and agent network</p>  | <p><b>Adoption:</b><br/>Access to short-term credit and safety benefits by not handling cash</p> | <p><b>Adoption:</b><br/>Ability to conduct business online and fraud avoidance associated with fake currency risks</p>   | <p><b>Adoption:</b><br/>Government push to drive the adoption of digital payments and ease of making utility payments</p>  | <p><b>Access:</b><br/>Banks have cross country coverage<br/><br/>Adoption:<br/>Banks are trusted</p>                                | <p><b>Access:</b><br/>Comprehensive network of agents</p>   | <p><b>Adoption:</b><br/>Availability of diverse payment instruments and aspirational value of cashless payments</p> |
|                           |               | <p><b>Adoption:</b><br/>Ability to access savings and credit products</p>  | <p><b>Usage:</b><br/>Rewards and bonuses for using digital payments</p>                          | <p><b>Usage:</b><br/>Usage-based rewards and traceability</p>  | <p><b>Usage:</b> Easy to use USSD codes</p>  | <p><b>Usage:</b><br/>Transaction charges by banks are perceived as affordable and well developed digital payment products exist</p> | <p><b>Adoption:</b><br/>Relative safety of digital payments, as cash is prone to fraud</p>                    |   |
|                           | Main barriers | <p><b>Access:</b> Lack of national registration documents, especially among youth<br/><br/>Adoption:<br/>Data privacy concerns</p> | <p><b>Usage:</b><br/>E-levy taxed on digital payment transactions and network downtime</p>       | <p><b>Access:</b><br/>Limited reach of mobile money agents constrains the ability to cash out and language barriers<br/><br/><b>Adoption:</b><br/>Low exposure to technology</p> | <p><b>Adoption:</b><br/>Consumer misinformation and low tech exposure</p>  | <p><b>Adoption:</b><br/>Low consumer awareness about mobile money wallets</p>   | <p><b>Access:</b><br/>Poor network coverage<br/>Adoption:<br/>Trust issues due to BICA bankruptcy</p>         | <p><b>Adoption:</b><br/>Cash has social value (e.g., bargain hunting)</p>   |
|                           |               | <p><b>Usage:</b><br/>Perception of high transaction fees and fraud</p>   |  | <p><b>Usage:</b><br/>Difficulty to reverse transaction, mobile network failure and high transaction cost</p>   | <p><b>Usage:</b><br/>Reversal process does not guarantee that the consumer will get all money back, fraud is common and network outages result in dropped transactions</p> | <p><b>Usage:</b><br/>Unstable networks due to erratic electricity supply and mobile money agents are distrusted</p>                 | <p><b>Usage:</b><br/>Erratic electricity power supply results in network down time and unregulated agents</p> | <p><b>Usage:</b><br/>Difficulty in topping up mobile wallets as agents are inaccessible</p>                         |



## 3.4 | IMPLICATIONS FOR IPS SCHEME DESIGN

The consumer research insights have implications for scheme design.

- **IPS scheme design implications:**
  - Availability of use cases and channels that consumers want—starting with P2P, P2B, and G2P
  - Providing digital receipts to consumers to enhance trust and traceability
  - Inclusion of trusted payment service providers as participants
  - Encouraging risk-based KYC to overcome documentation barriers
  - Consideration of the speed of transaction reversals, or consideration of how best to use technology to reduce or eliminate the chances of consumer errors when initiating a transaction
  - Protection of personal data with strict regulation for agent handling of personal data and behavior
  - Ensuring that transactions are truly instant where use cases require it: in terms of clearing, access to funds, and transaction confirmations—requiring both the payment system and the mobile network to be technically aligned and for downtime or time-outs to be minimized.
- **Considerations for IIPS scheme participants:**
  - Ensuring comprehensive access points and reliable network infrastructure as a foundation for access.
  - Providing accessible and responsive customer service that allows for quick resolution of customer issues such as fraud or transaction errors
  - Transparent and simple pricing structures that acknowledge that consumers base decisions on price perceptions, with cash as the competition
  - Targeted communication campaigns that highlight the key drivers of digital payments within the consumers relevant context

- Encouraging usability and simplicity as key product design features, while also leveraging these principles for targeted user education
- Going beyond payment functionalities to offer additional features and services that add value to consumers
- Taking context-specific cultural norms into account

Ultimately, while scheme design, participation, and governance are important elements to ensure inclusive and instant payment systems, they only form part of the picture. To build a digital payment ecosystem that is scaled for network effects, equal attention is needed for the “softer” elements: how features speak to customers’ realities and needs, and how to encourage users given entrenched perspectives and concerns regarding digital financial services.



# BARRIERS TO AND OPPORTUNITIES FOR IPS INCLUSIVITY

4



Existing barriers that limit the reach of IPS for underserved populations can become self-reinforcing. Exclusion of a significant population from the system drives down scalability, sustainability, and the overall utility of the system. A fragmented digital ecosystem leads to rising costs and fees, further disincentivizing uptake among the vulnerable population. This chapter discusses the most pressing barriers IPS face in achieving inclusivity and identifies opportunities for realignment. It draws on the

preceding chapters' insights and consultations with key stakeholders. The tables throughout this section summarize the most pressing barriers and opportunities related to four challenges, namely the limited value proposition for participants and the lower-income market, the cost drivers that undermine the business and use cases, regulatory hurdles that affect competition and innovation, and the risk and fraud associated with IPS. Each of these challenges is discussed in turn below.

### *Limited value proposition for participants and lower-income market*

**TABLE 13. Barriers and opportunities relevant to the value proposition for participants**

| Barriers   |  |   |   |
|--|--|---|---|
| For IPS  | For end-users  |   |   |
| Competitive forces deterring participant integration   | Larger players unwilling to integrate  | Limited channel usability and integration affecting uptake and usage  | Limited end-user capability to utilize digital payment services constraining uptake |
| Opportunities  |  |   |   |
| For IPS  |  |   |   |
| To articulate a clear vision via champions: to demonstrate short-term and long-term market and ecosystem value proposition for market participants   | To integrate inclusion requirements (fully inclusive functionality and governance, recourse, and cost-savings for consumers) in scheme rules   | To assess availability of agents or physical locations to bridge digital use and to build end-user trust  |   |
| For supporting stakeholders  |  |   |   |
| <b>For private sector players:</b> <ul style="list-style-type: none"> <li>To innovate to secure USSD transactions or alternatives to USSD that speak to consumer requirements;</li> <li>To adopt longer-term view for the return on digital payments investment</li> </ul> | <b>For public sector players:</b> <ul style="list-style-type: none"> <li>To provide clear mandate to an IPS design champion and to oversee integration and rollout;</li> <li>To support upgrade of mobile network infrastructure;</li> <li>To increase public awareness around digital payments;</li> <li>To mandate interoperability in the absence of sufficient private-sector advancement</li> </ul> | <b>For development partners:</b> <ul style="list-style-type: none"> <li>To undertake research and to provide catalytic funding to inform IPS design and innovative products and business models;</li> <li>To develop effective foreign exchange models to facilitate cross-border IPS transactions</li> </ul> |   |

**Hesitancy among incumbents to integrate.** The willingness of large market players or incumbents to join a scheme can depend on the extent to which they have already invested into proprietary systems or benefit from existing agreements. In many cases, providers have already borne the cost for closed-loop systems or bilateral integration. They can then be hesitant to join an additional system, diluting their market by including additional participants and potentially cannibalizing existing infrastructure. Where legacy arrangements have been made, a purely commercial argument to join a new scheme can be insufficient for providers that already own the largest consumer market share and are concerned about cannibalizing their existing lines of business.

**Competitive forces deter participant integration.** Larger players and incumbents have a competitive advantage, such as existing footprints and payment rails. Incumbents can fear integrating with IPS or opening

the infrastructure to other players due to perceived competition, fraud concerns, or caution of “challenger” digital financial service providers’ (DFSP) new business models and their inherent risks (BIS, 2014). For example, MNOs can restrict access to USSD channels by denying access to USSD codes, limiting other DFSPs from running non-MNO e-money services. In instances where the regulator clamps down on such behavior, MNOs have been seen to either degrade USSD services, disrupting bank e-money transactions, or price USSD at multiples of the cost for the entire industry, which effectively enables cross-subsidization of MMOs (CGAP, 2014). Banks, on the other hand, can perceive MMOs and fintechs to be riskier due to differing customer due diligence (CDD) processes. Box 14 highlights two different approaches to generating scheme buy-in, ultimately highlighting the necessity to include the regulator as part of the scheme governance to ensure that inclusivity remains a key objective of the IPS.



**BOX 14. Mandating scheme integration versus market-led approach**

If participation in the IPS is mandated without thorough consultation of all DFSPs, incumbents and large players may join the scheme to “tick the box” but continue to use their legacy systems, preventing the system from realizing significant volumes to scale (Stakeholder interviews, 2022). Alternatively, large players can prevent the participation of new entrants to cement their position in the scheme (CGAP, 2021). This can negatively affect the business model of the IPS and can limit choice for the consumer. However, if the private sector is left to create its own scheme, there may not be an equal playing field for all types of providers, and some providers may not want to join given their legacy systems, undermining the overall utility of the system for end-users.

**Opportunity:**

A clearly articulated long-term and short-term vision of the scheme, including scale and financial projections, can assist in demonstrating the market and ecosystem value proposition for participation, especially where IPS exist at lower stages of market maturity where DFSP incentives and capacity to implement a new IPS is limited (BFA Global, 2022). The vision must include a delineation between the cooperative space in payments infrastructure and the competitive space of products and services. Through continuous stakeholder consultations, the vision can be published and updated regularly to clearly set out directions of how the system can evolve. Every scheme benefits from a champion—regulator, third-party, or private-sector depending on the context—with the required capacity and mandate to drive buy-in through negotiations. The rollouts have succeeded, especially where providers are continually consulted and brought into the design discussions. User forums provide the champion a chance to guide participants in any change to processes and similarly provides a platform for industry input. The intended user of the scheme is empowered with a voice, and the scheme champion facilitates negotiation and direction. There is a need to set up IPS in a way that avoids the concentration of power in certain players or groupings. In addition, either by acting as the champion themselves or by getting feedback from these assessments, regulators must determine the approach to scheme interoperability that appropriately harnesses incentives and limits a threat of mandate or penalties, as described by a “managed interoperability” approach (BFA Global, 2022; CGAP, 2012a).

**Access channels are limited for consumers, underlying infrastructure gaps exacerbate challenges.** The risk that IPS are designed without considering the lower-income end-user needs ultimately leads to a lack of scale in the system. The extent of mobile network coverage and its quality directly affects the experience with instant payments. While the countries and regions with IPS have widespread 2G coverage, effectively enabling USSD, many have limited and unevenly distributed 3G, 4G, and 5G coverage, curtailing the expansion of more secure smartphone IPS solutions<sup>55</sup> (GSMA, 2022a). This is compounded by unreliable electricity access and prevalent power outages across SSA, where average annual duration of electricity outages has been anywhere between 200 hours and 4,600 hours in some countries<sup>56</sup> (Statista, 2018). In addition, even end-users with smartphones often transact via USSD channels because of

familiarity of the channel, constraints on network connectivity, and cost, as noted in Chapter 2. For reasons further elaborated in Box 15, despite USSD's widespread use, its scalability is limited, and it is not a fit-for-purpose financial channel. Fraud and data security concerns are increasingly prevalent among end-users as highlighted in Chapter 3. The slow speed of Africa's data networks and high prevalence of voice network downtime introduces unreliability with USSD and more modern payment technologies. If the connection times out, the transaction fails and instills uncertainty and mistrust in the user. The inclusivity of many IPS is constrained because there has not been substantive innovation on the access channels available to the mass market, and those currently used are not fit for purpose and lack true scalability potential and corresponding networks to support them.

55 2G coverage exceeded 90% for all countries, apart from DRC, Madagascar and Mozambique. The average coverage for 3G and 4G is less at 89% and 77%, respectively. The DRC, Tanzania and Mozambique have less than 50% 4G coverage (GSMA, 2022a).

56 Electricity outages can cause service downtime for mobile phone networks because MNOs are often unable to charge back-up batteries and/or excessive use of batteries causes the batteries to overheat, affecting the efficiency of the network (Vodacom, 2021).

**BOX 15. Risks and limitations of USSD**

Despite numerous challenges for USSD, such as associated high costs and constraints on the volume of transactions that can be processed, the channel remains popular to its ready-access and simplicity for a large end-user market and has no explicit impetus to be phased out. USSD does not have leading security and is susceptible to fraud because of its weak malware defense capabilities, and its messages are not encrypted (Financial Inclusion Global Initiative, 2021). Money laundering and terrorist financing is prevalent on USSD, stemming from unreliable CDD measures and weaknesses in mobile money identification systems (Interpol, 2020). This can represent challenges for banks that tend to have a lower risk tolerance. USSD has mainly supported, and continues to be supported by, non-bank financial institutions. Banks are deterred by the operational and security risks inherent in USSD. Furthermore, there are numerous instances across the continent where MNOs restrict banks' access to USSD due to disputes over fees or competitive reasons, curtailing the liberalization of the USSD channel (Adepetun, 2021).

**Limited end-user capability constrains uptake among end-users.**

Without knowledge and exposure to digital payment means, end-users may perceive digital payments as overly complex compared to dealing in cash. This can extend to the language the services are offered in. Literacy, for instance, is a strong factor that determines whether a mobile money transfer is accepted over cash among new mobile-phone owners (Roessler, et al., 2021). In addition, assistance and training on how to perform digital

transactions have been essential to drive digital payment uptake among MSMEs (Aggarwal, Valentin, Brailoysakya, & Robinson, 2020). Therefore, capacity of DFSPs and their agent networks to provide customer education and support can be a necessary pre-condition for end-user capability, as seen in Chapter 3. Successful rollout and uptake of an IPS is therefore contingent on the capabilities of the targeted end-users in adopting and using instant, digital payment services.

**Opportunity:**

IPS need to be developed such that they speak to the needs of end-users. For the foreseeable future, USSD and USSD-like solutions need to be incorporated into IPS to reach the majority of the population in Africa. Research on end-user behavior and barriers to usage can assist stakeholders in system design and implementation. Coordinated and trustworthy awareness campaigns can play a role in addressing consumer misinformation on digital payments and access to information. In addition, innovation is needed to secure USSD transactions and/or IPS must support alternatives for smartphone users currently using USSD that speak to consumer requirements, such as card-to-phone processes and Bluetooth transfers.<sup>57, 58</sup> As solutions will continue to leverage mobile networks for connectivity, there need to be continuous infrastructure upgrades to improve speed and reliability. Lastly, to increase the inclusivity of IPS, both IPS participants and scheme owners need to assess the availability of agents or physical locations in bridging the gap to digital use, given the importance of human interface in building trust in digital transactions.

57 Card-to-phone processes includes SoftPOS merchant solutions, whereby the merchant is able to turn their mobile phone into a POS that accepts card payments.

58 Bluetooth transfers use Bluetooth technology to enable merchants to accept contactless phone-to-phone payments on low end smartphones. No internet connection is required to process these payments (Stakeholder interviews, 2022).

*Cost drivers undermine business and use case***TABLE 14. Barriers and opportunities relevant to cost drivers**

| Barriers  |  |  |  |
|---|--|--|--|
| For IPS   | For end-users  |  |  |
| Required messaging standards can be expensive to implement and maintain and limit scale through higher system demand and processing constraints   | Complex trade-orientated foreign exchange models not suited for IPS transactions and response times  | Digital transaction levies dampening DFSP business models  | Lack of enabling end-user infrastructure and low levels of literacy impacting uptake |
| Opportunities   |  |  |  |
| For IPS   |  |  |  |
| <ul style="list-style-type: none"> <li>To adopt appropriate sequence of use-case and messaging standard rollout based on key IPS target market needs and addressable market</li> </ul>                                      |  | <ul style="list-style-type: none"> <li>To incorporate and maintain appropriate integration gateways to enable effective translation to ISO 20022 fields and data standards for participants, particularly aimed to viably accommodate mass micro-transactions</li> </ul> |  |
| For supporting stakeholders   |  |  |  |
| <b>For private sector players:</b> <ul style="list-style-type: none"> <li>To speed up required technical upgrades and integration of use cases;</li> <li>To leverage APIs; to reduce data usage for applications</li> </ul> | <b>For public sector players:</b> <ul style="list-style-type: none"> <li>To convene and to take a proactive role in discussions with DFSPs on enforceable scheme rules;</li> <li>To defend inclusivity principles; to support smartphone rollout and reduction in data costs;</li> <li>To evaluate the benefit of long-term government IPS financing; to develop effective foreign exchange models to facilitate cross-border IPS transactions;</li> <li>To consult industry stakeholders during taxation policy-making process</li> </ul> | <b>For development partners:</b> <ul style="list-style-type: none"> <li>To support smartphone rollout and digital literacy</li> </ul>  |  |

**Infrastructure duplication compromises scale and financial sustainability.** For many IPS, sustainable scale will not be achieved given the cost of set-up and maintenance, especially in the absence of use case and full PSP buy-in and integration. To minimize transaction costs, achieving scale is a crucial element. The inability to keep transaction costs low has implications for the financial sustainability of the system, as end-users are price sensitive and may default to using cash. Potential duplication of infrastructure, such as in Nigeria (NIP and eNaira) as well as regionally in East Africa overall, and where IPS are not interoperable within one country (e.g., Egypt, Kenya, Tanzania), leads to an end-user trade-off between increased inconvenience to hold multiple accounts for various systems and exclusion from key IPS functionality.

**Unequal distribution of enabling infrastructure for end-users drives per-unit transaction costs.** There are severe constraints on the reliability and availability of electricity and network infrastructure across the continent, especially in rural areas. In 2019, only 43% of the African population have access to safe and reliable electricity, on average, and the reality is worse in remote regions (World Bank, 2019). As noted in Chapter 3, the electrical access gaps combined with the problems end-users face with network coverage and mobile-phone ownership to restrict the ability of payment services to reach a large portion of the market. Limited end-user access drives the delivery costs faced by providers, which ultimately adds to the expense base of development and in certain cases is passed on to end-users.

## Opportunity

Integration and collaboration are required to avoid duplication of infrastructure and scale fragmentation. Common regional infrastructure with local control is best suited to inclusive and sustainable IPS, especially for smaller economies with limited potential scale. A thorough assessment in the design phase of existing payment infrastructure domestically in the region or neighboring countries can highlight where there is potential for infrastructure integration. This will prevent systems being built that directly compete for scale, rather than bringing differentiated value to users. Analysis of market contexts also reveals which use cases are integral for end-users to aid in developing greater acceptance of cornerstone technologies. Where there are already multiple domestic systems within one country, enabling interoperability rather than creating a new scheme can provide an efficient solution.

### Digital transaction levies increasing costs faced by IPS participants, being passed on to end-users.

Many African nations have introduced taxes on mobile-phone-based transactions or are considering doing so, including charges on sending and receiving money.<sup>59</sup> The motivation behind digital transaction levies stems from the difficulty in finding proxy ways to tax the informal economy and effectively expand the tax base for public good. African countries have focused on transaction taxes on the underlying amount of the transaction, specific taxes on total mobile money revenues and direct taxes on

transaction amount (GSMA, 2020a). Mobile money taxes depress the business models, profitability, and investment plans of DFSPs: In Uganda, for instance, P2P values decreased by 50% before the reversal of the tax (GSMA, 2020a). Decreased cash flows, in turn, lead DFSPs to raise charges faced by end-users, especially marginalized and lower-income users, and further deter uptake of digital payment services. For instance, as highlighted from consumer research, preferences for mobile money in Ghana decreased after the implementation of the e-levy.

<sup>59</sup> In some countries in SSA, such as Kenya, the DRC, Malawi, and Zimbabwe, digital transaction levies are applied equally to all DFSPs, including banks and MMOs. Other countries, like Uganda, Côte d'Ivoire and Ghana, have directed levies at mobile money transactions that exclude banks. Benin, Cameroon, and Tanzania are among the countries that have implemented digital transaction levies (GSMA, 2020a; ITCD, 2022).



## Opportunity

Regulators should conduct stakeholder consultations (including mobile operators, civil society, international organizations, and internal technocrats) and hold collaborative working sessions to inform the policy process and ensure that there is a consensus reached on the appropriate type and size of the digital transaction levy. Consultations should also inform whether the tax is applied evenly across the industry and that fairness concerns are handled appropriately. Policymakers can review the effects of the taxation and, in agreement with the industry, adjust to fix an appropriate amount, or alternatively consider approaches to tax the revenue of the sector without adversely impacting end-users.

### Staggered use case rollout potentially limits scale and value proposition to end-users.

None of the 29 IPS identified currently enable all use cases.<sup>60</sup> The incremental rollout of use cases is common across all African IPS due to differences in technical integration specifications. The majority of IPS facilitate just P2P, and in some cases P2B. This leaves the market that call for other transactions, such as B2B, bulk or utility payments, untapped, limiting the sustainability of the business model in the short term and can keep the cost to the end-user high. Systems enabling a broader set of higher-volume use cases, such as G2P bulk payments, improve the value proposition of IPS for end-users, as they create a deeper digital payment ecosystem and utility.

IPS that support the entire digital payment ecosystem have a strong mechanism to disburse value into the system (through government payments and bulk payments) to facilitate circulation of the money in a way that provides utility to the user (through P2P and merchant payments), and to aggregate capital to bring back into the system, such as B2B and B2P payments (Stakeholder interviews, 2022). The consumer insights revealed that in addition to P2P, bill payment (often P2G) and airtime purchases as well as merchant payments are high-frequency digital payment opportunities. For MSMEs especially, digital B2B payments and P2B transactions are valuable. Box 16 highlights the difficulty in complete use case rollouts.

### BOX 16. Complexities with integrating more use cases in addition to P2P

Not all use cases are simple to incorporate and, although important for scale if selected appropriately, multiple use case integration can increase start-up costs (Dalberg Advisors, 2021). P2B payments require sufficient bandwidth and gateways to accommodate for high speed of transactions and require considerable merchant acquisition to reach scale. Integrating G2P payments requires the digitalization of such transactions in the first instance, a lagged activity in numerous countries in Africa. Incorporating a range of dependent use cases at the onset is beneficial in driving scale earlier, yet it adds additional demands on the system and participants which can delay the initial launch.

60 Nigeria's NIP enables all domestic use cases but does not yet fully enable cross-border payments for all participants.

## Opportunity

There is no silver-bullet approach to use case integration and rollout, as the optimal strategy will depend on the economic context and the current digital ecosystem. Use cases should be rolled out in an appropriate sequence to reflect and meet the needs of the market, with actionable and transparent plans to add all use cases within a few years of system launch. To inform this, in-depth local market analyses should be undertaken to assess the need for use cases. It is crucial to consider the connectedness and interdependency of use cases in the economy to drive volume and scale through the system. Scenario planning can assist in the decision between launching all use cases, with an associated prolongment to the planning and integration work, or building use cases over a longer term, with associated revenue constraints in early years, and working to sustain DFSP participation.

### Required messaging standards potentially expensive for providers.

The choice of messaging standards can increase the integration and maintenance costs for participants considerably. Universal standards, such as the payment messaging standard ISO 20022, provide opportunities for greater interoperability (World Economic Forum, 2022). However, the migration to ISO 20022 from the legacy backend standards requires a complex modification in information technology (IT) and processes (van Ommen, Zhang, Andolina, & Groza, 2022). In Africa, mobile money operators (MMOs) have been slow to take up ISO 20022, as many of the messages are not relevant to mobile money. Adopting the ISO 20022 standard can become cumbersome where large numbers of institutions are reliant on legacy core systems with varying transaction standards, data

rules and internal processing, especially smaller MFIs and PSPs. With current technology, there is an optimal level for processing efficiency with ISO 20022. Added processing load from increasing volumes combined with multiple gateway complexities would have a disproportionate impact on processing capacity, processing time, stability and ultimately unit processing costs. To compensate, operators are exploring solutions, such as stripping out fields from the ISO 20022 transaction message in real-time and then reconstituting message in batch processes, akin to card-based transactions. While balances would be immediately updated, the transactions detail would only be available to end-users at a later time. There are, however, other alternatives to the ISO 20022 message standard, yet these too come with their own obstacles as Box 17 highlights.

### BOX 17. Trade-off between approaches for different messaging standards

ISO 20022 standards are widely adopted by IPS across the globe and are considered “the foundation for global interoperability”, as it allows for instrument standardization (World Bank, 2021c). If implemented properly, ISO 20022 can be a driver of scale for the system. This is because the instruments’ formats are standardized, which means the same fields are processed and therefore the system does not have to deal with the time-consuming and complex matter of incompatible integrations. Integrating ISO 20022 is a multi-year project, especially when it involves updating legacy systems, and presents a timeline challenge to rolling out the IPS (Accenture, 2021). While ISO 20022 is a versatile and secure standard, it can be costly and inefficient for non-bank providers or bank-providers with extensive legacy systems. Proprietary standards, on the other hand, can be highly customized—thus able to meet niche requirements—and can leverage the available resources of the payment system. The downside is that they are more difficult to integrate at scale and, due to their localized nature, extensive industry adoption is needed to assure interoperability and the system’s success (World Bank, 2021d). However, there are technologies available, such as software development kits (SDKs) and translation engines, which help DFSPs to incorporate the required technical specifications and the required elements without requiring heavy messaging standards, such as ISO 20022. This means that only the most important data is transmitted, in various formats, which is reconstructed to reflect ISO 20022 transactions. Effectively, translators can make the messages understandable to both parties. Translation hubs entail lighter standards for bandwidth and processing speed. This can increase the system’s degree of interoperability, as new participants do not have to endorse heavier messaging standards (World Bank, 2021d). However, translator hubs may fail when there is imperfect data, when there is a mismatch between sender or receiver, or when there are other compatibility issues.

## Opportunity

An assessment of the market can determine the extent to which ISO 20022 standards are already adopted and/or test the desirability of ISO 20022 by participants in instances where proprietary data standards or legacy technology is common. To utilize ISO 20022 standards optimally for reaching scale, it is important to involve a range of industry stakeholders from small MFIs to leading banks. Where IPS require ISO 20022, it may be necessary to have an integration gateway to provide a translation service. Banks and non-bank participants must ensure that they have the equivalent and compatible data standards so that the translation service can be used effectively. The translation service or SDKs may be considered a shared service of the IPS.

### Approach to forex increases costs and impacts risk.

The timing and settlement of instant forex introduce significant risk for multi-currency IPS. Trade systems are not ideally suited for instant payments, as a systematic near-instant forex conversion is needed to clear a liquidity position. If a regional or continental IPS does not utilize a common currency, there is an additional settlement risk involved in the transaction. However, when a single currency is used as a third-party settlement currency (regardless of transaction currency of origin and receipt) forex equivalent

conversions occur twice during settlement, increasing the risk premium within the fixed conversion spread or the actual cost.<sup>61</sup> Uncertainties surrounding volatile currencies and the need to prefund forex to enable instant payments increase costs to the intermediaries and participants. In addition, to enable the settlement of cross-border payments, prefunding by participants is required, which ties up DFSP capital and increases operational costs (BIS, 2022). Increased costs are generally passed on to the end-user (Level One Project, 2022)

## Opportunity

Best practices can be drawn from payment systems' integration models and approaches to forex conversion that minimize cross-border frictions, and thus system costs, and tailor to the specific intra-Africa context. For instance, PAPSS facilitates instant cross-border payments in local currencies between African countries (Absa, 2022). PAPSS utilizes Afreximbank as the main settlement agent, which provides settlement guarantees on the payment system and overdraft facilities to all settlement agents. The inter-bank settlement will be in US dollars with a multilateral netting arrangement among central banks. By providing a fixed-rate facility where the exchange rate is stabilized for a day or up to a certain value, Afreximbank allows institutions that conduct systematic processing to do so with stability. A foreign exchange currency marketplace with arm's-length price discovery for system participants can contribute to lowering the cost of forex conversion, as is currently in use by BUNA, the real-time cross-border payment system for the Arab region.

### End-users do not always benefit from cost savings.

Low costs to IPS participants do not routinely translate into affordable prices for end-consumers. The consumer insights revealed how price sensitive end-users are. However, schemes rarely mandate end-user prices. Unless participants see the benefit of the inclusivity objectives of forwarding the cost-savings to end-users,

there is the risk that consumers see prices as too high. In addition, with a rise in digital transaction levies, there is a risk that these too are passed on to end-users (Brookings Institution, 2019). The scheme rules often do not explicitly specify how pro-poor mandates and low-cost services are essential to inclusivity and sustainability of the scheme.

61 For example, SADC TCIB clears in local currency equivalents but settles in South African rand (ZAR) for common monetary area (CMA) countries, and in ZAR or USD for other SADC countries.

## Opportunity

Scheme rules should emphasize the system's inclusivity agenda so that participants take cognizance of inclusion objectives when setting end-user pricing and recourse processes. This can be accomplished via operating procedures on the maximum price of payments and/or public disclosure of pricing to participants. Additionally, end-users become less cost sensitive when products are easier to access and fit specific needs. Industry and participant DFSP consultations, in combination with market analyses, should inform public policy on appropriate digital transaction fees that do not harm end-users disproportionately. A scheme with such pro-poor governance can regularly assess where the scheme is missing end-user needs. A monitoring and evaluation process embedded into the design of a scheme can enable an assessment of end-user uptake, the degree of their price sensitivity, preferred channels, and outstanding use case needs. Tools, such as Innovations for Poverty Action (IPA)'s Goldilocks toolkit with monitoring and evaluation templates, can be utilized and tailored appropriately for this purpose (IPA, 2022). By understanding shortfalls in scheme implementation, a monitoring and evaluation framework can assist schemes in making necessary improvements, ultimately ensuring the impacts envisioned by the digital payment ecosystem are realized.

### Regulatory hurdles affect competition and innovation and delay implementation

**TABLE 15. Barriers and opportunities relevant to regulatory hurdles**

| Barriers  |   |  |  |  |
|---|---|--|--|--|
| For IPS   |   |  | For end-users  |  |
| Unlevel playing field tilted toward larger players: creates an obstacle to competition  | Lack of harmonized requirements and implementation of CDD processes stifling integration and competition  | Limited control of end-user recourse leading to a lack of transparency and increased mistrust  | Mistrust in digital payments stifling uptake and usage | Inconsistent onboarding processes affecting adoption |
| Opportunities   |   |  |  |  |
| For IPS   |   |  |  |  |
| <ul style="list-style-type: none"> <li>To provide all licensed DFSPs with equal opportunity for input into scheme rules and decisions to foster pro-poor governance</li> </ul>  |   |  |  |  |
| For supporting stakeholders   |   |  |  |  |
| <ul style="list-style-type: none"> <li><b>For private sector players:</b></li> <li>To recognize cash as the true competition and operate on a level playing field with other providers (cooperative infrastructure, competitive products and services);</li> <li>To make risk mitigation more robust;</li> <li>To implement transparent cost and recourse requirements;</li> <li>To tackle fraud swiftly</li> </ul> | <ul style="list-style-type: none"> <li><b>For public sector players:</b></li> <li>To develop DFSP legislation that encourages innovation and competition;</li> <li>To create or update consumer protection, cybersecurity and data protection legislation;</li> <li>To adopt common principles and harmonization of AML/CFT/PF;</li> <li>To consider domestic and/or regional CDD centralized resources.</li> </ul> | <ul style="list-style-type: none"> <li><b>For development partners:</b></li> <li>To assist the private sector and regulators in implementing risk-based approach to AML/CFT/PF and harmonization principles</li> </ul> |  |  |

**Unlevel playing field stifles competition and limits consumer choice.** Incumbents often have greater influence on the scheme rules, limiting the entry space for emerging neobanks, MMOs, MFIs, and fintechs. Exclusion of non-banks from the scheme and from input into scheme rules constrains competition, resulting in less innovation and

payment services that are not fit for purpose (World Bank, 2018). Fintechs, for instance, could expand the reach to and better serve the needs of lower-income end-users via novel products, given their backing by capital market investors (Stakeholder interviews, 2022). Some IPS, however, choose not to include some non-bank participants (see Box 18).

### BOX 18. IPS participation barriers for fintechs and MFIs

The core focus of fintechs and MFIs may not align with those of traditional banking participants where the focus on technology innovation and credit provision may supersede operational and fiduciary risks. From the perspective of conservative players, smaller non-bank players often do not have the requisite resources to manage operational risk and consumer recourse. In addition, fintechs, within the African context, tend to expand inclusion to lower-income groups. The new customer base can raise concerns among regulators and traditional conservative participants, who can consider them to be risky account holders. Fintechs may present new consumer protection risks if regulatory oversight is insufficient (IMF, 2018). MFIs are still cash-intensive and often do not comply with international reporting standards, creating a barrier to include them as participants in the system. Fintechs and MFIs may also find it costly to integrate into the system, as they have limited back-ends and would require intensive technical integration (Dalberg Advisors, 2021).

## Opportunity

Non-bank DFSPs should have direct input in the scheme rules. Additionally, non-bank DFSPs should be incorporated in committees, introducing feedback loops via user-group and focus-group discussions. Further, in cases where non-bank providers are not technically able to integrate to an IPS, the scheme should allow for indirect participation with rules that govern sponsorships and non-discrimination of traffic. This can ensure that large players and incumbents can come together with the emerging innovators.

**Limited control of end-user recourse leads to a lack of transparency and increased mistrust.** It is ultimately IPS participants who determine the recourse provisions for end-users. Payment products become less attractive to users when recourse is unclear or difficult to exercise. In addition, recourse is often a time-intensive and costly process for end-users—for example, many DFSPs do not offer a toll-free complaints mobile line and, when put on hold via

mobile phone calls, face high airtime expenditures (CGAP, 2016b). Additionally, knowledge is restricted due to limited transparency by providers. Consumers are concerned about hidden charges and opaque recourse processes, deterring their adoption of instant payment methods. Meanwhile merchants do not want revocability after a good or service has been rendered (Stakeholder interviews, 2022).

## Opportunity

Clear scheme rules on consumer protection issues merits attention. Clarity for end-users on accessing effective recourse mechanisms with transparency enables trust and confidence in the system. End-users should not face additional charges for access to recourse mechanisms beyond the expense of their time, which should be minimized. Scheme rules can further issue recourse transparency requirements and include maximum response, resolution, or turnaround times. System functionality can limit errors via confirmation of the recipients to the sender prior to finalizing the transaction, as well as sending an immediate confirmation for the successful transaction. In countries where the financial regulator has excess capacity and pathways to provide direct-to-citizen services, an option exists to provide dispute resolution mechanisms. This can be advantageous only where comprehensively implemented, and with appropriate methods of dispute-handling. It can build trust where individuals have exhausted all avenues of complaint at the institution level but still have a higher avenue of redress. However, government intervention in the dispute process should be considered a last resort, with priority lent to transparency within the DFSP-customer relationship.

### **Lack of harmonized CDD constrains inclusive competition and innovation.**

CDD requirements differ across jurisdictions and between participants, as highlighted in Annex A.d on the SADC TCIB case study, and risk is not mutually recognized across countries. For example, in SSA, only 55% of the sample of 20 jurisdictions allow some form of eKYC or have eKYC specific guidelines within their KYC framework versus 10% of jurisdictions who explicitly prohibit eKYC (CCAF, 2021). In addition, many countries do not have an automated ID database that can facilitate eKYC, and some require information on a customer's permanent address in addition to national ID details (GSMA, 2021b). Furthermore, CDD tiers are not applied evenly across the market: CDD requirements for

commercial bank accounts are often more stringent than those of MMOs. The lack of a consolidated, pragmatic approach to CDD risks poses a risk of excluding smaller non-bank players and/or lower-income, marginalized groups who lack the requisite documentation, such as government-issued national identification documents, to meet requirements and cannot meet the costs associated with face-to-face account opening. Harmonized CDD in relation to risks and local regulatory frameworks (i.e., a risk-based approach allowing simplified KYC and eKYC measures) has the ability to reduce costs and simplify processes, allowing providers to serve multiple markets more efficiently, strengthening regulatory compliance, and improving oversight by the regulator.

## Opportunity

Roundtable discussions and working groups between potential participants or regional IPS member countries can identify pathways for CDD harmonization to strengthen interoperability while considering the interests of the end consumers. For example, from a regional perspective, it might be necessary to consider mutual acceptance of countries variant CDD provisions, as long as agreed-upon standards are adhered to. From a local perspective, DFSPs should consider greater consolidation on a genuine risk-based approach. Consideration of best practice examples, both local and international, assists in steering conversations around risk-appropriate CDD requirements that enhance inclusiveness and scale while strengthening the effectiveness of AML/CFT/PF measures. IPS can consider centralizing CDD resources, allowing for multiple parties to leverage CDD records that meet all relevant regulatory requirements (PWC, 2020).

*Risk and fraud is common for instant,  
digital payments***TABLE 16. Barriers and opportunities relevant to risk and fraud**

| Barriers  |  |  |
|---|--|--|
| For IPS   | For end-users  |  |
| Growing risk of financial crime and fraud with digital and instant nature of IPS  | Mistrust in digital payments stifling uptake and usage   |  |
| Opportunities   |  |  |
| For IPS   |  |  |
| <ul style="list-style-type: none"> <li>To adapt consumer protection measures to address digital scams or crimes, and to integrate real-time fraud protection mechanisms into the system</li> </ul>  |  |  |
| For supporting stakeholders   |  |  |
| <ul style="list-style-type: none"> <li><b>For private sector players:</b></li> <li>To design products and systems to limit the risk of fraud;</li> <li>To educate consumers on what constitutes fraud and to provide clear prevention measures;</li> <li>To incorporate tools such as transaction receipts and one-time passwords (OTPs)</li> </ul> | <ul style="list-style-type: none"> <li><b>For public sector players:</b></li> <li>To adapt consumer protection principles for cybercrime and data protection;</li> <li>To require ongoing monitoring and reporting of key security performance indicators</li> </ul> | <ul style="list-style-type: none"> <li><b>For development partners:</b></li> <li>To support the development of digital consumer protection regulation and innovation;</li> <li>To innovate to address security issues associated with USSD or to support catalyzation of alternative channels</li> </ul> |

**Instant, digital payment systems vulnerable to fraud and security risks, deters end-user uptake.** As digital and instant transactions grow, criminals have migrated their activities to the digital space: Leading security concerns are data breaches, phishing, account takeovers, and social engineering (World Bank, 2021f). Due to the speed and

irrevocability of IPS, the fraudulently gained funds are withdrawn before any suspicious activity is detected (BIS, 2016). As Chapter 3 highlights, when end-users experience fraud and criminal activity through digital payments, it discourages the use and uptake of digital, instant payments, which can impede the scalability of any IPS.

## Opportunity

Scheme rules should outline the necessary business conduct measures and consumer protection regimes that participating DFSPs must implement to protect the system against fraud and security risks. This can include, for example, real-time fraud protection and detection directly integrated into the system so as not to inhibit/deter participation for smaller DFSPs. However, this screening should be performed quickly and automatically such that the payment process from the end-user perspective is not slowed. Customer education can help to establish a baseline for users to understand what constitutes fraud, how to prevent and report it, and what liabilities could arise. Additional tools, such as transaction receipts and OTPs, are necessary to ensure that consumers are aware of the status of their transaction. The central bank can ensure that consumer protection principles, cybersecurity regulations, mandated accessible and effective dispute-resolution mechanisms, and data protection requirements are adhered to, complemented by ongoing monitoring and reporting by the IPS on fraud and security performance indicators.

# FUTURE PERSPECTIVES

5



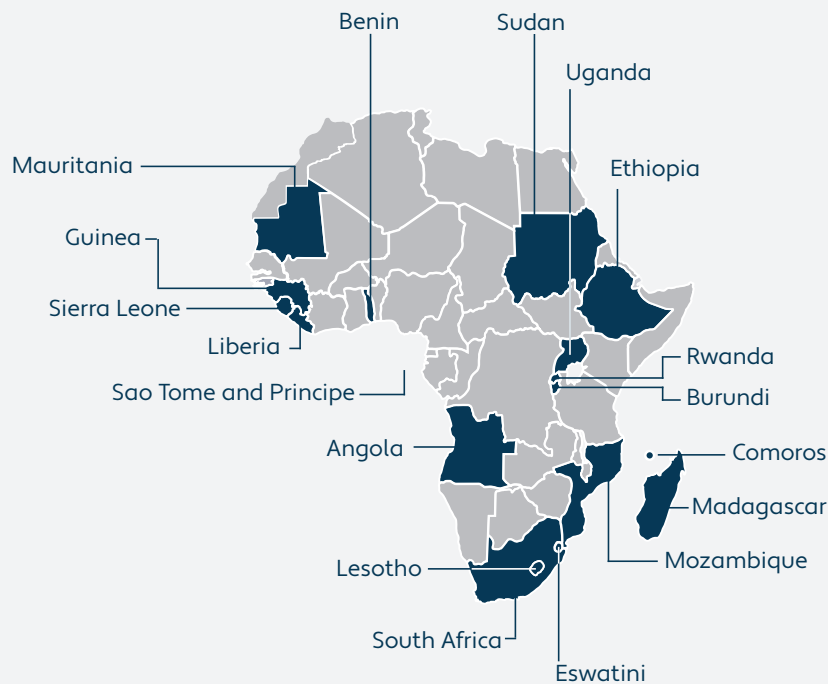


## 5.1 | IPS IN DEVELOPMENT

**The domestic and regional IPS capacity will increase significantly in the coming years, potential for excess infrastructure in Africa.** As Figure 20 shows, 18 countries are developing domestic IPS, mostly in Southern, Eastern, and Western Africa. Three additional regional systems are also under development, highlighted in Figure 21. BCEAO's WAEMU payment system will cover eight countries, none of which currently has its own active domestic IPS, and only Benin has a domestic IPS in development.<sup>62</sup> Although the WAEMU region has a regional automated interbank

clearing system, no low-value IPS between the countries currently exists, and the planned IPS will fill an important gap. The Common Market for Eastern and Southern Africa (COMESA) and the East African Community (EAC) systems under development, depending on their system architecture, however, will likely see a significant overlap with each other and could conflict with the live and planned domestic schemes. Of the 21 member states that make up COMESA, 14 already have a domestic IPS (67%), the highest concentration of all the regional communities in Africa.<sup>63</sup>

**FIGURE 20. Domestic IPS in development**



<sup>62</sup> WAEMU: Benin, Burkina Faso, Côte D'Ivoire, Guinea-Bissau, Mali, Niger, Senegal, and Togo.

<sup>63</sup> COMESA: Burundi, Comoros, DRC, Djibouti, Egypt, Eritrea, Eswatini, Ethiopia, Kenya, Libya, Madagascar, Malawi, Mauritius, Rwanda, Seychelles, Somalia, Sudan, Tunisia, Uganda, Zambia, and Zimbabwe.

**FIGURE 21. Regional IPS in development****WAEMU**

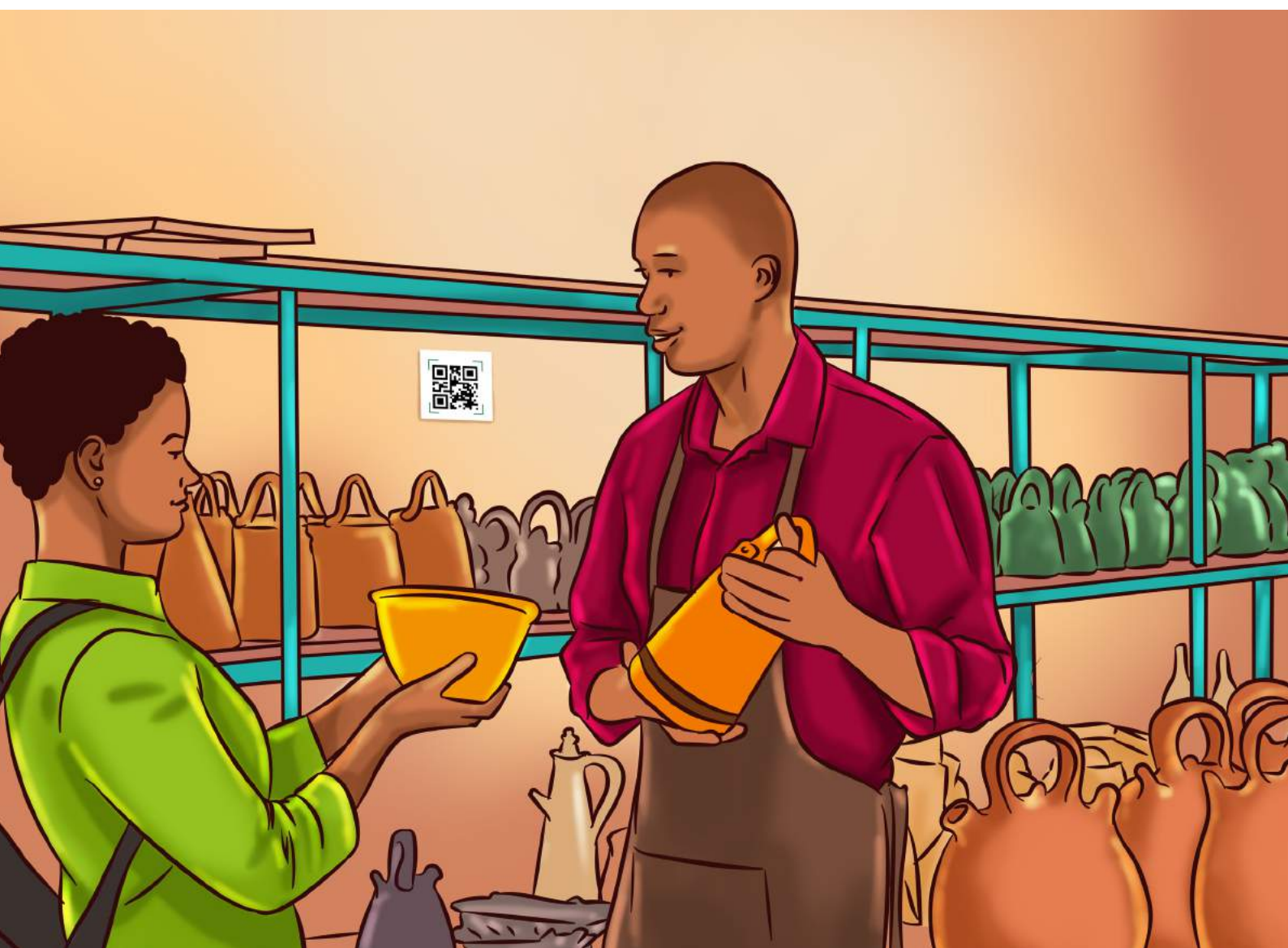
Benin | Burkina Faso  
Côte d'Ivoire | Guinea-Bissau  
Mali | Niger | Senegal  
Togo

**EAC**

Burundi | DRC | Kenya  
Rwanda | South Sudan  
Tanzania | Uganda

**COMESA**

Burundi | Comoros | DRC  
Djibouti | Egypt | Eswatini  
Eritrea | Ethiopia | Kenya  
Libya | Madagascar | Malawi  
Mauritius | Rwanda | Seychelles  
Somalia | Sudan | Tunisia  
Uganda | Zambia | Zimbabwe



## 5.2 | EMERGING TRENDS

**Instant, digital payments landscape are shaped by scheme, market, and end-user trends.** There are key trends emerging that will shape the IPS ecosystem along with the broader payments market over the next five years. These trends exist at the scheme, market, and end-user

levels and will ultimately impact the inclusivity progress of IPS. For IPS in Africa to optimize inclusivity, these trends need to be accounted for both in the design and implementation phases. The trends overview in Table 17 breaks down the various trends at the three levels.

**TABLE 17. Trends overview**

|                        | Trend  |
|------------------------|--|
| <b>Scheme trends</b>   | <ul style="list-style-type: none"> <li>• Rise in cross-domain IPS</li> <li>• Merchant payment integration</li> <li>• Participant involvement in design phase</li> <li>• Utilization of open-source software</li> <li>• Transition toward open API and cloud computing</li> <li>• Movement toward ISO 20022 messaging standard</li> <li>• Emergence of original credit transfers (OCTs) in card networks</li> </ul> |
| <b>Market trends</b>   | <ul style="list-style-type: none"> <li>• Payment technologies that emphasize convenience</li> <li>• Increased risk of fraud and cybersecurity</li> <li>• Market entry by social media platforms</li> <li>• Increasing 3G, 4G, 5G rollout, impacting USSD functionality</li> <li>• Utilization of data through data mining</li> </ul>   |
| <b>End-user trends</b> | <ul style="list-style-type: none"> <li>• Greater flow of value and volumes through IPS reflecting consumer uptake</li> <li>• Rising consumer security concerns and importance of consumer protection</li> <li>• Increasing smartphone adoption</li> </ul>  |
| <b>CBDC trend</b>      | <ul style="list-style-type: none"> <li>• Exploration of retail CBDC and potential co-existence with existing IPS</li> </ul>  |

## 5.2.1 Scheme trends

**An emerging presence of cross-domain instant payment systems in Africa.** Since 2011, there has been a steady rise in the number of cross-domain IPS, which is underscored by a movement toward interoperability between DFSPs. Currently, nine of Africa's 29 IPS allow the integration of bank and MMO participants.<sup>64</sup> Allowing fintechs as direct participants of cross-domain schemes is still uncommon but is expected to increase, especially in countries where licensing regimes for PSPs are currently under review and as risk management frameworks are becoming more robust at fintechs. The continued rise in cross-domain schemes in some markets highlights a growing trend toward integration for scale through different payment providers. However, there are many bank-only or mobile money-only schemes, which hints at the difficulty in achieving agreement between all DFSPs, highlighting the need for further exploration of consolidation in systems to increase the value proposition for end-users.

### Merchant payments increasing importance for IPS.

There is an increased focus on merchant payments and limiting the costs faced by merchants to increase buy-in and usage of the scheme. Many live IPS have integrated or have plans to integrate P2B use cases. Merchant integration is likely to drive scale of IPS, given that it meets a key need for end-users and is paramount to deepen the digital ecosystem. The increasing availability of payments acceptance technology in the form of QR codes, tap-to-pay technology via NFC, and the use of phone numbers as proxy IDs can aid adoption by both merchants and users. Yet, more seamless solutions for non-smartphone end-users that are secure and low-cost are required to ensure that all Africans can enjoy the benefits of digital P2B payments. Developments in the ability to use different forms of biometrics also present opportunities to offer proxy IDs that are accessible to all consumers.

### Participants increasingly involved in the design of IPS.

There is increasing awareness of the need for equal input by potential participants of a scheme. There are several examples of working groups that have been established in the respective jurisdictions and regions to discuss a range of applicable themes—such as the scheme's general rules, business models and security. The BCEAO system under development set up a series of stakeholder discussions and working groups in the current design phase. TCIB has created

engagement-by-design for potential participants to ensure full buy-in by PSPs. The increasing involvement of participants and the broader payment ecosystem is a step toward inclusive governance and hence toward an inclusive IPS.

**Utilization of open-source software, but not a silver bullet for interoperability.** Through distributed ledger technology and cryptographic validation, open-source software can reduce a scheme's costs involved in implementation. However, open-source software is not without challenges, and its deployment should be done with regard for the context of the instant payments industry: specifications of end-to-end standards, addressing the dependence of system reliability, security of the institutional implementing partners, and the need to support fraud risk and dispute management. Consideration should also be given to the concerns of more risk-averse scheme owners when adopting open-source-based instant payment systems.

**Transition toward open APIs and cloud computing.** The integration of open APIs and cloud computing promises benefits for IPS. Open APIs can enable interoperability between DFSP participants without the need to change underlying technical infrastructures at a high expense. In addition, adopting open APIs creates more flexibility in the clearing process, as traditional models of creating batch transaction files no longer fit the real-time nature of IPS. Of the 29 IPS in Africa, eight are known to use open APIs.<sup>65</sup> In Nigeria, MMOs can connect via APIs to the national central switch operated by NIBSS for real-time payments (World Bank, 2021c). Some IPS are testing and or lobbying for a regulatory sandbox to open API access to allow fintechs to join the IPS (Stakeholder interviews, 2022). A more open architecture creates opportunities to drive financial inclusion among traditionally underserved communities with customized products.

Cloud computing can reduce the operational cost of IPS substantially yet concerns around data localization for many governments in Africa remain. Major banks are increasingly outsourcing their core systems and processing payment infrastructure, including payments routing and authentication of messages, to third-party cloud providers or shared service centers. Outsourcing to private infrastructure arrangements can reduce required upfront capital and can enable schemes to set

64 NIP (Nigeria), ZECHL (Zambia), SYRAD (Djibouti), ZIPIT (Zimbabwe), TIPS (Tanzania), SIMO (Mozambique), GIMACPAY (CEMAC), and Natswitch (Malawi).

65 PesaLink (Kenya), TCIB (SADC), PAPSS (Africa-wide), MauCAUS (Mauritius), Instant Payment Network (Egypt), Ghana MMI, Uganda mobile money, and Gamswitch (Gambia).

up and reach scale faster (BFA Global, 2022). TymeBank, a new digital entrant in South Africa's banking sector, and Standard Bank in South Africa use cloud services from Amazon Web Services (AWS) (Genesis, 2019). Six other African banks have partnered with IBM for hybrid cloud solutions to integrate front-office and back-office processes and to modernize IT operations (Monzon, 2021).<sup>66</sup> Migrating to cloud computing can help DFSPs to strike a balance between faster payment processing and deliberate management of data collection, data use, and fraud mitigation. DFSPs must ensure that client data is secure and compliant with regional and/or jurisdictional data security requirements, and along with the IPS operator must ensure that the processed data is secured.

**Movement toward ISO 20022 messaging standard.** Of the eleven current IPS where information was available, five have adopted the ISO 20022 messaging standard. This is in line with the global trend toward ISO 20022 as the global standard for the exchange of electronic messages between DFSPs. This widespread adoption of ISO 20022 is due to the standardization of the message, interoperability, and the availability of high-quality data fields (World Bank, 2021d). However, there are challenges incorporating ISO 20022 messaging standards: the large cost involved and gaining consensus among payment system participants, as discussed in Chapter 4.

**Growing use of OCTs, or card-based credit EFT push.**

Fintechs, MMOs, and digital payment hubs have recently started integrating OCTs in their digital payment offerings.<sup>67</sup> In 2022, Visa partnered with Safaricom to launch virtual cards for M-Pesa's large and growing customer base (Njanja, 2022). In addition, MFS Africa, Africa's largest digital payments gateway, has plans to extend its offering to OCTs that connect with customer mobile money accounts. This is intended to allow end-users to easily transact with global merchants over the established card networks (Joy, 2022). OCTs allow end-users to push money to a recipient's card and vice versa in real time. They hold potential to drive uptake and reach of IPS, through integration with additional networks, instruments, and channels.

**Substantial use of closed-loop payment systems or quasi-payment systems.** Closed-loop or bilateral card-based schemes such as Visa and Mastercard, as well as predominantly mobile-focused entities such as MFS Africa and Flash DRC play a crucial role in Africa's retail payments infrastructure. They are serving a considerable market, across certain geographies, specific end-user segments, and use cases (e.g., remittances and/or trade-based payments). As well-capitalized players on the continent, they continue to innovate and increase their reach, and the interaction with these proprietary schemes and domestic and regional IPS may have implications for scale, competition, and inclusivity.

<sup>66</sup> Banks partnering with IBM include pan-African banks such as EcoBank, Nedbank, Attijariwafa Bank, and United Bank for Africa Plc and domestic banks such as Co-operative Bank of Kenya and Banco Mais in Mozambique.

<sup>67</sup> OCT is a payment instrument that directly enables transfer of funds to a recipient's transaction account. Unlike purchase transactions, which debit a cardholder's account, an OCT credits the cardholder's account (Cybersource, 2022).

## 5.2.2 Market trends

**Convenience underpins new payment acceptance technologies.** Consumer-friendly payment solutions improve the end-user experience; these solutions have arisen together with a scheme-level focus on merchant payments integration. QR codes are increasingly integrated as part of merchant payment use cases to streamline the transaction process. Ghana's GhQR has onboarded more than 500,000 merchants (GhIPSS, 2021b). While QR codes can be scanned, displayed on a smartphone, or entered manually as an alphanumeric code on a feature phone, from the payer's perspective, the payment recipient (e.g., a merchant) does not require a costly POS device and can instead validate the receipt of funds through a standard mobile phone or link to a provider's web application.<sup>68</sup> Request-to-pay (RTP) services are similarly emerging in the IPS space (CGAP, 2021).<sup>69</sup> RTP services remove the need to enter details regarding the receiver's account and payment amount. However, both these technologies depend on device capabilities and, at present, have limited ability to operate with feature phones. It is evident that tools that enable better customer experience with regard to instant payments are being integrated, but consideration is needed for technologies that can be used in conjunction with lower-tech devices, such as NFC tags and other interventions that use radio frequency identification (RFID).<sup>70</sup> MTN provides mobile money customers in Benin, Liberia, and Rwanda with an NFC tag to facilitate P2B purchases via a service called MTN MoMoPay.<sup>71</sup> The NFC tag is linked to the customer's mobile wallet, mirroring the process of a contactless debit or credit card. Following payment initiation via close contact between the MTN point of interaction and the NFC tag, the payment is validated and processed. These solutions can be used on lower-tech devices and in the absence of a user having an internet connection or data.

**Increased risk of fraud to IPS participants and users.** In recent years, Africa has witnessed a surge of fraud incidence in the digital payment ecosystem. End-users in Kenya and Nigeria have reported an associated increase in fraud volumes, notably on mobile channels and online banking, indicative of a larger trend (Myriad Connect, 2018; NIBSS, 2021b). As noted in Chapter 3, approximately 20% of end-users across this study's sample reported that fraud and security risks are a challenge they associate with digital payments. In addition, as provided by the qualitative findings, end-users indicated that they have experienced, or know someone who has experienced, fraud associated with fake confirmation messages and transaction reversals. The increase in fraud in instant payments will drive IPS schemes and DFSPs to re-evaluate their fraud strategies to maintain customer trust or risk increased regulatory pressure. Scheme-level trends toward open APIs, centralized fraud management, cloud computing, and the use of secure instruments, such as original credit transfers (OCTs), are among the solutions available to combat fraud risks.

**Techfins entering the instant payment space with potential to reach underserved groups.** The continent is witnessing sustained incorporation of social media platforms with the growth of WhatsApp and other messenger applications used for business purposes: WhatsApp and Facebook Messenger are the two most important digital communication apps in Africa (World Economic Forum, 2018). These platforms are actively investing and are in discussions with financial service providers to enable payments in Africa (Payments Afrika, 2021). A version of 'WhatsApp Pay', Money Message, launched in South Africa in April 2021, and is provided in collaboration with Nedbank, Mastercard, and Ukheshe (Mastercard, 2021). Integrating different PSPs is a notable scheme-level trend that offers potential to support the emergence of techfins in the instant payment ecosystem.

68 QR codes can be alphanumeric and may be used in a USSD interface—such as GhIPSS' GhQR, which allows feature phones to complete payments via USSD; however, it is difficult to use and prone to human error.

69 RTP allows merchants to digitally request initiation of the payment by the consumer. This results in less responsibility for the consumer and reduced customer errors (CGAP, 2021). Furthermore, RTP services offer the opportunity to include other value-added services along with the payment transaction, such as payment deadlines or installment payment options (Stakeholder interviews, 2022).

70 NFC tags do not rely on network activity and can be supported by low-tech phones. RFID and NFC do not rely on internet coverage, and they use electromagnetic fields to identify and read tags attached to payment devices. Low-tech phones can support NFC-enabled payments if equipped with an NFC chip (BIS, 2020).

71 MoMoPay is a contactless mobile-payment service developed by MTN and YOUTAP. The YOUTAP device can support other MNO products and technical service facilities, such as the ability for users to make payments and to receive small change back into customers' mobile money wallets (Koihi, 2017).

**Upgrades to connectivity underway, but (smarter) smartphones required.** The transition to better internet coverage in Africa is continuing at a deliberate pace. Africa has increased coverage over recent years, with substantial 3G and 4G rollouts especially in West Africa and East Africa. In SSA, total connections to 3G and 4G are projected to increase by 58% and 27%, respectively, from 2017 to 2025 (GSMA, 2020b). Vodacom and MTN have premiered 5G networks and services in South Africa. Similarly, many national telcos have announced their intention to bring 5G services to the continent, and 5G trials are currently prominent (GSMA, 2020b). Although 4G and 5G enable faster connections and payments, this requires advanced smartphones. Many Africans rely on 2G networks that enable USSD to conduct payments on feature phones. The lower-income population faces being left behind if 3G, 4G, and 5G infrastructure replaces 2G towers without smartphone adoption increasing at a similar pace.

**Greater utilization of data through data mining.** Access to larger volumes of aggregated, industry or sectoral data is increasing with the digitalization of payment services and respective end-user uptake of digital payments. Data mining is increasingly used by the larger pan-African bank conglomerates, large local banks, and fintechs to understand consumer risk, consumer behavior, and earnings potential. Big data can also be utilized for a host of other non-financial-related risks, including fraud and AML/CFT/PF effectiveness (Dean, 2018; FSD Kenya, 2015). For instance, BankservAfrica in South Africa engages in economic trending and forecasting due to their access to all risk and transactional data from their partner banks (BankservAfrica, 2022). Similarly, South Africa's major banks all have data analytics units and wield data as a strategic asset to inform product innovation (PWC, 2022). Big data and data mining are not limited to the banking industry: M-Pesa has been reported to leverage big data as an indicator of earning potential and hence a substitute for collateral for M-Shwari, its credit product (Ndung'u, 2017). Fintechs in Africa have also been essential to help larger DFSPs leverage their data for better decision-making (IMF, 2019). However, big data and data mining are not without caveats. Where data privacy laws are not well defined, it becomes unclear which data DFSPs can utilize and the purpose for which it may be used. In addition, big data enables established DFSPs to filter consumers, geographies, and economic value chains according to key risk attributes, distorting the distribution among the remaining financial institutions and potentially leaving smaller institutions with risky portfolios.

### 5.2.3 End-user trends

**Rising consumer security concerns and importance of consumer protection.** Consumer interviews indicated concerns around personal information privacy, awareness of new types of fraud, and inadequate service quality, as noted in Chapter 3. Instant digital payments come with exacerbated consumer risks, and new risks emerge constantly, especially for vulnerable population groups (Chalwe-Mulenga, Duflos, & Gerhard, 2022). In addition, the complexities of consumer protection increase as more participants are integrated. If not addressed adequately, these risks and negative aspects of digital instant payments pose challenges to consumers' or MSMEs' use of digital payments. Consumer research conducted in seven countries found that approximately 20% of consumers and 23% of MSMEs cited fraud and safety as challenges when using digital payments. Sophisticated consumer protection in instant, digital financial services is increasingly important, but it also needs to allow for innovation in product design and delivery (World Bank, 2017).

**Smartphone adoption on the rise.** As of 2021, 44% of total mobile phone connections in Africa were via a smartphone, which is predicted to rise to 68% by 2025 (GSMA, 2021c; GSMA, 2022b).



This is supported by the availability of cheaper, lightweight operating system devices, and an increase of smartphone financing schemes (GSMA, 2020b). The rise in smartphone adoption is spurring demand and uptake of digital, instant payments (Augustine, 2022). Despite this, low-cost smartphones currently lack the processing power or

capacity to drive usage of digital payments, as they are only able to support a low number of apps, generally reserved by consumers for social media and communication. Feature phones still have a foothold in African markets because of expensive mobile-data costs and unreliable network coverage (GSMA, 2020b).<sup>72</sup>

### 5.2.4 Trend toward CBDC<sup>72</sup>

#### Central banks in Africa rising interest in retail CBDC.

CBDC is originated, backed, and regulated by a national monetary authority. It can also operate as an instant payment system itself depending on how the supporting blockchain, centralized or other decentralized systems are configured and implemented. There is therefore potential for a CBDC implementation to either enhance or supplant IPS. African regulators suggest that a longer-term motive that underpins their CBDC implementation scenarios was deeper engagement and inclusion across the entire economy (Stakeholder interviews, 2022). How this is accomplished can directly determine the viability of any IPS in the same jurisdiction. One of the key CBDC principles by the Group of Seven (G7) is that CBDC is not intended to out-compete commercial instruments

and instead, in line with the role of sovereign capital in the economy, should serve to cover instances where commercial instruments are not viable (G7, 2021).<sup>73</sup> CBDC is instant without requiring settlement processes nor settlement infrastructure and may not even rely on switching infrastructure. Further, in some instances, it can transact offline. Nigeria was the first to launch a retail CBDC, eNaira, though little is known about the specific functionality implemented, its success, and DFSP and end-user adoption to date. Ghana's e-Cedi pilot has announced a launch in the coming months. An additional 14 African countries are considering CBDC and are in the proof-of-concept or research phase<sup>74</sup> (CBDC tracker, 2022). An IPS that interoperates with or utilizes a CBDC instrument would be well placed to take advantage of the technical attributes (including offline functionality) and reduced complexity inherent to CBDC.

72 Feature phones account for 45% of connections in SSA, and a significant share of smartphones only support 3G (GSMA, 2021a).

73 The G7 stands for the 'Group of Seven' industrialized nations, including Italy, France, Japan, the United Kingdom, the United States, Germany, and Canada, which carry significant influence on global trade and the international financial system (Webster, 2019).

74 Morocco CBDC (research phase), Tunisia e-Dinar (research phase), Egypt CBDC (research phase), Ghana E-cedi (pilot phase), South Africa CBDC (pilot phase), Namibia CBDC (research phase), Zimbabwe CBDC (research phase), Zambia CBDC (research phase), Tanzania CBDC (research phase), Uganda CBDC (research phase), Mozambique CBDC (research phase), Mauritius CBDC (research phase), Eswatini E-lilangeni (research phase), and Kenya CBDC (research phase).



# CONCLUSION

6



Instant and inclusive retail payment systems in Africa are on a rapid trajectory. The landscaping identified 29 active schemes (26 domestic and three regional), with a further 21 systems (18 domestic and three regional) under development. These dynamics highlight the critical momentum and focus on digital payments infrastructure across public and private institutions. More than 60% of the live IPS are fewer than five years old and are still in the process of scaling. However, IPS rollouts continue to struggle with delays, recently due to COVID-19 and otherwise due to various stumbling blocks: challenges selling potential players on the value proposition, delayed participant licensing by central banks, and required upgrades to participants' back-end systems. Below are several recommendations and critical considerations for the different stakeholders involved in the deployment of instant and inclusive retail payment systems in Africa.

***Additional exhaustive research on the deployment and scale of instant and inclusive retail payments systems, to establish their implications for financial inclusion in Africa***

This body of evidence in the SIIPS report and research by other stakeholders in the industry provides a basis to understand the potential for this multitude of IPS and their linkages to reach sustainability and full financial inclusion. There is an opportunity to assess the co-existence of domestic and regional IIPS systems, and in particular, how the continued development of systems at both levels will impact their ability to be financially viable in the long-term, provide low-cost access to the poor, and align with other significant advancements like the implementation of the Africa Continental Free Trade Area.

This report additionally highlights the evolving and significant role of the central banks in Africa in providing direction and guidance to the deployment and scale of IIPS. Additional intensive research will establish further depth of the roles of central banks and payments systems participants to optimize payments systems and to monitor and evaluate their impact to financial inclusion.

***Tracking progress and performance of IIPS to extract learnings for all stakeholders in Africa and beyond***

Tracking the progress and performance of the analyzed IPS and upcoming systems is key to extract learnings for

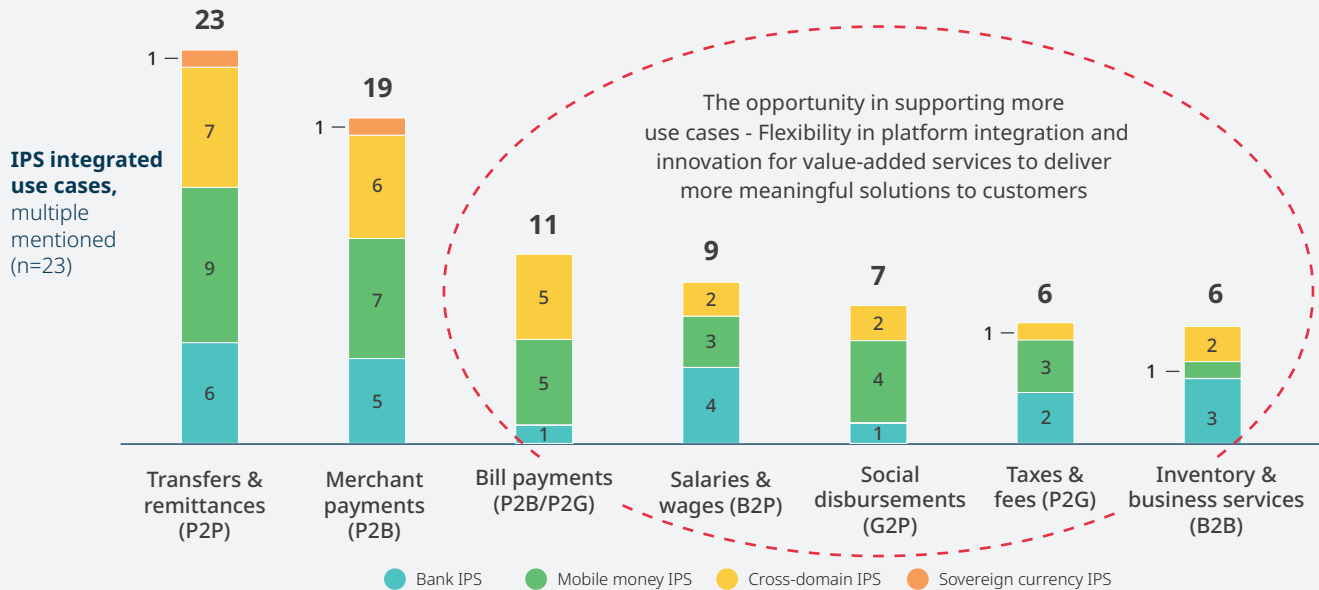
all stakeholders in Africa and beyond. Therefore, more transparency and accessible information on system performance (e.g., transaction volumes and values), consumer recourse, scheme rules, and governance arrangements is needed to enrich the inclusive designs, rollouts, and plans of African IPS. Subsequent SIIPS Africa reports will include, among others, further deep dives into select IPS, an assessment of the pricing models, integrations between regional and domestic IPS, the rise of original credit transfers, as well as innovative low-tech solutions. These topics require deeper insight into data and performance of African retail IPS, and IPS operators, owners and participants have an open invitation to share further insights into performance, governance, functionalities, and consumer recourse to maximize IPS growth in Africa.

***Leveraging the clear progress to deliver a comprehensive digital payments ecosystem***

In terms of inclusivity, there are good practices across the continent that implementers can draw on, yet no system has reached full inclusivity. Inclusive governance and inclusive functionality emerge as key drivers of sustainable transaction scale and end-user adoption of an inclusive scheme that reaches into low-income segments. There is increasing recognition around the importance of fair access for all licensed PSPs to shared payments infrastructure, and to contribute to the scheme rule books and decision-making. Central banks often take a leadership role in the governance of schemes to ensure that commercial interests do not dominate in a system. In terms of functionality, merchant payments, as a key use case that can benefit from real-time transactions, are an increasing focus for integration. Only four systems in Africa currently have sufficient scale to be regarded as having pervasive usage. Without sufficient scale, the cost to the end-user remains too high, as the systems cannot run on not-for-loss pricing models. The result is a partial digital ecosystem for payments that is not yet a serious competitor to cash.

The increasing use of ISO 20022, open-source technology, and proprietary standards in payment systems can provide participants with increased flexibility in platform integration and innovation for value-added services to deliver more meaningful solutions to customers, choosing payment channels and delivering improved and affordable options to end users.

## Use cases - Apart from P2P and P2B, no other use cases are yet widely supported by IPS



### Collaboration between digital payment stakeholders to streamline infrastructure development

Effective stakeholder motivation to join an IPS depends on a clear and visionary rollout plan spearheaded by a champion that can effectively incorporate both public-sector and private-sector interests. Credible, well-researched scenario pathways to scale, including an ecosystem of use cases that have a compelling consumer value proposition beyond P2P, emerged as critical. Systems that integrate as many channels and instruments as possible increase the utility for end-users in relation to existing payment systems.

Leveraging of existing infrastructure should be explored particularly where there are large underutilized systems locally or within the region. The choice of IPS capacity, full use-case rollout, and technology standards needs to be fit for purpose to achieve the not-for-loss business model ambitions. There is a need to drive further uptake of capable mobile phones in underserved areas to allow all end-users to access the IPS available, and there is a large opportunity for private-sector players, in conjunction with government efforts, to upgrade and improve mobile network infrastructure.

### Addressing key challenges faced by stakeholders around the commitment and the capacity to scale up instant and inclusive payment systems

Ultimately, to increase the trust by end-users and to account for the growing digitalization across the continent, inclusivity needs to be central to system design and empowered by government leaders. There is a need to enhance consumer protection, including consumer recourse, fraud mitigation, and transparency, paramount to creating access pathways for the financially excluded.

Industry stakeholders should be committed to catalyzing the journey toward instant and inclusive payment systems in Africa, to make digital instant payments accessible and useful for all. There are opportunities in providing technical assistance, including a focus in the design of IIPS projects, and enhancing the capacity of African institutions, payments experts and other key stakeholders to support the development and growth of instant and inclusive payment systems. The authors of this report welcome all efforts in this regard by all stakeholders, to achieve universal financial inclusion in Africa, therefore contributing to the continent's socio-economic development by alleviating poverty, inequalities and creating job opportunities for the growing African youth population in support of the African Union's Agenda 2063.

# ANNEX



## A. CASE STUDIES

### a. GhIPSS Instant Pay

#### Origin story

##### Challenge

**Financial inclusion and cash reliance, a challenge in Ghana.** Historically, Ghana has been characterized by low levels of financial inclusion. In 2011, only 29% of the population owned a bank account at a formal financial institution or mobile money provider, and bank branch coverage was 4.8 branches per 100,000 adults in Ghana (World Bank, 2021a). In 2005, the Bank of Ghana (BoG) identified key constraints that needed to be addressed to improve inclusion. The first was that banking services were considered relatively exclusive and inaccessible: most banks were only present in three of the 16 regions within Ghana, banking services were not available 24/7, and electronic payments were only available in areas with stable electricity supplies (Stakeholder interviews, 2022). Secondly, the Ghanaian economy relied heavily on cash as a medium of exchange (Boeteng, 2020). Such reliance resulted in undesirable outcomes for the Ghanaian economy, including the loss of audit trails, high costs, and increased risks of theft (Stakeholder interviews, 2022).

##### Value addition

**Faster real-time payments to drive inclusion and economic growth.** In response to these issues, the Bank of Ghana sought to pursue a series of reforms to promote a financial inclusion and “cash-lite” agenda in Ghana (Boateng, 2018). One of the key tenets of these reforms was the proposed development of a payment system. While the central bank initially sought the involvement of the banking sector, the central bank struggled to obtain significant buy-in from these institutions (Stakeholder interviews, 2022). As such, in 2007, the Central Bank empowered Ghana Interbank Payments and Settlement System (GhIPSS), a wholly-owned subsidiary of the Bank of Ghana, with a mandate to develop and manage interoperable payment infrastructures in Ghana (Bank of Ghana, 2020b; GhIPSS, 2021a). As part of this mandate, and in response to a growing appetite for faster retail payments within Ghana, GhIPSS led the development and launch of the GhIPSS Instant Pay (GIP).

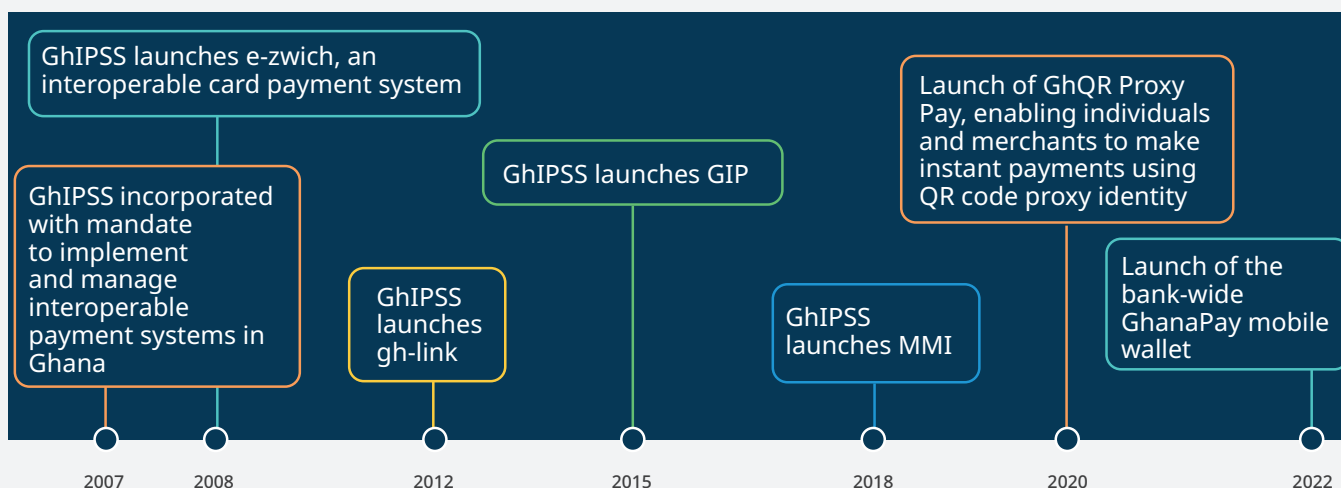


## Timeline

**Steady build to enhance functionality.** The first digital platform built was the e-zwich smart card solution in 2008. e-zwich is a biometrically enabled card that enables users to conduct banking services with any other e-zwich-enabled bank via an ATM. In August 2009, GhIPSS implemented the digitization of the clearing infrastructure known as Cheque Codeline Clearing with Cheque Truncation which equalized the check clearing cycle nationwide, reducing it from 3–10 days to just 24 hours. In June 2011, GhIPSS enhanced its service offerings to banks on the clearing infrastructure by adding the Automated Clearing House (ACH) services. The settlement underlying the direct credit for interbank account-to-account electronic funds transfer and the direct debit for interbank collections was sped up from a 24-hour window to a near-real-time window in a maximum of 15 minutes. In 2012, GhIPSS launched the ghlink, Ghana's interbank switching and processing system, which interconnects financial institutions and systems of third-party payment service providers. gh-link is a local electronic payment ecosystem based on the domestic ATM card with channels such as ATM, POS, and Browser.

In August 2015, leveraging the existing gh-link infrastructure, GhIPSS launched its real-time payment service called GhIPSS Instant Pay (GIP). The platform permits the real-time clearing of low-value, interbank transactions. In parallel, GhIPSS launched the Mobile Money Interoperability (MMI) service which facilitates instant transactions between all mobile money providers. MMI is connected to GIP, allowing interoperability between mobile money and bank accounts as well. In 2020, GhIPSS again leveraged the GIP platform to introduce Ghana's universal QR code solution (GhQR) and the Proxy Pay service. GhQR creates interoperability at merchant locations by allowing businesses to receive payments from different customer funding sources without the need for an expensive POS. Proxy Pay allows businesses and individuals to link proxy IDs to their bank accounts. Limited buy-in from financial institutions at the start of the service slowed the initial process of on-boarding; however, the system has since grown to include all 23 banks, 25 payment service providers (fintechs and mobile money operators (MMOs)) and four savings and loans companies.

**FIGURE 22. GIP timeline**



## Governance and operations

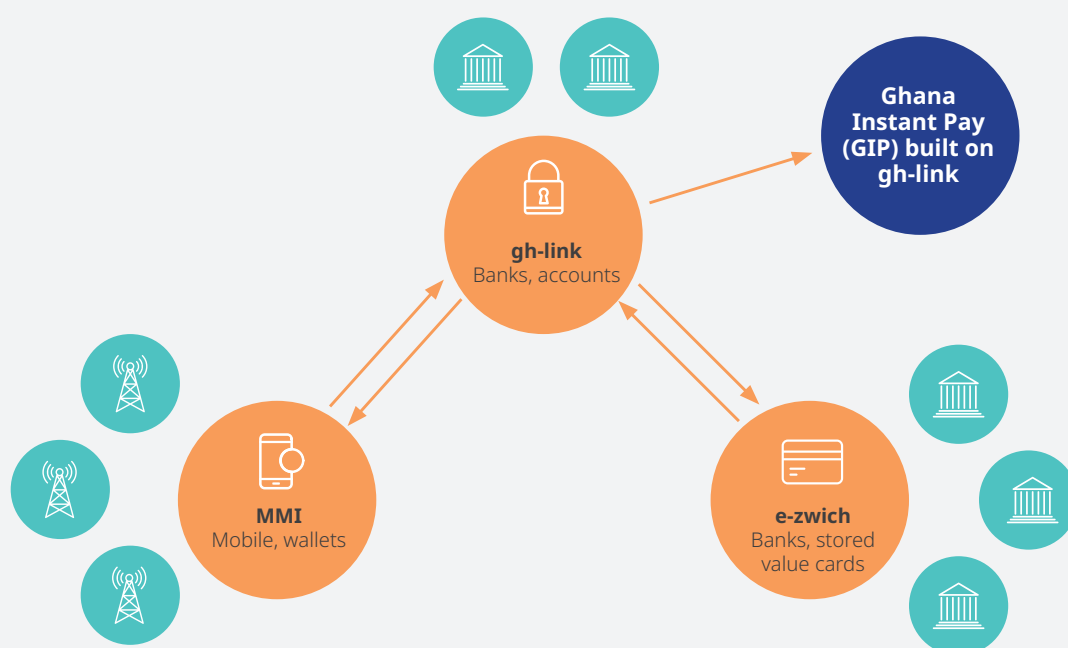
### Payment system overview

#### A three-tiered instant payments ecosystem in Ghana.

The payments interoperability system in Ghana, dubbed by GhIPSS as the “financial inclusion triangle”, comprises the three independently interoperable systems (the MMI system, the e-zwich biometric card platform, and gh-link).

By connecting these three independent schemes, GhIPSS has created an ecosystem of interoperability between all the channels and platforms, with ghlink being the center piece, as it is the foundational switch that connects electronic payments in the banking industry.

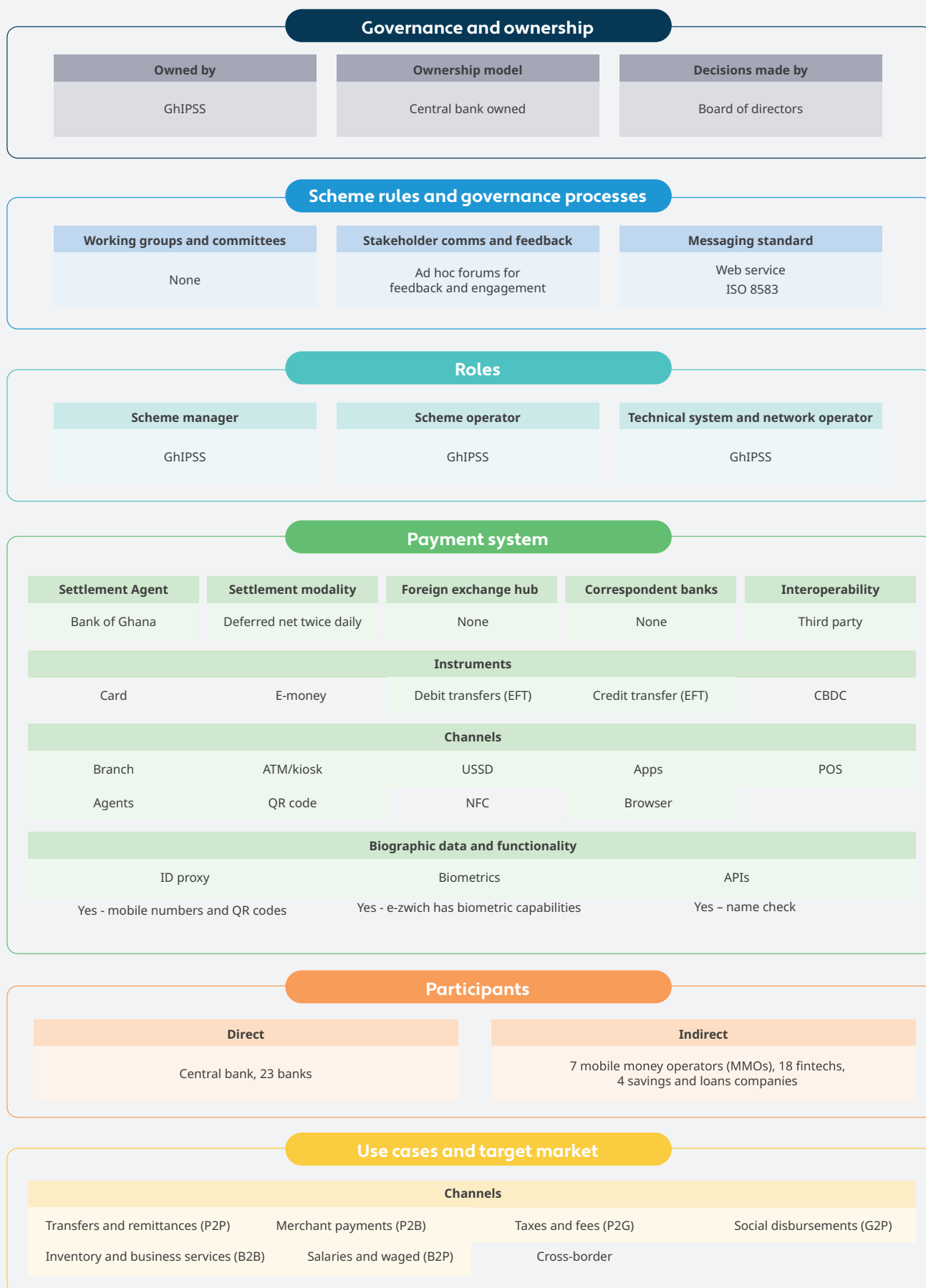
**FIGURE 23.** Complete Ghana system view



This broad interoperability ecosystem now includes all 53 financial institutions, with banks participating directly while e-money issuers (EMIs), payment service providers (PSPs) and savings and loans companies are participating through a sponsoring bank. As such, there is full interoperability between all licensed financial institutions at a systems level

in Ghana as illustrated above. MMOs clear between each other using the MMI switch. The mirrored trust accounts held by the MMOs transact bank to bank via gh-link. The transactions are then settled through the real-time gross settlement system (RTGS) if the accounts are not held at the same bank.

FIGURE 24. GIP model overview





## Governance structure

**Building toward a more inclusive ownership and governance structure.** Decisions in relation to GIP are managed by the GhIPSS board of directors, which consists of nine members, with the chairman being the Governor of the BoG. Banks are represented on this board through a seat held by the president of the Ghana Association of Bankers. The bulk of the decision-making power surrounding payment system infrastructures currently resides within the central bank. At the outset of GhIPSS, BoG envisioned ownership to include a stake for the participants; however, interest from banks was initially limited. As the reliance of financial institutions on the central switch has grown, so too has participant interest in an ownership stake. As such, GhIPSS is currently devising a plan to issue shares to participants (Stakeholder interviews, 2022). The preferred model for the new ownership structure is to have banks as majority shareholders. The central bank plans to grant bank participants greater representation at the board level with the objective of deepened involvement in the decision-making process and catalyzing the development of innovative products and services for the population (Marcopolis, 2018). The central bank would retain a small stake in GhIPSS, permitting them to ensure that the payment system continues to be provided as a public good and that it supports financial inclusion objectives.

## Functionality

**Convenience as a driver of adoption.** Enabling features for recurring usage of the system include 24/7 availability, as well as the existence of multiple interoperable payment channels and instruments. GhIPSS can be accessed through both physical and digital channels: branches, ATMs, agents, web, applications, and USSD. The launch of GhQR, permitting the use of QR codes as a means of payment, has further expanded access to GIP and streamlined P2B merchant transactions without requiring user acquisition of additional hardware or software. GIP is integrated into GhIPSS and is usable across mobile money and bank account transfers.

## Technical standards and use cases

**Accessible via all channels and instruments.** GIP caters for various use cases, including, P2P, P2G, G2P, B2B, P2B, and B2P. There are two settlement windows (12:00 AM and 12:00 PM). The processing time is a maximum of 40 seconds; but, in practice, a transaction requires between five and ten seconds. Messages are sent using web service fully or a combination of web service and

ISO 8583 standard. Importantly, being part of Ghana's "financial inclusion triangle", GIP is connected to the mobile money and card interoperability networks, providing full interoperability across channels and instruments.

## Business model

**GIP established as a cost-recovery business.** Banks charge consumers a 1% fee on all transactions, with 30% of these fees being routed to GhIPSS and the remaining 70% being retained by the sending financial institution. MMOs charge a 2% fee on all transactions. The cost-sharing modalities with GIP are unclear.

## Scheme rules

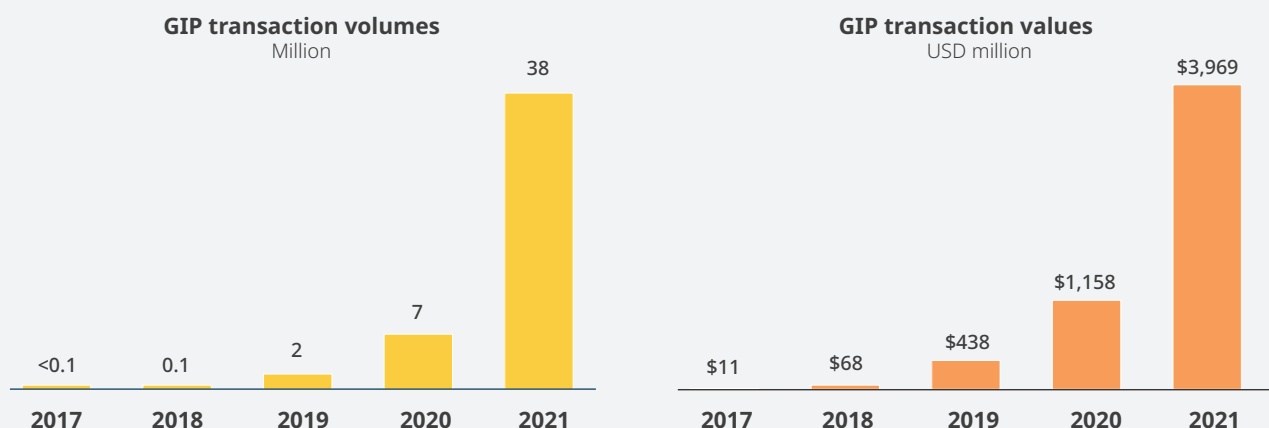
**Scheme rules requiring adherence to various bodies of legislation and regulation.** Participants in the scheme require a license from the Bank of Ghana to operate, which may be revoked or suspended if a participant is found to be in contravention of scheme rules. Participants must also adhere to 24/7 uptime requirements, including a 40-second response time for receiving institutions (Stakeholder interviews, 2022). Participants are further required to adhere to a compliance framework defined in the Payments Systems and Service Act of 2019, which prescribes various risk-control, anti-money laundering (AML), combatting the financing of terrorism (CFT), and customer due diligence (CDD) requirements. Moreover, participants must adhere to the recourse requirements defined in the Consumer Recourse Mechanism Guidelines for Financial Service Providers Framework defined by the Bank of Ghana.

## Volumes and values processed by the payments system

**Rapid growth in usage since 2019.** As shown in Figure 25, while the system had slow uptake in transaction volumes and values from 2017 to 2019, GIP has shown a substantial increase in both metrics from 2019 onwards. In the wake of the COVID-19 pandemic and in line with the Digital Financial Services Policy 2020, the Bank of Ghana published measures aimed at promoting digital forms of payments that were retained for the duration of 2020; these included simpler, minimum KYC requirements for mobile money accounts and increased transaction limits (Bank of Ghana, 2020a).<sup>75</sup> The average transaction size per year has decreased from USD 253 (GHS 1,998) in 2019 to USD 105 (GHS 829) in 2021, which indicates that end-users are transitioning smaller ticket sizes to GIP.<sup>76</sup>

<sup>75</sup> The BoG allowed MNOs to use existing SIM registration details for on-boarding customers to basic mobile wallets.

<sup>76</sup> Ghanaian cedi converted to USD using an exchange rate of USD 1 = GHS 7.9 as of 7 June 2022.

**FIGURE 25. GIP volume and values of transactions**

Source: Bank of Ghana, 2020; GhIPSS, 2021b

## Regulation

Ghana's payments system has undergone significant transformation over the past two decades, as the country has looked to transition from cash to a digital payments ecosystem (Bank of Ghana, 2022). The Payment Systems Act, 2003 (Act 662) took the first step toward digitization, as it provided a legal foundation for digitization of interbank payments. Since then, several important enabling pieces

of regulation have been developed, such as the branchless banking guidelines (2008), the Electronic Money Issuers Guidelines (EMIG), and AML-CFT Act (2020), which has introduced the concept of digital customer due diligence (CDD). The 2019 Payments System and Services Act comprehensively addresses the participation of diverse providers such as fintechs and EMIs (Bank of Ghana, 2020b).

## Inclusivity learnings

**Progressed level of inclusivity.** Measured by the inclusivity criteria in Chapter 2.6, Ghana's combination of three national systems (the inclusion triangle) has a progressed level of inclusivity. In addition to the basic IIPS criteria, it has inclusive functionality, supporting the most used channels and essential use-cases (P2P and P2B). With updates to its model to allow more bank ownership and decision-making power by banks and non-bank PSPs, it would also be able to achieve inclusive governance.

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

- Clarity of rules is important to ensure the customer experience is not compromised.** Initially, member banks were able to be onboarded onto GIP if they allowed for either payment origination, receipt, or both. Originating banks were also able to determine the implementation timeline for receipt, and vice versa. This resulted in a poor service for customers, as numerous onboarded financial institutions had partial functionality, only able to send or receive instant funds, despite being participants of GIP. This highlights the importance of making both origination and receipt capabilities mandatory to become a live participant of the system, with clarity for transaction clearing time and funds availability to customers.
- Hub-to-hub model can improve industry buy-in, scalability, and lower costs.** A key decision faced by payment system operators is what model of interoperability to pursue. The hub-to-hub model as an inter-switching layer between hub-switch models in Ghana requires three facets of payments infrastructure with a larger upfront investment. However, given the complementary reach of each component, the numerous participants, and independent viability, it was an efficient route.

Moreover, it is relatively easier to scale, as participants can negotiate jointly on interoperability, rather than relying on independent interoperability agreements.<sup>77</sup> In the case of Ghana, the hub-to-hub model was appropriate for industry participants and increased buy-in as it removed the need for various inter-party arrangements with different technical requirements and standards. It was able to rapidly scale due to backing from the central bank and integration of various channels and payment modalities.

- **Multiple overlay services and channel offerings improve access and adoption.** In the years following the launch of GIP, GhIPSS has gradually expanded the channels that can be used to access interbank transfers via GIP payment rails. This has substantially expanded the reach to consumers and increased adoption of instant payments in Ghana. Allowing customers to access GIP by using their

mobile phones through apps and USSD interfaces has reduced the reliance on bank cards. Moreover, the development of the GhQR overlay service—which permits customers to pay using QR codes—has allowed merchants to accept payments and to receive their earnings in real time without requiring the upfront investments of POS hardware. The Bank of Ghana is planning to provide participants with an ownership stake and board seats in the entity with the goal of improving the level of adoption of various products and services.

- **The structure of ownership is an important driver of inclusion.** Currently, the entity responsible for oversight of the instant payments system—GhIPSS—resides within the Bank of Ghana. This empowers the Bank of Ghana with the ability to protect the public good nature of the system and to ensure that it remains as inclusive as possible.



<sup>77</sup> Hub-switch model refers to a model with a central hub that each participant connects to, thereby facilitating connections between the participants. It simplifies the process of connecting and removes the need for multiple bilateral connections between institutions.

## b. NIBSS Instant Payment

### Origin story

#### Challenge

**A high reliance on cash.** In 2011, the Central Bank of Nigeria launched the “cashless policy”—designed to curb negative aspects of cash predominance in the economy, including increased risks of corruption, armed robbery, and inefficiency. The CBN set out to find a suitable replacement to mirror the characteristics of cash (immediate, universal, and readily available) while also mitigating the drawbacks (Babalola, 2022).

#### Value proposition

**Instant payments to drive inclusive economic growth.** In 2011, the Nigerian Inter-Bank Settlement System (NIBSS) launched NIBSS Instant Payment (NIP)—a real-time interbank payments system designed to facilitate high volumes of retail transactions (World Bank, 2020b).<sup>78</sup> NIBSS hoped this service would boost economic growth by

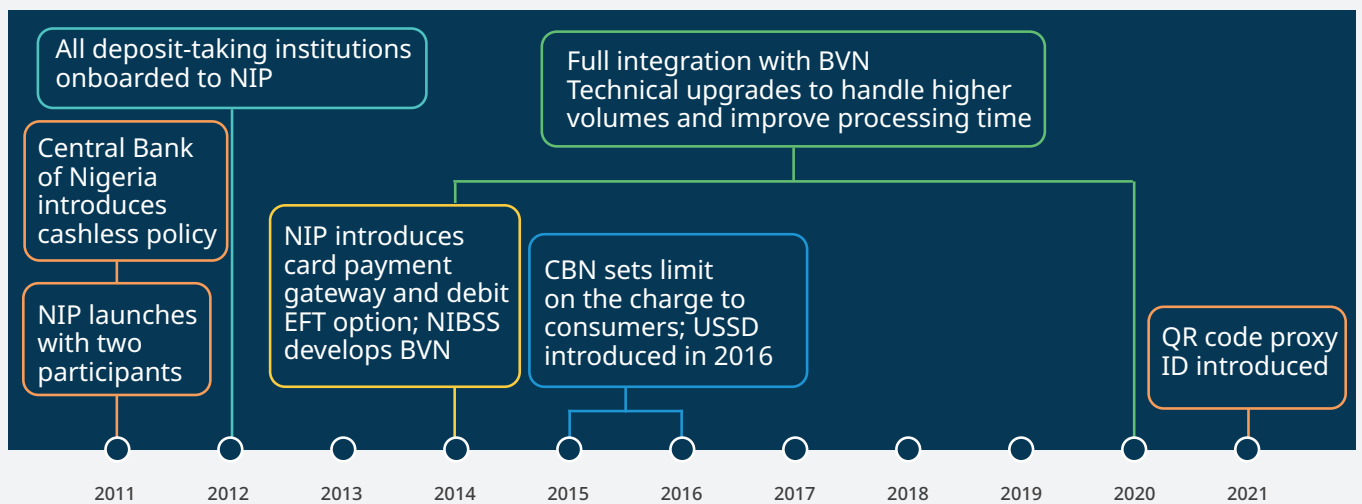
providing faster payment services, lowering traditional barriers to financial inclusion, reducing transaction costs, as well as providing convenient financial services for both urban and rural populations (Oluwole, 2021).

#### Timeline

##### Limited launch drove broad market engagement.

NIBSS faced an early challenge in gaining buy-in from banks to join the scheme. The initial launch occurred in September 2011 and was exclusive to two small commercial banks. Access to NIP quickly became a competitive advantage for those banks, and major banks were incentivized to join. Within the next year, the system grew to include all 22 commercial banks, all 20 microfinance banks and all six MMOs in Nigeria (World Bank, 2020b). Additionally, during that period, the central bank strongly endorsed the scheme, but refrained from issuing a regulatory mandate (Stakeholder interviews, 2022).

FIGURE 26. NIP timeline



<sup>78</sup> NIBSS' main role is to develop and maintain effective and innovative payments system infrastructure in Nigeria. This includes for example, managing the Nigeria Central Switch and thereby facilitating interoperable interbank transactions. Other services include revenue collection services (i.e., e-BillsPay), Data and identity services, development of innovative payments infrastructure and rules, among others.

**Phased approach to technical development was key:**

At launch, NIP only supported instant EFT credit transfers. It is now interoperable with mobile wallets and card networks and is linked to various proxy identities for customer convenience. In 2014, debit EFT was introduced and NIBSS developed the biometrics-based financial sector ID called Bank Verification Number (BVN) to address potential fraud concerns. In 2015, card interoperability through payment gateways was embedded. This was followed by an increase in the number of settlement cycles from one to two in 2016 and the introduction of USSD functionality. The integration

of mobile wallets happened in 2018, and the addition of QR code functionality in 2021 via the New Quick Response (NQR) platform. Settlement windows were further increased to four times a day in 2021. Every two to three years, NIBSS upgrades the system and requires banks to meet these new standards. NIBSS regularly monitors the average payments processing time of each bank and generates a monthly consolidated list ranking participant performance, shared with each bank. Currently, the maximum transaction time is 45 seconds, although most transactions are processed in 10 seconds or less.

## Governance and operations

### *Payment system overview*

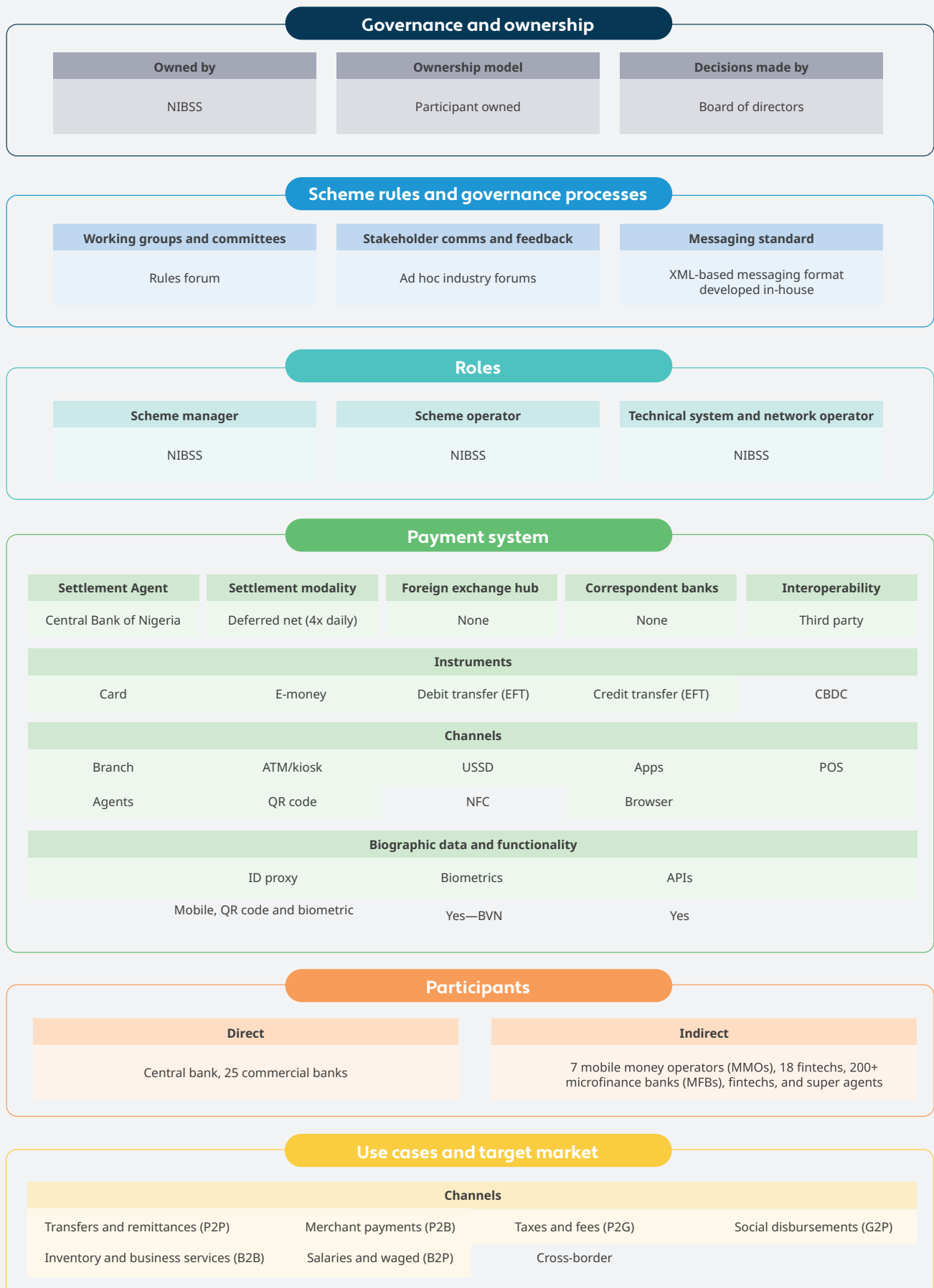
#### **Hub-switch model ensures interoperability among all players.**

NIBSS operates a central processing hub—the Nigerian Central Switch—which connects directly to all commercial banks, microfinance banks, and mobile money operators (MMOs) in Nigeria. Direct participants consist of banks, microfinance banks (MFBs) and MNOs,

while indirect participants are super agents, other PSPs, and fintechs (World Bank, 2020b). Transactions are settled in batches on a deferred net basis, four times per day via the NIBSS platform. Indirect participants settle via their sponsor banks. The proceeding figure provides a visual representation of NIP.



FIGURE 27. NIP model overview



**NIBSS governs and operates most aspects of NIP.** NIBSS is the owner, operator, and scheme manager. The Central Bank of Nigeria (CBN) is the settlement agent. As such, NIBSS is responsible for setting scheme rules and technical standards, managing the technology that enables safe and efficient transactions (World Bank, 2020b). The rules of the scheme are decided by the NIBSS Board of Directors, which meets on an ad hoc basis. The chairman of the board is the CBN Deputy Governor of Fiscal and Monetary Policy. There are an additional eight board members consisting of four managing directors from the major banks in Nigeria, and four from other banks on a rotational basis. Decision-making rests largely with the chairman. Other fora exist and are leveraged for the development of NIP. For example, the Committee of e-Banking Industry Heads (CeBIH) is leveraged to discuss key issues in the Nigeria payments landscape including NIP, and these issues are further deliberated at NIP board meetings. Moreover, early in the development of NIP, NIBSS held forums on a regular basis with industry players (e.g., banks, MMOs, and MFBs) to get feedback on the progress of NIP. Forums are still held on an ad hoc basis to gather industry input. The dispute resolution process is typically defined by the scheme; however, ratified by the CBN Disputes arising between or across schemes may be referred through the Director of the Payments System Management Department of the CBN, or the Payment Initiative Coordinating Committee (World Bank, 2020b).

### Functionality

**Advanced functionality developed and rolled out.** NIP is available 24/7, permitting transactions across various channels and supporting most use cases. Proxy IDs are available via Nigeria's BVN, which is a unique customer identifier used with bank account details for every transaction processed via NIBSS (World Bank, 2020b).<sup>79</sup> Customers can approach an ATM and simply input their thumbprint, allowing them to send a payment and/or make a withdrawal from an ATM, providing exceptional convenience and fraud prevention. NIBSS also introduced the NQR platform in 2021, which facilitates real-time, account-based QR payments for P2P and P2B use cases. The platform was designed to be low cost for merchants, allowing consumers to pay for an item by scanning a QR code generated by the seller that can be scanned with a customer's banking app (NIBSS, 2021a), which is EMV compliant.

### Technical standards and use cases

**Supporting use cases through distinct system components.** NIP is based on messaging standards developed in-house; however, NIBSS is planning to upgrade to ISO 20022 (Stakeholder interviews, 2022). When it was initially conceived, it only supported P2P and P2B push EFTs; however, over time it grew to cater for a myriad of other channels and use cases, including B2P, P2G, B2B, G2P, and G2B. P2G and P2B transactions occur through NIBSS eBillPay—an online real-time credit transfer collections platform leveraging the NIP platform. For P2B micropayments, NIBSS with support from the CBN launched mCash, allowing customers to make instant payments to merchants leveraging NIP (World Bank, 2020b). Transactions are cleared on a deferred basis, and settlement happens four times a day (Stakeholder interviews, 2022). The settlement windows were raised in 2016 from once a day to two times a day to reduce settlement risk. In July 2021, they were raised to four times a day to further improve the efficiency of payment processing.

### Business model

**Consumer fees determined by banks, with NIP operating on a cost-plus basis.** The system was created in-house by a team of developers and did not receive funding from donors. As such, NIBSS' upfront build was intentionally limited with plans to later improve and upgrade it. Participants pay a fee to NIBSS per transaction processed, and they are permitted to pass this cost on to their consumers up to a prescribed limit. As such, the system is funded through high usage, and consumer prices are capped by the CBN.<sup>80</sup> NIBSS itself operates on a cost-recovery model with moderated profit to its shareholders.

### Scheme rules

**Scheme rules include adherence to multiple bodies of regulation.** Rather than create scheme-level rules, NIP relies on detailed national financial regulations that cover the rights and responsibilities of the sending and receiving entities, guidelines on dispute resolution, compliance frameworks, KYC requirements, etc. Instant payment service providers are only permitted to charge fees in compliance with the approved CBN Guide to Bank Charges (Central Bank of Nigeria, 2019). The scheme rules require FSPs to

<sup>79</sup> The BVN is a biometric identification system consisting of a unique 11-digit number implemented by the Central Bank of Nigeria to curb illegal banking transactions in Nigeria. A BVN is issued to each individual upon opening their first bank account, and every bank account they open thereafter (regardless of the institution) will have the same BVN number attached to it. The BVN protects against fraud and enables biometric-based authentication for digital payments and services.

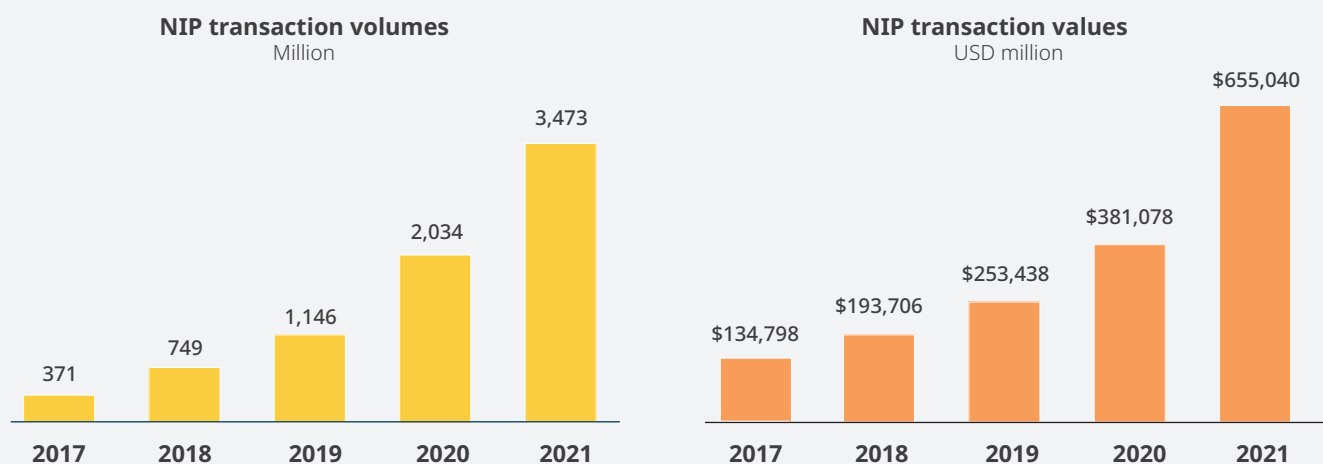
<sup>80</sup> The specific price limits set by CBN are as follows: below NGN 5,000 (USD 12) = NGN 10 (USD 0.02); NGN 5,001 – NGN 50,000 (USD 12 – USD 120) = NGN 25 (USD 0.06); above NGN 50,000 (USD 120) = NGN 50 (USD 0.12). Nigerian naira converted to USD using an exchange rate of USD 1 = NGN 416.67 as of 3 August 2022.

follow consumer recourse mechanisms that are available on CBN's website. FSPs are obliged to have a helpdesk to handle all consumer complaints. Impacted consumers must first report the complaint to the FSP—FSPs are then mandated to resolve the issue within two weeks. If the matter is not resolved thereafter, consumers can direct their complaints to the consumer protection office at the CBN for adjudication and recourse.

### Volumes and values processed by the payments system

Usage of NIP has grown substantially since its inception. Volumes increased from 371 million in 2017 to 3.4 billion in 2021. Values rose from USD 135 billion in 2017 to USD 655 billion in 2021. The average transaction size has decreased from USD 363 (NGN 151,251) in 2017 to USD 188 (NGN 78,334) in 2021. COVID-19 may have been a key factor in increasing the use of digital payments.

**FIGURE 28. NIP transaction volumes and values**



Source: NIBSS, 2022

## Regulation

Nigeria's regulatory ecosystem for payments is well established. While initial legislation focused on creating the foundations for a working payments system (such as the Payment System Management Bill of 2009) and to create trust in the system, recent additions have been geared toward financial inclusion and innovation. Guided by the National Financial Inclusion Strategy (NFIS), the central bank released Guidelines on Instant (Inter-Bank) Electronic Funds Transfer Services in 2015, Guidelines for the Licensing and Regulation of Payment Service Banks in 2018, Nigerian Payments System Risk and Information Security Management Framework in 2019, as well as guidelines for Microfinance banking, agent banking and comprehensive tiered KYC guidelines. These have been key in creating an enabling environment for NIP. For example, NIP participants require a license to use the system and

must obey the Regulation on Instant Electronic Funds Transfer Services in Nigeria. Risk management protocols must be adhered to, and providers are referred to the Nigerian Payments System Risk and Information Security Management Framework. To ensure NIP remains an attractive offer to customers from a price perspective, CBN plays an active role in regulating pricing of services that use NIP—via for example circulars to set limits on charges to consumers using NIP. Key regulations and policies that supported the system include:

- 2011 Cashless policy drove the initiative around EFT
- 2014 Circular on the review of NIP and other e-Payment options with similar features
- 2018 Regulation of Instant EFT Service in Nigeria



## Inclusivity learnings

**Basic level of inclusivity.** Measured by the inclusivity criteria in Chapter 2.6, NIP has a basic level of inclusivity. NIP allows for inclusive functionality given that it serves the most use cases of any domestic scheme in this study and serves all payment channels used by consumers. Yet, the current governance structure does not allow for inclusive decision-making as only banks are allowed to give input. A focus on pro-poor outcomes and the inclusion of all licensed PSPs into decision-making would increase the inclusivity rating.

The following drivers of inclusion have been identified for NIP:

- **A fit-for-purpose system at all times ensured through a phased-development approach.** NIP was developed in-house and initially had limited functionality and two banks integrated. This approach limited the upfront investment required to develop the system. As the value proposition became clear, more participants joined, which quickly led to scale. NIBSS enhanced the system and required participants to upgrade their systems accordingly. The upgrades and iteration allowed the system to remain nimble and adjust to the needs of the market. In-house development of the system was key to ensuring that the necessary skills and know-how were available to implement such upgrades.
- **Promoting smooth performance of the system: important for trust and sustainability.** The first iteration of the NIP system required transactions to be cleared within 50 seconds, yet not all providers were able to comply, which affected the customer experience. A poor-performing provider creates reputational implications for all the banks connected to the IPS. To improve performance of the system and to ensure a trusted, smooth experience for consumers, NIBSS shortened the clearing time requirement. NIBSS is utilizing the monthly ranked reports on the average transactions processing time and other variables to incentivize the banks and to advance quality of service delivery. This is aimed at encouraging banks to compete and meet the new standards, and to create healthy competition to drive uptime and performance (Stakeholder interviews, 2022).
- **Underlying digital identity infrastructure benefits the system significantly.** Nigeria's BVN system is an advanced biometrically enabled digital identity system. Having a foundational financial sector ID in place enables authentication modalities that unlock new ways of interacting with the system. The ability to verify oneself without presenting any physical document (fingerprint and BVN number alone) enables convenient access to various payment methods, including the ability to send and withdraw money from an ATM instantly.
- **Fee transparency and fairness is an important driver of adoption.** The original fees for instant EFT services charged to customers is set by the banks, with little transparency in price. This led to customers' complaints of price gouging. In response, the CBN issued regulation capping customer fees between NGN10 and NGN50, depending on transaction size. This increased consumer confidence and limited the differential in prices charged by providers. Additionally, the low price encourages use among the lower-income population who are most susceptible to fees. This has been an important aspect in keeping the system inclusive.

## c. PesaLink

### Origin story

#### Challenge

**Lack of a real-time payment solution for small value payments in the banking sector.** The Kenyan payments system is recognized for its role in developing mobile money as an increasingly critical payment system via MPesa. However, transactions within the retail banking system remained constrained. The process for making payments between mobile wallets and bank accounts was non-intuitive for users (World Bank, 2021h). Moreover, bank-to-bank EFTs were processed by the ACH, which were based on batched clearing and settling.

#### Value proposition

**An instant-payments banking system that reduces cost of transactions and fosters financial inclusion.** Due to market pressure, banks had a desire to create their

own payment solution that would provide instant real-time payments between bank accounts. The Kenyan Bankers' Association (KBA) therefore strategized a payment system that would integrate digital payments, reduce the cost of transactions, and thereby foster financial inclusion.

#### Timeline

**Stakeholder buy-in was crucial for the development of the scheme.** PesaLink was developed by the Integrated Payments Services Limited (IPSL), a company that was established in 2015. It was conceptualized between 2013 and 2015 by the governing council of the KBA. KBA opted to procure a new switch to share infrastructure among member banks, reduce costs, and improve efficiency. The scheme utilized the ISO 8583 messaging standard, already in use by banks for card processing (IPSL, 2022). Sharing infrastructure reduced the upfront cost of developing the system. Figure 29 provides an overview of the development timeline of PesaLink.

FIGURE 29. PesaLink timeline



**Technical integration with all the banks challenged the scheme.** With the procurement of the new switch, each bank had to ensure their legacy systems could support real-time transactions. Smaller banks raised concerns that larger banks with more modern infrastructure would have a competitive advantage and absorb their client base if the scheme was implemented (World Bank, 2021h). The KBA developed a financial model, with support from third-parties (particularly FSD Kenya), that measured the impact of the scheme on member banks' existing product revenues to obtain buy-in from Kenyan banks, as well as a business case for the new scheme (World Bank, 2021h; Genesis Analytics, 2017). After the business case was developed, member banks of the association approved the scheme, allowing for its launch in 2017. To further modernize the system, IPSL worked together with their technical partner, TietoEVERY, an IT software company, to transition the scheme to open-loop for banks and based on the ISO 20022 standard. PesaLink also worked with XMLdata, which provided a message mapper, also known as a converter, that would enable banks on the ISO 8583

standard to transact with banks on ISO 20022. The bridge enabled banks that were not on the new switch to do so with ease as soon as they were ready to transition (Stakeholder Interviews, 2022). The new system enables banks directly, and fintechs, payment initiation service providers (PISPs), PSPs, and MNOs indirectly through their trust account held at banks, to initiate real-time payments across the banking industry on a common standard. It will also enable the launch of new use cases (e.g., request to pay and direct debit), help improve the efficiency of the system through, for example, increased transaction success rates, and ensure that KYC and AML best practices are implemented as a result of the richer data obtained through the new messaging standard (Khusoko, 2022). The new reporting standard will also include gender-disaggregated data and will enable service providers to attach location-based data to transactions. These additions have the potential to produce insights that could be leveraged by IPSL and individual service providers to identify gaps in usage and to design more suitable products (Stakeholder interviews, 2022).

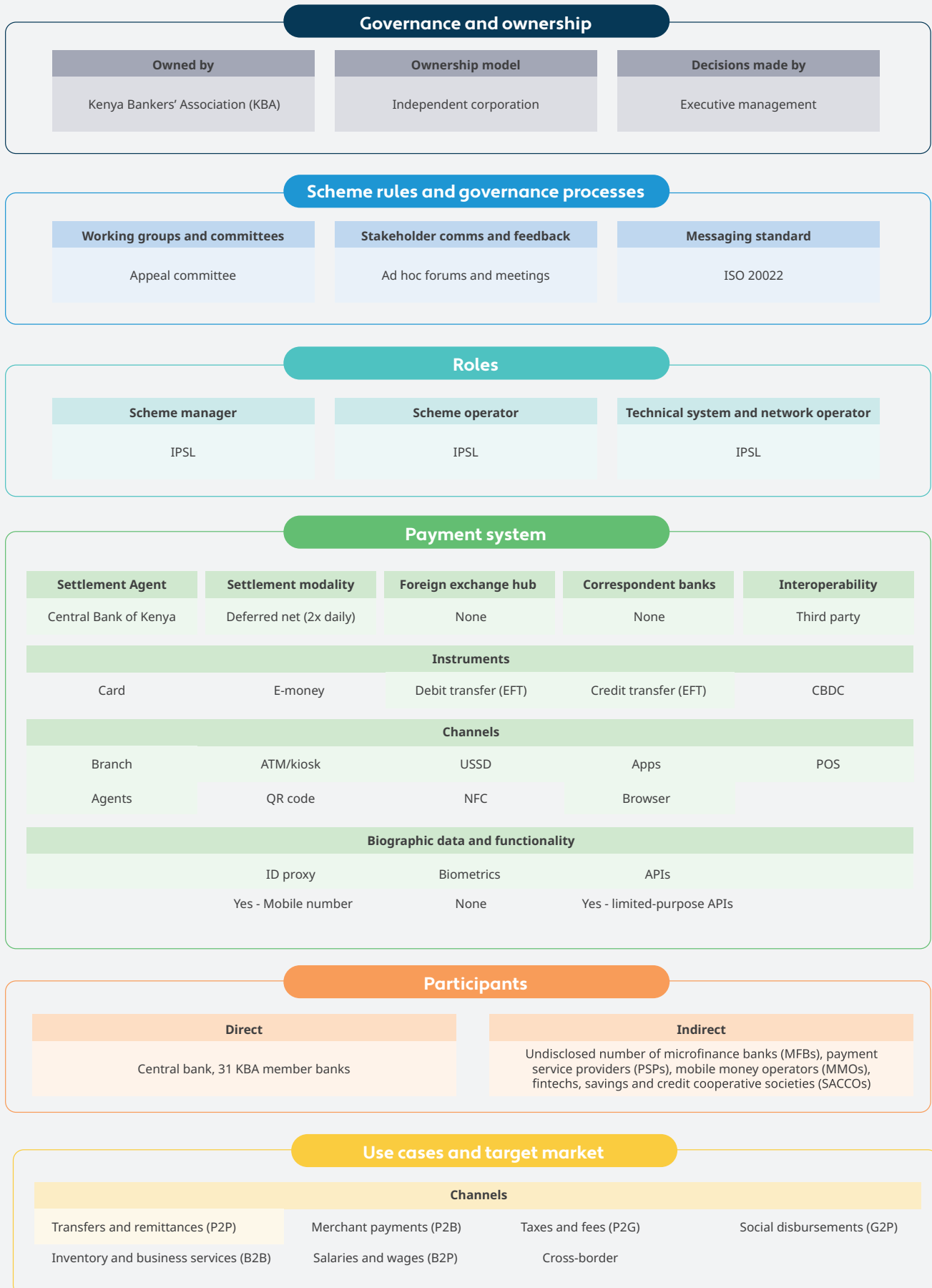
## Governance and operations

### *Payment system overview*

**An intuitive instant payments process for bank customers.** The IPSL is the operator of the PesaLink's central processing hub, which connects participants. Transactions are settled twice a day on a net basis via the RTGS system at the central bank. Banks are direct members of the scheme and members of the KBA. Microfinance banks and payment service aggregators,

including fintechs, and MNOs are indirect members and thus require sponsorship from participant banks to settle transactions on their behalf (World Bank, 2021h). Given the relatively high transaction size, it is likely that the system is not yet in use by lower-income individuals on a large scale. The proceeding figure provides a visual representation of PesaLink.

FIGURE 30. PesaLink model overview



### Governance structure

**Bank-led and owned scheme with potential to include a greater number of players.** The scheme is an independent corporation, due to its ownership by KBA (IPSL, 2022). The decision-making body of the scheme is the executive management of IPSL, which consists of representatives from the member banks and independent participants. Banks are direct members of the scheme and members of the KBA, while microfinance banks, MNOs, and payment service aggregators, including fintechs, are indirect members and require sponsorship from participant banks to settle transactions on their behalf at the RTGS (World Bank, 2021h).

### Functionality

**The scheme's accessibility: geared toward bank and, ultimately, mobile money wallet holders.** PesaLink is an online real-time payment scheme that has 24-hour availability, 365 days a year. The payment system supports mobile applications as well as traditional channels (i.e., physical branches, agents, and ATMs). It can also be used via USSD. Airtel and T-Kash are connected indirectly to the switch, technically creating interoperability between their mobile wallets and bank accounts connected to PesaLink (Stakeholder interviews, 2022). PesaLink currently only processes bank transactions. Mobile money transactions to and from Airtel and T-Kash wallets rely on PesaLink's settlement functionality via the MNOs' respective trust accounts, given that direct participation is barred for non-banks, the scheme is categorized as bank IPS and not cross-domain IPS.

### Technical standards and use cases

**Further development and modification indicating the drive for greater inclusion and innovation in the payments sphere.** PesaLink currently facilitates P2P. Facilitation of bill payments, and merchant payments is under development. The scheme is developing support for a subset of G2P payments through the M-Akiba solution, which aims to enable individuals to invest in and receive returns from government securities via their mobile phones. P2G payments will also be facilitated through the eCitizen platform for Kenyans to pay for government services such as driving license renewals, passport applications, and business registration services.

The scheme also plans to process the payments of salaries and wages by businesses who can also pay out salaries via bulk payments (IPSL, 2022). PesaLink currently supports limited purpose APIs, which are used by non-banks to connect to the PesaLink switch. The switch was upgraded to the ISO 20022 standard in 2021 (World Bank, 2021h).

### Business model

**Pricing set up to facilitate competition among banks.** PesaLink is fully owned by the banks through the KBA. All member banks contributed investment funds to establishing the scheme and pay a joining fee to PesaLink (Stakeholder interviews, 2022). Banks determine end-user charges subject to the approval of CBK. They also pay a quarterly fee to PesaLink, and they pay USD 1 (KES 11.6) per transaction processed.<sup>81</sup>

### Scheme rules

**Scheme rules follow internal and local regulations and standards.** IPSL launched its scheme rules in 2022. The rules provide guidance on member obligations as well as roles and responsibilities within the scheme. The rules also provide the governance framework, operating model, transaction flows, and penalties for non-compliance. Participants must adhere to standards set by IPSL and must undergo a "rigorous testing process."<sup>82</sup> Participants are required to undergo an external audit before their full integration into the system. All participants are required to adhere to the Data Protection Act of 2019. Banks, who are the custodians of customer data, are required to ensure that safety measures be put in place to protect customer data from potential risks. Moreover, banks need to adhere to the country's cybersecurity guidelines under the National Payments Act of 2011 and follow the associated cybersecurity requirements to participate in the scheme (World Bank, 2021h). Furthermore, there are minimum requirements for technology infrastructure and security by IPSL from 2019, which include strict standards in relation to the network, core banking systems, and technology infrastructure.

81 Kenyan Shilling converted to USD using an exchange rate of USD 1= KES 116.45 as of 22 May 2022

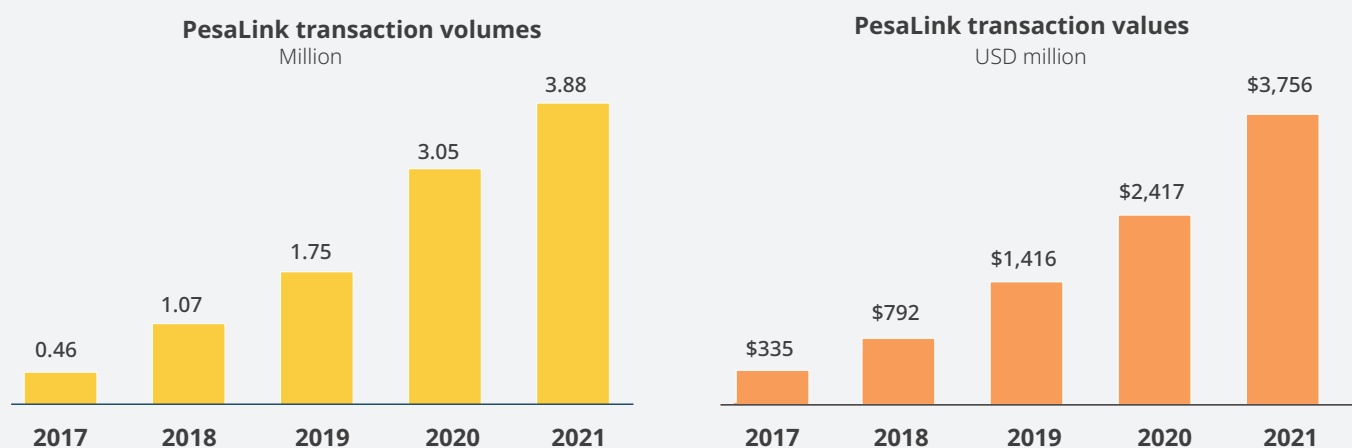
82 Testing process assesses technology and network infrastructure.

### Volumes and values processed by the payments system

The following figures show that, since 2019, PesaLink has had growing uptake by end-users. Values grew by 165% between 2019 and 2021, while volumes grew by 122% over the same period. Average annual transaction

size slightly declined from USD 807 (KES 93,975) in 2019 to USD 792 (KES 92,228) in 2020. However, the average annual transaction size in 2021 increased to USD 969\$ (KES 112,840). The reasons for the increase in the average transaction size are unknown.

**FIGURE 31. PesaLink volumes and values**



Source: World Bank, 2021h

## Regulation

### Existing regulations provided a solid legal framework for the payment scheme.

Prior to launch, the Kenyan Government already had several updated laws and regulations for the payment system. The payment system's legal framework is based on the 2011 National Payment Systems Act, the 1966 Central Bank of Kenya Act, the 1995 Banking Act, the 2014 National Payment Service Regulations, and the 2009 Proceeds of Crime and Anti-Money Laundering Act. Moreover, the CBK launched the National Payment Strategy in 2022. The scheme is aligned

with the strategy's objectives and vision, which include the promotion of "a secure, fast, efficient and collaborative payments system" that will promote financial inclusion and innovation. The relatively advanced state of the regulatory environment, due to more than 10 years of mobile money usage, reduced the uncertainty in developing the new IPS. Recently, in 2022, The Central of Kenya also launched a five-year payment system strategy, and PesaLink is a key driver for banks and other players to deliver on the strategy.

## Inclusivity learnings

**Not ranked in terms of inclusivity.** Measured by the inclusivity criteria in Chapter 2.6, PesaLink is not yet ranked in terms of inclusivity as it does not support P2B payments currently and does not provide direct access to the most widely-used channel in Kenya (mobile money). Participants do have equal input opportunity in decision making. It does, however, process the bank portion of transactions between trust accounts, and also between MNO trust accounts and banking channel. There is no clear governance role for the Central Bank of Kenya beyond oversight of the scheme, and it lacks a pro-poor mandate.

The following drivers of inclusion were identified for PesaLink:

- Regular consultations and strong stakeholder engagement plans vital to obtain buy-in for the success of the payment scheme.** PesaLink is bank initiated, and regulator input was minimal in promoting the creation and adoption of the scheme. The IPSL Board of Directors as well as FSD Kenya held workshops with all member banks of the association to bring clarity behind the intentions of the scheme. They addressed concerns from member banks that felt threatened by larger banks in relation to the IPSL launch. Although industry buy-in is always important, it is especially vital if there is no mandated participation and in cases where the regulator is minimally involved.
- Development partners able to play a key role in successful initiation and development of systems.** FSD Kenya played an important role that contributed to the successful establishment of the scheme. It conducted the initial feasibility study prior to 2015 to establish whether PesaLink would be viable. Thereafter, FSD Kenya prepared the business case and held workshops with all 43 banks to finalize the design (World Bank, 2021h). Its role in developing
- the system highlights the impact of market facilitators, especially where regulators are less involved.
- Leveraging and sharing existing infrastructure crucial to reduce cost.** The success of PesaLink was made possible by utilizing existing infrastructure in use by banks. Although banks were still required to upgrade their legacy systems to facilitate real-time clearing of bank-to-bank retail transactions, the design choices allowed IPSL to minimize costs and speed up buy-in from member banks.
- Participant-led payment able to incentivize participation by providing a competitive advantage.** Since the launch of PesaLink, the system has upgraded to a new messaging standard that will facilitate new use cases and allow indirect participants to connect to the scheme. As discussed above, this is supportive of interoperability between different schemes but does not offer the same benefits to non-bank providers that a cross-main scheme with direct access for all licensed PSPs would. It seeks to eventually achieve interoperability with non-banks PesaLink and is also developing open APIs that support new features such as request-to-pay. Improved features allow participating institutions to provide additional value-adding services to their customers to incentivize participation.
- An established regulatory framework provides clear direction and certainty on what can be implemented.** Most of the laws and regulations relevant for PesaLink were in place prior to the launch of the payment scheme. Through this, the banking industry had greater clarity regarding what would be permitted for the scheme. Regulators must provide stability and create new guidelines through a multitenant process to facilitate the growth of innovative solutions to deepen financial inclusion.

## d. Transactions Cleared on an Immediate Basis (TCIB)

### Origin story

#### Challenge

**High cost associated with cross-border transfers due to lack of competition.** While some countries within the Southern African Development Community (SADC) region have a well-established financial services system with a closed-loop intra-regional payments system, high costs, low speed, limited access, and limited transparency affected cross-border payments (SADC PSOC, 2021). In SADC, these issues are primarily due to regulatory costs of compliance and the costs associated with maintaining complex bilateral relationships. This is further affected by the lack of widespread competition in the formal financial system, which is capitalized by well-established and active commercial financial services and contributes to the significant price point barrier for the average SADC end user.

#### Value proposition

**A regional instant payments system to reduce costs and simplify the payments process.** To improve the cross-border payment process, standardize compliance requirements, remove the need complex bilateral cross-border arrangements, and create more competition in the formal financial system, SADC created the Transactions Cleared on an Immediate Basis (TCIB) system. TCIB provides opportunity for both bank and non-bank financial institutions to connect directly and indirectly to a payments system to process regional payments requests instantly. Furthermore, it aims to reduce the complexities and multiple currency conversion layers typically present in cross-border arrangements by processing all transactions through the SADC real-time gross settlement (RTGS) system and in South African rand (ZAR).

#### Timeline

**The SADC Payments System Oversight Committee (PSOC) and SADC Bankers Association developed TCIB with technical support from BankservAfrica (BSA).**

The concept was catalyzed initially in 2015 by the Committee of Central Bank Governors (CCBG), who approved the development of a cross-border payment system to create a retail companion to SADC RTGS.<sup>83</sup> The development was delegated to the SADC PSOC within the bankers association. BSA was then selected by CCBG to facilitate the operationalization of the system and to lead the implementation.

In November 2021, the system was launched and is now operational with a total of two participants and 12 members as of June 7, 2022.<sup>84</sup> The five-year gap between concept to operation was due to pre-conditions for implementation, namely changes to the regulatory environment and the development of scheme rules. Potential participants and regulators stressed the importance of finalizing these aspects before they felt comfortable to join. BSA finalized the SADC Rule book (scheme rules) in 2021.

In July 2021, two participants (ZB Bank in Zimbabwe and Virtual Technology Service in Namibia) entered into a trial period, considered “controlled live” by TCIB to encourage further interest among participants.<sup>85</sup> The trial period allowed SADC to test the system and to correct any potential issues before the full-live date. Specifically, it was used to test regulatory support at domestic level in terms of the access criteria, as well as the ability for the market players to comply with the rules and standards, and for BSA to test whether there were any gaps in the offering (in terms of minimum viable product or value proposition) to determine whether any critical enhancements and/or changes in processes were required before going live. As a result of this process, BSA was able to evaluate most of the above elements, support the participants to comply with processes and standards, and identify key enhancements to be made to the scheme constructs (constitution, rulebook, legal framework, regulatory operating framework, etc.) (Stakeholder Interviews, 2022).

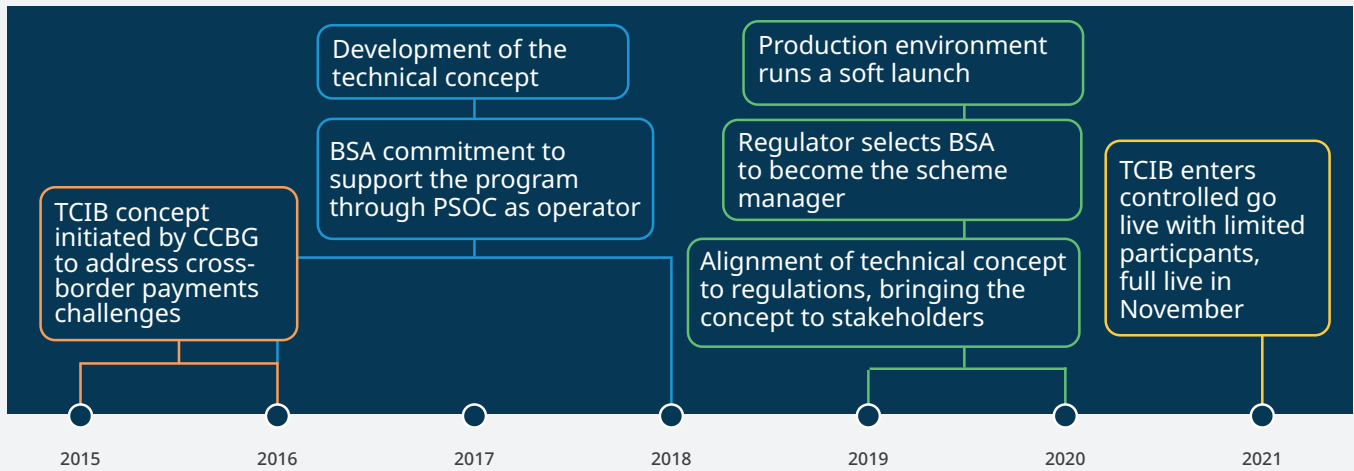
<sup>83</sup> SADC RTGS, formerly known as SIRESS, is the SADC region's cross-border real-time gross settlement system that went live July 2013 for high-value payments. The South African Reserve Bank is the operator of the system and is appointed by SADC participating member central banks. Central banks and financial institutions, which include authorized banks and non-banks in the SADC region, are participants in SADC RTGS. Currently, the system settles payments in ZAR but additional currencies are being considered.

<sup>84</sup> These members are Angola, Botswana, the Democratic Republic of the Congo, Lesotho, Malawi, Mozambique, Namibia, South Africa, Eswatini, Tanzania, Zambia, and Zimbabwe.

<sup>85</sup> Virtual Technology Services is a licensed PSP in Namibia.



FIGURE 32. TCIB timelines



## Governance and operations

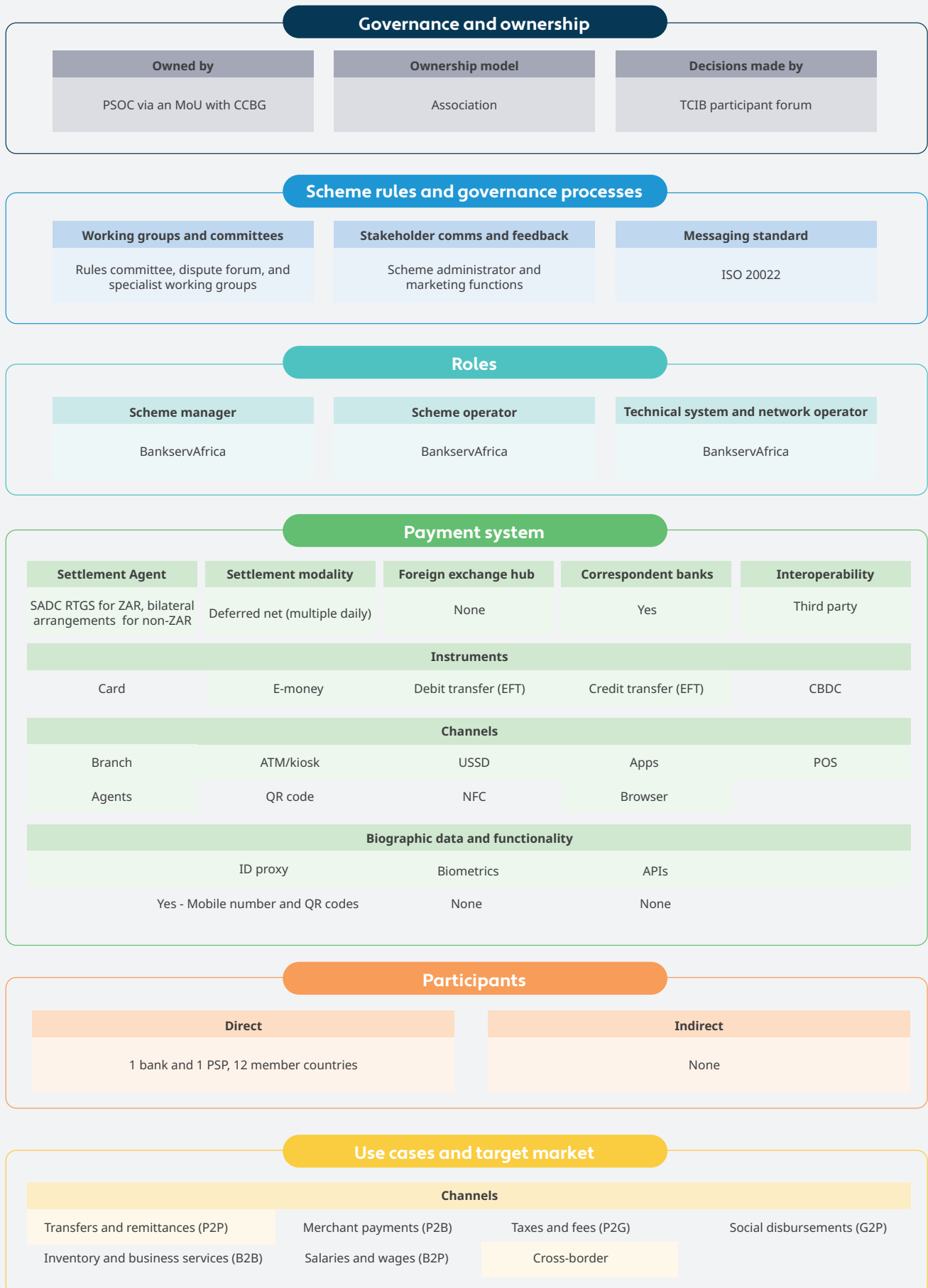
### Payment system overview

The TCIB system is exclusive to cross-border payments and is based on a central processing hub, able to connect directly to banks and non-banks across SADC and to local clearing houses of each country. Payments can be routed directly to BSA, or through intermediaries (i.e., the regional clearing and settlement operator (RCSO), an integrator, or local automated clearing houses (ACHs)) who transmit the

payment on the sender's behalf. There are three additional technology partners in the platform: Terrapay, Traderoot, and GluGlobal. Terrapay is the product partner and vendor for the clearing platform. Traderoot and GluGlobal are certified integrators—providing integration services to prospective participants that do not have the in-house capability to integrate into the switch.



FIGURE 33. TCIB model overview



## Governance structure

**Inclusion through member participation and collaborative decision-making.** TCIB is a private-sector led (member- and market-led), non-profit organization and governed under a democratic “constitution” model, which sets out the remit and obligations for the scheme to organize, integrate, manage, and monitor the participants—and to develop the scheme rules. Further, TCIB hosts the participants forum with representation from the scheme manager (BSA), owner (PSOC), and the participants. The forum discusses the scheme rules, operations, governance, or other related issues. Members have direct voting rights into the rules committee via their representation in the TCIB participant forum, ensuring that their voices are heard and considered when managing the system; however, the scheme manager has veto rights. They are also represented in the dispute resolution committee and have voting rights in any ad hoc working groups emerging from the participant forum. The SADC PSOC is a non-voting observer across these forums and groups.

**Collaboration toward efficiency and scale a priority.** TCIB's participants include banks and non-banks. However, BSA is currently focused on expanding mobile and non-traditional channels and instruments to improve functionality, use, and scale. The scheme facilitates interoperability between partners through multilateral relationships; however, participants can choose the institutions with which they want to connect depending on their risk appetite, among other factors (Stakeholder interviews, 2022). This reduces the barriers to join TCIB but can perpetuate exclusive arrangements between specific participants.

## Functionality

TCIB offers instant clearing of low-value transactions within and between SADC countries in the SADC region. It currently supports USSD, apps, agents, and POS channels, with a strategy to cover all channels for Common Monetary Area (CMA) countries, transactions are settled in ZAR—the transaction is converted to ZAR, settled in ZAR and then converted to the receiving currency, all at a fixed rate of exchange.<sup>86</sup> The remaining SADC countries have an

alternative option to send transactions in USD, which are settled via US correspondents.<sup>87</sup> Any participants choosing to settle in ZAR, must have accounts in South Africa. This set-up creates conditions for easier and lower-cost access to foreign exchange for the purpose of cross-border transactions, as opposed to complex arrangements outside the TCIB scheme, which often involve complex bilateral arrangements from foreign exchange, and may take days to process. The wholesale settlement options also facilitate bulk foreign exchange movements for small-value transactions.

## Technical standards and use cases

**Creating an inclusive payments ecosystem, starting with P2P and P2B.** TCIB caters for the P2P use case via various channels. Currently, it is working on integrating P2B, with plans to bring in all additional use cases in the future. The P2B use case will be a key component driving inclusive instant payments ecosystem across SADC, by driving cashless purchase and sale of goods. TCIB operates using the ISO 20222 standard and leverages the infrastructure of member banks for non-ZAR transactions. As mentioned, participants can choose who to connect to and which services to participate in via a master data management system, which defines the relationship for each participant and affects the technical implementation.

## Business model

**Leveraging shared infrastructure to create inclusive prices.** TCIB received funding from the Bill and Melinda Gates Foundation and the World Bank to defray the start-up costs and to build a commercial model. The original business case for the service earmarked break-even in Year 4, with funding obtained for the central infrastructure and operations during the first two years. Although the original growth path has been refactored based on the reduced adoption rate due to slower-than-anticipated rollout, TCIB is still aiming to be able to cover the costs in Year 3, with a minimal increase in proposed fees. Further funding is earmarked into Year 3, to cover budgetary gaps and to reinvest capital into the development of the scheme. The system operates on a cost-recovery basis. There are fees for the participants and members.<sup>88</sup>

86 CMA countries consists of South Africa, Lesotho, Namibia, and Eswatini. The ZAR is a legal tender that is accepted across the CMA; however, each country within the CMA can and has issued their own currency which is pegged to the ZAR at a fixed rate but can only be used in the issuing country (van Zyl, n.d.).

87 Remaining SADC countries include Angola, Botswana, Comoros, Democratic Republic of Congo, Madagascar, Malawi, Mauritius, Mozambique, Seychelles, Tanzania, Zambia, and Zimbabwe.

88 Membership is at an institution governance level, and participation is based on integrating into the switch to transact.

| Annual Membership Fee:                     | Annual Participation Fee:       | Transaction Fee:                              |
|--|---------------------------------|---|
| USD 500 (ZAR 8,869) per year <sup>89</sup> | USD 2,500 (ZAR 44,345) per year | USD 0.10 (ZAR 1.77) per processed transaction |

### Scheme rules

**Scheme rules require adherence to local regulations and standards.** SADC payment systems are guided by the SADC Payment Scheme Rules Book (Beige Book) which covers the operating model, rules, and regulatory requirements for payment systems, which also includes the SADC RTGS. The TCIB scheme is referenced in this book, and TCIB has its own separate scheme rules book, which participants must also follow. A key requirement is the need for participants in the scheme to obtain a

letter of authority from their respective central bank or government authorities before they are considered for integration with the scheme.

### Volumes and values processed by the payments system

Given the recent commercial launch, November 2021 TCIB volumes are low. Volumes and values will be catalogued in subsequent SIIPS reports.

## Regulation

**Participation in TCIB requiring members to comply with the regulatory environment of their country.** TCIB is a regional payment system, with relevant regulation originating in each participant's country of domicile. TCIB itself is accountable to the CCBG, and the rules set out in its Rule Book align with best practices. However, TCIB plays a role in shaping development and harmonization of regulation at the regional level, by highlighting regulatory issues or clashes across countries that present barriers

to effective cross-border payments. For example, CCBG played a significant role in the harmonization of e-money regulation across SADC by engaging with regional initiatives. A positive reinforcement cycle exists between the organizations, with the collaboration to ensure that the system functions effectively to drive a more integrated SADC. For example, recent activities include the harmonization of balance-of-payment (BoP) codes for the scheme and involved deliberation across regulatory bodies.

<sup>89</sup> South African rand converted to USD using an exchange rate of USD 1 = ZAR 17.74 as of 19 September 2022.

## Inclusivity learnings

**Not ranked in terms of level of inclusivity but shows considerable promise.** Measured by the inclusivity criteria in Chapter 2.6, TCIB is not yet ranked in the inclusivity categorization as it does not offer P2B payments at this young stage. TCIB has inclusive governance through its stakeholder forums, which involve participants, the scheme manager, as well as the respective participant country's regulator. With further scaling of the scheme and expansion of its use cases, it will be closer to mature inclusivity.

The following inclusion learnings were identified for TCIB:

- Clear value proposition with stakeholder engagement needed to drive participation.** For a payment system to be inclusive, it needs to present a genuine commercial improvement on budget or transaction effort. TCIB does this by simplifying the underlying economics behind cross-border payments. The per transaction fees are published externally, which will pressure financial service providers to keep costs low to consumers. Further, TCIB's streamlined forex functionality makes lower-value transactions viable, as their relative fee burden for per-item processing fee and foreign exchange spreads is diminished.
  - Regulatory buy-in and endorsement processes a precondition for success.** Cross-border payments systems can be difficult to implement because they require buy-in and endorsement from all the regulators involved. In a multi-party system, this required significant time, energy, and commitment. The level of buy-in of each country can affect the participation by the domiciled institutions. As with most regional initiatives, a challenge with TCIB relates to these differing regulatory environments. While the process is costly and time-intensive, identifying those
- areas for regulatory harmonization will have outsized impact on the development of an integrated African digital economy. DFSPs and regulators will need to collaborate to identify improved methods for risk evaluation, so as to not exclude populations or DFSPs in certain geographies from fully participating in a regional scheme.
- Collaboration on existing infrastructure key for inclusion.** TCIB was able to minimize its operating and participation costs due to its emphasis on shared infrastructure. Participants contribute some of their functionality to the system (e.g., forex and settlement ability), removing the need for TCIB to recreate these structures. Since participants have already established their own arrangements to facilitate payments across borders, a regional payments system needs to offer a higher-value alternative. Sharing infrastructure across players is vital in achieving this.<sup>90</sup>
  - A level playing field for smaller players bodes well for inclusion, but large anchor-players are still key.** TCIB provides the possibility of region-wide connections without provider-level investment into infrastructure, enabling smaller players to participate and providing curated services to consumers. At the same time, the effectiveness, reach, and potential of the system also depend on large anchor-players being involved, especially providing services and infrastructure. Large and small participants both help to bring scale: the former by bringing a highly digitized customer base (more frequent transactors) and the latter by having a larger reach to low-income populations (greater economic empowerment).

<sup>90</sup> Although this creates potential for large players to generate scale from their pre-existing infrastructure that they commit, it is important that smaller players benefit from the various components via non-discrimination of traffic so they are not structurally disadvantaged, creating a long-term dependency on larger players.

## B. CONSULTED STAKEHOLDERS

### Key informant interviews:

| Organization  | Name   |
|---|--|
| ACI Worldwide   | • Santhosh Rao   |
| Bank of Tanzania  | • Lucy M. Charles-Shaidi<br>• William Mng'ong'ose  |
| BankservAfrica  | • Ruhling Herbst<br>• Sarel Myburgh<br>• Dale Morris<br>• Mpho Sadiki  |
| BFA Global  | • Shirley Mburu  |
| Banque Centrale de Madagascar                                   | • Josiane Ramanalarivo<br>• Serge Ramanitrera  |
| Bank of Zambia  | • Miriam Tembo Kamykuza<br>• Maureen Mulenga<br>• Abraham Alutuli<br>• Jimmy Couvaras<br>• Jack Dumingu<br>• Akabiwa Kalimukwa<br>• Maria Katepa<br>• Wezi Siame |
| Central Bank of West Africa Economic and Monetary Union (BCEAO) | • Fatou Dieng Gueye<br>• Kuassie Ayikue Satchivi<br>• Samba Cire Ka<br>• Seydou Sall<br>• Ahmed Al   |
| Circle Payments   | • Charles Niehaus  |
| Consultative Group to Assist the Poor                           | • William Cook   |
| Financial Sector Deepening Kenya                                | • Juliet Mburu   |
| Flash International   | • Jonathan Johannesen  |
| Ghana Interbank Payment and Settlement Systems Limited (GhIPSS) | • Archie Hesse<br>• Eunice Ankomah<br>• Akosua Blay<br>• Kwaku Tetty   |

| Organization  | Name  |
|---|---|
| GIMACPAY  | • Valentin Mbozo'o<br>• Freddy Omgba                                |
| Glenbrook Partners  | • Elizabeth McQuerry  |
| Independent consultant  | • Arthur Cousins  |
| Independent consultant  | • Innocent Ephraim  |
| Independent consultant—previously pioneer Executive Director Business Development of NIBSS Plc. | • Christabel Onyejekwe  |
| Integrated Payment Systems Ltd (IPSL)   | • Seun Owoeye<br>• Plounne Oyunge                                   |
| Lipa Payments   | • Makabongwe Gambushe   |
| ModusBox  | • Warren Carew  |
| Natswitch   | • Gertrude Kadumbo  |
| Bill & Melinda Gates Foundation   | • Miller Abel   |
| National Payment Systems Institute  | • Brian Le Sar  |
| Nigeria Inter-Bank Settlement System Plc (NIBSS)  | • Premier Oiwoh<br>• Aminu Maina                                    |
| WIZZIT  | • John Staley   |
| Zimswitch   | • Cyril Nyatsanza<br>• Michael Chauruka<br>• Wonderful Mupazviribwo |

**Reviewers for the SIIPS report:**

| Organization       | Name  |
|--------------------|---|
| <b>AfricaNenda</b> | <ul style="list-style-type: none"> <li>• Bery Dieye</li> <li>• Nadia Dafir</li> <li>• Jamelino Akogbeto</li> <li>• Jerry Lemogo</li> <li>• Michael Mbutia</li> <li>• Nicholas Mungo</li> <li>• John Muthoria</li> <li>• Vanessa Umutoni</li> </ul>          |
| <b>World Bank</b>  | <ul style="list-style-type: none"> <li>• Holti Banka</li> <li>• Isaku Endo</li> <li>• Maimouna Gueye</li> <li>• Harish Natarajan</li> <li>• Nilima Ramteke</li> <li>• Carlos Leonardo Vicente</li> <li>• Alice Zanza</li> <li>• Siegfried Zottel</li> </ul> |
| <b>UNECA</b>       | <ul style="list-style-type: none"> <li>• Hilda Jacob</li> <li>• Mactar Seck</li> </ul>  |
| <b>Other</b>       | <ul style="list-style-type: none"> <li>• David Lubinski</li> </ul>  |

## C. LANDSCAPING DATA TABLES

**TABLE 18.** Main characteristics per IPS

| IPS Description  |                        |      |                    | Governance typology |
|--|------------------------|------|--------------------|---------------------|
| IPS name   | Geography              | Year | IPS type           |                     |
| Real Time Clearing (RTC)                                 | South Africa           | 2006 | Bank               | Private association |
| NIBSS Instant Pay (NIP)                                  | Nigeria                | 2011 | Cross-domain       | PPP                 |
| Nigeria mobile money                                     | Nigeria                | 2013 | Mobile money       | PPP                 |
| Zimswitch Instant Payment Interchange Technology (ZIPIT) | Zimbabwe               | 2013 | Cross-domain       | Private association |
| Sociedade Interbancaria De Mocambique (SIMO)             | Mozambique             | 2014 | Cross-domain       | Private association |
| Tanzania mobile money                                    | Tanzania               | 2014 | Mobile money       | Rulebook            |
| Natswitch  | Malawi                 | 2015 | Cross-domain       | Private Association |
| Ghana Mobile Money Interoperability (Ghana MMI)          | Ghana                  | 2016 | Mobile money       | Central bank        |
| Madagascar mobile money                                  | Madagascar             | 2016 | Mobile money       | Rulebook            |
| PesaLink   | Kenya                  | 2016 | Bank               | Private association |
| Ta7Weel  | Egypt                  | 2017 | Mobile money       | PPP                 |
| Uganda mobile money                                      | Uganda                 | 2017 | Mobile money       | Fintech aggregator  |
| GhIPSS Instant Pay (GIP)                                 | Ghana                  | 2018 | Bank               | Central bank        |
| Kenya mobile money                                       | Kenya                  | 2018 | Mobile money       | Rulebook            |
| MarocPay   | Morocco                | 2018 | Cross-domain       | Private association |
| Tunisia mobile money                                     | Tunisia                | 2018 | Mobile money       | Central bank        |
| Mauritius Central Automated Switch (MauCAS)              | Mauritius              | 2019 | Bank               | Central bank        |
| Gamswitch  | the Gambia             | 2020 | Bank               | PPP                 |
| GIMACPAY   | CEMAC                  | 2020 | Cross-domain       | Regional            |
| Zambia Electronic Clearing House Limited (ZECHL)         | Zambia                 | 2020 | Cross-domain       | PPP                 |
| eNaira   | Nigeria                | 2021 | Sovereign currency | Central bank        |
| NamPay   | Namibia                | 2021 | Bank               | Private association |
| Transactions Cleared on an Immediate Basis (TCIB)        | Southern Africa (SADC) | 2021 | Cross-domain       | Regional            |
| Instant Payment Network (Egypt)                          | Egypt                  | 2022 | Bank               | PPP                 |
| eKash  | Rwanda                 | 2022 | Mobile money       | Rulebook            |
| Pan African Payment & Settlement System                  | Africa                 | 2022 | Bank               | Regional            |
| Somalia National Payment System                          | Somalia                | 2022 | Bank               | Central bank        |
| Système de Règlement Automatisé de Djibouti (SYRAD)      | Djibouti               | 2022 | Cross-domain       | Central bank        |
| Tanzania Instant Payment System (TIPS)                   | Tanzania               | 2022 | Cross-domain       | Central bank        |



| Main actors                             |  |                                       |                            |                       |
|---|--|---------------------------------------|----------------------------|-----------------------|
| Overseer                                | Scheme governance                        | Operator                              | Settlement agent           |                       |
| South African Reserve Bank              | Payments Association of South Africa     | BankservAfrica                        | South African Reserve Bank |                       |
| Central Bank of Nigeria                 | NIBSS                                    |                                       | Central Bank of Nigeria    |                       |
| Central Bank of Nigeria                 |  |                                       |                            |                       |
| Reserve Bank of Zimbabwe                | ZimSwitch                                |                                       | Reserve Bank of Zimbabwe   |                       |
| Banco de Moçambique                     | Interbancos                              |                                       | Banco de Moçambique        |                       |
| Bank of Tanzania                        | None (Bilateral agreements)              |                                       |                            |                       |
| Reserve Bank of Malawi                  | Nat Switch                               | BPC Banking Technologies              | Reserve Bank of Malawi     |                       |
| Bank of Ghana                           | GhIPSS                                   |                                       | Bank of Ghana              |                       |
| None                                    | None (Bilateral agreements between EMIs) |                                       |                            |                       |
| Central Bank of Kenya                   | Kenya Bankers Association                |                                       | Central Bank of Kenya      |                       |
| Central Bank of Egypt                   | Egyptian Banks Company                   |                                       | Central Bank of Egypt      |                       |
| Uganda Chamber of Communication         | Pegasus                                  |                                       | Bank of Uganda             |                       |
| Bank of Ghana                           | GhIPSS                                   |                                       | Bank of Ghana              |                       |
| Central Bank of Kenya                   | None (bilateral agreements)              |                                       |                            |                       |
| Bank Al-Maghrib                         | Economic Interest Grouping (EIG)         | HPS Switch                            | Bank Al-Maghrib            |                       |
| Central Bank of Tunisia                 |  |                                       |                            |                       |
| Bank of Mauritius                       |  |                                       |                            |                       |
| Central Bank of Gambia                  |  |                                       |                            |                       |
| Bank of Central African States          |  | GIMAC                                 |                            |                       |
| Bank of Zambia                          |  | ZECHL                                 | Bank of Zambia             |                       |
| Central Bank of Nigeria                 |  |                                       |                            |                       |
| Bank of Namibia                         |  | Payments Association of Namibia (PAN) |                            |                       |
| SADC Payment System Oversight Committee |  | Committee of Central Bank Governors   | BankservAfrica             |                       |
| Central Bank of Egypt                   | The Egyptian Banks Company               |                                       |                            | Central Bank of Egypt |
| National Bank of Rwanda                 | R-Switch                                 |                                       | National Bank of Rwanda    |                       |
| PAPSS Governing Council                 |  |                                       | African Export-Import Bank |                       |
| Central Bank of Somalia                 |  |                                       |                            |                       |
| Central Bank of Djibouti                |  |                                       |                            |                       |
| Bank of Tanzania                        |  |                                       |                            |                       |

TABLE 19. IPS inclusivity level scoring

| IPS                             | Inclusivity level     | Minimum channel functionality | Minimum use case functionality | PSP participation | Pro-poor governance | CB governance involvement | Expanded use cases | Recourse | Not-for-loss |
|---------------------------------|-----------------------|-------------------------------|--------------------------------|-------------------|---------------------|---------------------------|--------------------|----------|--------------|
| Ghana system: GIP and Ghana MMI | Progressed/ Promising | ✓                             | ✓                              | ✓                 | ✓                   | ✓                         |                    |          |              |
| GIMACPAY (Regional—CEMAC)       | Progressed/ Promising | ✓                             | ✓                              | ✓                 | ✓                   | ✓                         |                    | ✓        |              |
| Natswitch (Malawi)              | Progressed/ Promising | ✓                             | ✓                              | ✓                 | ✓                   |                           |                    | ✓        |              |
| ZECHL (Zambia)                  | Progressed/ Promising | ✓                             | ✓                              | ✓                 | ✓                   | ✓                         |                    | ✓        |              |
| TCIB (Regional—SADC)            | Not ranked/ Promising | ✓                             |                                | ✓                 | ✓                   | ✓                         |                    |          | ✓            |
| eKash (Rwanda)                  | Basic                 | ✓                             | ✓                              |                   | ✓                   | ✓                         |                    |          |              |
| eNaira (Nigeria)                | Basic                 | ✓                             | ✓                              |                   |                     | ✓                         |                    | ✓        |              |
| Gamswitch (the Gambia)          | Basic                 | ✓                             | ✓                              |                   | ✓                   |                           |                    |          |              |
| Kenya mobile money              | Basic                 | ✓                             | ✓                              |                   | ✓                   |                           |                    |          |              |
| MarocPay (Morocco)              | Basic                 | ✓                             | ✓                              | ✓                 |                     |                           |                    |          |              |
| MauCAS (Mauritius)              | Basic                 | ✓                             | ✓                              |                   |                     | ✓                         |                    |          |              |
| NIP (Nigeria)                   | Basic                 | ✓                             | ✓                              |                   |                     | ✓                         |                    |          |              |
| RTC (South Africa)              | Basic                 | ✓                             | ✓                              |                   | ✓                   |                           |                    |          |              |
| SIMO (Mozambique)               | Basic                 | ✓                             | ✓                              | ✓                 |                     |                           |                    | ✓        |              |
| Uganda mobile money             | Basic                 | ✓                             | ✓                              |                   | ✓                   |                           |                    |          |              |
| ZIPIT (Zimbabwe)                | Basic                 | ✓                             | ✓                              | ✓                 | ✓                   |                           |                    | ✓        |              |
| Instant Payment Network (Egypt) | Not ranked            | ✓                             |                                |                   | ✓                   | ✓                         |                    | ✓        |              |
| Madagascar mobile money         | Not ranked            | ✓                             |                                |                   | ✓                   |                           |                    |          |              |
| NamPay (Namibia)                | Not ranked            | ✓                             |                                |                   | ✓                   |                           |                    |          |              |
| Nigeria mobile money            | Not ranked            |                               |                                |                   |                     | ✓                         |                    |          |              |
| PAPSS (Regional—Africa)         | Not ranked            |                               |                                | ✓                 |                     | ✓                         |                    |          |              |
| PesaLink (Kenya)                | Not ranked            |                               |                                | ✓                 |                     |                           |                    | ✓        |              |
| Somalia National Payment System | Not ranked            |                               |                                |                   | ✓                   | ✓                         |                    |          |              |
| SYRAD (Djibouti)                | Not ranked            | ✓                             |                                | ✓                 |                     | ✓                         |                    |          |              |
| Ta7Weel (Egypt)                 | Not ranked            |                               | ✓                              |                   | ✓                   | ✓                         |                    |          |              |
| Tanzania mobile money           | Not ranked            | ✓                             |                                |                   | ✓                   |                           |                    |          |              |
| TIPS (Tanzania)                 | Not ranked            | ✓                             |                                | ✓                 | ✓                   | ✓                         |                    |          |              |
| Tunisia mobile money            | Not ranked            |                               | ✓                              |                   |                     | ✓                         |                    | ✓        |              |

\*The two systems in Ghana are considered as one aggregated system due to the inclusivity triangle established (see the case study on GIP in Annex A.a). Table 19. IPS inclusivity level scoring

## D. CONSUMER-RESEARCH METHODOLOGY

The primary customer research was run in parallel with the supply-side research to analyze the evolving, instant, and inclusive payment customer behavior among low-income and no-income individuals in Africa.





In doing so, it explored the use cases, desired features, unmet needs, and perceptions of consumers with regard to (instant) digital payments and by sketching a profile of included versus excluded target market segments to provide an overview of the barriers and incentives relating to the adoption of instant payments in Africa.

- **Geographic scope.** To sketch a continent-wide picture, the consumer research was conducted in a sample of countries across the continent's five sub-regions:

- Demonstration case countries where IPS have taken root: Kenya, Ghana, Nigeria, Tanzania, and Zambia
- Demonstration case countries where IPS are not yet widespread, but where there is sufficient mobile penetration and financial inclusion to potentially make IPS viable: the DRC and Egypt

**Methods used.** To undertake this, the research approach makes use of a mixed-method approach that leverages both quantitative and qualitative research—captured in Figure 34.

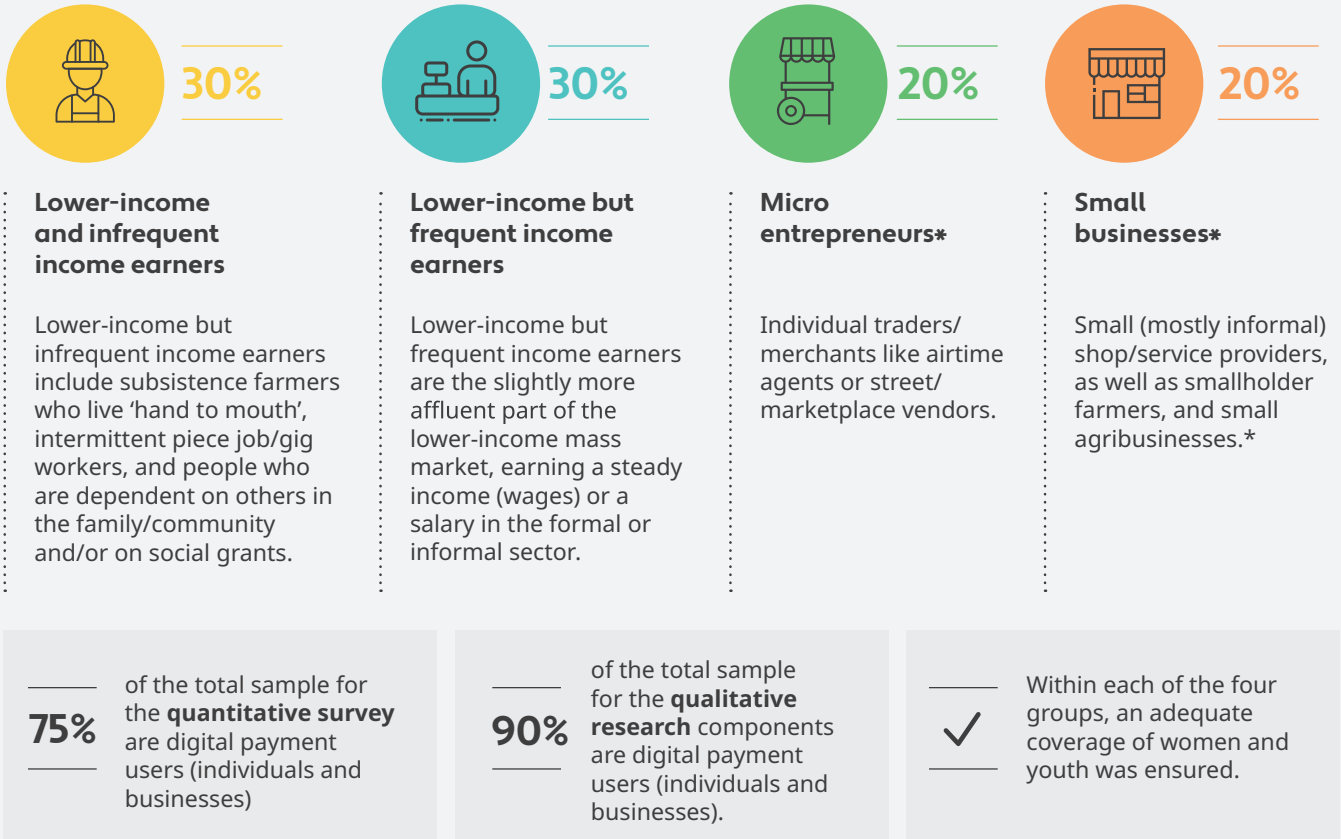
**FIGURE 34. Breakdown of quantitative and qualitative methods**

| <b>Quantitative research:</b><br>identify customer behavior trends   | <b>Qualitative research:</b><br>Identifying key drivers of shifting consumer behavior towards IIPS  |  |  |
|--|---|--|--|
| <div style="text-align: center;">  <p><b>Quantitative survey</b></p> </div> <ul style="list-style-type: none"> <li>• Take stock of digital payment patterns and determinants in general, and instant payments in particular</li> <li>• Allow comparison across countries and set a baseline on which time series data can be built up</li> </ul> <ul style="list-style-type: none"> <li>• <b>250</b> for Kenya, Nigeria, and Ghana</li> <li>• <b>100</b> for Tanzania, Zambia, and DRC</li> <li>• <b>150</b> for Egypt</li> </ul> | <div style="text-align: center;">  <p><b>Focus group discussions</b></p> </div> <ul style="list-style-type: none"> <li>• Identify key decision-making patterns</li> <li>• Identify key trends in terms of customer behavior</li> <li>• Spontaneously explore generalized perceptions</li> </ul> <ul style="list-style-type: none"> <li>• <b>10</b> for Kenya, Nigeria, and Ghana</li> <li>• <b>5</b> for Egypt, Tanzania, DRC, and Zambia</li> </ul> | <div style="text-align: center;">  <p><b>In-depth interviews (IDIs)</b></p> </div> <ul style="list-style-type: none"> <li>• Gain in-depth understanding of the person's/ business' socio-economic and household reality</li> <li>• Understand individual reasons for customer behavior</li> </ul> <ul style="list-style-type: none"> <li>• <b>36</b> IDIs for Kenya</li> <li>• <b>27</b> IDIs for Nigeria, Ghana</li> <li>• <b>15</b> IDIs for Egypt, Tanzania, DRC, and Zambia</li> </ul> | <div style="text-align: center;">  <p><b>Immersion</b></p> </div> <ul style="list-style-type: none"> <li>• In-depth understanding of customer journey and user experience</li> </ul> <ul style="list-style-type: none"> <li>• <b>10</b> for Kenya, Nigeria, and Ghana</li> <li>• <b>5</b> for Egypt, Tanzania, DRC, and Zambia</li> </ul> |

**Sampling approach.** To develop insights on the nuances in terms of the adoption of digital payments across varying

consumer groups, the sampling approach outlined in Figure 35 was adopted.

**FIGURE 35.** Sampling approach across group segments



\*Monthly turnover cut-off applied was USD 1,000.

**Qualitative sample breakdown.** The breakdown of the sample of the exact sampling for each of the methods for the qualitative component across the seven markets is provided in Table 20. A total of 200 respondents made

up the sample across IDIs and immersions, and 50 FGDs with four to six respondents each were conducted. The collection of the qualitative data took place within these seven countries between 9 and 28 May 2022.

**TABLE 20. Country and method composition of the qualitative sample**

|          | Location      | Focus group discussions | In-depth interviews | Immersion / observations |
|----------|---------------|-------------------------|---------------------|--------------------------|
| Kenya    | Nairobi       | 10                      | 36                  | 10                       |
| Nigeria  | Lagos         | 10                      | 27                  | 10                       |
| Ghana    | Accra         | 10                      | 27                  | 10                       |
| Egypt    | Cairo         | 5                       | 15                  | 5                        |
| DRC      | Kinshasa      | 5                       | 15                  | 5                        |
| Tanzania | Dar es Salaam | 5                       | 15                  | 5                        |
| Zambia   | Lusaka        | 5                       | 15                  | 5                        |

**Quantitative sample breakdown.** The sampling breakdown for the quantitative component across the seven markets is provided in Table 21. In total, 1,200

respondents made up the sample across the seven markets. The collection of the quantitative data took place between 22 April 2022 and 18 May 2022.

**TABLE 21. Quantitative sample composition**

|  | Respondent type | Total | Male | Female | 18-29 years | 30-45 years | 45-55 years | Infrequent income /<br>micro busi-nesses | Frequent income /<br>small business |
|--|-----------------|-------|------|--------|-------------|-------------|-------------|--|-------------------------------------|
| Kenya (Nairobi, Mombasa, Kisumu)       | Individuals     | 130   | 65   | 65     | 52          | 52          | 26          | 65                                       | 65                                  |
|  | MSMEs           | 120   | 60   | 60     | 48          | 48          | 24          | 60                                       | 60                                  |
| Nigeria (Lagos, Abuja & Port Harcourt) | Individuals     | 130   | 65   | 65     | 52          | 52          | 26          | 65                                       | 65                                  |
|  | MSMEs           | 120   | 60   | 60     | 48          | 48          | 24          | 60                                       | 60                                  |
| Ghana (Accra & Kumasi)                 | Individuals     | 130   | 65   | 65     | 52          | 52          | 26          | 65                                       | 65                                  |
|  | MSMEs           | 120   | 60   | 60     | 48          | 48          | 24          | 60                                       | 60                                  |
| Egypt (Cairo)                          | Individuals     | 60    | 30   | 30     | 24          | 21          | 15          | 30                                       | 30                                  |
|  | MSMEs           | 40    | 20   | 20     | 16          | 14          | 10          | 20                                       | 20                                  |
| Tanzania (Dar es Salaam & Arusha)      | Individuals     | 60    | 30   | 30     | 24          | 21          | 15          | 30                                       | 30                                  |
|  | MSMEs           | 40    | 20   | 20     | 16          | 14          | 10          | 20                                       | 20                                  |
| Zambia (Lusaka & Ndola)                | Individuals     | 60    | 30   | 30     | 24          | 21          | 15          | 30                                       | 30                                  |
|  | MSMEs           | 40    | 20   | 20     | 16          | 14          | 10          | 20                                       | 20                                  |
| DRC (Kinshasa)                         | Individuals     | 60    | 30   | 30     | 24          | 21          | 15          | 30                                       | 30                                  |
|  | MSMEs           | 40    | 20   | 20     | 16          | 14          | 10          | 20                                       | 20                                  |

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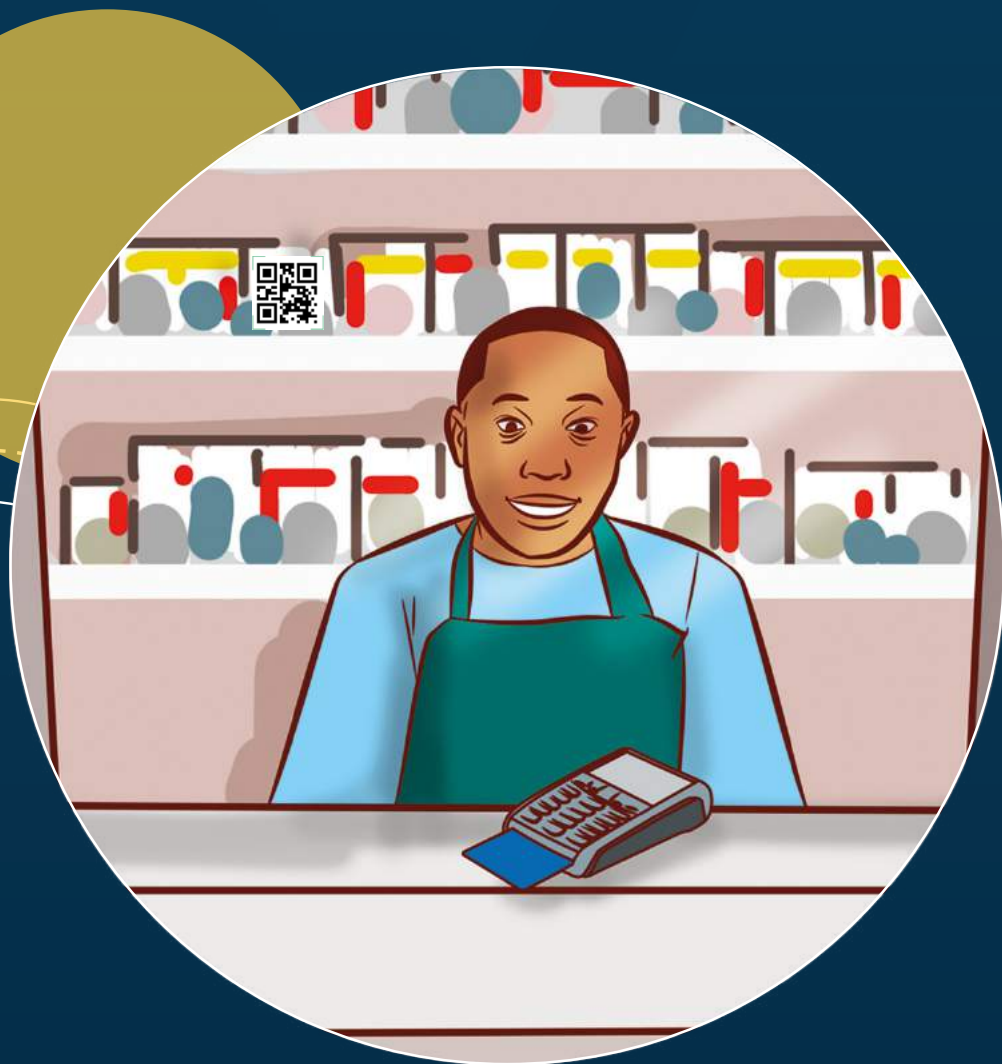


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