

Payment systems in sub-Saharan Africa

Note 2: Case studies of National
and Regional payment systems
market development

December 2018





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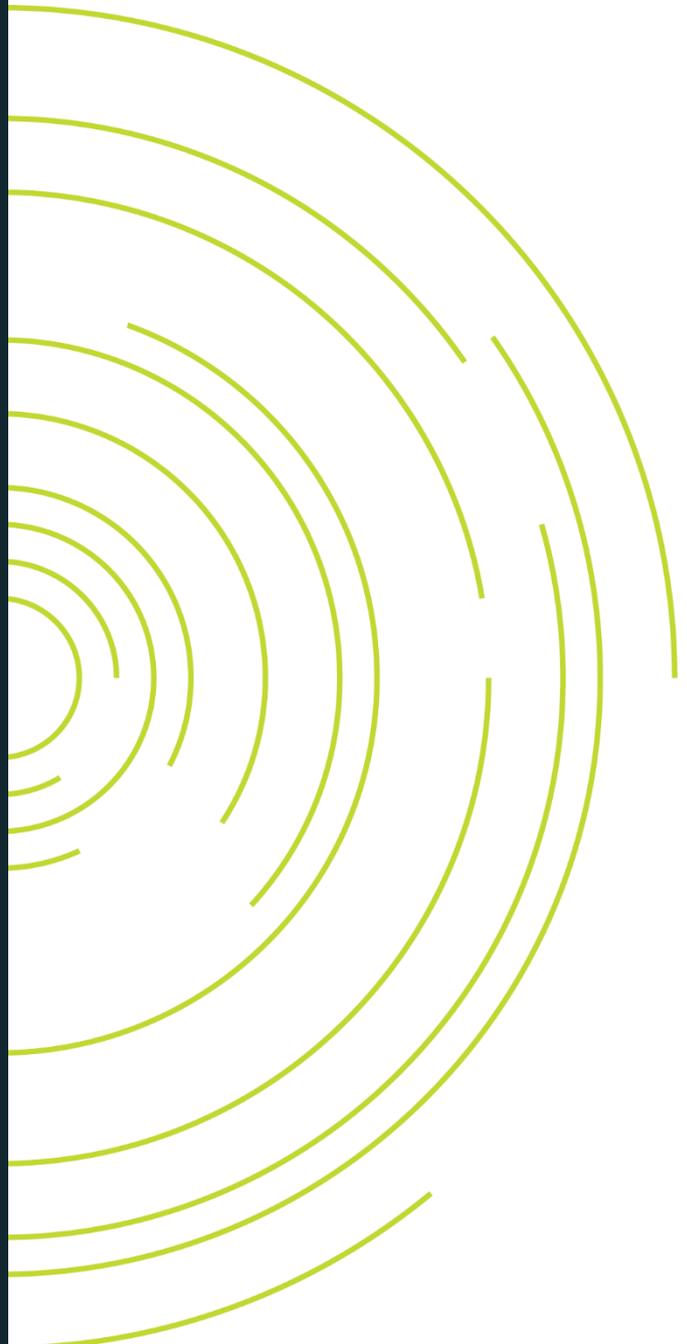


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Abbreviations and acronyms

ACH	automated clearing house
AML/CFT	anti-money laundering and the combating of financing of terrorism
API	application programming interface
ARTCI	Telecommunications ICT Regulatory Authority of Côte d'Ivoire
BCEAO	Central Bank of West African States
BEAC	Central Bank of Central African States
BON	Bank of Namibia
BOT	Bank of Tanzania
BVN	bank verification number
CBN	Central Bank of Nigeria
CCBG	Committee of Central Bank Governors
CDI	Cote d'Ivoire
CEMAC	Economic and Monetary Community of Central Africa
CIFT	CBN Inter-Bank Fund Transfer
CMA	Common Monetary Area
COBAC	Banking Commission of Central Africa
COMESA	Common Market for Eastern and Southern Africa
DFS	digital financial services
EAC	East Africa Community
EAPS	East Africa Payment System
EFT	electronic fund transfer
EMI	electronic money issuer
FDI	foreign direct investment
FIP	finance and investment protocol
FSP	financial service provider
GDP	gross domestic product
GhIPSS	Ghana Interbank Payment and Settlement Systems
GIMAC	Groupement Interbancaire Monétique de l'Afrique Centrale (Interbank Payment Systems Group of Central Africa)
GIM-UEMOA	WAEMU Interbank Electronic Banking Group
ICT	information and communications technology
KYC	know your customer

MFI	microfinance institution
MMO	mobile money operator
MNO	mobile network operator
MOU	memorandum of understanding
MTO	money transfer operator
NACS	Nigerian Automated Clearing System
NCC	Nigerian Communications Commission
NCS	Nigerian Central Switch
NDIC	Nigerian Deposit Insurance Corporation
NEFT	NIBSS Electronic Funds Transfer
NFC	near-field communication
NIBSS	Nigerian Inter-Bank Settlement System
NIP	NIBSS Instant Payment
NPS	national payment system
OTC	over-the-counter
P2P	person-to-person
PCH	payment clearing house
PFMI	Principals of Financial Market Infrastructure
POS	point of service
PSM	payment systems management
PSO	payment system operator
PSP	payment service provider
RCH	regional clearing house
REPSS	regional payments and settlements system
RFI	regional financial integration
RTGS	real-time gross settlement
SADC	Southern African Development Community
SADCBA	SADC Banking Association
SARB	South African Reserve Bank
SICA-UEMOA	System for clearing low-value interbank ACH payments in WAEMU
SIPS	systemically important payment systems
SIRESS	SADC Integrated Regional Electronic Settlement System
SMI	CEMAC Interbank Card Payment System
SSA	sub-Saharan Africa
STAR-UEMOA	RTGS system in WAEMU
STP	Straight through processing
SYGMA	real-time gross settlement system of CEMAC region
SYSTAC	automated clearing system of CEMAC region
TACH	Tanzania Automated Clearing house
TISS	Tanzania Interbank Settlement System
USSD	Unstructured Supplementary Service Data
WAEMU	West African Economic and Monetary Union

1 Introduction

This note explores the state of national and regional payment systems development in sub-Saharan Africa (SSA). This is achieved through the consideration of four case studies of regional¹ payment systems as well as five case studies of national² payment systems in SSA. These case studies have been chosen as they display particularities from which we can draw conclusions applicable to other countries. The regional payment systems under consideration range from cross-border bilateral banking relationships between member countries to fully centralised regional systems. At a country level, we consider a diverse array of national payment systems shaped by nuances such as high mobile phone penetration, innovative biometric solutions and low population density.

For each case study, we broadly consider the following:

- **Payment system infrastructure:** A critical element of any payment system is the infrastructure that supports the clearing and/or settlement of payments. Each case study considers the various hardware, software, secure telecommunications network and operating environments used to manage and operate payment systems at national and regional levels.
- **Regulation:** This section considers the prevailing regulatory environment and the ways in which payment system regulation has evolved in the face of recent political and technological developments.

- **Trends:** Emerging trends related to payment system use and innovations in the national and regional contexts
- **Key learnings:** Each case study concludes with a brief synthesis of key learnings and insights that have emerged within the payment system of the specific region or country.

This note should be read in conjunction with Note 1, which distills the issues identified across the case studies into a set of imperatives for payment system development in SSA.



¹ Southern African Development Community (SADC), East African Community (EAC), West African Economic and Monetary Union (WAEMU) and Economic and Monetary Community of Central Africa (CEMAC)

² Côte d'Ivoire, Madagascar, Namibia, Nigeria and Tanzania

2 Regional payment system case studies

A regional payment system is an international mechanism designed to facilitate payments between residents of the participating countries. The process of regional integration involves the implementation of common rules, standards or infrastructures among a diverse group of stakeholders. An intended outcome of this system is increased efficiency, affordability and security of intra-regional fund transfers. As SSA begins to integrate economically and promote open trade among member states, maintaining fragmented national payment systems may become a hindrance to larger goals of economic development and cooperation. As such, SSA's regional payment systems play an important role in driving national and regional economic growth.

2.1. SADC: Regional payment systems integration in full swing

Strong regional integration mandate. SADC is an inter-governmental organisation with the goal to promote sustainable and equitable economic growth and socio-economic development through efficient productive systems, deeper cooperation and integration, good governance and durable peace and security among its members (SADC, 2012). It was formed in August 1992 and is made up of 15 member states. SADC has a total population of 333 million people and a combined GDP of USD584 billion (World Bank, 2018a).

The development of national payment system (NPS) considered a prerequisite to regional integration. In 1996, with help from the IMF, World Bank and BIS, SADC launched an initiative to implement an NPS in each SADC country. The aim was to help SADC countries to define their domestic strategies and development plans. The World Bank provided a financial grant in 1996 and another in 2006 to support these initiatives, while the IMF and BIS provided advice and technical assistance. SADC considered it important that each member country had a robust domestic payment system as a prerequisite to developing a cross-border and regional payment system (Wentworth, 2013).

SADC payment systems integration part of broader regional integration mandate. To achieve the above-mentioned goals and capitalise on regional development opportunities, a multiphase, regional payment system project was initiated by SADC financial industry stakeholders³. The aim of the SADC payment systems project⁴ is to achieve regional financial integration (RFI). Aligned with this outcome, the SADC Finance and Investment Protocol (FIP) was signed in August 2006 by 14 SADC members⁵ and came into effect in 2010. Its two main objectives were to improve the investment climate in each member state and improve foreign and intra-regional investment flows by enhancing cooperation, coordination and harmonisation in financial sectors at a national and regional level.

³ These included the private sector – essentially commercial banks that are members of the SADC Banking Association (SADCBA) – and the central banks in the SADC member states (Wentworth, 2013).

⁴ The SADC Committee of Central Bank Governors (CCBG) approved the SADC Payment Integrations System project in May 2009.

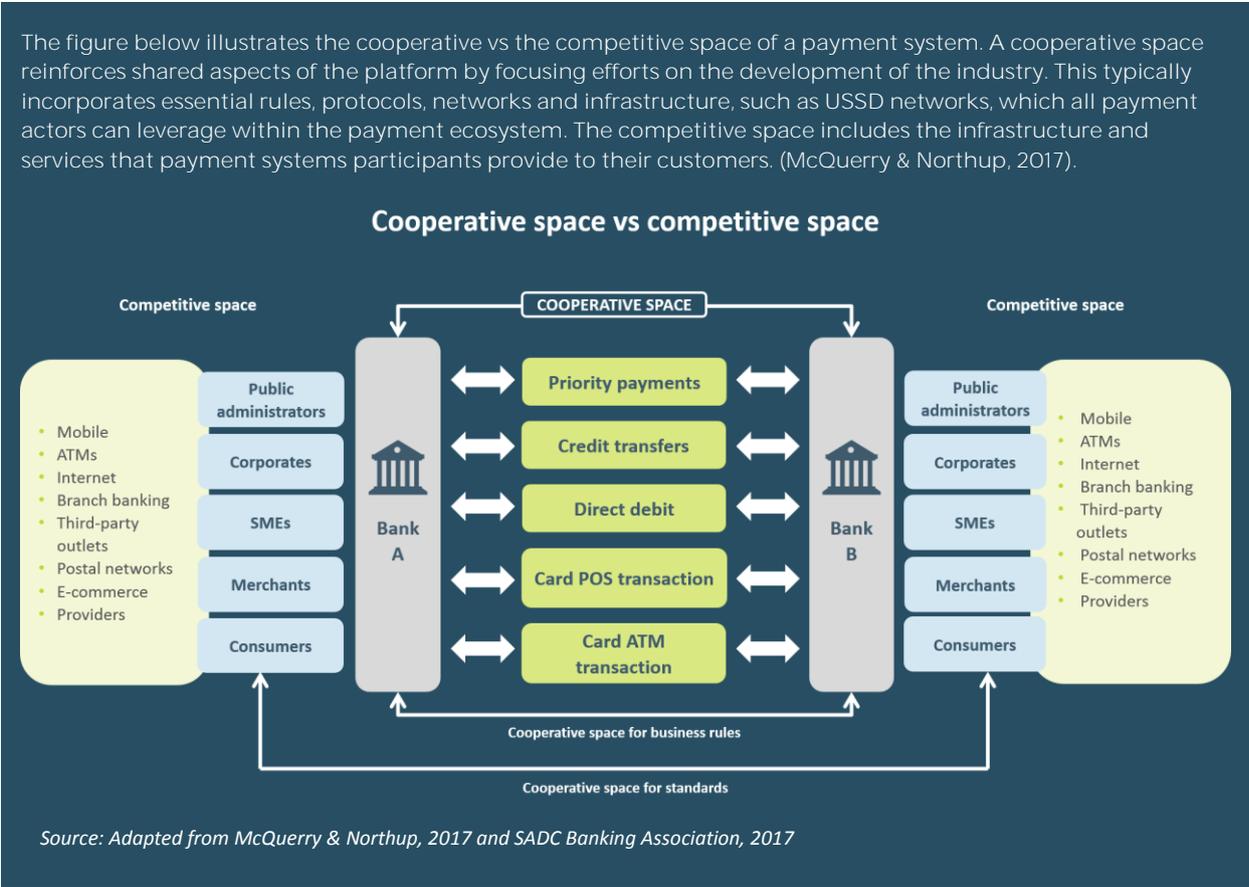
⁵ Excluding the Seychelles

Ostensibly, these measures were implemented to realise the numerous benefits of RFI. This includes the creation of incentives for domestic payment systems reform, increasing economies of scale in operations and competition, promoting FDI and allowing local financial service institutions to grow regionally, continentally and globally (Wentworth, 2013).

Payments infrastructure

Shared regional payment systems increasing regional trade and fostering coordination and harmonisation in NPSs. At the core of the SADC Payment Integrations System project are the principles of interoperability and a cooperative space. Interoperability brings all member countries and their banks together to share the same platform to facilitate cross-border payments. Box 1 illustrates this idea:

Box 1: An illustration of the non-competitive or cooperative space vs the competitive space of a payment system



SADC RTGS⁶ facilitating real-time, large-value interbank settlements between SADC banks and non-banks. The regional payment project created the SADC Real Time Gross Settlement System (RTGS). SADC RTGS became operational in July 2013 in four countries of the Common Monetary Area (CMA)⁷. The implementation of SADC RTGS was a partnership between private commercial banks, as SADC Banking Association (SADCBA) members, and central banks of SADC member states. SADC RTGS allows banks within SADC to settle payments between one another in real time. This means that banks can maintain their correspondent banking relationships but eliminate any inter-bank settlement risk in intra-SADC cross-border payments (Chilosi, et al., 2013). SADC RTGS is owned by SADC through the SADC CCBG. It is hosted and operated by the South African Reserve Bank (SARB). Therefore, SADC RTGS is managed and regulated in terms of South African legislation. SADC RTGS currently settles in South African rand but will begin settling in USD in October 2018 (SADC Banking Association, 2018). Banks and non-banks that are authorised to participate in the settlement systems of their home countries are permitted to participate in SADC RTGS (South African Reserve Bank, 2018).

Payments trends

The value provided by SADC RTGS is evidenced by significant growth in usage since inception. Figure 1 on the next page, shows the volume and value of transactions processed through SADC RTGS since its inception in 2013. In July 2013, approximately 500 transactions (valued at USD813 million) were processed; and in less than five years, this grew to 26,845 transactions (valued at USD8.1 billion) processed in February 2018. By February 2018, SADC RTGS had processed almost 1 million transactions (worth USD343 billion, i.e. over ZAR4 trillion) in total. When one considers the value saved in correspondent banking fees and the volume of regional trade that SADC RTGS has facilitated in its short lifespan, it is clear that the regional RTGS has played an important role in promoting regional financial integration and economic development.



⁶ SADC RTGS was previously "SADC Integrated Regional Electronic Settlement System (SIRESS)"

⁷ The CMA consists of Lesotho, Namibia, South Africa and Swaziland (Wang, et al., 2007)

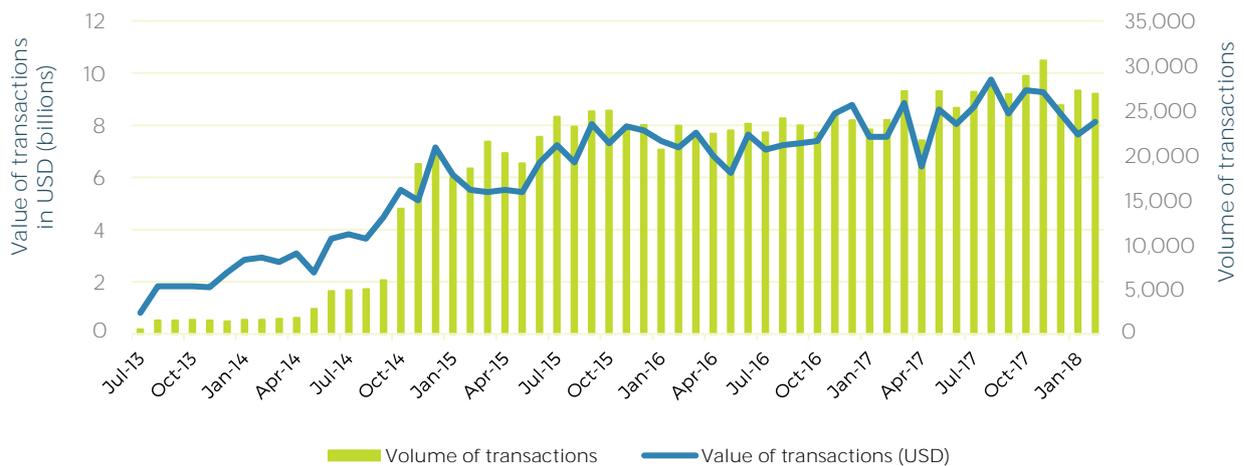


Figure 1: Value and volume of transactions processed through SADC RTGS from July 2013 to February 2018

Source: (SADC, 2017) and (SIRESS, 2017)

Regional clearing house (RCH) to clear retail payments in the near future, but only for cross-border payments. There are plans for retail cross-border payments to be cleared using a regional automated clearing house (ACH) for low-value payments, such as card, EFT credit and debit, card and ATM payments (Wentworth, 2013). Domestic payments will still be cleared locally and settled using local RTGS systems. In June 2015, the SADC ACH Association (SACHA), an association of SADC clearing houses, authorised BankservAfrica to be the operator of the regional clearing system. Their licence is renewable every two years. Given that SADC countries are at different stages of payment infrastructure development, it was estimated that at least four years from inception would be needed to achieve a high level of retail payment processing capability both regionally and domestically; and 2020 has been set as the target for achieving this. To achieve this target, SADC countries need to become comfortable with joint ownership of costly infrastructure, shared processing platforms wherever possible, re-use of existing infrastructure where this is available, and adoption of widely accepted international standards. Government departments will need to take the lead in converting paper-based processes into digital ones,

which will assist considerably. There are also ongoing discussions regarding a regional securities settlement system (Wentworth, 2013).

Regional clearing house (RCH) presenting opportunities for leveraging scale. The establishment of a SADC RCH aims to reduce the time and cost of cross-border retail payments. Contrasted with SADC banks that maintain costly bilateral relationships with each other to facilitate cross-border retail payments, these banks will be able to link into the RCH. Much like how local clearing houses determine net positions and send files to the national RTGS system for settlement, the RCH will do this for cross-border transactions for all SADC banks and send net positions to SADC RTGS for settlement (see Section 2.2.1 for more detail on SADC RTGS). This will make cross-border payments within SADC more efficient and cost-effective.

Key learnings

Existing Intra-regional trade able to justify transition to regional payment systems. Given that there was already a high level of trade between SADC countries, there was already an existing use case for the regional RTGS system, which further encouraged its usage.

Integrated regional infrastructure promotes intraregional regional trade. The success of the SADC RTGS has shown the potential for well-developed regional payments infrastructure for facilitating intraregional trade. The development of the RCH has the potential to deepen this integration by making cross-border retail payments more efficient and affordable. However, the developing domestic payment system for clearing and settling local payments is important for the full utilisation of the RCH to be realised. There is high-level buy-in to push for even greater harmonisation through the creation of SADC-level payment regulation and efforts being made to adhere to Principles of Financial Market Infrastructures (PFMI) from the onset.

2.2 East Africa Community: Leveraging existing systems to facilitate cross border payments

Despite good economic growth in recent years, EAC still struggling with poverty and inequality. The East Africa Community (EAC) is a regional governmental organisation headquartered in Arusha, Tanzania (EAC, 2017). Economic growth in EAC was 5.9% in 2017, and this trend is expected to continue in 2019 and 2020 (AFDB, 2018). Although East Africa has experienced relatively strong economic growth over the past decade, this

growth has generally not led to a reduction in poverty and inequality.

Limited Intra-regional trade in the region. Major contributors to the GDP of EAC are the agricultural and minerals sectors. EAC's most significant exports are coffee and tea, while they mostly import mineral fuels and related products (CGAP, 2018). Although intra-regional trade has grown quite significantly between 2010 and 2015 (USD2.2 billion to USD3.3 billion), it still forms a relatively small portion of total trade. In Tanzania and Kenya, intra-regional trade accounts for 7% and 7.7% of total trade respectively, while in Uganda and Rwanda it is 19.2% and 24.12% respectively. However, CGAP (2018) notes that some of the intra-regional trade can be attributed to exports of coffee and tea, as landlocked countries in the region send goods to coastal countries for export.

Payments infrastructure

Most countries in EAC having core basic payments infrastructure in place. In terms of payment systems, each of the EAC countries has well-established systems with electronic processing of cheques, low-value EFTs and large-value EFTs through an RTGS system. These payments are facilitated by national clearing houses, which operate similarly despite a few differences. For example, the time taken to process transactions, the cost of each system, and the transaction sizes processed by each system differ. Both cheque and EFT processing are noted by CGAP (2018) as being relatively expensive. Each country now processes cheques with truncation technology⁸.

⁸ Rwanda was the last country in EAC to implement cheque truncation, an important technology for digitising cheque processing. This was done early in 2018.

Countries in EAC lacking card switches that operate at significant scale nationally, despite generally well-developed payment systems.

Most of the big banks in EAC issue Mastercard/Visa cards, while smaller banks issue cards supported by domestic aggregators, such as Umoja in Tanzania, and Kenswitch in Kenya. Since large banks are not part of the local card switches, they tend to process insufficient payment volumes to achieve significant scale (CGAP, 2018). The development of card payment systems in EAC has therefore been slow and lags behind other developments. Tanzania is now considering a national switch to promote interoperability and development of card technology in the country (Mirondo & Malanga, 2017).

There are two major regional payment systems that can be used for cross-border transactions:

- Regional Payments and Settlements System (REPSS)
- East Africa Payment System (EAPS)

Usage of REPSS limited by high expense and long processing times. REPSS enables cross-border payments by establishing a central clearing house that each participating central bank holds an account with. In the case of REPSS, the central clearing house is the Central Bank of Mauritius. Any payments made between participating countries are cleared daily, on a net basis, by the Central Bank of Mauritius. Settlement is done in USD/EUR. Cooper et al. (2017) note that banks do not often opt to use REPSS due it being expensive and taking relatively long to process transactions. It is used infrequently and for large-scale RTGS system transactions across borders. REPSS was not actually established for EAC per se but was established for the COMESA region. As such, it includes only some EAC countries.

EAPS leveraging current infrastructure to create an intra-regional system. Rather than establishing entirely new infrastructure and a centralised clearing house, EAPS leverages on existing RTGS systems of all participating countries to create a cross-border platform. In other words, it establishes a bilateral account between each RTGS system in the region. It is a multi-currency system in which transactions are settled in local currencies, not in USD (Sebabi, 2010). EAPS was established for the purpose of facilitating intra-regional trade in the EAC region specifically. It therefore includes all EAC countries, with Burundi being the most recent to be connected (CGAP, 2018). A typical payment through EAPS is illustrated in Figure 2 below.

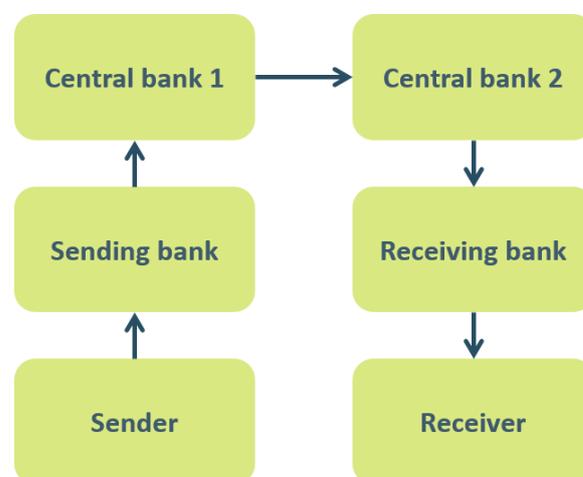


Figure 2: EAPS money transfer process

Source: (Sebabi, 2010)

EAPS is an innovative method for facilitating cross-border trading. It doesn't require any additional infrastructure since it utilises the existing RTGS system infrastructure of countries in the region. This means it can be implemented cheaply and builds on payments networks that are already safe and effective.

Inefficient for banks to hold multiple currencies.

One of the drawbacks of EAPS is that it requires commercial banks to maintain pre-funded settlement accounts in the currencies of the partner states at their central banks. Based on discussions with stakeholders, this has been identified as a problem for the system, especially where banks have to hold currencies that are rarely traded. This is because it is costly and inefficient to hold on to currencies that are not utilised or that are rarely utilised.

Lack of harmonisation of standards and regulation in the various jurisdictions a challenge.

Differences in regulation of payment systems in each country have led to confusion regarding key processes and operational principles. For example, the Consumer Due Diligence (CDD) requirements across countries in EAC are different. This presents a challenge for banks, which have to comply with multiple different AML regimes. Moreover, operating standards in the various payment systems differ. For example, the time requirements for processing payments are different in each of the countries. These issues

present challenges when EAPS is used for cross-border payments.

Cross-border transactions in the EAC region happening mostly via bilateral relationships between banks.

Stakeholder discussions revealed that most banks with a regional footprint across EAC had already established regional hubs and nostro-vostro accounts at the time of implementation of EAPS. Moreover, the EAC region was the only region in Africa that saw an increase in the number of foreign correspondent banking relationships since 2013 (SWIFT, 2018). These existing relationships and new developments are in competition with EAPS and REPSS. As such, most cross-border payments happen via bilateral banking arrangements, not via the regional payment systems (CGAP, 2018). According to the latest SWIFT White paper (2018), in 2017 70% of cross-border payments in EAC were conducted using the US dollar as a settlement currency. This suggests relatively low usage of EAPS, which uses local currencies.

The EAPS system relatively underutilised: not necessarily a bad thing.

Given the above, the EAPS system is relatively underutilised. However, since EAPS uses already-established infrastructure, it was relatively cheap to implement. As such, it is not necessarily problematic that current usage is underwhelming, and the system might be well placed to absorb future demand.

Payment trends

Table 1 presents the volumes and values of transactions for the five countries in EAC in 2016. Namely Burundi, Kenya, Tanzania, Rwanda and Uganda.

	Cheque	Card	Mobile money	EFT
Total volume of transactions (USD millions)	23	318	3,903	26
Total value (USD millions)	31,796	19,787	66,608	12,850
Average value per transaction (USD)	1,399	62	17	496

Table 1: Payment trends across five EAC countries (2016)

Source: (CGAP, 2017)

Retail and wholesale markets served by different channels. From Table 3 it is clear that cheque and EFT are generally used infrequently and for larger payments, such as trades and salaries. This is evidenced by relatively high-average value of transactions (USD1,399 and USD496 respectively). Card and mobile appear to be used more for retail payments, with much high annual volumes and lower average value per transaction.

Mobile a systemically important payments channel in EAC. What is interesting to note is the extensive uptake and usage of mobile money in the region. The total value of payments in this channel in 2016 was USD66 billion, i.e. more than double the value of the next highest value channel (card transactions), which was USD23 billion. This confirms that usage of mobile money across EAC is high enough to be considered systemically important for the region.

Supporting channel infrastructure developed alongside mobile money to facilitate its development. GSMA (2009) notes that an important factor in the success of mobile money

is the ability to reach scale quickly. One of the ways to do this is to ensure that supporting infrastructure is widely available, or at least developed soon after mobile money is launched. In Kenya and Tanzania (two countries in the EAC region where mobile money boomed), the development of agent infrastructure was prioritised early on, and this allowed for the achievement of scale relatively quickly. In addition to simply increasing the physical supply of mobile-money agents, it is important to consider other innovative ways to quickly provide supporting agent infrastructure. For example, Safaricom was able to quickly offer M-PESA services throughout Kenya by expanding the current service offering of its airtime agent outlets. This was especially easy because they did not hold relationships or contracts with individual agents, but with aggregator companies that themselves controlled and employed the actual network of agents.

Thus, by signing agreements with a few aggregator companies, Safaricom immediately extended mobile money access through thousands of agent outlets (GSMA, 2018).

Flexible regulatory structures allowing mobile money to flourish. A large factor in determining the success of mobile money in developing countries is the way in which the regulatory environments are structured (Evans & Pirchio, 2015). Where mobile money developed, countries adopted light regulatory restrictions. This included relatively light KYC requirements, limited requirements for the involvement of banks other than to hold funds, allowing MNOs to issue e-money and allowing MNOs to have agents. Where mobile money failed, regulation often required banks to take the lead in product development, and stricter KYC was required.

Further development of mobile money in countries with infrastructure constraints. Mobile money tends to be more successful in countries, such as those in EAC, where other financial infrastructure and general infrastructure are relatively underdeveloped. For example, in Nigeria and South Africa, there is already an extensive network of ATM and POS infrastructure. On the other hand, in many EAC countries (such as Kenya), this infrastructure is lacking. However, mobile-phone penetration in these countries is relatively high. As of 2017, 63% of Tanzanians own a mobile phone and 93% have access to one. Given high penetration of cellular phones in comparison to other infrastructure, mobile is particularly well placed in some countries to develop as a systemically important channel. This poses important questions regarding the channels to develop depending on current infrastructural constraints and opportunities.

Key findings

Leveraging current infrastructure to support cost-effective regional payment systems. The EAPS system in EAC is able to create intra-region payments without creating anything new. This is done by simply linking existing RTGS systems to one another. Although the system is relatively underdeveloped due to limited intra-regional trade

and pre-existing bilateral relationships, the system is well positioned to supply future demand.

Regulatory harmonisation Important for regional payment systems. It can be a challenge to make use of regional payment systems if the regulation in each participating system is not harmonised, or if operating standards are different. Regional systems are likely to see greater usage if there is regulatory clarity.

Supporting environment to be developed for the preferred payment channel. In EAC, mobile money was able to develop so successfully due to the simultaneous development of the agent network that could be used for cash-in and cash-out. The regulatory environment was also set up in a way that promoted innovation without incorporating excessive risks. This created a strong environment for mobile to develop and fulfill demand for retail services that have so far been unmet.



2.3. West African Economic and Monetary Union: Shared currency, infrastructure and vision

Favourable pre-conditions for further economic development. The West African Economic and Monetary Union (WAEMU), comprises eight mainly francophone nations in West Africa⁹. All eight WAEMU countries are served by a regional central bank, the Central Bank of West African States (BCEAO) and share a common currency: The West Africa CFA franc. The union was initially established as a trade zone agreement. The aim of this agreement was the improvement of trade based on uniform tariffs for goods and to develop a regional stock exchange and regional banking system. The region is home to 124 million inhabitants and boasts a GDP of USD104 billion (AFDB, 2018).

A growing financial sector. The financial sector within the WAEMU region has seen considerable change over the past five years. Flexible payment system regulation has prompted the development and deployment of innovative financial services solutions by traditional and “new” financial service providers. In 2016, the financial sector included 144 authorised credit institutions, of which 126 were banks and 18 were non-banking financial institutions (BCEAO, 2017). The financial sector also boasted five EMIs that are classified as non-bank institutions for the issuance of electronic money (e-money).

Limited business case for expanding financial service networks. Many FSPs remain unconvinced by the “business case” of expanding their DFS offerings into rural areas. Currently, conservative interest rate caps on credit and loans offered, discourage banks and MFIs from further

development of these products. These limited revenue margins act to deter FSPs from committing to long-term investment in new business lines. BCEAO regulation exacerbates this issue as mobile money and OTC agents are required to have businesses registered with the Registry of Trade and Property Credit or an equivalent institution. Registered businesses are often difficult to find, particularly in rural areas.

Low levels of financial inclusion persisting in the region. The WAEMU currently has a limited deployment of traditional financial service points (bank branches and ATMs), which acts as a barrier to financial access in the region. In 2016, 3.8 bank branches and 4.8 ATMs were available per 100,000 adults, with most of these access points being situated in urban centres across the region (IMF, 2017). This is particularly restrictive for the rural population and contributes to the appeal of more accessible informal channels. This is reflected in the limited reliance on formal financial institutions in the region: Only 22% of the adult population hold an account with these institutions. Further, just 8% reported using these institutions for savings, and 6% used them to borrow money (World Bank, 2018).

Payment system infrastructure

Advanced, tightly integrated regional payment system infrastructure. The BCEAO Regional Payment system Project produced high-quality basic infrastructure to deal with both wholesale and retail payments. Payment system components included as part of this reform are the real-time gross settlement (RTGS) system for large-value payments (STAR-UEMOA); a regional interbank electronic clearing system called SICA-UEMOA and an interbank card-based payment system managed by GIM-UEMOA (BCEAO, 2017). National

⁹ Benin, Burkina Faso, Cote d'Ivoire, Guinea-Bissau, Mali, Niger, Senegal, and Togo

payment systems link into the regional interbank clearing system via their own national clearing systems. This forms part of a decentralised network connected to the central sub-regional Compensation System for the clearing and exchange of intra-WAEMU values.

Integration of regional payment system facilitated by the sharing of a common currency.

A key feature of this payment system framework is a single currency used by all member states in a region. The decision to retain a common currency, the West African CFA franc, simplifies the exercise of regional payments integration, as there is a strong base of cooperation on monetary policy among member states. This enables increased speed of settlements and reduced cost.

Scale not optimally leveraged. While member countries have access to a world-class clearing and settlement infrastructure, the low levels of formal financial inclusion remain problematic (Musuku, et al., 2011). As a result, payments infrastructure remains markedly underused; and usage costs, although lower than before, remain very high. Consequently, the reductions in the cost of clearing and settlement through leveraging economies of scale are not fully realised and can act as a barrier to further payment system participation at the national and regional levels.

The GIM switch: a driver of interoperability in the WAEMU. By 2015, more than 100 banks and financial institutions across the WAEMU had been incorporated into an interbank card-based payment system, enabling customer access to a network of more than 3,500 ATMs and 2,500 point of sale (POS) devices (KPMG, 2016). The expansion of the GIM network promotes the interoperability of formal payment services, as consumers can engage in payment services across a number of platforms supported by the switch. This includes interoperable cards, internet, or mobile instruments. Increased interoperability is likely to lead to a reduction in the cost of payment services

as interconnected systems leverage a higher volume of transactions. A further value proposition of the GIM network is customer security. When a customer makes an interbank transaction at interconnected ATMs or access points within the GIM network, transactions are not reputable. The customer is therefore secure from end to end, and this promotes consumer confidence in the use of various FSPs and payment channels.

GIM-UEMOA has set a medium-term goal to establish an inter-regional network between systems such as Payment and Interbank Settlement Ghana Systems Limited (GhIPSS), the Interbank Payment Systems Group of Central Africa (GIMAC) and the Nigeria Inter-Bank Settlement System (NIBSS), among others (GIM-UEMOA, 2018).

Regulation

WAEMU guidelines: a good template for sound regulation of payment systems. The rapid evolution of the payment system landscape has meant payment system regulation has had to constantly adapt to the roles of new market entrants to ensure payment system integrity. In 2015, e-money regulation governing the terms and conditions of e-money issuance activities in WAEMU was amended in close consultation with different stakeholders throughout the payments value chain (Vasudevan, et al., 2017). It offers a much-needed update from the previous framework by clarifying roles and obligations of different stakeholders in the e-money value chain, **particularly those of the banks' and their technical operators, e.g. MNOs.** This has allowed the BCEAO to further regulate and more closely supervise the riskier operational aspects of e-money. This is a positive step in the payment system development process, as it provides regulatory certainty for PSPs and acts to limit AML/CFT risk in the system.

Intra-regional, cross-border payments to benefit from streamlining of regulatory requirements.

The regulatory burdens around cross-border transactions continue to limit the use of the regional payment systems. In particular, a lack of coordination among national authorities around telecommunications licensing and regulation has increased the regulatory burden on FSPs in the region. The BCEAO has placed additional requirements for separate licensing of financial services on each country in which such services are offered (Vasudevan, et al., 2017). This has disincentivised FSP investment into interoperable frameworks and has raised the cost of cross-border payments in the region. In 2016, cross-border retail payments accounted for only 1.13% of the total transactions processed through the regional ACH, SICA-UEMOA (KPMG, 2016). This is likely to have an impact on the uptake and usage of electronic payments and could significantly hamper expansion of these services.

E-money guidelines supporting the non-banking model. By clarifying the roles and obligations of e-money stakeholders, the 2015 e-money guidelines further encourage innovation in the issuance of e-money in the region. The guidelines have enabled the implementation of a “non-banking model”, allowing the market to develop with non-bank institutions leading the way. MNOs and other non-bank providers are now less constrained by the rigidity of banks as partners. This has driven the expansion of DFS in the region and made financial services more accessible to the financially excluded.

Payments trends

Mobile money holding increasing systemic importance. Mobile financial services have made significant progress across WAEMU, largely supported by flexible electronic money regulation. By 2016, the annual transaction volumes had reached 735.3 million, an increase of 47% on the previous year (Figure 3 on the next page). Meanwhile, in 2013 the value of mobile financial services in the region equated to 3% of the region’s GDP, while this increased to 22% by 2016. This underlines the growing systemic importance of electronic payment solutions in conducting financial activities in the region (BCEAO, 2016).



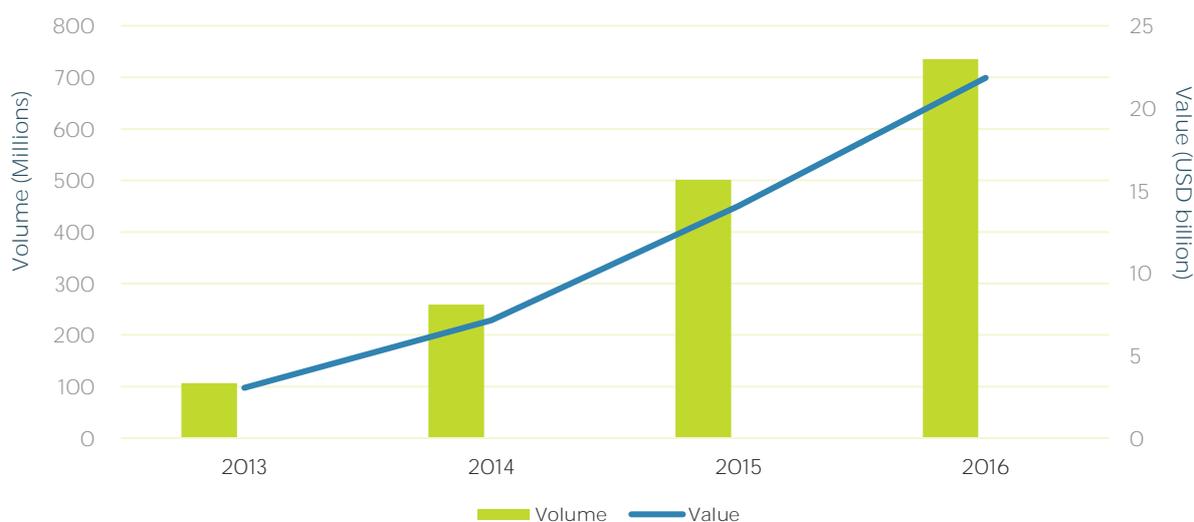


Figure 3: Volume and value of mobile financial services

Source: (BCEAO, 2016)

Full potential of mobile money yet to be realised. While the volume and values of mobile-money transactions in the region have been increasing, overall innovation in delivery of mobile financial services remains sub-optimal. This is particularly evident when compared to the more sophisticated financial products (such as micro-credit and microinsurance) found in East Africa. Innovation may be hampered by limited uptake of DFS and low activity rates among subscribers. In Senegal and CDI, reasons cited for the limited uptake of DFS include insufficient or irregular incomes of consumers, a perceived lack of need for mobile-money services or high fees associated with DFS (BCEAO, 2016). Meanwhile, activity rates¹⁰ of subscribers decreased from 50.6% in 2013 to 34.6% in 2016. This may be ascribed to FSPs achieving a

high sign-up push and subsequent account dormancy.

Legacy systems still prominent for non-cash payments. Although the BCEAO has prioritised a systemic shift towards modern non-cash payment instruments and channels, cheques continue to account for most non-cash payments in the region (BCEAO, 2016). In 2016, interbank checks accounted for 65% of the volume of transactions processed in the regional ACH (SICA-UEMOA) and 85% of the value (Figure 4, on the next page). This illustrates the extent to which the payment system continues to be dominated by paper-based instruments such as cheques, despite the gradual increase in mobile money usage.

¹⁰ Active accounts

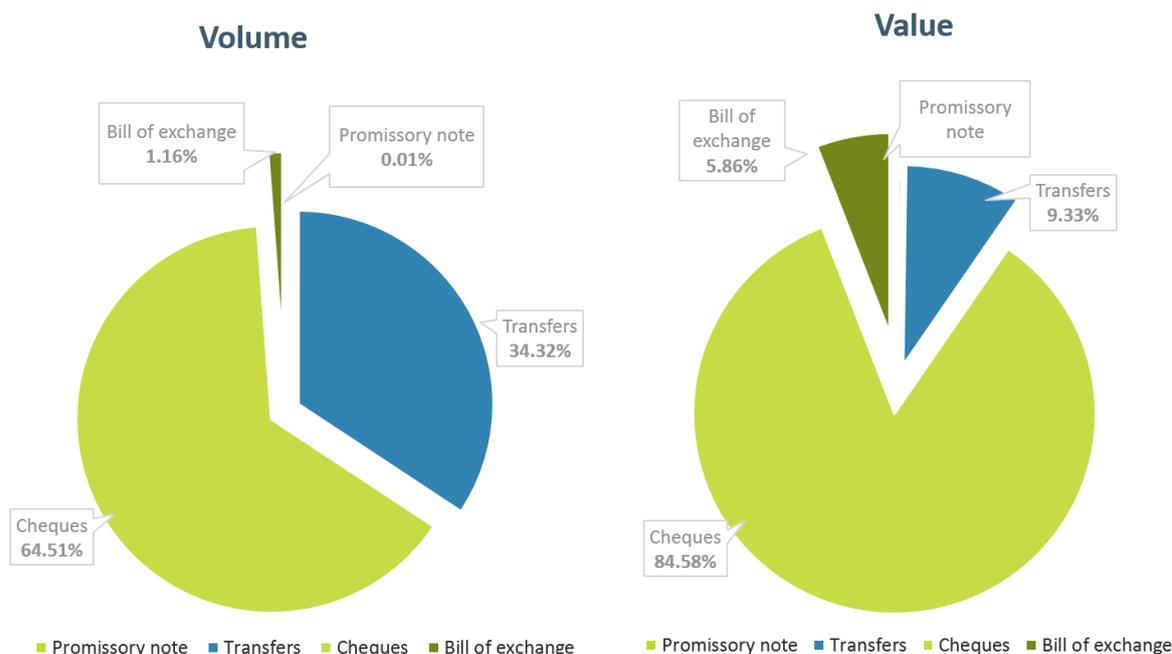


Figure 4: Distribution of payment instruments in terms of volume and value (2016)

Source: (BCEAO, 2016)

Key learnings

MNO-led landscape positive for innovation in DFS. MNOs in partnership with other financial institutions are the key actors in the supply of DFS in the WAEMU payments landscape. The 2015 e-money guidelines are expected to enable MNOs to become more independent of their bank partners and create EMI subsidiaries, which should allow more flexibility and innovation in development of payment system solutions. The guidelines are also likely to encourage a shift in the nature of partnerships between financial institutions and MNOs to focus further on developing second-generation DFS.

Increased regulatory coordination able to boost intra-regional retail payments. While the uptake and usage of DFS continue to grow in WAEMU member countries, the volume of intra-regional retail transactions remains limited. A lack of coordination between national regulatory bodies and the BCEAO has increased the costs for PSPs and customers that seek to conduct cross-border payments in the region. There is clearly a need – and opportunity – for the introduction of a system of mutual recognition whereby a service sanctioned by one country can be “cross-licensed” in other countries – similar to the EU passport system model for service providers. This will streamline payment processes and strengthen the case for developing interoperable platforms that can facilitate low-cost and efficient cross-border retail payments.

Private sector buy-in important for payment system development. A key constraint in the WAEMU is that many banks, MFIs and even some MNOs are not yet convinced of the business case of growing their digital payments solutions and would rather allow other actors to take the initiative in this area. The relative importance of other revenue streams helps to explain why MNOs are not prioritising DFS, and this directly affects the level of innovation realised in terms of payments instruments, financial service offerings and cost reduction. Regulators, policy-makers and donors may therefore need to play a stronger role in encouraging providers to develop DFS products suited for lower-income populations until the use case for such services has been better established in WAEMU.

Realising the full potential of an underutilised payment system through financial inclusion. Although the BCEAO regional payment system project produced high-quality basic infrastructure to deal with both wholesale and retail payments, the infrastructure remains markedly underused, and usage costs remain relatively high. To address this, the BCEAO, along with the national Ministries of Finance, is developing a regional financial inclusion strategy that targets 70% of the adult population to be financially included by 2020. This strategy will need to address the development of sustainable agent networks in rural areas, the accessibility and affordability of USSD channels for FSPs, and interoperability across MNOs and financial institutions.

2.4. CEMAC: Divergent national strategies can undermine regional payment system development

CEMAC a small, undiversified region. The Economic and Monetary Community of Central Africa (CEMAC) comprises six member countries in Central Africa¹¹ and a population of 53 million (AFDB, 2018). CEMAC was established to promote the process of sub-regional integration through the formation of a monetary union, with the Central African CFA franc as a common currency. Most countries in the region are heavily reliant on the export of primary products, such as oil and mineral extracts. This makes them particularly vulnerable to external economic shocks (AFDB, 2018).

CEMAC financial sector remaining shallow. The financial system in the region remains relatively underdeveloped; and while diversification within the sector has increased, it is still largely dominated by the banking sector. In 2016, the financial sector included 52 commercial banks, 825 MFIs (World Bank, 2018), 12 EMIs (BEAC, 2017) and the Central Bank. Weak intra-regional trade, poor infrastructure development and rigidities regarding the movement of money, people and goods continue to hamper growth and development prospects in the region.

Enabling formal financial inclusion remaining a priority for CEMAC member states. Across CEMAC, financial inclusion remains low for both individuals and firms. There is a high dispersion of traditional financial service access points, including ATMs and bank branches. Figure 5, on the next page, highlights how ATM distribution in CEMAC

¹¹ Cameroon, Central African Republic (CAR), Chad, Equatorial Guinea, Gabon, and the Republic of the Congo

remains largely under-deployed. The number of bank branches per 100,000 adults was similarly low (3.93), with on average 19% of the adult population having access to a bank account (World Bank, 2018). The under-deployment of these financial access points represents a significant barrier to financial inclusion in the region. Consequently, borrowing from informal lenders is more frequent than borrowing from a financial institution in all member countries apart from Cameroon (World Bank, 2018).

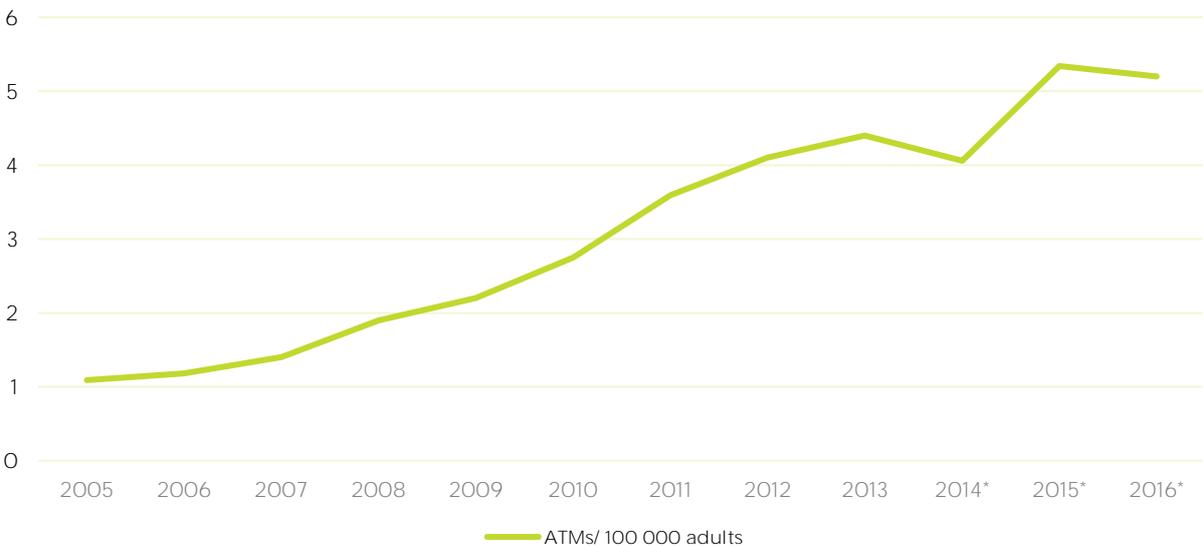


Figure 5: Number of ATMs per 100,000 adults
 Source: (IMF, 2017)

Modern payment system infrastructure not fully operational. The CEMAC region has made progress in introducing payment systems infrastructure designed to support payments at a broader level in line with regional financial integration goals. These systems, which are operated by the BEAC, include a real-time gross settlement system (SYGMA) and automated clearing system (SYSTAC) that support bulk payments at country and regional level (BEAC, 2011). These are currently the only two components

of the payment system that are fully functional. The Interbank Card Payment System (SMI) remains largely inefficient due to an outdated operational strategy that utilises separate regulatory and technical bodies. The regional payment systems are still in a critical stage of transition from deployment of infrastructure to widespread adoption and usage of electronic payment instruments and services.

CEMAC payments interoperability boosted by introduction of interbank switch. The introduction of the GIMAC¹² payment card is a positive step in attempting to drive financial inclusion in the region by enabling interoperable payment systems. A recent partnership with TerraPay¹³ will further enable real-time, cross-border money transfer to bank accounts and mobile wallets in the CEMAC zone (TerraPay, 2018). These measures will facilitate low-cost, secure and convenient money transfers to the region.

Payment system regulation

Regional authorities lacking oversight capacity to ensure efficiency and integrity of payment systems. The BEAC's oversight capacity is limited and not supported by a framework for cooperation with other pertinent authorities¹⁴ or payments market participants such as MNOs. Regional institutions are ill-equipped to monitor the number of access points, points of service and agents in operation (World Bank, 2018). This makes it difficult to supervise financial institutions or to develop an appropriate risk-based approach for both prudential and market supervision. Without these measures in place, the payment system is exposed to ML/FT risks.

Limited harmonisation of regional and national regulation. Regulatory responsibilities and oversight in the region are outlined in the treaty establishing the CEMAC. This model ensures the devolution of regulatory authority to central points, which are responsible for member states. In practice, the existing regulatory structure remains

complex. This is due, in part, to the cohabitation of multiple regional regulatory frameworks, including the Central Bank, a regional banking sector regulator (COBAC) and country-specific regulation (Akon, n.d.). This has hampered authorities in the development of a harmonised regional payment system approach. Consequently, there is increased uncertainty about the applicability of regional and domestic laws particularly regarding e-money, in addition to double authority problems of administration.

Payment systems regulatory framework not in line with international good practices. CEMAC regulatory authorities continue to base their assessments of systemically important payment systems on the 10 core principles of Systemically Important Payment Systems (SIPS) and not on the Principles of Financial Market Infrastructure (PFMI) standards. This lag in adopting the PFMI standards suggests that the financial market infrastructure in CEMAC does not conform to international best practices regarding strengthening and preserving the stability of payments and securities settlement systems (BIS, 2017).

Banking model preferred in CEMAC. The CEMAC region differs from comparable RECs such as the WAEMU, in that the BEAC only allows the banking model for the issuance of e-money. The BEAC reserves this functionality exclusively for authorised credit institutions (BEAC, 2017).

¹² Interbank Payment Systems Group of Central Africa

¹³ TerraPay is the world's first mobile payments switch – a B2B transaction processing, clearing and settlement service for mobile wallets.

¹⁴ Telecommunications regulatory authorities

Payment trends

Contrasting payment activity across the region.

A large disparity exists in payment activity between CEMAC countries. In Equatorial Guinea there is no institution authorised to issue e-money. Similarly, in the Central African Republic (CAR), mobile money was only recently introduced (launched in April 2016), and activity remains nascent. Further, Cameroon accounts for 70% of the value of e-money transactions in the Union (BEAC, 2017).

Mobile money has the potential to catalyse digital financial services in the region.

The gradual modernisation of payment methods in the region may provide the impetus to realise broader and more equitable access to DFS across the CEMAC. At present, customers have the option of utilising mobile money or prepaid cards to make electronic payments. In 2017, mobile money

accounted for 97% of the e-money transactions in CEMAC, highlighting its importance as a tool to promote DFS. Figure 6, below, indicates that the volume and value of transactions made using mobile money increased significantly from 2015 onwards, reaching 197 million transactions in 2017 (BEAC, 2017). The growth in volume suggests a greater receptiveness of consumers to the use of mobile money to conduct payment operations.

A worrying indicator is the low number of active mobile-money accounts in the region – only one in three accounts were actively used in 2017 (GABAC, 2017). This suggests an initially strong sign-up push may not have been supported by the development of products that offer sufficient value to customers. In addition, the weak cash reticulation system has hampered the expansion of agent networks and consequently limited customer usage.

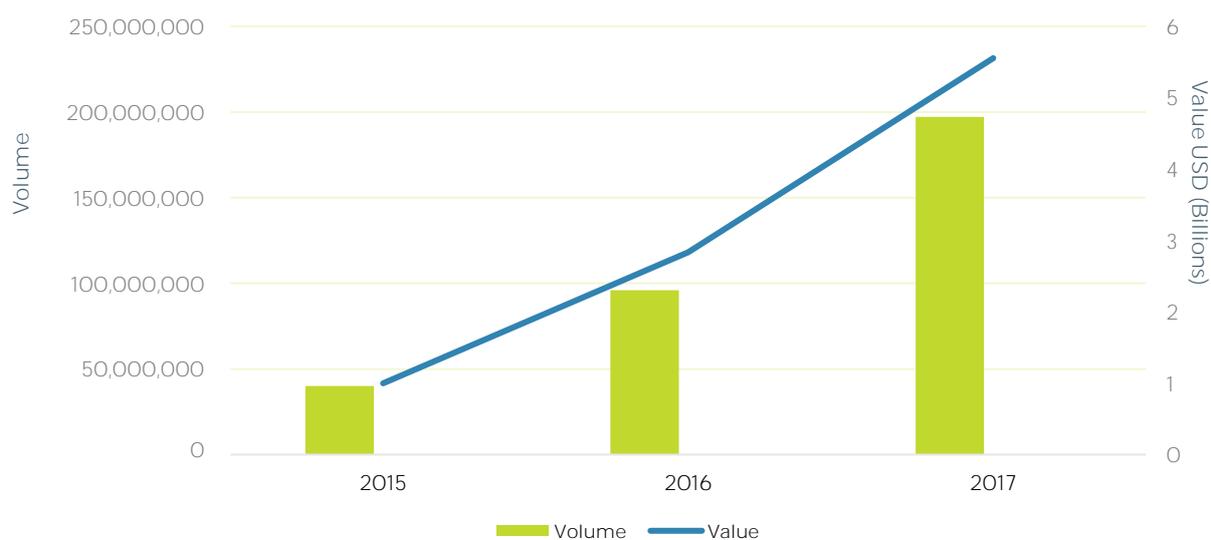


Figure 6: Volume and value of mobile-money payments in CEMAC

Source: (BEAC, 2017)

Prepaid card use highlighting underlying constraints to regional payment ecosystem.

Prepaid cards have become the most commonly used e-money instrument to facilitate international transactions from the CEMAC region, with transactions valued at USD124 million in 2016 (BEAC, 2017). Figure 7, below, highlights that while the volume of “On-us” and intra-CEMAC transactions have gradually increased, the far superior growth in international transactions through prepaid cards suggests a lack of incentive

or capacity to conduct intra-regional payments. This may be a symptom of diverging national interests and a lack of coordination regarding the promotion of intra-regional activity. Ultimately, the bulk of consumer payments in CEMAC represent high-volume, low-value transactions. This underlines the need for the design and implementation of appropriate initiatives that facilitate increased usage of payment instruments – particularly those used for large-volume recurrent payment streams within the Union.

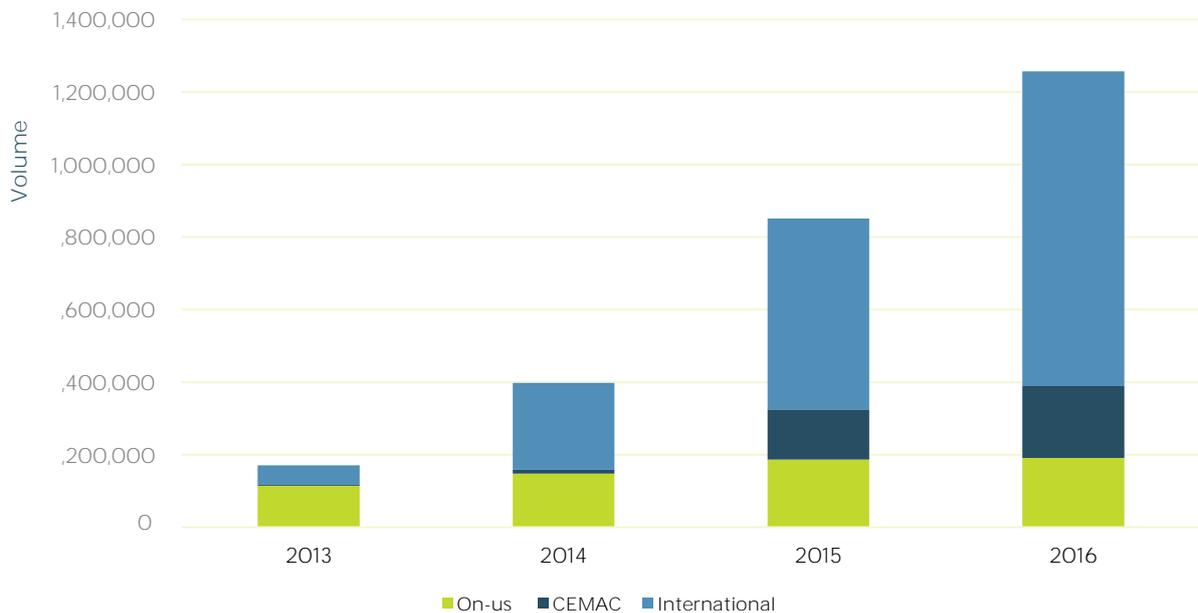


Figure 7: Prepaid card transactions

Source: BEAC (2017)

Payment system development slowed by diverging political priorities. Despite the gradual regional reform of payment system regulation and infrastructure, member countries have been slow in creating an enabling environment. As a result, the common currency and a well-structured regional institutional setup have not led to the desired financial integration in the region (Byiers, 2014). Intra-CEMAC imports dropped from 12% to 0.3% and intra-CEMAC exports from 5.4% to 0.2% (Byiers, 2014). The low and declining levels of trade suggest limited economic interdependence but also little interest among economic and political actors in member states. Progress in payments integration in the region is further hampered by member nations that prioritise national interests over regional development. This has complicated efforts to develop and install harmonised payment system frameworks across the region.

Key learnings

Lack of harmonisation between regional and national authorities creating inefficient outcomes. A clear legal hierarchy has been established by the BEAC, under which supranational provisions override the national legal framework. In practice, the presence of multiple regulatory authorities has led to a lack of clarity on regulatory jurisdictions in the region. This has resulted in problems of administration and frictions that arise due to a lack of cooperation pertaining to the enforcement of COBAC decisions. The outcome of this double authority is often unnecessary inefficiency, which incurs added costs to operations and discourages consumer participation through formal payment channels.

The inability to look beyond national interests. A common currency and a full and comprehensive institutional framework have not enabled member countries to achieve a high level of regional payment system integration in CEMAC. The situation reflects an absence of consensus at national levels regarding the benefits of regional integration and difficulties in going beyond national and short-term interests.

Oversight capacity of BEAC falling short. The BEAC's oversight functions are hampered by inadequate equipment and human resources and are not supported by a framework for cooperation between authorities and payments market participants. This has resulted in significant gaps in regulatory awareness of payment system activity, risks and solutions. The BEAC is currently developing new regulation around mobile money as part of an updated legal framework incorporating payments innovations and anti-money laundering mechanisms (BEAC, 2017). A functional approach to payments oversight may be preferable, as it covers relevant aspects of the regional payment system, such as financial market infrastructures and payment instruments and services.

3 National payment system case studies

A national payment system (NPS) encompasses all payment-related activities, processes, mechanisms, infrastructure, institutions and users in a particular country. In many SSA countries, NPSs are still largely designed to support traditional banking systems, which rely on predominantly large-value, low-volume payments. However, the advent of mobile payments and advancing technologies has led to many interesting innovations in national payment systems in the region.

3.1. Nigeria: Excellent payment systems infrastructure with room for growth in retail payment usage

A strong economic diversification imperative. With a population of 186 million people, Nigeria is the most populous country in Africa (World Bank, 2018a). Its economy is heavily reliant on oil, and the drop in oil prices between 2014 and 2016 plunged the economy into a recession. Although oil prices have since then recovered, resulting in the recovery of the overall economy (African Development Bank Group, 2018), Nigeria's dependence on oil leaves the economy and individuals vulnerable to exogenous shocks. Financial sector development is imperative for diversifying the economy and for ensuring sustainable economic growth and development. Moreover, financial inclusion has the potential to make individuals, particularly those in low-income groups, more resilient to economic shocks through assisting them in accessing savings, investment, payment, credit and risk management services (Aro-Gordon, 2017).

Low rates of financial inclusion. According to the Access to Financial Services in Nigeria 2016 survey, the proportion of financially excluded adults in Nigeria increased from 39.5% in 2014 to 41.6% in 2016 (EFInA, 2017). This increase is attributed to the growth in the adult population outpacing that of the banked population and a decline in the contribution of microfinance banks to formal financial inclusion. Of the 94.6 million adults¹⁵ in Nigeria, only 38% have made an electronic payment using a transactional account with a regulated financial institution in the last 12 months (EFInA, 2017). Mobile-money usage in Nigeria is also very low, with only 1% of adults having signed up for mobile-money services in 2016. This represents only a 0.2% increase since 2014 (EFInA, 2017).

Access to formal payments is a crucial part of financial inclusion, as payments are foundational to how individuals live their lives on a daily basis. It is therefore important to understand who payment systems participants are, how they are regulated and how the existing infrastructure can best serve those who are excluded.

This case study provides an overview of the strengths and weaknesses of the Nigerian digital payments ecosystem in order to better understand how it can be improved to work more efficiently for the promotion of financial inclusion and broader economic development.

National payment system infrastructure

Nigerian Inter-Bank Settlement System (NIBSS) facilitating cooperation among competitors in the NPS. NIBSS plays an integral role in facilitating

¹⁵ In the EFInA Access to Financial Services in Nigeria 2016 Survey, adults are classified as people 18 years of age or older (EFInA, 2017).

cooperation among competing FSPs in the Nigerian payment sector, while driving innovation and efficiency in the non-competitive space of the country's NPS. Having commenced operations in June 1994, NIBSS's mandate was the development of the Nigerian NPS, with a particular focus on retail payments¹⁶. NIBSS operates the Nigerian Automated Clearing System¹⁷ (NACS) and the Nigerian Central Switch (NCS). The NCS facilitates interoperability between the various players in the financial system.

NIBSS is owned by all licensed deposit money banks (DMBs) and the CBN¹⁸. The benefit of the type of ownership structure is that there is regulatory oversight over the operations of the most strategically important elements of the NPS, which ensures that a market development mandate is pursued. Furthermore, there is buy-in from private-sector payment service providers, who have the best view of how the NPS should be designed to best suit the needs of the market. The equal share ownership among DMBs means that larger banks do not have undue influence over how NIBSS is operated. However, NIBSS's board representation is determined by the value and volume of payments. The top four banks by value and volume of payments are represented on the board. This representation is revised every five years (NIBSS, 2018).

Interoperability ensuring that PSPs compete on services and not infrastructure, which encourages market development. Interoperability, which is facilitated by the NCS, allows payment service providers (PSPs) to leverage existing infrastructure to provide payment services to more people. This means that PSPs compete to provide better services, instead of monopolising the market due to their reach and infrastructure. Interoperability also allows the industry to share the costs of payment infrastructure and encourages cooperation among competitors to expand the market. Consumers ultimately benefit because costs of payments are lower and touch points for digital payments become more ubiquitous.

T24 core banking system allowing new RTGS system to be operational 24/7. As the operator of NACS, NIBSS is required to send net settlement positions of banks from the clearing house to the national RTGS system at specific times. The CBN Inter-Bank Fund Transfer (CIFT) is the Nigerian RTGS system and it began operations in December 2006. It was upgraded in 2013 to create a more "robust system" that would meet the needs of a modern national payment system. CIFT interfaced with the T24 System core banking application, and all DMBs and Discount Houses are direct participants.

The T24 System is a significant development of the Nigerian NPS, as it allows 24/7/365 online operation, which removes the need for end-of-day processing

¹⁶ The Nigerian payment system supports a wide variety of payment channels and instruments, such as cash, cheques, electronic funds transfers (EFTs), NIBSS Instant Payments (NIPs), NIBSS Electronic Funds Transfer (NEFT) transactions, ATM, POS, mobile payments, internet (Web) transactions, international payments (SWIFT) and the RTGS system.

¹⁷ NACS is the automated clearing system of the entire banking and financial industry for both electronic instruments (NEFT) and derivatives/image paper-based instruments (cheques).

¹⁸ The Board consists of the Deputy Governor (Operations), Central Bank of Nigeria, as the Chairman and Representatives of the stipulated Banks.

(Central Bank of Nigeria, 2018). In addition to this, CIFT interfaces with Scriptless Securities Settlement Systems (S4). Before securities are moved, S4 sends a message to CIFT to ensure the buyer has funds. Upon confirmation, the RTGS system sends a message to S4 to effect the movement of funds. The new RTGS system also facilitates straight through processing (STP) between CIFT and core banking applications. It uses the SWIFT messaging format and operates on the SWIFT network. CIFT checks all the boxes for a central bank system with dynamic securities management linked to the RTGS system, which makes it efficient for banks to remain invested in interest-bearing securities while still having access to the value (Central Bank of Nigeria, 2018).

NIBSS Instant Payment (NIP) System highly innovative and building trust in the payments sector. NIP is a point-to-point funds transfer service that guarantees instant value to the beneficiary. It is a real-time, online, bank-account-number-based, inter-bank credit transfer. NIP is offered on mobile, internet and branch banking platforms for individual and corporate clients and is leveraged to run the NIBSS e-Billspay¹⁹ product for bill payments. The ability to receive instant payments regardless of which bank the payment is sent from or which payment channel is used is highly innovative. According to NIBSS, it is an African first. In a market where a high incidence of fraud and corruption undermines trust in formal institutions (Hoffmann & Patel, 2017), the instant receipt of

funds builds trust in the reliability of the payment system. The almost instantaneous transfer of value also brings the value proposition of digital payments closer to that of cash (NIBSS, 2018).

Convenience of NIP has made it more popular than standard EFT payments. Figures 8 and 9, on the next page, show the volume and value of NIBSS Electronic Funds Transfer (NEFT), NIP and POS transactions from 2016 to 2018, respectively. These graphs show that the growth in usage of NIP in both value and volume has dwarfed that of NEFT over this period. In February 2018, NIP transactions for that month were valued at USD15.4 billion compared to only USD2.3 billion for NEFT. This stark difference in usage may be attributed to the superior value proposition of NIP over the NEFT. For instance: with NIP transactions, payment recipients get value within 10 minutes of the transactions being completed, compared to up to 24 hours for EFT (Adegbesan, 2017). These transactions can also be completed using mobile-phone applications. NIBSS e-Billspay, which leverages NIP, has also created a use case for NIP, which has demonstrated its functionality for everyday payments, thus promoting its uptake. NIP, however, does have a much lower transfer limit than NEFT. NIP transfers are capped at USD13,788 (NGN5 million) for transfers to individuals and USD27,576 (NGN10 million) to corporate bodies, compared to a USD275,764 (NGN100 million) transfer limit for NEFT (Adegbesan, 2017).

¹⁹ NIBSS e-Bill Pay is an account-number-based, online, real-time credit transfer product that allows one to make payments by leveraging bank security. It leverages NIP, which allows straight through processing from the payer to the payee. Unlike other payments, it does not use the card, but is based on the account number of payers and payees so that value can be exchanged in real time (NIBSS, 2018).

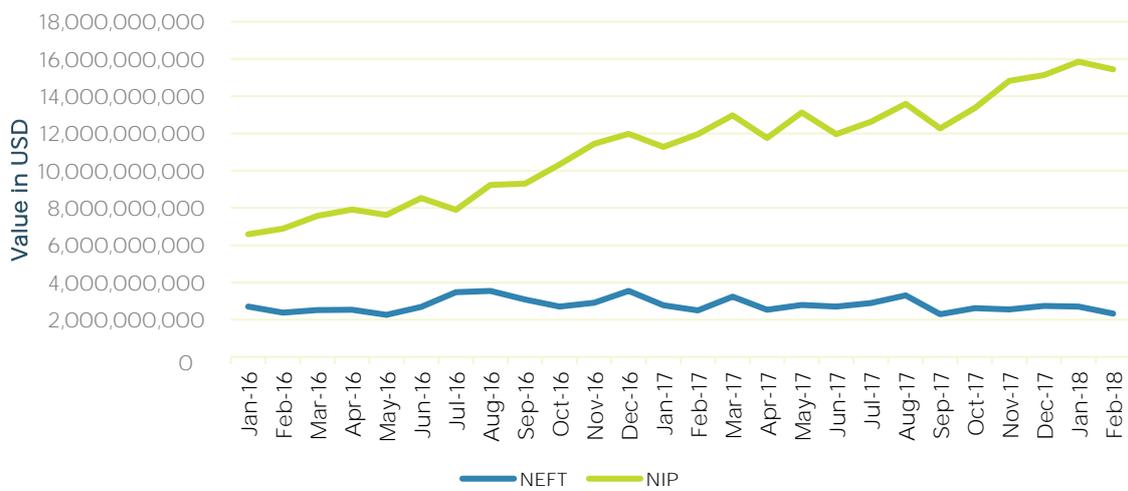


Figure 8: Value of NEFT and NIP transactions from January 2016 to February 2018 (in millions)

Source: (NIBSS, 2018)

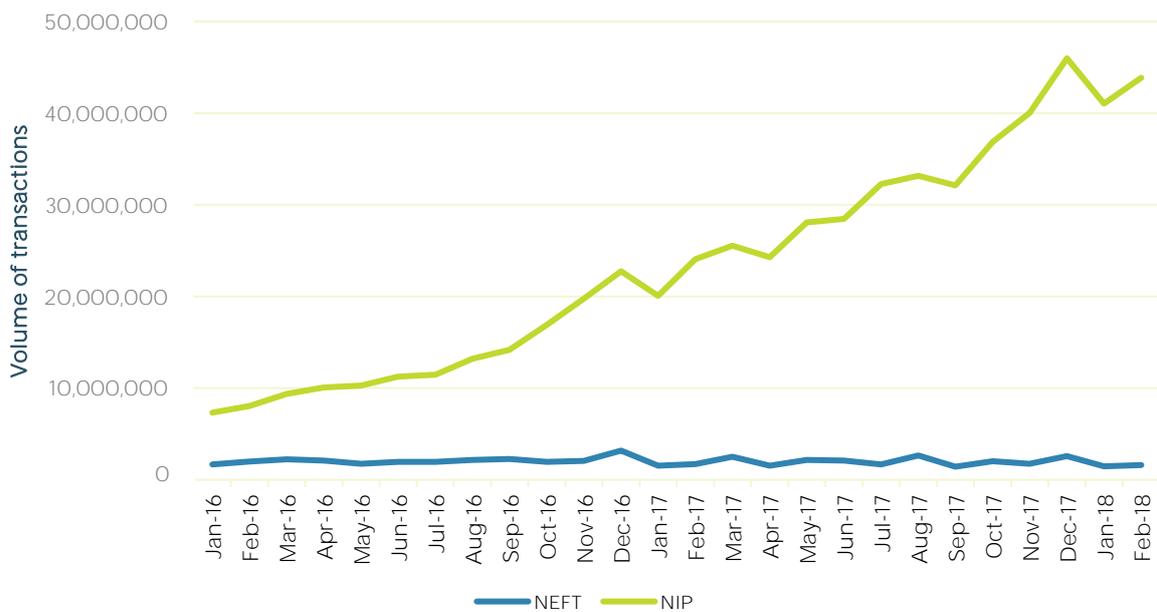


Figure 9: Volume of NEFT and NIP transactions from January 2016 to February 2018 (in millions)

Source: (NIBSS, 2018)

Regulation of national payment system (NPS)

Sophisticated national payment system (NPS) regulated by the Central Bank of Nigeria (CBN).

The Nigerian payment system consists of 25 licensed commercial banks (also referred to as deposit money banks)²⁰, 50 licensed payment service participants²¹ and just over 3,900 other licensed financial institutions²² (Central Bank of Nigeria, 2015). The CBN is the primary regulator of the Nigerian Payment System (CBN, 2007). Its mandate with regard to payments is to promote and facilitate the development of efficient and effective systems for the settlement of transactions (including the development of electronic payment systems). The Nigerian Deposit Insurance Corporation (NDIC) complements CBN's supervisory authority by insuring all the deposit liabilities of banks in order to protect depositors against bank failure and instil public confidence in the system (NDIC, 2006).

Absence of NPS Act having created regulatory uncertainty. Currently no NPS Act exists, but there are two competing bills: the National Payment Systems (NPS) Bill of 2017 and the Payment Systems Management (PSM) Bill of 2017. These bills have similar objectives, but they have different implications for the regulation of the Nigerian NPS.

The NPS Bill is a variation to an earlier harmonised²³ PSM Bill; and according to the CBN, the NPS Bill undermines some of its authority and poses "serious danger" if adopted. The harmonised PSM Bill appoints the CBN as the only authority for "management, regulation and oversight of the payment system, with a Payment Scheme Boards and a Strategy Committee". However, the NPS Bill 2017 allows an association of payment system participants to act in a self-regulatory capacity. Under the PSM Bill, the CBN is empowered to give authorisation, refusal or revocations to operate or participate in the Nigerian NPS, but the bank is given no such authority under the NPS Bill. This responsibility rests with an association of payment system participants. Essentially, the NPS Bill allows the payments industry participants to regulate themselves. However, international best practice is that the CBN should oversee the payment system. (Nelson, 2017).

Regulatory proportionality promotes access to digital payments

Tiered know-your-customer (KYC) requirements meaning that proportionality is applied based on risk profile. In Nigeria, KYC is tiered according to low-value, medium-value and large-value accounts (see Table 2, on the next page). These tiers apply to accounts with commercial banks and mobile-

²⁰ 20 of these are standard commercial banks, four are merchant banks and one non-interest bank

²¹ Four domestic card schemes, 21 mobile-money operators (MMOs), three payment solutions providers, fourteen payment terminal service providers, six switches, and two third party processors.

²² These include 958 microfinance banks (MFBs), three discount houses, six development finance institutions (DFIs), 35 primary mortgage banks (PMBs), 66 finance companies, and 2,839 bureau-de-changes.

²³ As part of the Nigerian Payment Systems Vision 2020, a Legal Special Interests Group was given the responsibility of creating the Payment Systems Management Bill. This group studied the payment systems legislation of India, Namibia, Ghana, South Africa, Croatia, Australia, the European Union and Malaysia to inform the development of the Bill. They came up with the Payment Systems Bill (PSB), 2016. The PSB was then harmonized with a similar Bill called the "Payment Systems Management Bill, 2016" which produced the Payment Systems Management (PSM) Bill of 2017. (Komolafe, 2017).

money accounts. Tier 1 account holders are not required to have Bank Verification Numbers (BVNs)²⁴ and evidence or verification of KYC information; however, BVN is required for Tier 2 and Tier 3 accounts (CBN, 2017). Tiered KYC

promotes the usage of formal digital payment systems, because it makes the burden of proving and verifying the identity of low-income consumers lighter and thus makes low-value accounts more accessible.

Regulation	Tier 1 Low-value accounts	Tier 2 Medium-value accounts	Tier 3 Large-value accounts
Identification	Passport photo, name, place of birth, date of birth (DOB), gender, address, telephone number; Not required to have BVN number	Required to have BVN number	Required to have BVN number
Max balance	USD831 (NGN300,000)	USD1,385 (NGN500,000)	No limit
Max single deposit	USD55 (NGN20,000)	USD138 (NGN50,000)	No limit
Transaction limit	USD8.27 (NGN3,000)	USD28 (NGN10,000)	USD276 (NGN100,000)
Daily cumulative transaction limit	USD139 (NGN50,000)	USD554 (NGN200,000)	USD13,850 (NGN5 million)
International funds transfers	Prohibited	Prohibited	No prohibition
Type of account	Strictly savings	Strictly savings	Both savings and current
Other	Evidence or verification of info provided by customer is not required	Customer info must be verified against an official database	Bank must have verified copies of all customer IDs

Table 2: Three tiers of KYC requirements in Nigeria

Source: Central Bank of Nigeria, 2013 & 2017

²⁴ BVN is a centralised biometric financial identification system. See following section on "Biometric identification" for more details.

Tiered KYC promoting access to digital payments and supporting payment ecosystem development. Making low-value accounts more accessible not only promotes financial inclusion. It also promotes the usage of digital payments, thus increasing the volume of payments moving through the NPS. Increasing the volume of payments moving through the formal system reduces the per-transaction cost of processing these payments and thus reduces the cost charged to the consumer²⁵. Lower transaction costs for consumers, in turn, encourage the uptake of digital payments. Promoting uptake and usage of low-value accounts thus leads to a virtuous cycle of payment ecosystem development.

Limitations placed on Tier 1 and Tier 2 accounts prohibitive for those with lumpy incomes.

Due to the reduced KYC, limits are placed on the value of balances, deposits and daily transactions for Tier 1 and Tier 2 accounts. Tier 1 and Tier 2 accounts are not allowed to receive single deposits that exceed USD55 and USD138, and they have maximum balance limits of USD831 and USD1,385 respectively. Given that 84% of Nigerian financially excluded adults report an income of USD55 (NGN20,000)²⁶ or less (EFInA, 2017), these limitations may not be too prohibitive for those who are currently excluded. They may, however, be a problem for individuals who have irregular, lumpy incomes, such as farmers who earn seasonal incomes at harvest time. Furthermore, international fund transfers are prohibited for Tier 1 and Tier 2 accounts. Therefore, those who rely on cross-border remittances are forced to have Tier 3 accounts, which have the most demanding KYC

requirements, should they want to receive international payments into their accounts.

Innovations in mobile payments

mCash leverages NIP to make low-value instant payments to merchants.

mCash was established by NIBSS in collaboration with CBN, commercial banks and MNOs, and it was designed with a financial inclusion focus (NIBSS, 2016). Its aim is to digitise the payments of smaller merchants “at the bottom of the pyramid,” where cash is the primary means of payment. mCash allows merchants to register a unique USSD code for their business. Their customers can then use this code to pay for goods and services, and since mCash uses the NIP system, payment is credited to the merchant instantly (mCash, 2018). There is a maximum daily limit of USD277 (NGN100,000) per customer on USSD transactions. This limit was set by CBN starting 1 October 2018 (Central Bank of Nigeria, 2018a & 2018b). There is no charge to the customer for using this code, and mCash is supported on all mobile devices, including feature phones, as it uses USSD (mCash, 2018). However, some commercial banks that already have their own USSD payment products see mCash as competing with their existing mobile services. This puts NIBSS in the awkward position of being perceived as a competitor with the same banks that make up part of its shareholders.

²⁵ One stakeholder interviewed stated that volumes of transactions processed by NIBSS have increased by more than 100% annually and the cost per transaction has fallen from NGN 69 (USD 0.19) to NGN 10 (USD 0.03).

²⁶ For all NGN to USD conversions the rate of USD1 to NGN362.62876 is used. This is a six-month average exchange rate from December 2017 to May 2018 (OANDA, 2018).

Uptake of mobile payments low. Despite the strides that are being made in digital payments through innovations such as NIP and mCash, mobile money has failed to take off in Nigeria. Figure 10, below, shows the value and volume of mobile-money transactions since 2016. Although NIBSS data shows that there has been an increase in usage of mobile-money services, the levels of this usage are still very low. In February 2018, there were only 515,692 mobile-money transactions, which amounted to USD62 million in value. This is unsurprising given that in 2016 only 1% of Nigerian adults reported having access to mobile-money services (EFInA, 2017).



Figure 10: Value and volume of mobile-money transactions from January 2016 to February 2018
 Source: (NIBSS, 2018)

Mobile network operators (MNOs) until recently barred from mobile-money business. Many stakeholders interviewed cited the exclusion of MNOs from providing mobile money services as the primary reason for the stunted development of mobile money in Nigeria. Despite having the

reach and infrastructure to roll out these services, the Nigerian Communications Commission (NCC) argued that MNOs could not be licensed by both the NCC and CBN, therefore they could not provide financial services (Accion, 2015). However, in late 2017 the CBN and NCC signed a memorandum

of understanding (MOU) allowing MNOs to create special-purpose vehicles that would allow them to become mobile-money operators (CBN, 2017). CBN and NCC have since signed another MOU that allows MNOs to operate in the payments sector in Nigeria. This “telco-led” approach bodes well for financial inclusion, given that MNOs have capability to facilitate mobile payments on a mass scale. The possibility of MNOs linking into the NPS infrastructure, such as the national switch, shows great potential for the expansion of payments from bank accounts to mobile wallets, and vice versa, for both domestic and cross-border payments.

Biometric Identification

Bank Verification Number (BVN) having enhanced robustness of KYC and having reduced fraud. The use of BVNs in Nigeria has revolutionised the payment sector. BVN is a centralised biometric financial identification system, which was launched in February 2014. It was implemented due to a lack of unique identifiers for customers across the banking industry. This lack of unique identifiers enabled individuals to have multiple bank accounts by using multiple identities, which resulted in credit risk, fraud and other financial crimes. BVN enables bank customers to have a single identity, and **because this identity is based on customers’ fingerprints, it is unique.** This BVN uniquely identifies 33.3 million customers across the banking system, not just with one bank. BVN increases the effectiveness of KYC, improves the safety and reliability of the payment system and enhances the ability to identify blacklisted customers. Using BVN **protects customers’ accounts from unauthorised access by addressing issues of identity theft and thus reducing the exposure to fraud.** (Opeyemi, et al., 2017; NIBSS, 2018).

BVN allowing customers to be interoperable with the payment system. BVN allows customers to be identified across financial institutions without constantly having to verify their identity. This means that customers become interoperable with the banking and payment system as a whole, including those with Tier 2 or Tier 3 mobile-money accounts. BVN data is stored in a central database, **which means that using a customer’s BVN,** authorised financial institutions can authenticate customer information against this database to prepopulate their product and account applications. For instance, if a customer is applying for a loan, they will be required to present their BVN; and the financial institution they are applying with can verify this number against a central database to see whether the customer has been blacklisted by other institutions. In the near future, the goal is to authenticate transactions without the use of cards, using only biometric features. (NIBSS, 2018).

Inefficiency due to lack of harmonisation between biometric systems. Besides BVN, biometrics are collected for a variety of purposes, such as national ID, SIM registration, vehicle registration, immigration, national elections and others across private-sector and government agencies. Conversations with CBN, NIBSS and other stakeholders have shown that the different biometric systems in the country are not yet fully **harmonised. This is highly inefficient.** Nigeria’s National Identity Management Commission (NIMC) has already started the process of harmonising these biometric databases and, to this end, has already collected 15 million BVN records and harmonised 12 million of these to the national

identity database²⁷. In addition to this, NIMC has already enrolled 30 million Nigerians into the national identity database and aims to enrol 15 million more before the end of 2018 (Adewumi, 2018; Akowe, 2018; Advocaat Law Practice, 2018).

Key learnings

Modern, well-structured NPS with innovative payment solutions. Nigeria has modern, well-utilised payment system infrastructure. Upgrades to the CIFT have made Nigeria's large-value payments infrastructure first-rate and highly efficient. The ownership structure of NIBSS ensures cooperation among payment service providers in the non-competitive space of the retail portion of the Nigerian NPS. This has stimulated market-driven innovations such as NIP, mCash and BVN, which have also encouraged the increased usage of digital payments. Despite this modern infrastructure and product innovation, Nigeria still suffers from low levels of usage for digital payment services due to consumers' preference for cash. Although existing infrastructure can support higher volumes of digital payments and new types of payment modalities, more needs to be done to promote the usage of formal digital payment services.

Lack of regulatory clarity and coordination creating uncertainty and hindering development. The existence of sound regulation, or the lack thereof, can either encourage or stifle development of the NPS. In Nigeria's case,

uncertainty around the NPS Bills and the way in which mobile money has been regulated are stifling digital payments development. The lack of regulatory coordination between the NCC and CBN over mobile-money regulation was directly cited by stakeholders as a reason for the failure of mobile money in Nigeria. There is a need for a unified NPS Act that empowers the CBN to be the sole regulator and to have ultimate oversight over the Nigerian NPS.

Developments in mobile-money regulation likely to increase uptake of digital payments. The recent MOU between the NCC and CBN bodes well for the development of mobile payments in Nigeria. MNOs have the operations infrastructure, footprint and knowledge to provide mobile-money services. This means that they are best positioned to reach and serve low-income consumers outside of urban areas with digital payment services.

3.2. Namibia: The importance of leveraging scale

Namibia a small economy with a sophisticated financial sector and well-developed NPS. Namibia is a middle-income country with a population of only 2.5 million people (World Bank, 2018a). Despite its size, Namibia's financial sector has been described as "large, concentrated and complex," with the total value of the banking and non-banking financial sector valued at 279% of

²⁷ Due to the inefficiencies of these non-harmonised biometric data collection methods, President Buhari issued a directive ordering the harmonisation of all the disparate identification data into the National Identity Database, under National Identity Management Commission's (NIMC) management, by 2020 (Adewumi, 2018; Advocaat Law Practice, 2018). Although the MINC Act of 2007 gave NIMC powers to enforce the National Identity Number (NIN) as the required form of ID for financial services, it has only recently been enforced; and some deposit money banks, such as Stanbic, have recently begun the migration from BVN to NIN as the primary form of ID (Opusunju, 2018).

GDP²⁸. The country's financial market infrastructure is considered to be modern. NPS infrastructure operates safely and efficiently. This has facilitated rapid growth in the uptake of electronic instruments. NPS participants include the Namibian Interbank Settlement System (NISS)²⁹, eight commercial banks³⁰, 11 payment service providers³¹ and three authorised electronic money issuers.

Relatively high financial inclusion, but the most vulnerable still lacking access. According to the 2017 Global Findex Database, 81% of Namibian adults have bank accounts with formal financial institutions (Demirguc-Kunt, et al., 2018), which is a significant increase from 59% in 2014 (Demirguc-Kunt, et al., 2014). The usage of these services is also relatively high, with users making on average about 28 transactions per year using the formal payment system³². However, a significant proportion of the low-income, rural population is still excluded from formal financial services (IMF, 2018).

Regulation of the Namibian NPS. The Payment Systems Management (PSM) Act, 2003 and the bylaws issued under the Payment System Management Amendment Act, 2010 provide the regulatory framework for the Namibian NPS.

These laws establish the Bank of Namibia (BON) as the sole regulator of the NPS. The Payment Association of Namibia (PAN) is a payment system management body whose establishment was mandated by the PSM Act of 2003. PAN's role is to set, manage and develop standards that govern payments clearing and settlement in Namibia. It is the primary channel for payments industry collaboration, with a mandate to improve the safety, reliability, equity, convenience and efficiency of the NPS. PAN membership is compulsory for the BON and all banking institutions. Although NPS regulation and oversight are entirely within the remit of the BON³³, PAN and its members are also regulated by the Namibia Financial Institutions Supervisory Authority (NAMFISA)³⁴ (BON, n.d.; PAN, n.d.).

Retaining national sovereignty while maintaining a viable business case

Namibia NPS reform driven by the need to manage own risk. After Namibia gained its independence from South Africa in 1990, Namibian payments were still processed by the South African Reserve Bank (SARB). Many companies with operations in both Namibia and South Africa (SA) submitted their Namibian

²⁸ Namibia's GDP was estimated to be USD13.2 billion in 2017 (World Bank, 2018b), while its banking sector and non-bank financial institutions (NBFIs) were valued at USD8 billion and USD28 billion, respectively (IMF, 2018).

²⁹ This is the national RTGS system, which was established in 2002.

³⁰ Of these eight banks, four large banking groups – First National Bank (FNB), Standard Bank, Nedbank and Bank Windhoek – hold 98% of total bank assets in the market (IMF, 2018).

³¹ Namclear is included among these payment service providers.

³² These include 660,000 cheque, 18.3 million EFT and 25.2 million card transactions (BON, 2017).

³³ The BON oversees the Namibian payment system for the purpose of promoting the maintenance of a sound and efficient financial system. The Bank's payment system oversight role is explained in the Oversight Framework (BON, 2016).

³⁴ NAMFISA is an independent institution that regulates and supervises Namibian financial institutions in the financial services industry in the public interest and that advises the Minister of Finance on matters related to financial institutions and financial services. It was established by the NAMFISA Act 3 of 2001 (NAMFISA, 2018).

domestic card transactions together with their SA batches. This meant that these Namibian domestic transactions are seen as SA domestic card transactions and were thus excluded from the Namibian clearing and settlement process. This bypassing of the Namibian clearing and settling process meant that parts of the Namibian domestic exposure and risk remained in the South African payment system, which was unacceptable to the BON, from a regulatory risk perspective (BON, 2008).

Thus, BON determined that, as an independent and sovereign state, Namibia had to start managing and controlling its own domestic exposure and risks within the financial sector (BON, 2009). The Bankers Association of Namibia (BAN)³⁵, which represents all local banks, was delegated by the BON to initiate the National Payment Systems Reform Project in 2001 (BON, 2002). One of the key objectives identified in this reform project was to disconnect inter-bank transactions from the South African NPS and to clear and settle them domestically. To this end, in 2008 the Governor of the BON issued Determinations³⁶ mandating the domestic clearing and settlement of all Namibian interbank transaction and the localisation of all core banking systems (BON, 2008). This was done to reduce various payment system risks and to increase the efficiency of the Namibian financial system.

Local Automated Clearing House (ACH) to clear domestic transactions. To process retail payments locally, Namclear (Pty) Ltd was established as the ACH. It is an authorised Payment Systems Operator (PSO), and it acts as the settlement and clearing agent of the BON. It was established as a cooperative venture between the four Namibian-based banks³⁷ at a total cost of USD2.2 million³⁸ (NAD16.6 million) (Hill, 2008a). Each bank is a 25% shareholder in Namclear. Namclear provides local clearing of interbank transactions (such as EFT, card and cheque payments) and conducts settlement through the NISS. Namclear is also the owner and operator of the Namibian Card Switching System (Namswitch), which took over the processing and clearing of card transactions from the South African Card Switching Service (Saswitch) in April 2008. It is a regulatory requirement that all inter-bank payments be cleared and settled domestically, using the local switch and clearing house.

Domestic clearing initially more expensive due to small domestic market size. The requirement for localisation of core banking systems and domestic clearing and settlement initially increased processing costs for local banks. Before localisation was mandated, the use of the South African (SA) NPS infrastructure allowed banks to leverage the scale of the SA payment system operator (PSO) and to keep down the processing cost per transaction. This, in turn, kept costs down

³⁵ BAN was established in 1997 in accordance with the Banking Institutions Act as the representative trade association for the Namibian commercial banking sector. Their role is to deal with non-competitive issues that are of common interest and of significance to the country's banking industry. (BAN, 2018).

³⁶ The Governor of the BON is empowered to issue Determinations, which are consistent with the Act under which they are issued, that have the same force of law as regulation (Langhan & Smith, 2014).

³⁷ Bank Windhoek, First National Bank (FNB), Nedbank and Standard Bank

³⁸ In 2003, the average exchange rate was USD1 to ZAR7.584 (Nedbank, 2018). Namibia is part of the Southern African Common Monetary Area; therefore, the Namibian Dollar (NAD) is pegged 1:1 to the South African Rand (ZAR).

for consumers. Although clearing through Namclear increased transactional processing costs, Namibian banks chose to subsidise these higher costs so that their customers did not bear them (Hill, 2008a).

Namclear's attempt to minimise costs by leasing infrastructure. In an effort to keep the relative cost of domestic clearing and switching down, Namclear leased infrastructure from Bankserv Pty Ltd³⁹, which was the operator of Saswitch. At its inception, the BON allowed Namclear to set up an operating lease with Bankserv to use its EFT and card-clearing hardware and software. This meant that Namclear did not need to make huge expenditures on EFT and card switching systems; they simply leveraged the scale of BankservAfrica's existing solution through leasing. The most expensive investment Namclear made was in the localisation of cheque clearing, for which they installed brand-new infrastructure. Due to the complexity of localising the card-switching process, the BON allowed Namswitch's card switch to be hosted and operated independently by Bankserv, without being localised, until 2011 (BON, 2018). Bankserv agreed to ring-fence Namswitch's operations to ensure that they were kept as a separate entity to Saswitch (SADC, 2011). From 2011, revised NPS reforms required that card switching be localised. Namclear kept the cost of localisation down by requiring that all participating banks standardise their interface with Namswitch. Stakeholders interviewed at Namclear stated that, although Namswitch's payment processing costs

were initially significantly higher than those of Saswitch, these cost differences have since converged.

Regulatory uncertainty and national priorities likely to hamper regional integration. According to stakeholder interviews, Namclear has delayed integrating with the SADC RCH because they were discouraged by uncertainty around the regulatory implications. The upgrading of domestic payment systems has also taken priority over regional integration. Currently, Namibian-based banks with a regional footprint often treat cross-border retail Common Monetary Area (CMA) payments between their regional subsidiaries as on-us⁴⁰ transactions. Therefore, they do not go through any clearing house.

Namclear expects to start clearing cross-border transactions through the regional operator by October 2019. Given that these payments might be required to go through the RCH, this may add inefficiencies to on-us cross-border payments. However, it is unclear whether cross-border transactions will be required to go through the RCH.

Key learnings

Namibia having managed NPS reform while minimising cost of infrastructure. Namibia is an interesting case study in how a country with seemingly minimal domestic scale has managed to find innovative ways of ensuring its NPS is self-sustaining and has a viable business case.

³⁹ Bankserv Pty Ltd, now BankservAfrica, is authorised by Payments Association of South Africa (PASA) to provide the banking industry with critical payment infrastructure and financial market infrastructure provider for the South African payments market. It is a payment clearing house (PCH) system operator (PSO) appointed by the PCH participants to process payments in 10 payment streams. (BankservAfrica, 2018).

⁴⁰ "On-us" transactions are when the issuer of the card, cheque or other payment instrument is the same as the acquirer of that instrument in a transaction. For example, withdrawing money from a Standard Bank ATM with a Standard Bank debit card would be an on-us transaction for Standard Bank, as they are both the issuer of the card and the acquirer of the payment.

Initially leasing infrastructure from Bankserv enabled the gradual localisation of card switching, which allowed Namclear to maintain high operational standards and the lowering of processing costs. In 2011, Namclear revised these reforms to localise all systems, enabling them to standardise payments operations on the Namclear side. It is evident that the sound management of NPS reform has facilitated the development of the payment sector as a whole, as evidenced by the high levels of bank account uptake and increasing usage of formal payments. In 2017, Namclear cleared a total of 44 million transactions, with a total value of USD23.5 billion (NAD289 billion) (BON, 2017), compared to 14 million transactions valued at USD16.2 billion (NAD205 billion) in 2009.

Thus, a key learning from Namibia is that investment in expensive financial market infrastructure is not always required to meet localisation goals.

3.3. Madagascar: Mobile money reducing cash dependency

Madagascar a relatively poor, farming-dependent economy. Madagascar is a large island in the Indian Ocean, situated east of Mozambique. It has a population of 24.9 million, 60% of which are above the age of 13. It is one of the poorest countries in the world but has experienced steady economic growth in recent years (Thom & Weideman, 2017). The economy is dominated by the primary and extractive sector. Notably, 71% of

Malagasy households are involved in farming (FinMark Trust, 2016).

Vulnerability to shocks having led to haphazard growth. Madagascar has been experiencing large fluctuations in growth. This is as a result of political turmoil, dependence on primary industries, as well as harsh geographic conditions (IMF, 2016). The country's exposure to significant climatic events, such as cyclones, puts its primary sector at significant risk, over and above its sensitivity to commodity price shocks. Moreover, fears of corruption and political turmoil have led to decreased FDI and foreign aid during certain periods (IMF, 2016). *Under-developed formal financial services sector leading to a cash-dependent economy.* Madagascar's financial sector is relatively underdeveloped. There is a total of 11 banks, of which four maintain the majority market share (IMF, 2016). The insurance and savings industries are weak, with low levels of operational efficiency and low profitability. Use of formal transaction mechanisms has traditionally been very low.

This is highlighted by the fact that only 12% of the population is banked and only 59% of the population is financially included (World Bank, 2017). Lack of trust in formal services and a limited understanding of how financial products work are key barriers to formal uptake (Thom & Weideman, 2017). As such, most Malagasy individuals prefer to transact in cash. This is highlighted on the next page in Figure 11.

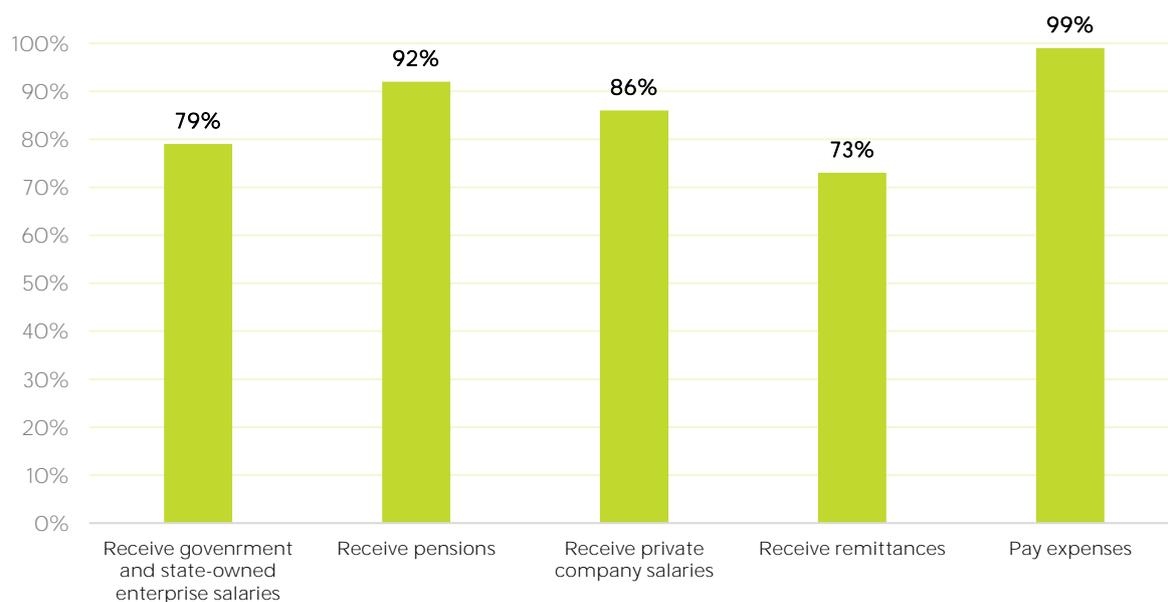


Figure 11. Primary constraints along the property market value chain

Source: Authors' own

Payments Infrastructure

National Payment System appropriate for scale.

Madagascar has a dual payment system, consisting of an automated system for EFTs, cheques and RTGS, and a manual system for cheques.

The manual system exists due to latent demand for hand-written cheques. There is no national switch for cards, so settlement of card transactions is either done via Nostro Vostro agreements, international Mastercard/Visa switch or an operator in France (Thom & Weideman, 2017). Given the limited card usage, this practice is appropriate for the scale of transactions. Figure 12, on the next page, maps out the payment system in Madagascar.

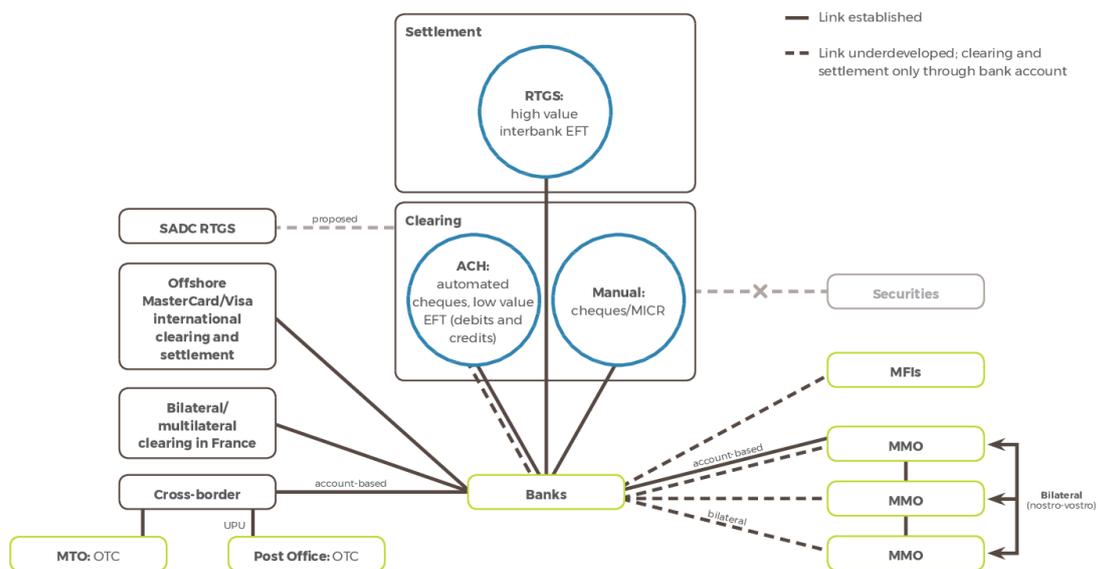


Figure 12: Madagascar National Payment System

Source: (Thom & Weideman, 2017)

As will be discussed below, mobile money is increasingly prominent in Madagascar. Banks hold trust accounts for mobile-money operators (MMOs), who are then able to provide mobile-money wallets to customers. MMOs have bilateral relationships with each other to facilitate cross-platform money transfers. Cross-border options include Money Transfer Operators (MTOs) such as Western Union and the Post Office.

Limited channel infrastructure decreasing the value of formal financial accounts. Given the importance of cash in the Malagasy economy, consumers need cash-out points to maximise the usefulness of formal accounts. However, Madagascar lacks key channel infrastructure. With only 2.3 ATMs per 100,000 individuals, Madagascar falls far below average. For example, China has roughly 50 ATMs per 100,000 people, and even this is considered to be insufficient, while South Africa had 69 ATMs per 100,000 people in

2015 (IMF, 2017). The lack of ATMs means that people are not easily able to draw cash due to long queues at ATMs. More importantly, the desire to use formal financial products is seen as expensive, due to the need to travel and wait in queues just to draw cash.

Underdeveloped supporting infrastructure hindering cash reticulation services.

Compounding the above is the difficulty associated with stocking the ATMs with cash. According to the global competitiveness report of The World Bank (2017), Madagascar ranks 36 out of 37 African countries for the quality of its road infrastructure. Poor road infrastructure means that transporting cash around the country is difficult and slow. Thom and Weideman (2017) note that there is no central coordination of cash reticulation. One private-sector company is involved in reticulation services, and they only service areas that are profitable and safe.

Poor road infrastructure does not only make stocking the current suite of ATMs difficult, it also disincentivises the expansion and development of ATM infrastructure into other areas of Madagascar, especially the more remote ones. This effectively stifles the development of formal financial and digital financial services.

Payment trends

Shift towards newer payment technologies. Payments going through the formal system are either cheques, EFTs, card-based transactions, mobile transfers or large-value EFTs (RTGS). RTGS accounted for the largest portion of payments in 2017 (USD25 billion). Cheque, EFT and mobile payment values were similar in 2017, with cheque being USD2.5 billion, EFT USD2.9 billion and mobile USD2.3 billion. No data is available on card transaction values, but

FinScope (2016) shows that only 0.12% of adults use credit cards, while 1.57% use debit cards, which indicates that card transactions are unlikely to represent a major payment channel. The fact that mobile payments' value has grown to be as large as the other channels indicates its increased value in the economy and the shift towards newer technologies.

Mobile money an alternative to cash for retail payments. The average size of transactions indicated in Figure 13, below, reveals that cheque and EFT are used mostly for salaries (USD1,445 and 978 respectively), while mobile has emerged as an alternative to cash for retail payments, with the average payment being USD25. Consumers are now able to send money via mobile, rather than needing to physically transport cash. This allows for a much faster, more efficient way to send money.

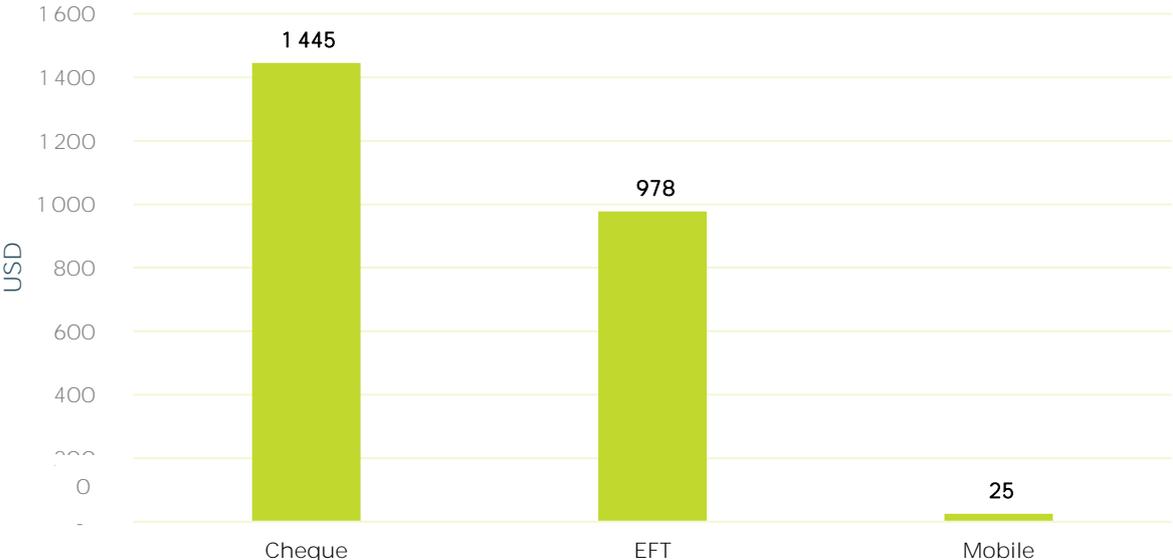


Figure 13: Average size of transaction for Cheque, EFT and mobile payments in Madagascar (2017)
 Source: (Central Bank of Madagascar, 2018), (IMF, 2017)

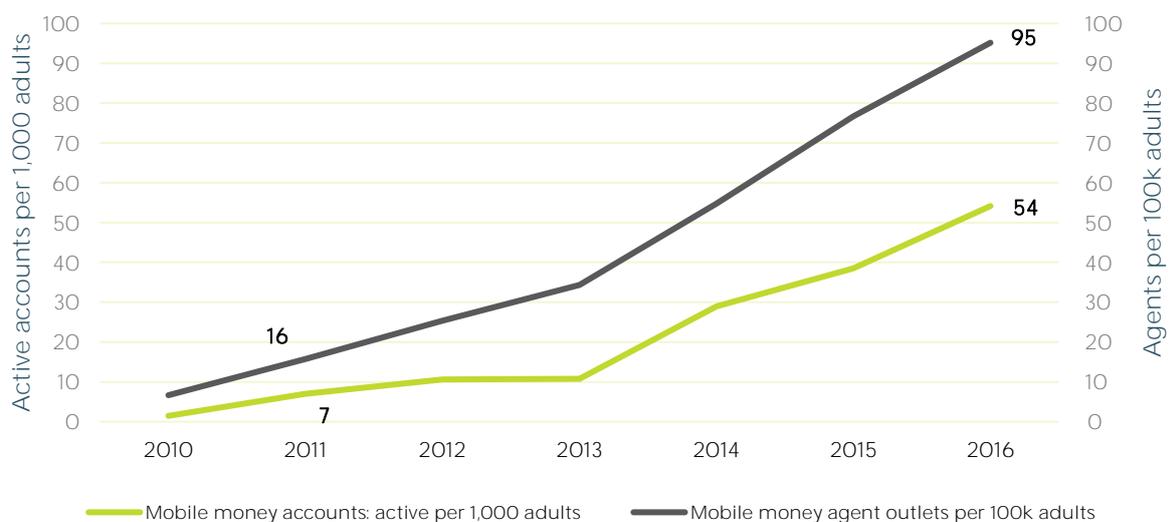


Figure 14: Growth in active mobile-money accounts between 2010 and 2016

Source: World Bank (2018)

Mobile money increasing the number of cash-out points. Figure 14, above, shows the growth in active mobile-money accounts per 1,000 individuals between 2011 and 2016 as well as the growth in number of agents. Accordingly, active mobile-money accounts in Madagascar rose by 671% between 2011 and 2016, while the number of mobile-money agents per 100,000 adults grew by 493%.

The rapid growth of mobile-money agents means that additional cash-out infrastructure has been injected into the economy. Consumers are now able to draw money from agents rather than going to a bank or ATM. The increased cash-out points ease the strain on limited ATM infrastructure and enhances the attractiveness of the formal financial sector for transactions. In addition, all the MNOs that provide electronic money in Madagascar became interoperable as of 2016 (GSMA, 2016). This means that the impact is further extended by being able to send money across different

mobile platforms. This cannot by itself solve reticulation problems, because road and transport issues affect the ability to stock agents as much as they do ATMs. However, agents can manage cash flow on their own to some extent.

Digitisation of payment systems able to reduce cash reticulation issues. Currently, the major use-case for mobile-money transactions are person-to-person (P2P) transfers. However, the potential for mobile money to reduce cash reticulation issues could be even greater if consumers could make person-to-business (P2B) payments, as this would remove the need for encashment points. However, Madagascar's telecommunications network infrastructure is still developing, and many people still do not own cellular phones. As such, unlocking the potential of mobile money would require additional supporting infrastructure, such as telecommunications networks.

Disproportionate AML regulation reducing the impact of mobile money. The regulatory framework for mobile money would also need to be further developed. Mobile-money providers flagged the lack of official identity documents as a key constraint to accessing formal financial services in Madagascar (Thom & Weideman, 2017). Madagascar has KYC guidelines in place which require consumers to provide a suitable identification document as well as proof of address to open a financial services account. An exemption exists for low-value transactions (below USD993) for once-off transactions of individuals without identity documents. However, those looking to establish accounts must still provide full KYC, which is a barrier for low-income individuals. The impact of mobile money could be greater if it were easier for individuals to open accounts. Currently, Madagascar's ALCFT strategy is in draft phase. It would require financial institutions to carry out CDD and requires enhanced CDD for politically exposed persons (PEPs) (IMF, 2017).

Consumer protection measures introduced by e-money law important for development of digital payment services. A key constraint in the uptake of formal financial services is the lack of the trust that the Malagasy individuals have for formal financial services and the judiciary system (Thom & Weideman, 2017). This has been compounded by the fact that there was no consumer protection act or other regulation to guide dispute resolution. Recent implementation of the e-money law recognises these deficiencies and implements some standards regarding dispute mechanisms, consumer protection and product disclosure. This is an important step in developing an

ecosystem for digital financial services that is robust.

Key learnings

Important to consider whether scale can realistically be achieved locally. Madagascar's use of regional or internationally based payment processors for card transactions is appropriate given the low uptake of formal financial services. Given the current usage and the population size and GDP per capita, it is unlikely to ever reach the scale required to justify local processing of clearing. As such, current arrangements are fit for purpose.

Supporting infrastructure vital for the development of digital ecosystems. Madagascar shows that without supporting infrastructure, such as road and telecommunications infrastructure, the development of formal financial services is restricted. Often, the development of prerequisite technology, capacity and regulatory frameworks can lead to adoption at scale in a shorter time and at more sustainable cost profiles.

Getting regulation right to increase impact of new technologies. The recent implementation of the e-money law (which introduces some consumer protection measures as well as dispute resolution mechanisms) is important considering the emergence of mobile money as a predominant service at scale. However, additional implementations, such as tiered KYC to reduce requirements for low-risk individuals, will further enhance the impact of mobile on market development and contribute meaningfully to financial inclusion.

3.4. Tanzania: The importance of interoperability for scale

A growing economy. Tanzania is the sixth-most populated country in Africa, with roughly 55 million inhabitants. The economy has experienced relatively strong growth in recent years, averaging 6% to 7% real GDP growth per year (World Bank, 2018). Strong growth has led to a reduction in relative poverty, but absolute poverty has still increased as a result of population growth. Construction, mining, transport and communications have been key drivers of growth in recent years (ADB, 2018).

Large, relatively concentrated banking sector. Financial system assets amounted to 43% of GDP in 2015, of which banks accounted for 71% of the total. There is a large number of banks (57), but a few major banks dominate. Over 70% of the industry is controlled by 10 banks, of which roughly 50% is controlled by the top three banks (Madishetti, 2018). The financial performance of many small banks is under par; however, the larger banks are in much better positions (IMF, 2015). Despite the banking industry being the largest in the financial services sector, it is underdeveloped for the size and potential of the population. According to FinScope 2017, only 16.7% of Tanzanians have or use bank services.

Mobile money serving previously underserved areas. Access to financial services in Tanzania has historically been quite low and concentrated in urban areas where there is access to facilities and networks. Banks have generally been hesitant to extend branches into areas outside of main urban centres due to infrastructural deficits, such as limited road and communications networks. The advent of

mobile money has significantly increased access to financial services, especially in rural areas. Financial inclusion (including informal usage) rose from 45% in 2009 to 72% in 2017. In particular, use of formal financial services other than bank accounts, such as mobile money, grew by 41 percentage points. This shows the impact mobile money has had on financial inclusion in Tanzania.

Payment system infrastructure

Tanzania's payment system is sufficiently developed to cover most demands. At the core of Tanzania's payment landscape is an RTGS system, known as the Tanzania Interbank Settlement System (TISS), which processes highly time-sensitive, large-value payments on a real-time basis. TISS complies with the 14 Principles for Payment Systems Modernisation, as well as the 2012 Bank of International Settlements (BIS) Policy on Financial Market infrastructures (KPMG, 2017). Integrated into this is the Tanzania Automated Clearing House (TACH), which clears cheques digitally through image processing, and clears EFTs in multiple settlement windows. There isn't currently an option for real-time EFT clearing. Moreover, there is no national card switch, but there is a private switch – Umoja – which many of the smaller banks are members of.

Umoja was established in 2006 to provide joint interoperability infrastructure for small banks that could not establish this infrastructure alone. In 2010, the Umoja Switch was transformed into a private company limited by shares. Since its inception, membership has grown to 27 banks. Card transactions are therefore either cleared via the Visa/Mastercard network or via Umoja. Mobile-money transactions are cleared via bilateral

relationships between MNOs on the mobile-money platform. This is possible because of an interoperability arrangement between MNOs, as discussed below. The structure of Tanzania's payments streams is depicted in Figure 15:

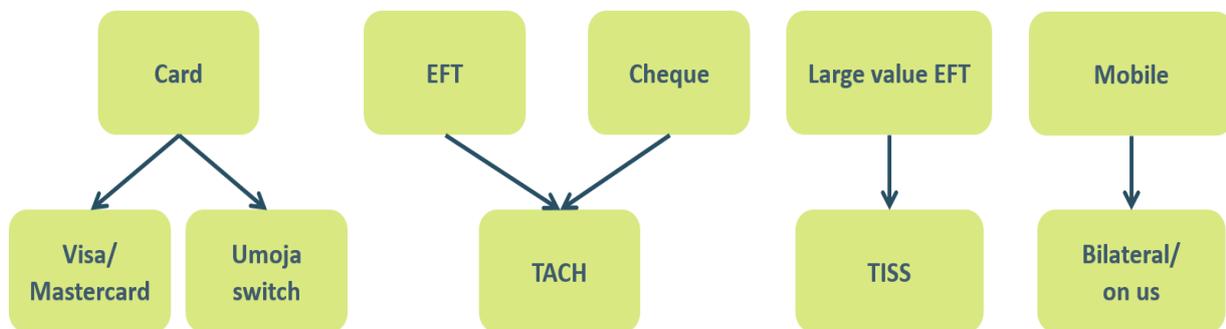


Figure 15: Tanzania National Payment System
 Source: Author's own

Lack of scale affecting cost of switch transactions. The largest banks in Tanzania are still not members of the Umoja Switch. These include the FBME Bank, CRDB Bank, NMB Bank and Standard Chartered Bank. As a result, the switch does not process large-enough volumes of transactions to achieve scale. CGAP (2018) shows that local switching should cost between USD0.02 and USD0.06 per transaction to be affordable. However, the Umoja switch costs USD0.22 per transaction. It is likely not in the interest of bigger banks to process local transactions using a local switch (such as Umoja) and international transactions via Mastercard/Visa network because this would require them to develop separate processing streams which adds costs. As such, the intention is not to suggest that these players should connect to the switch, but to highlight that in order to achieve scale, switches need

large players in the country to have an incentive to participate.

Umoja switch offers multiple services to the consumer. Despite not achieving significant scale, the Umoja switch has significant technological functionality, which brings benefits to consumers. In particular, it facilitates interoperability between mobile money and banks. Using its mobile USSD service, users can transfer money from their bank account to a mobile wallet or from their mobile wallet to a bank account (Umoja, 2018). There is also an agency banking network that provides deposit and withdrawal services, cash payments of utility bills, and other services. This is in addition to Umoja's ATM infrastructure, which is interoperable between member banks and provides a multitude of services such as mobile wallet transfers, remittances, cardless transfers and withdrawals.

Payment trends

Technological innovation and development a key trend in Tanzania's payments landscape. Figure 16, below, shows the annual value of payments in Tanzania for the POS, EFT and cheque channels between 2011 and 2015.

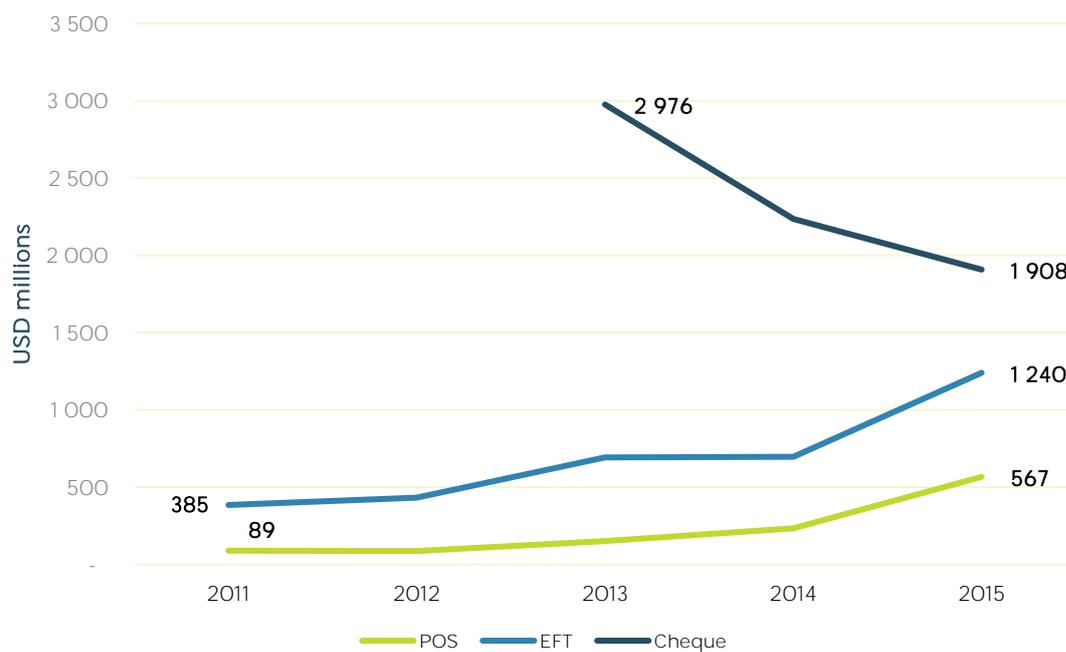


Figure 16: Value of transactions using different payment channels (2011–2015)
Source: (Bank of Tanzania, 2018)

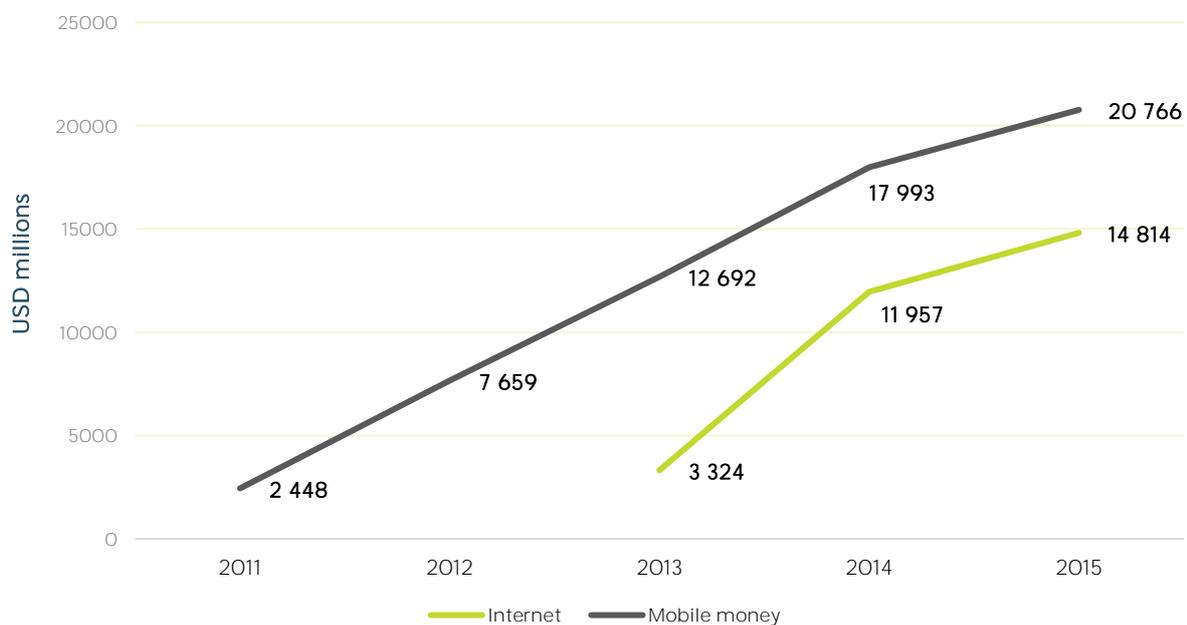


Figure 17: Value of transactions for mobile and internet (2011-2015)

Source: (Bank of Tanzania, 2018)

The use of EFT and POS channels has increased significantly between 2011 and 2015, with EFT value increasing from USD285 million to USD1.2 billion (222%) and POS increasing from USD80 million to USD567 million (537%). Although there is only data available on cheque usage from 2013, there is clearly a decreasing trend in usage, dropping from USD2.9 billion to USD1.9 billion in just two years (34%). Figure 17, above, shows growth in annual value of two other channels, namely mobile and internet⁴¹, which have significantly higher values than the other channels and have grown quickly. The value of mobile was USD20.8 billion in 2015, an

increase of roughly 750% from 2011, and internet USD14.8 billion in 2015, an increase of 345%. This clearly demonstrates the drive towards digital payments and newer technologies. However, specific channels have grown much more significantly than others, namely mobile and internet.

⁴¹ Discussions with stakeholders indicate that EFT refers to payments that are mostly G2P and processed on a central platform, whereas "Internet" refers to transactions initiated via online banking platforms. The latter is more advanced and was introduced relatively recently in Tanzania

Volume of transactions important for scale.

The volume of mobile transactions in 2015 was 1.39 billion. This is far greater than any other channel. For example, the volume of POS transactions in 2015 was merely 1.8 million. This highlights that mobile money has successfully scaled in Tanzania and has become a systemically important payment system. On the other hand, although internet transactions have also developed significantly in terms of overall value, the volume of internet transactions in 2015 was only 2.6 million. As such, this channel has reached some scale, but it will hard to reach frictionless scale.

High volume of retail transactions is important for bringing down the overall cost of the system.

Different channels used for different payment types. Figure 18, below, depicts the average size of transactions for each of the channels. Accordingly, it is noticeable that internet and mobile are used for very different purposes. With the average transaction size of mobile being USD15 in 2015, this channel is used for retail payments. On the other hand, the average size of internet transactions in 2015 was USD5,716. This indicates that this channel is used for trade and corporate payments.

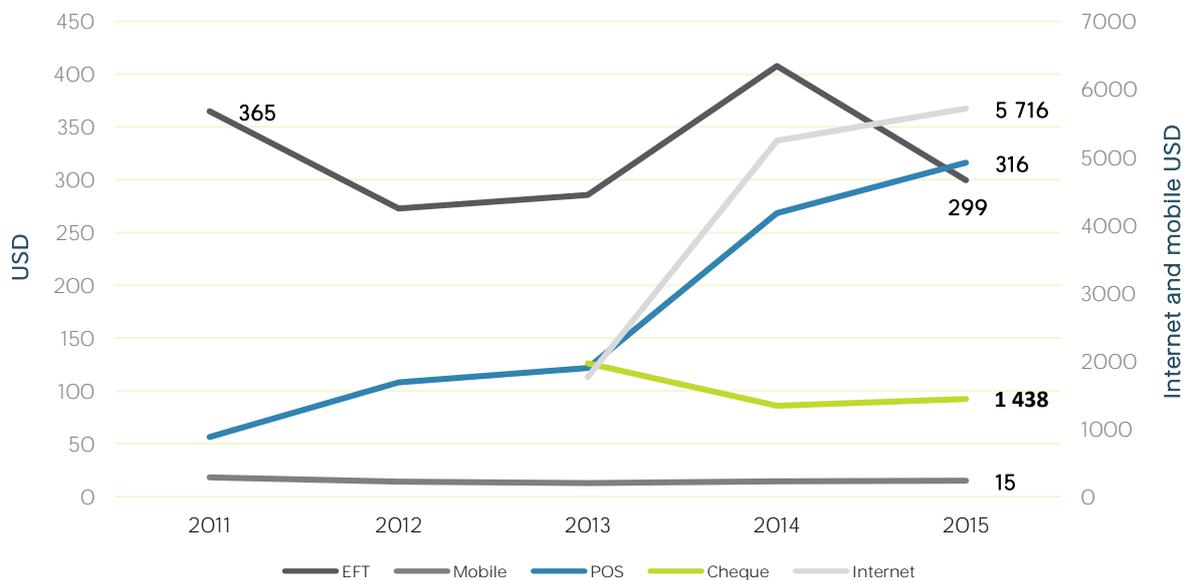


Figure 18: Average size of transaction for various payments channels

Source: (Bank of Tanzania, 2018)

The average size of cheque transactions (USD1,438) suggests that they are also used for salary-type payments. However, KPMG (2016) notes that cheques are rarely used outside of government departments, corporate bodies and those who deal with government bodies. The size of EFT and POS transactions indicates that these channels are also for retail payments.

Expansion of channel infrastructure being key. The total number of POS and ATM devices in Tanzania has been rising steadily over the last few years. According to Figure 19, below, the number of POS devices rose by 200% between 2011 and 2015, from 5.9 to 18.1 per 100,000 adults. However, this trend will need to continue, as the number is still low compared to the average for UFA countries (47 per 100,000) (World Bank, 2015).

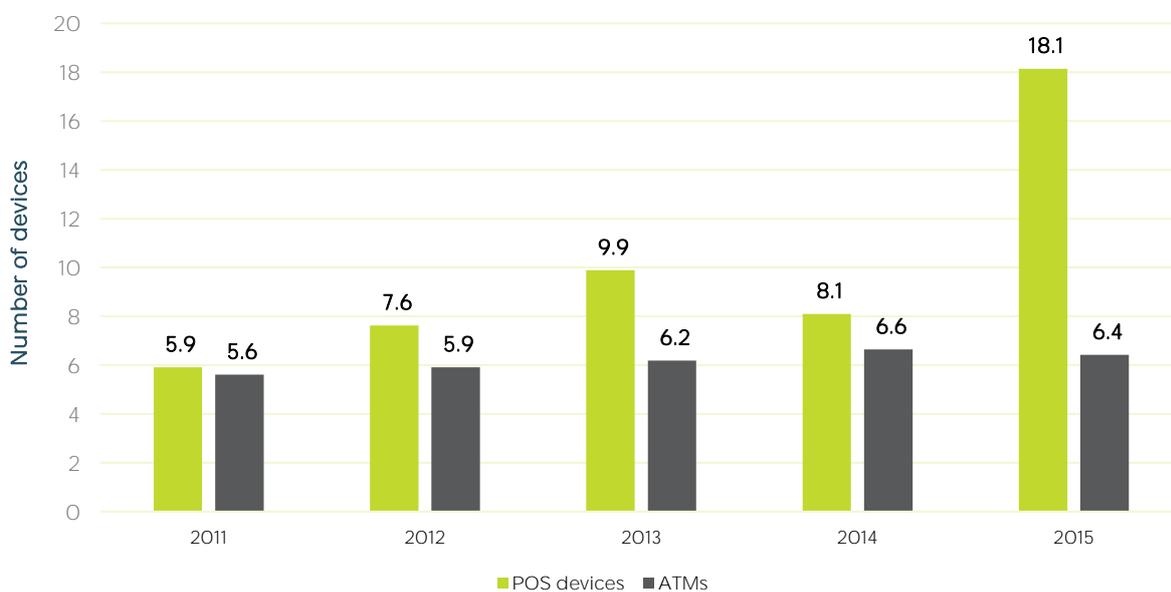


Figure 19: Growth of ATM and POS devices per 100k adults (2011-2015)

Source: (Bank of Tanzania, 2018)

In addition to the above, widespread increases in mobile-phone ownership and usage, coupled with expansion of telecommunication networks, have increased the ability to use financial products that depend on technology, such as mobile money. Tanzania's FinScope (2017) shows that 95% of adult Tanzanians now have access to network reception, and 93% have access to a mobile phone. Thus, the expansion of key supporting channel infrastructure has been critical to the development of financial products that depend on them.

A flexible regulatory approach that enabled the development of mobile money.

In addition to the above, Tanzania adopted a regulatory regime that fostered innovation. More specifically, The Bank of Tanzania employed a test-and-learn approach to regulating mobile money. It let regulation follow innovation and supported financial inclusion while managing risks. This was done by allowing mobile-money service providers to operate by partnering with a bank. BOT then issued letters of no objection to the partner banks to state that mobile-money products were still subject to oversight as well as regulatory requirements for provision of services, including:

- **Presentation to the BOT before approval**
- **Obtaining a Tanzanian Communication Regulatory Authority (TCRA) licence for the provision of value-added services**

- **Providing a risk management plan to the BOT**
- **Establishing safeguards for customer funds**
- **KYC standards**
- **Transaction limits**

Industry-led approach to creating interoperability. The interoperability achieved between MMOs has been a particular success of the Tanzanian payment system. Tanzania adopted an industry-led approach to interoperability, whereby the various players debated, negotiated and eventually settled on a set of standards that govern how P2P payments would be handled across the networks (Musa, et al., 2015). The industry platform was funded by donors and included a group of key experts to assist and guide the discussion. However, importantly, the bulk of content came directly from industry, which had strong participation and involvement in outcomes.

Mobile money to become systemically important. The interoperability agreement has already increased P2P transfers among different networks, with users preferring to use P2P for transfers instead of off-net vouchers⁴² (Murphy, 2014). Indeed, merchants in Tanzania show interest in adopting mobile money as a payment mechanism in the future (IFC, 2016). Moreover, mobile money is already being used for payments other than P2P where possible, such as government salaries. It is therefore likely that mobile money will see an increased role in Tanzania beyond a P2P transfer system and

⁴² "Off-net vouchers were the primary mechanism to send money across services prior to the launch of account-to-account interoperability. In this case, an individual who receives money from a subscriber on a different network is notified via SMS to cash out using a voucher code. The money immediately exits the system at a cost to the sending provider, who pays the agent a cash-out commission." (CSMA, 2017)

towards becoming a systemically important payment system. However, this would require the digitisation of payments value chains.

Key learnings

Digitisation of payments requiring an enabling environment. By creating an enabling regulatory environment and providing the necessary supporting infrastructure, Tanzania was able to effectively develop digital payment streams, such as mobile money. These include: the expansion of POS devices and ATMs, development of ICT infrastructure to support network connection, the growth of mobile phone ownership, and a regulatory approach that incentivises innovation.

Scale important for efficiency. The case of Tanzania shows that payments channels require scale in order to be priced at a point that is efficient. The inability to achieve scale of payments in the local switch (due to major banks not being members) made it difficult for Umoja to process sufficient transactions. The industry-led approach to interoperability in mobile provides an important insight into different methods that can be employed to achieve interoperability and, thus, scale.

Establishing the scheme before the switch. Rather than developing a “switch” to facilitate interoperability, Tanzania opted to establish a common set of rules and standards that should be followed, such as participation criteria, clearing and settlement principles, handling of disputes and interparty risk. After the establishment of these rules, mobile-money operators had the option to opt in via bilateral

API connections. The use of bilateral APIs is ultimately more cost efficient than instituting a switch and promotes the scaling to the point that a switch would be viable and necessary.

Industry-led approaches to interoperability requiring significant buy-in and input from the players in the sector. Tanzania shows, through its mobile-money experience, that industry-led interoperability can be successful if there is significant buy-in into the initiative. All major players were involved in the initiative from the start. In contrast, the Umoja switch, which seeks to create interoperability between bank ATMs and POS devices, was started by small banks and did not have buy-in from large players. This challenges scale and limits the potential impact.

3.5. Côte d'Ivoire: Adapting national strategies to complement regional payments framework

Côte d'Ivoire: one of the fastest-growing countries in West Africa. Côte d'Ivoire (CDI) boasts the largest economy in the WAEMU accounting for approximately 40% of the region's GDP in 2017. The country has 23.8 million inhabitants who realised a GDP per capita of USD1,532 in 2017 (AFDB, 2018). The Ivoirian economy has historically been highly dependent on the production and export of tropical products. It is the world's largest producer of cocoa beans and a significant exporter of coffee and palm oil (COMCEC, 2015)⁴³.

⁴³ Standing Committee for Economic and Commercial Cooperation of the Organization of Islamic Cooperation (COMCEC)

Formal financial sector gradually expanding.

Currently considered a lower-middle-income country, CDI experienced an annual GDP growth rate of 8.4% between 2015 and 2017 (AFDB, 2018). CDI has 4.5 million banked adults, which represents a 19.7% banking rate, the second-highest in the region, behind Togo (22.8%) (BCEAO, 2016). The financial sector is currently served by 29 credit institutions (27 banks and two other financial institutions); 54 microfinance institutions (MFIs) and seven electronic money issuers (EMIs) (four banks; three non-bank licensed issuers).

Limited traditional financial service points constraining financial inclusion. Access to traditional financial service points, such as bank

branches and ATMS, remains low despite positive trends in deployment volumes in recent years. The number of access points per 100,000 adults in 2015 stood at 4.8 for bank branches and 6.9 for ATMs. Figure 20, below, illustrates that the number of financial access points in CDI is relatively low compared to other economies and low for the level of banked population. This represents a clear barrier to financial inclusion for the population of CDI. This is particularly true for those that reside in rural areas, who represent 41.5% of the population. FSPs have tended to overlook these areas due to higher costs involved in cash reticulation services and the lack of a clear business case.

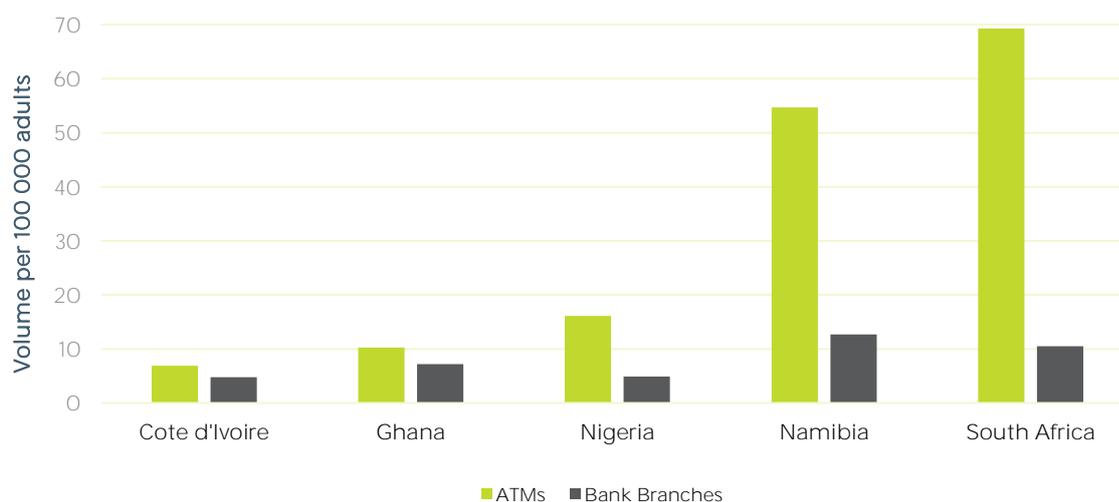


Figure 20: Financial access points per 100,000 adults

Source: FAS (2017)

Côte d'Ivoire: the leading mobile-money market in WAEMU. The substantial growth of mobile financial services (see Figure 21 below) in CDI comes in large part from the sizable unbanked population and high mobile penetration. The proliferation of cellular phones in the country (estimated at 113% of the population), coupled with technological innovations, has created incentives for MNOs to expand the provision of digital financial services. At the end of 2016, CDI accounted for 39% of the regional mobile-money transaction volume and 43% of the value (BCEAO, 2016).

There are an estimated 20,000 mobile money agents in CDI compared to around 900 branches and 832 ATMs. In 2017, there were an estimated 145 mobile money agents per 100,000 adults (GSMA, 2017). The stark contrast in the number of mobile money access points and ATM and bank branches, as highlighted above, indicates that mobile money provides greater accessibility than traditional financial service access points.

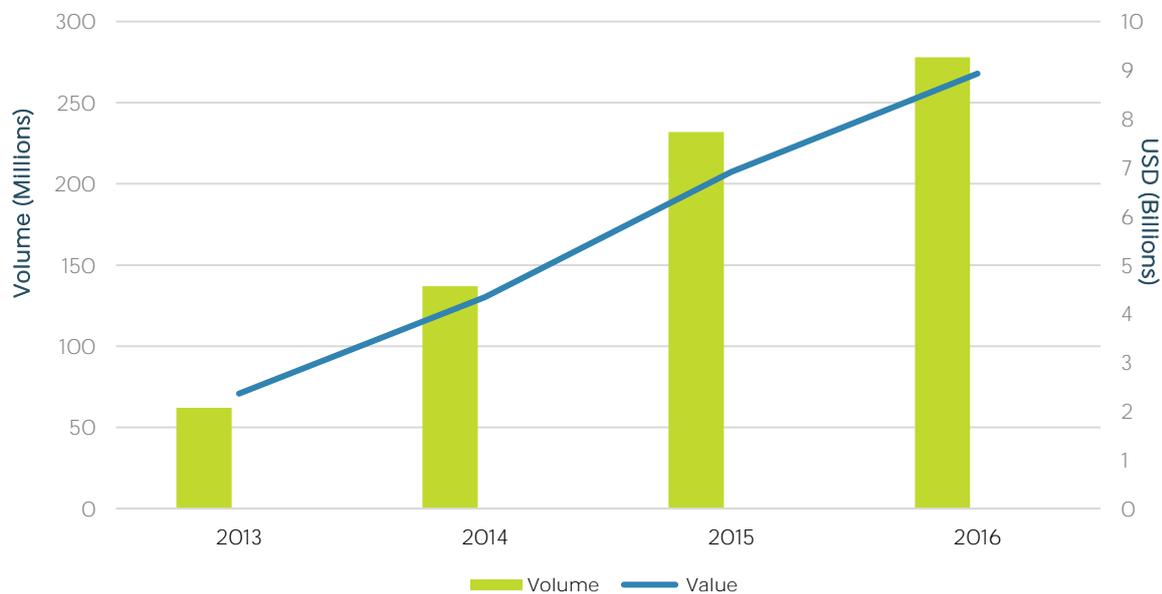


Figure 21: Mobile financial services in Côte d'Ivoire

Source: (BCEAO, 2016)

Payment system infrastructure

Access to advanced regional payment systems infrastructure. CDI is a direct beneficiary of the major payment system infrastructure reforms (see Section 2.3) implemented by the Central Bank of West African States (BCEAO) at regional level. CDI links into the regional interbank clearing system via its own National Clearing Systems. This has contributed to a steady increase in retail transactions facilitated through the Automated Interbank Clearing System (SICA-UEMOA). Figure 22, below, highlights how the increase in the volume of formal low-value retail transactions in CDI (BCEAO, 2016)

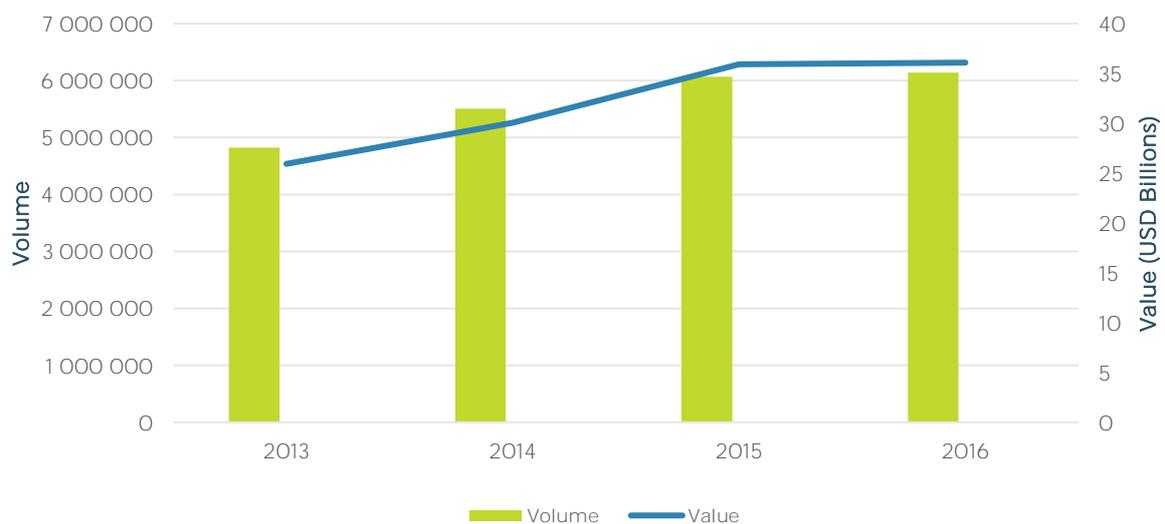


Figure 22: Retail transactions processed through SICA-UEMOA

Source: (BCEAO, 2016)

Limited but growing interoperability. Increasingly, FSPs are offering customers payment solutions that enable interoperability across payment instruments and platforms. Facilitating this growing interoperability is the GIM-UEMOA system, which acts as a regional switch for ATM and POS payments. At present, 24 out of 27 banks in CDI have signed up to use the services offered by the GIM-UEMOA. These include GIM-branded interbank and prepaid cards, among others. This switch is also available to EMIs, and several have now linked to the system, including Orange in CDI. This has contributed to ATMs achieving near total interoperability across CDI and the region. Less progress has been achieved with POS terminals. The dominance of GIM as the regional switch continues to be reflected in the

relatively high costs of becoming a member and of their services. This acts as a barrier to greater uptake and use of GIM products (World Bank, 2012). Figures 23 below and Figure 24 on the next page capture the gradual increase in the volume and value, respectively, of retail transactions processed in CDI through the SICA, GIM and mobile systems. The growth in the volume and value of transactions processed through the GIM network suggests that, together with mobile financial services, the interbank switch remains key to facilitating greater access to financial services for consumers. That said, it is unlikely for card and ATM transactions to grow in light of mobile unless there is integration of mobile transactions into the POS and ATM network.

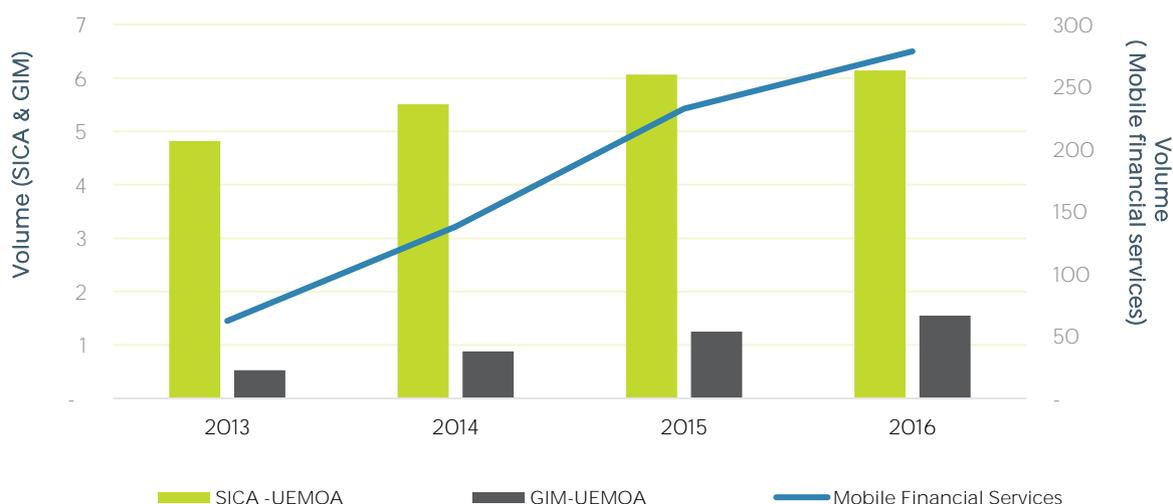


Figure 23: Volume of retail transactions processed in Côte d'Ivoire (Millions)

Source: (BCEAO, 2016)

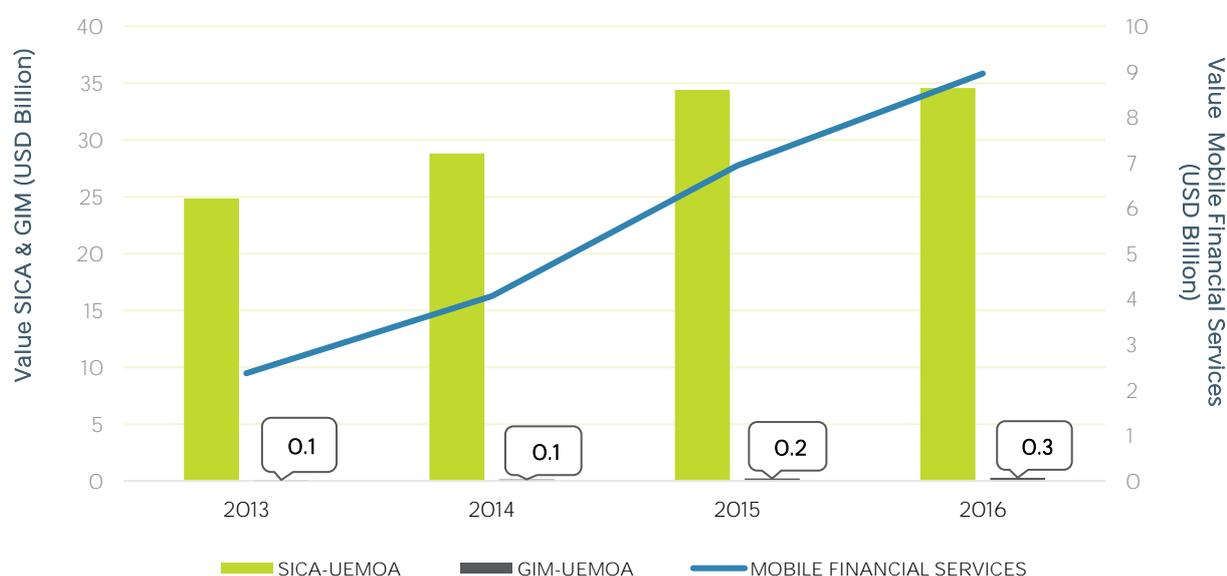


Figure 24: Value of retail transactions processed in Côte d'Ivoire

Source: (BCEAO, 2016)

Payment system regulation

Clarity on competitive and non-competitive payments infrastructure benefiting interoperability. In CDI, there remains a lack of clarity around the optimal positioning of certain payment system components, i.e. in the competitive or non-competitive space. Dominant MNOs in CDI have acted to deter competitors from utilising their USSD infrastructure through heavy charges and limited access time or connection quality (Meagher, 2017). This is harmful to payments interoperability, and national regulatory provisions now view any refusal to share essential infrastructure to be anti-competitive. In 2017, the national telecommunications authority, ARTCI, began requiring MNOs to open the USSD channel to external service providers. This is a positive regulatory stance

that promotes greater integration of payment services.

Universal biometrics seen as a priority. Stakeholder interviews have revealed that the National Office for Identification in CDI is currently in the process of providing official identity documentation as a matter of national policy. In addition, the process of establishing a comprehensive digital identifier system remains ongoing. These measures are aimed at achieving complete population biometric information. Whereas identification has often proven a constraint to financial inclusion, recent efforts by the Government have resulted in some 70% of the Ivoirian population having official identification documents (Meagher, 2017). This is a positive step in developing the national payments ecosystem. By promoting nationwide access to financial services, the

increased volume of system participants will contribute to the leveraging of scale. This is likely to enhance the business case for further investment towards the digitisation of public and private payment channels in the country.

Political will: Key in driving transition away from legacy systems. The Government in CDI appears to be making concerted efforts to drive the digitisation of key payment channels to move the country away from traditionally paper-based services. This includes progress made on the digitisation of government payments, in contrast to many of the other WAEMU countries (Koné, 2016). Since 2014, all secondary school registration fees in CDI have been paid via mobile money, and this is encouraging other public agencies to digitise incoming payments as well.

Payments trends

Mobile money having a role to play in domestic and cross-border remittances. Although cash is still the most common way to send and receive money, mobile money is increasingly used for domestic remittances. Some 50% of recipients receive domestic remittances through a mobile phone, and 42% of senders use cellular phones to send domestic remittances. Orange, MTN and Moov offer **international remittance services to CDI's mobile-money users, connecting them to several markets across SSA (GSMA, 2017).** In 2014, **MTN Côte d'Ivoire and Airtel Burkina Faso signed an agreement to interoperate their mobile-money services to facilitate cross-border transfers. Orange Côte d'Ivoire and Airtel Burkina also signed a similar agreement in 2015.** This was the first example of operators from separate groups agreeing to interoperate their mobile-money services and may provide a

valuable template for similar partnerships to develop in the region. This will further boost the number of interoperable financial service solutions within the WAEMU and among other regional economic communities (RECs) across SSA.

Mobile-money products gradually becoming more sophisticated. While mobile money in CDI has realised significant growth in recent years, the country still lacks many of the financial offerings found in more established mobile-money markets. At present, mobile-money facilities are used primarily for P2P payments and money transfers. The lag in sophistication is a contributing factor in the relatively low rate of mobile-money account activity (38%) in 2016. Mobile-money providers are, however, actively encouraging the roll out of near-field communication (NFC) technology linked to USSD and APIs to enable push-authorized transactions at supermarkets and smaller merchants. MTN has also begun developing basic mobile credit products. These gradual innovations to better address the needs of consumers are a key part of a well-developed ecosystem and will pave the way to sustainable market growth.

Key learnings

Linking into regional infrastructure benefiting national payment system.

The payment system in CDI possesses many favourable pre-conditions to realise sustainable growth and financial inclusion objectives. By harnessing the WAEMU regional payment system, CDI has been able to leverage regional volumes to lower the cost of payments and increase the efficiency and reliability of domestic and intra-regional transactions. Ultimately, this has contributed to the growth

of low-value retail payments through formal payment channels in the country. This is a positive indication of greater financial access and use of the advanced payment system infrastructure. As volumes continue to grow, payment system actors will be able to leverage enhanced scale to further reduce the cost of transactions as well as to create a more compelling business case for further investment.

Identification seen as precursor to financial inclusion. The national mandate promoting nation-wide identification enables PSPs to streamline the process of opening digital accounts. This will encourage customers to shift away from paper-based payment instruments. In addition, authorities will be empowered to impose more uniform risk-based approaches to customer identification and compliance, further promoting financial inclusion and integrity in the country.

Government support can encourage development of digital payment solutions in CDI. The mobile-money sector has benefited from supportive government policies, such as the agreement signed between the Ministry of Education and MNOs in 2014. Although the road to digitisation has many complications, by consistent action, the Government is systematically facilitating an environment in which mobile money is better able to replicate the use cases of cash and therefore create greater value for consumers.

FSP buy-in to regional switch a boost for payments interoperability. The introduction of the interbank card payment switch is a positive step in addressing the limited interoperability between payment systems, cards and mobile wallets in the country. At present, use of the payment services through the regional switch remains low in CDI, primarily due to the relatively high costs associated with GIM products and services. The strong buy-in by local commercial banks, however, is likely to positively impact the system. The proliferation of GIM-linked products and services across these banks is likely to result in a decrease in the cost of these services and higher levels of access for customers. The scalability of the card payments stream remains to be seen. Considering the progress of mobile financial services and a lack of alignment with mobile functionality, the continued viability of card payments is likely to be undermined.

4 Conclusion

This note considers the prevailing payment system landscape in SSA by presenting nuanced findings in the form of national and regional payment system case studies. In discussing the particularities of each payment system, we are able to give a flavour for the features, complexities and issues that exist in the payment systems of various countries and sub-regions in SSA. These findings contribute to the narrative around the current state of payment ecosystems and provide a glimpse into the emerging trends that could shape these ecosystems in the near future. The insights developed in this note inform Note 1, which draws together the cross-cutting features and issues to conclude on the imperatives for payment system development in the SSA region.



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6 Appendix

Appendix 1: Stakeholder interviews

Table 3 below shows the number of banks in each SADC country that are linked to SADC RTGS. In 2017, a total of 246 banks in the SADC region were linked to the system.

No.	Country	Domestic RTGS or local settlement system	SADC RTGS participants		SADC RTGS banks as a % of domestic banks
			Commercial banks	Central banks	
1	Angola	31	2	0	6%
2	Botswana	10	1	0	10%
3	DRC	18	1	0	0%
4	Lesotho	4	4	1	100%
5	Madagascar*	N/A	N/A	N/A	N/A
6	Malawi	10	10	1	100%
7	Mauritius	22	4	0	18%
8	Mozambique	15	6	0	40%
9	Namibia	9	6	1	67%
10	Seychelles	8	0	1	0%
11	South Africa	27	9	1	33%
12	Swaziland	4	4	1	100%
13	Tanzania	49	6	0	12%
14	Zambia	18	9	1	50%
15	Zimbabwe	21	14	0	67%
Total		246	76	7	31%

*Madagascar is not yet a participant.

Table 3: Bank participation in domestic payment system versus SADC RTGS

Source: (SADC, 2017)

Table 4 lists the stakeholder engagements and interviews as part of this study.

Country	Organisation/person	Date of meeting
Ghana	SADC Banking Association	26/1/2018
Ghana	Tigo	30/1/2018
International	MFS Africa	8/2/2018
Ghana	Ecobank	16/2/2018
Ghana	Zenith Bank	5/4/2018
South Africa	BankservAfrica	15/5/2018
Rwanda	John Bosco Sebabi (Previously at Rwanda Central Bank Payments)	21/5/2018
Namibia	Namclear	22/5/2018
Cote d'Ivoire	African Development Bank	13/6/2018

Table 4: List of stakeholder engagements







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About Cenfri

The Centre for Financial Regulation & Inclusion (Cenfri) is a global think-tank and non-profit enterprise that bridges the gap between insights and impact in the financial sector. Cenfri's people are driven by a vision of a world where all people live their financial lives optimally to enhance welfare and grow the economy. Its core focus is on generating insights that can inform policymakers, market players and donors seeking to unlock development outcomes through inclusive financial services and the financial sector more broadly. For more info, visit www.cenfri.org.

About FSD Africa

FSD Africa is a non-profit company that aims to increase prosperity, create jobs and reduce poverty by bringing about a transformation in financial markets in sub-Saharan Africa (SSA) and in the economies they serve. It provides know-how and capital to champions of change whose ideas, influence and actions will make finance more useful to African businesses and households. It is funded by the UK Aid from the UK Government. FSD Africa also provides technical and operational support to a family of 10 financial market development agencies or "FSDs" across SSA called the FSD Network. For more info visit www.fsdafrica.org.