

Agpaytech's Research
16th May, 2022

Africa CBDC Series

An Overview of Payment Systems in Africa

Executive summary



This report discusses strengthening the provision of payment services in the countries and regions of Africa. The paper investigates essential step to integrate their economies into the world of digital finance and unified payment system to support economic development by first, examining the payment environment in Africa. The report elaborates a strategic approach to the development of sound and dynamic ecosystems for the provision of regulated, respected and robust single payment facility for all countries of the Africa Union. The report calls for promotion and modernization of their connected payment ecosystems, starting from their initial facilities such as RTGS, ACH and PAPSS. To this purpose, it identifies steps that are tailored to improve online payment, cross-border payment and achievement of single currency to easy financial inclusion and renovate the financial payment systems. Moreover, the report summarized the outlook of Africa payment system under four themes; weakness, strength, opportunities and threat.

Keywords:

*Africa, payment system
Digital currency
Money
Financial inclusion
Payment infrastructure
Monetary zones
Cash system*



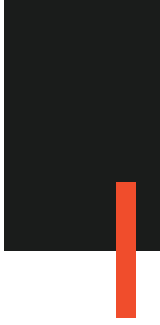
Opportunities

- Mobile money account and bank account penetration are increasing year on year basis. This can provide an avenue to improve the financial inclusion deficit.
- An increase in Fintech, telecommunication infrastructures, mobile payment apps in Africa, and online payment methods promises to increase economic stability across the continent.
- Many African-based Fintechs are emerging with substantial financial and technology investment in the payment system.

Weakness

- Less than 50% of the adult population has no access to banking services and mobile money account
- The lack of a single payment system for all countries in Africa is an obstacle to solid financial stability.
- Different monetary zones with overlapping economic and monetary objectives make the financial payment system fragmented





Strength

- The establishment of a joint trade market known as the African Continental Free Trade Area (AfCFTA) serves as an opportunity to explore a standard payment system.
- The emergency of PAPSS by Afrexim Bank is an excellent initiative to drive financial technology across central banks

Threats

- The experience of over 42 different monies in circulation limits the region's cross-border trade and payment success.
- Over-reliance on the SWIFT system will pose a financial threat in case of conflict.
- Uncommon governance and regulatory policies for the African financial market pose a significant threat to stability and growth.



Contents

| | |
|---|----|
| Summary of the Report | 1 |
| Introduction | 9 |
| Overview of African Payment Environment | 10 |
| Different Monetary and Regional Zones | 12 |
| Currencies in Circulation | 13 |
| Governance of Payment System | 14 |
| Money Transitions in Africa | 15 |
| Payment Infrastructural Development in Africa | 16 |
| Pan-African Payment and Settlement System (PAPSS) | 16 |
| SWIFT Payment System for Africa | 20 |
| Online Payment Methods | 22 |
| Mobile Money Payment | 24 |
| Payment System by Regions in Africa | 31 |
| West Africa Payment System | 32 |
| Ghana's Payment Development | 32 |
| Nigeria Payment System | 33 |
| East Africa Payment System | 35 |
| Tanzania Payment System | 36 |
| Rwanda payment system | 40 |
| Kenya Payment system | 41 |
| South Africa Payment System | 43 |
| North Africa Payment System | 45 |
| Algeria Payment System | 47 |
| Egypt Payment System | 50 |
| Morocco Payment System | 51 |

Contents

| | |
|---|----|
| Tunisia Payment System | 53 |
| Libya Payment System | 54 |
| Digital Finance & Financial Inclusion in Africa | 56 |
| Digital Finance | 56 |
| Digital Currency | 57 |
| Financial Inclusion | 57 |
| Conclusion | 59 |
| Proposing a Unified Payment System for Africa | 60 |
| Reference | 61 |
| Appendix | 63 |

List of Acronyms and Abbreviations

| | |
|-------------|---|
| ACH | Automated Clearing House |
| AfCTA | African Continental Free Trade Agreement |
| Afreximbank | African Export-Import Bank |
| AML/CFT | Anti-Money Laundering and Combating of Financing of Terrorism |
| ATM | Automated Teller Machine |
| AU | Africa Union |
| BIS | Bank for International Settlement |
| BOT | Bank of Tanzania |
| CBDC | Central Bank Digital Currency |
| CBN | Central Bank of Nigeria |
| CCC | Cheque Codeline Clearing |
| CCH | Cheque Clearing House |
| CEMAC | Economic and Monetary Community of Central Africa |
| CMA | Common Monetary Area |
| COMESA | The Common Market for Eastern & Southern Africa |
| CPMI | Committee on Payment and Market infrastructure |
| CSD | Central Securities Depository |
| DFS | Digital Financial Services |
| EAC | East Africa Community |
| EAPS | East Africa Payment System |
| EFT | Electronic Fund Transfer |
| FDI | Foreign Direct Investment |
| FX | Foreign exchange |
| GDP | Gross Domestic Product |
| GhIPSS | Ghana Interbank Payments and Settlement System |
| GIP | GhIPSS Instant Pay |

List of Acronyms and Abbreviations

| | |
|-----------|---|
| GIS | Ghana Interbank Settlement |
| GPSS | Global payment systems survey |
| GSMA | Global System for Mobile Communications Association |
| IMF | International Monetary Fund |
| KEPSS | Kenya Electronic Payment and Settlement System |
| KYC | Know Your Customer |
| MENA | Middle East and North Africa |
| MNO | Mobile Network Operator |
| MTO | Money Transfer Operator |
| NPS | National payments system |
| P2P | Person to Person |
| PAPSS | Pan-African Payment and Settlement System |
| PIN | Personal Identification Number |
| POS | Point of Service |
| PSP | Payment Service Provider |
| RTGS | Real-Time Gross Settlement System |
| SADC | Southern African Development Community |
| SADC RTGS | SADC Real-Time Gross Settlement System |
| SAMOS | South African Multiple Option Settlement |
| SSA | Sub-Saharan Africa |
| SWIFT | Society for Worldwide Interbank Financial Telecommunication |
| TIPS | Tanzania Instant Payments System |
| USSD | Unstructured Supplementary Service Data |
| WACB | West African Central Bank WACB |
| WAEMU | West African Economic and Monetary Union |
| WAMZ | West Africa Monetary Zone |

Objectives

This report highlights the payment system in Africa. The paper presents the existing payment facilities among the six economic regions and some selected countries of Africa. It describes mobile money payments, online payment methods, banking services, interbank and regional payment models, PAPSS and other digital payment facilities in Africa. Furthermore, this report highlights the payment gaps and recommended payment strategies to drive self-financial stability and inclusion

Methodology

Agpaytech Research Team relied on central bank reports, company reports, CBDC white papers (design concepts), IMF publications, and other financial literature to study the relevant knowledge and evolution of the payment systems in Africa.



Introduction

The global payments sector is taking a new paradigm rapidly, and Africa is experiencing a significant transformation. For instance, GPSS (2018) reported generalized progress in most areas, and more payments are being made with instruments other than cash, reflecting a safer, more efficient, and more inclusive provision of payment and settlement services globally. The World Bank (2020) reported that cashless transactions per capita per year rose to 88.31% in 2017. Moreover, in foreign exchange settlement, trading in FX markets increases, reaching USD 6.6 trillion per day in April 2019. All this denotes that the payment system is undergoing a new transformation, more flexible, convenient, accessible, and secure.

However, the payment system has witnessed remarkable evolution in advanced countries like the USA, China, Canada, UK, Japan, and others, whereas there is little to talk about in the Sub-Saharan Africa Region.

Why Advocate for Good Payment System?

An efficient payments system can facilitate the smooth operation of markets and support sustainable economic growth; an inefficient one easily creates bottlenecks that impede real growth and undermine confidence in payments media and the financial system. Payment and settlement systems/services and remittances are at the core of the economic activity and the financial sector. Payment systems promote economic and financial development, improve the national payments system, which lead to savings for the overall economy, while financial markets benefit from efficient post-trade processing and the safe custody of securities.



Overview of African Payment Environment

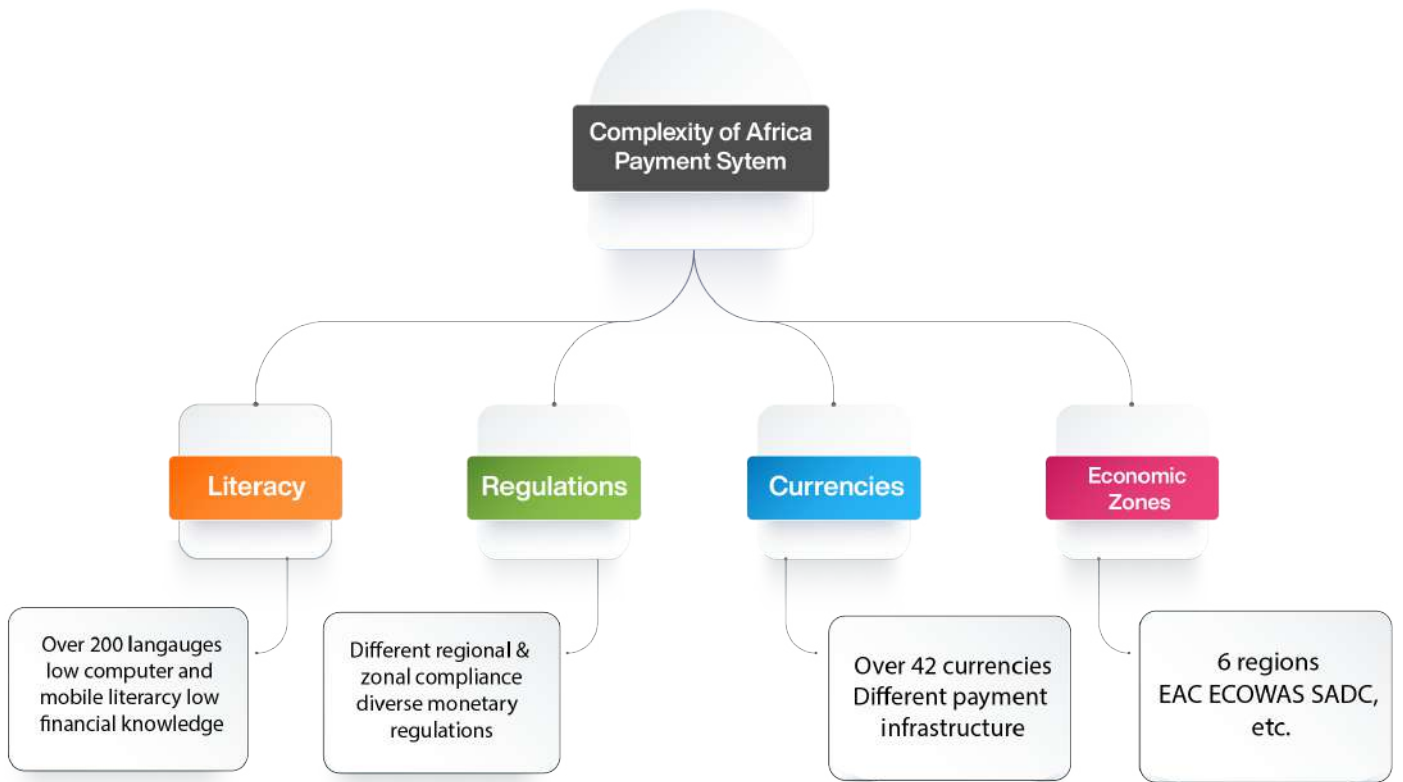
The Committee on Payment and Settlement Systems (2003) defined a payment system to consist of instruments, banking procedures, and, typically, interbank funds transfer systems that ensure the circulation of money. The NPS Act defines a payment system as “a system that enables payments to be effected or facilitates the circulation of money and includes any instruments and procedures related to the system” (SARB, 2022).

The African payment system is an integral part of the financial infrastructure in the African economy. Thus, a unified payment system in Africa would ensure that transactions are settled in real-time, secured, and reliable. Therefore, the campaign for an efficient payment system can facilitate the smooth operation of the African Continental Free Trade Area and sustain economic growth.

The current landscape of payment systems in Africa is not unified, and this is a big challenge to financial stability across the continent. But regional zones integrate economically and promote open trade among member states, maintaining fragmented national payment systems can hinder larger goals of economic development and cooperation. Regional payment systems are international mechanisms designed to facilitate payments between residents of the participating countries.

The complexity of payment systems in Africa is primarily due to the intersecting economic zones in Africa. Thus, several regional monetary unions and economic regional communities in Africa are involved. A feature of regional cooperation in Africa is the existence of overlapping regional integration initiatives coupled with countless monetary currencies in the continent. More ambitiously, single money for the whole of Africa is also an official objective. The creation of a typical African currency has long been a pillar of African unity, a symbol of the strength that its hope will emerge from success with efforts to integrate the continent. As a common currency and payment system for the Africans is on the table, different monetary zones aim to launch and use a common currency. Besides, many African countries' central banks are exploring issuing their digital currency, which contradicts their monetary zone and AU financial ambitions.

Figure1: Complexity of Africa payment system



Source: Agpaytech Research



Different Monetary and Regional Zones

The West African Monetary Zone is a group of six member states comprising: The Gambia, Ghana, Guinea, Liberia, Nigeria, and Sierra Leone, established by the West African Monetary Zone (2000). The WAMZ Agreement made provision for the establishment of the West African Monetary Institute (WAMI), tasked with undertaking technical preparations for the establishment of a standard West African Central Bank (WACB) and the launch of a single currency for the West African Monetary Zone (WAMZ).

Kenya, Tanzania, and Uganda have agreed to revitalize the East African Community, effectively dissolved in the 1960s. The project envisions a single currency, reestablishing the currency union constituted around the East African shilling that was in place at the time of independence.

Southern Africa has been exploring regional integration in the context of the Southern African Development Community (SADC) to build on the long-standing but more restricted South African Customs Union and the Common Monetary Area (CMA). The CMA, which now includes Lesotho, Namibia, Swaziland, and South Africa, is centered on the rand, and the South African Reserve Bank has responsibility for monetary policy. However, a proposal for a true multilateral monetary union would include all the SADC countries. SADC leaders are pushing for a single currency.

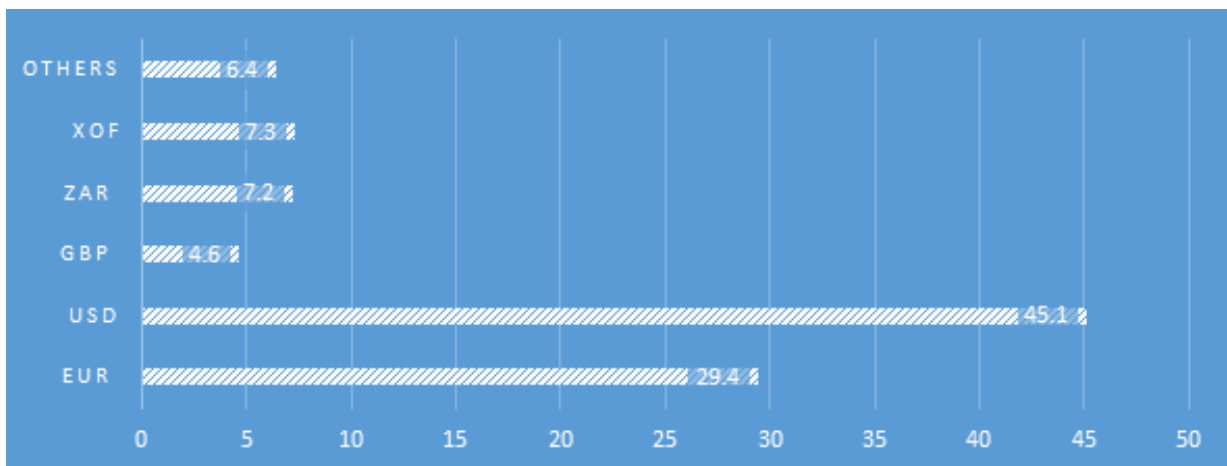
Moreover, Common Market for Eastern and Southern Africa (COMESA) includes most of the countries of SADC (with the notable exception of the Republic of South Africa) but also Egypt, Sudan, and the East African countries, and has a different timetable for trade liberalization.

The CFA franc zones overlap partially with ECOWAS, as only one of the two CFA zones, WAEMU, is part of West Africa, while the other one, CEMAC, is part of Central Africa (ECCAS). Both WAEMU and ECOWAS have criteria for regional surveillance, but not identical ones, and dismantling of trade restrictions has proceeded differently in the two organizations.

Currencies in Circulation

According to the AfCFTA Secretariat, there are over 42 currencies in the continent, and this remains a constraint to intra-Africa trade due to the need to use international currencies for the transaction. The notable currencies are the West African CFA franc, used in 8 independent countries, and the Central African CFA franc, used in 6 other nations. Their relative stability is guaranteed to utilize the fixed exchange rate; currently, both are pegged to the Euro. However, the only local currency ranked among the most-traded in the international forex market is the South African rand, placed at 20th position globally. Multiple websites confirmed that the Libyan Dinar had been Africa's most robust currency.

Figure 2: Africa's currency usage for cross-border commercial payments



Source: SWIFT BI Watch, 2017

The US dollar accounted for more than 45.1% of payments from Africa in 2017. The Euro is increasing in importance, 29.4%. However, the British pound has seen a decrease in use from 6.2% to 4.6%. The use of local currencies, including the West African franc and South African rand, is increasing. Use of the franc for cross-border payments has overtaken the rand and the pound, accounting for 7.3% of payments in 2017. The rand has seen a minor increase in cross-border payments of 7.2%. Despite more than 10% of payments ending up in China, the use of the Renminbi (Yuan) is negligible; only 0.1% of all payments are denominated in RMB.

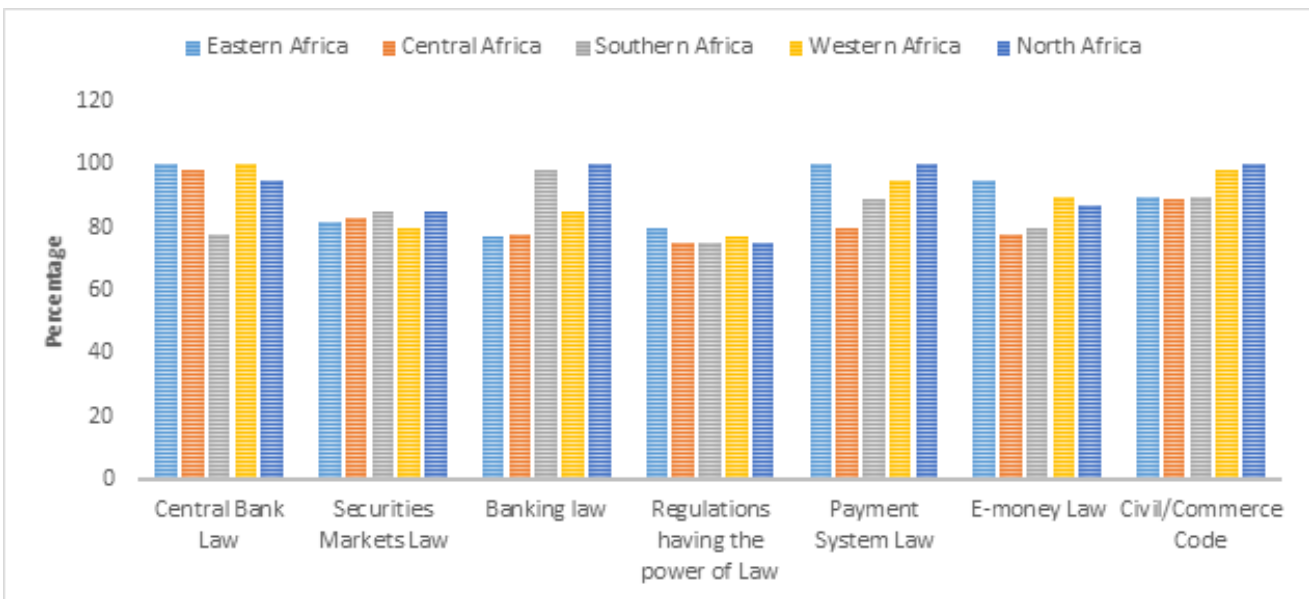
Governance of Payment System

One central pillar for a robust financial payment system is the legislation that regulates the financial market. The governance of the financial payment system needs sanity and legal structures that cover the payment and securities settlement systems, payment services, licensing of payment service providers, and payments oversight arrangements. The legal payment structures are fragmented in Africa, and each country has its unique settlement regulations and requirements.

There is no unified payment facility for all the currencies and independent states in Africa. However, Africa Union (AU) is working towards issuing common currency and denominations for all its members' states. According to BIS, this may be achieved via; common technical standards, linking multiple CBDCs through a familiar interface, and integrating various CBDCs in a single multi-CBDC system. There is no proper laid down regulations and payment infrastructure that unify all the payments platforms and facilities in Africa, which is the genesis of the financial instability and exclusion in the continent. Overlapping initiatives with sometimes conflicting provisions may prove to be an obstacle to achieving the objectives of each; at the very least, they squander resources of expertise and money, which are in short supply in Africa.

Figure 3 illustrates that Sub-Saharan Africa and, the Middle East & North Africa have 100 percent central bank laws regulating their financial industry. Moreover, the report found that payment system laws were 91% and 63% in SSA and MENA. Besides, e-money law was poor in these economic regions and worldwide.

Figure 3: Legislation regulating payment and settlement systems

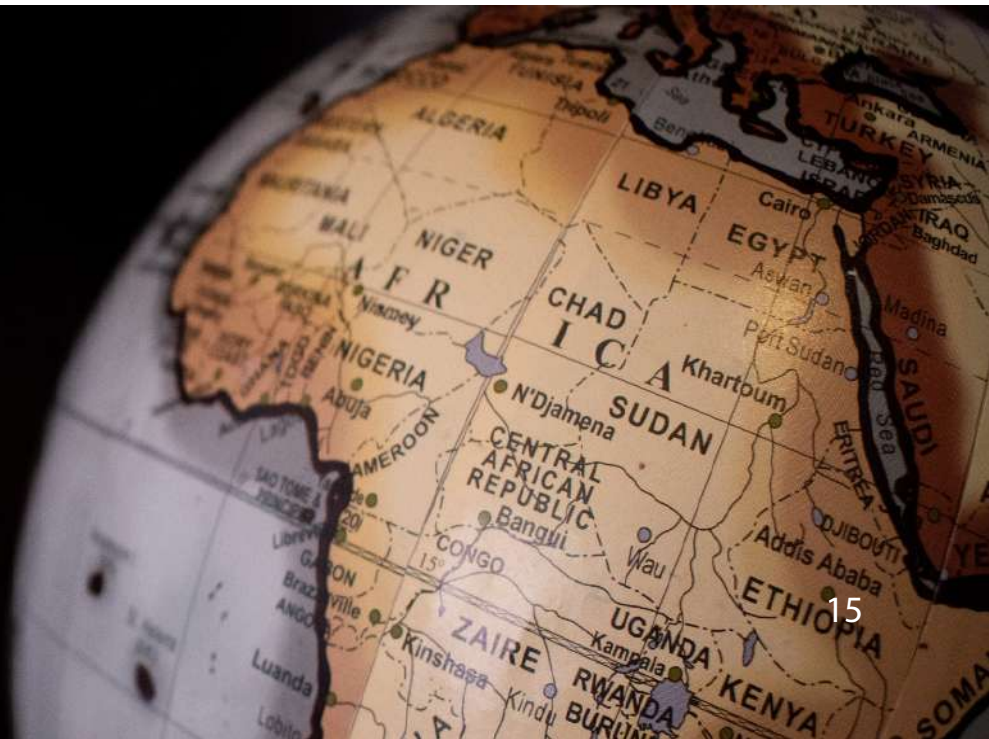
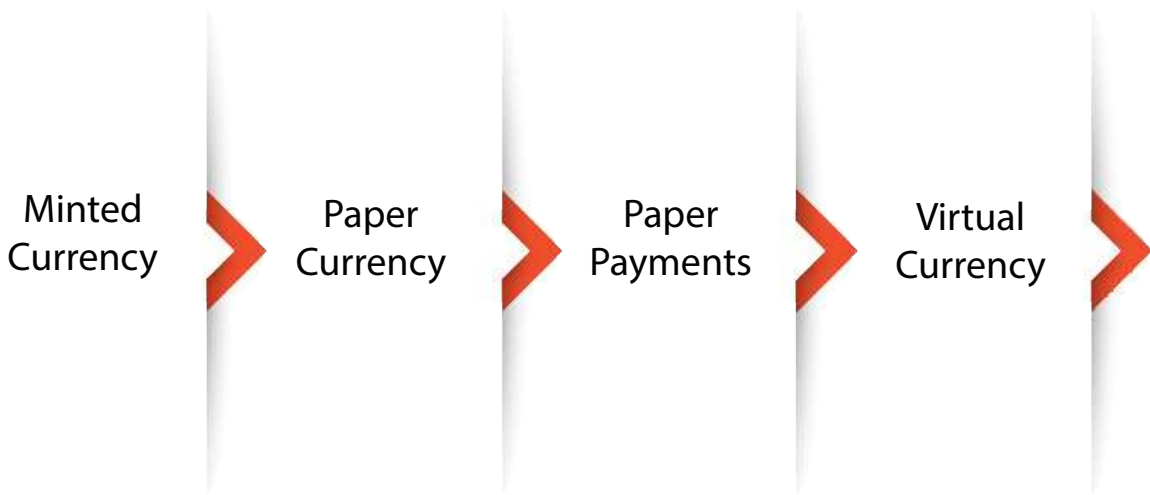


Source: Agpatech Research

Money Transitions in Africa

Money has been the most effective and efficient instrument to make transactions solving the problems that exist with barter trade. Currently, the monetary instrument is moving beyond just physical cash to a more convenient, cheap, and user-friendly form of mobile or digital money. The electronic nature of money has made it a means of financial inclusion for millions of people worldwide. The availability of the payment system stimulates the money circulation within a country, across regions and the whole of Africa and other continents. A payment system is a set of instruments, procedures and rules for the transfer of funds among participants (credit or financial institutions) in the systems, relying on an agreement between the participants in the system and the system operator. The funds transfer is performed via an agreed upon technical infrastructure (CPSS, 2001).

In Africa, the history of money is still being written. The exchange system has moved from swapping animal skins to minting coins to printing paper money. Today, there is a crossover of a massive shift to electronic transactions and cryptocurrencies like CBDC, Bitcoin, etc.



Payment Infrastructural Development in Africa

The infrastructural all the payment and securities settlement systems (settlement systems) that are important part of the economic and financial infrastructure, which allow for the transfer of funds and financial instruments between participants in payment and settlement systems. They comprise of the complex and financial projects, innovations, payment settlement technologies that improve financial inclusion, security, reliability, accessibility and innovation among banks, business, countries, and regions. This section provides some of the financial payment and settlement developments widely use in Africa continent.

Pan-African Payment and Settlement System (PAPSS)

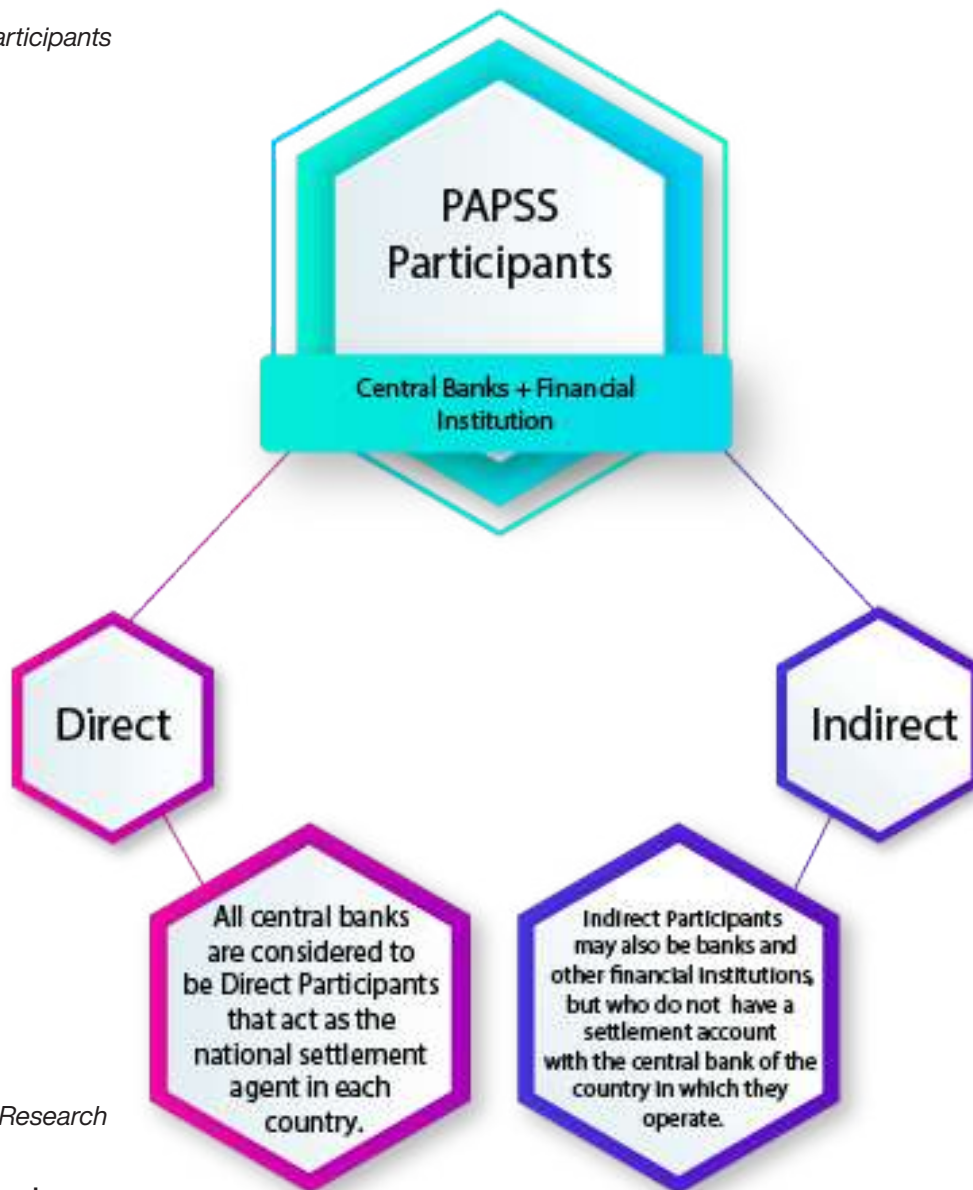
PAPSS is a single payment infrastructure that cuts through the existing challenges of local currency exchange and ensures instant payment of funds across Africa. PAPSS is a centralized payment and settlement infrastructure for intra- African trade and commerce payments. PAPSS collaborates with Africa's central banks to provide a payment and settlement service to commercial banks, payment service providers, and Fintech. PAPSS technologies aimed to facilitate the expected increased volumes in cross-border payments, whose mission includes stimulating African trade expansion, diversification, and development.

PAPSS, developed by African Export-Import Bank (Afreximbank), is expected to boost intra-African trade by transforming and facilitating payment, clearing, and settlement for cross-border trade across Africa. The PAPSS has been piloted successfully in the six countries that make up the West African Monetary Zone (WAMZ); Nigeria, the Gambia, Sierra Leone, Liberia, Ghana, and Guinea.

PAPSS participants

PAPSS has direct and indirect participants of financial intermediaries, commercial banks, fintech companies, and payment service providers (PSPs).

Figure 4: PAPSS participants



Source: Agpaytech Research

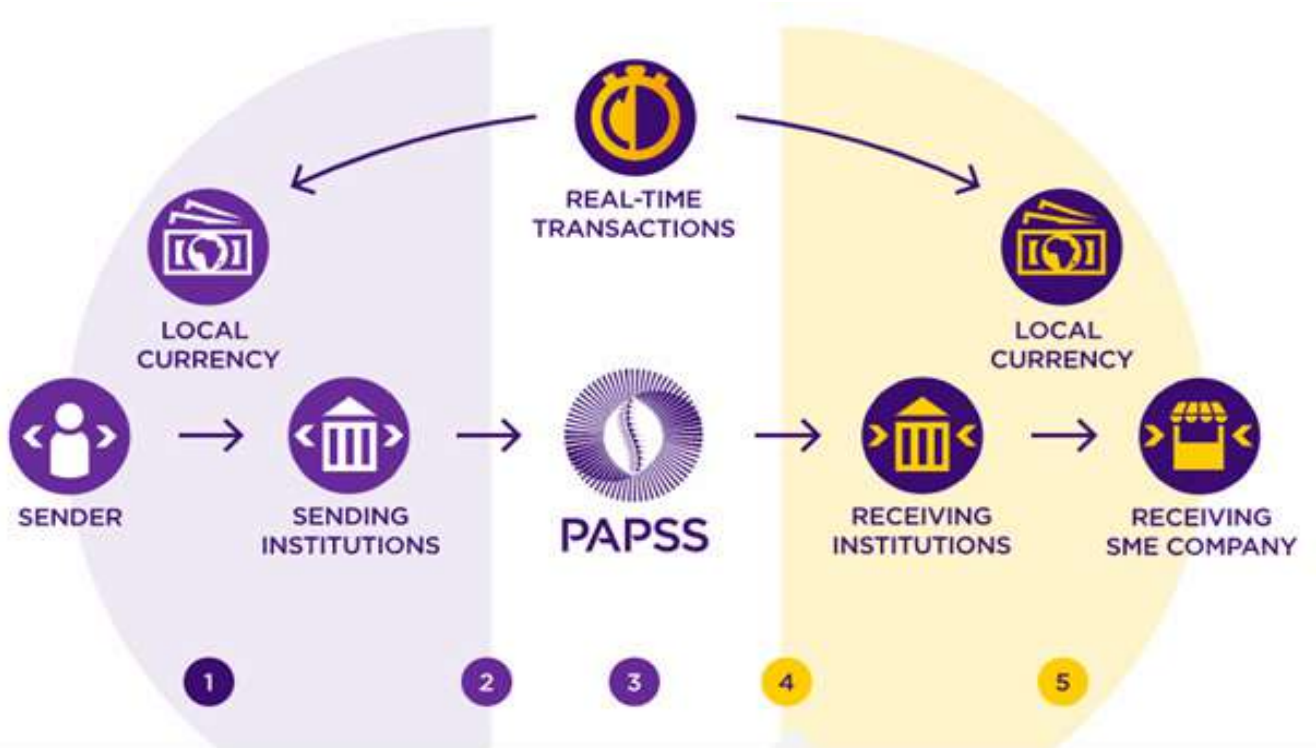
How PAPSS work

The PAPSS system facilitates instant payments across African borders in local currency under three primary processes; instant payment, pre-funding, and net settlement.

Instant payment:

With Instant payment, participants no longer need to convert local currencies into hard currencies, which entailed the funds leaving Africa to be converted before being sent back again to the beneficiary bank – adding days to the transaction time. In addition, compliance, legal, and sanctions checks are performed instantly within the system. Near-instant payments process within 120 seconds.

Figure 5: PAPSS instant payment



Source: PAPSS

Pre-funding:

Due to the speed of the real-time payment process, PAPSS needs to guarantee that funds are available to complete the originator’s transaction before effecting the movement of debits and credits between participants’ accounts. Participants must, therefore, agree to a pre-funding arrangement.

Figure 6: PAPSS pre-funding

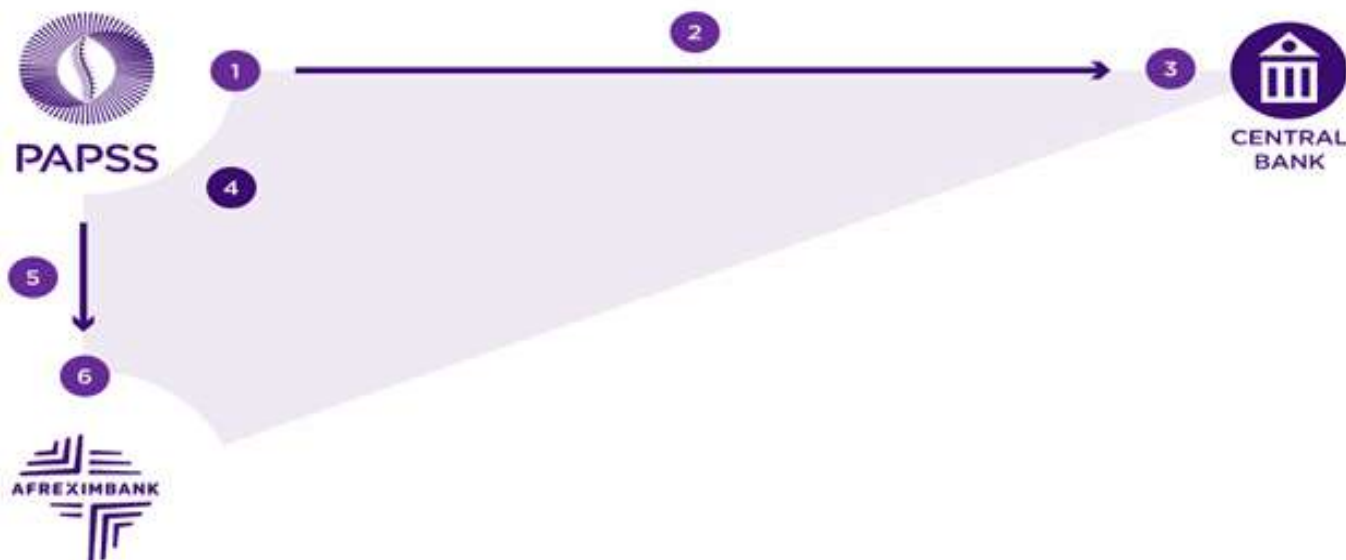


Source: PAPSS

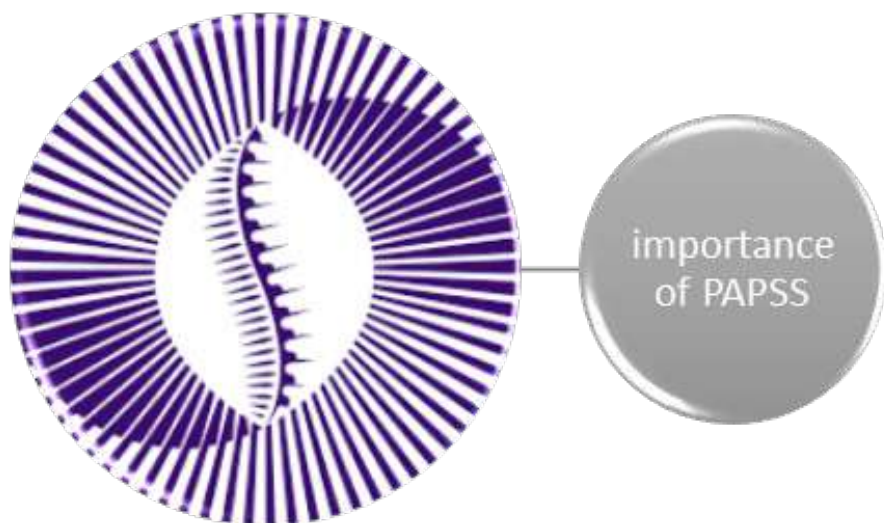
PAPSS Net Settlement

PAPSS needs to ensure prompt settlement within 24 hours. Net settlement across all participating central banks occurs at the same time – 11.00 UTC – each day.

Figure 7: PAPSS net settlement



Source: PAPSS



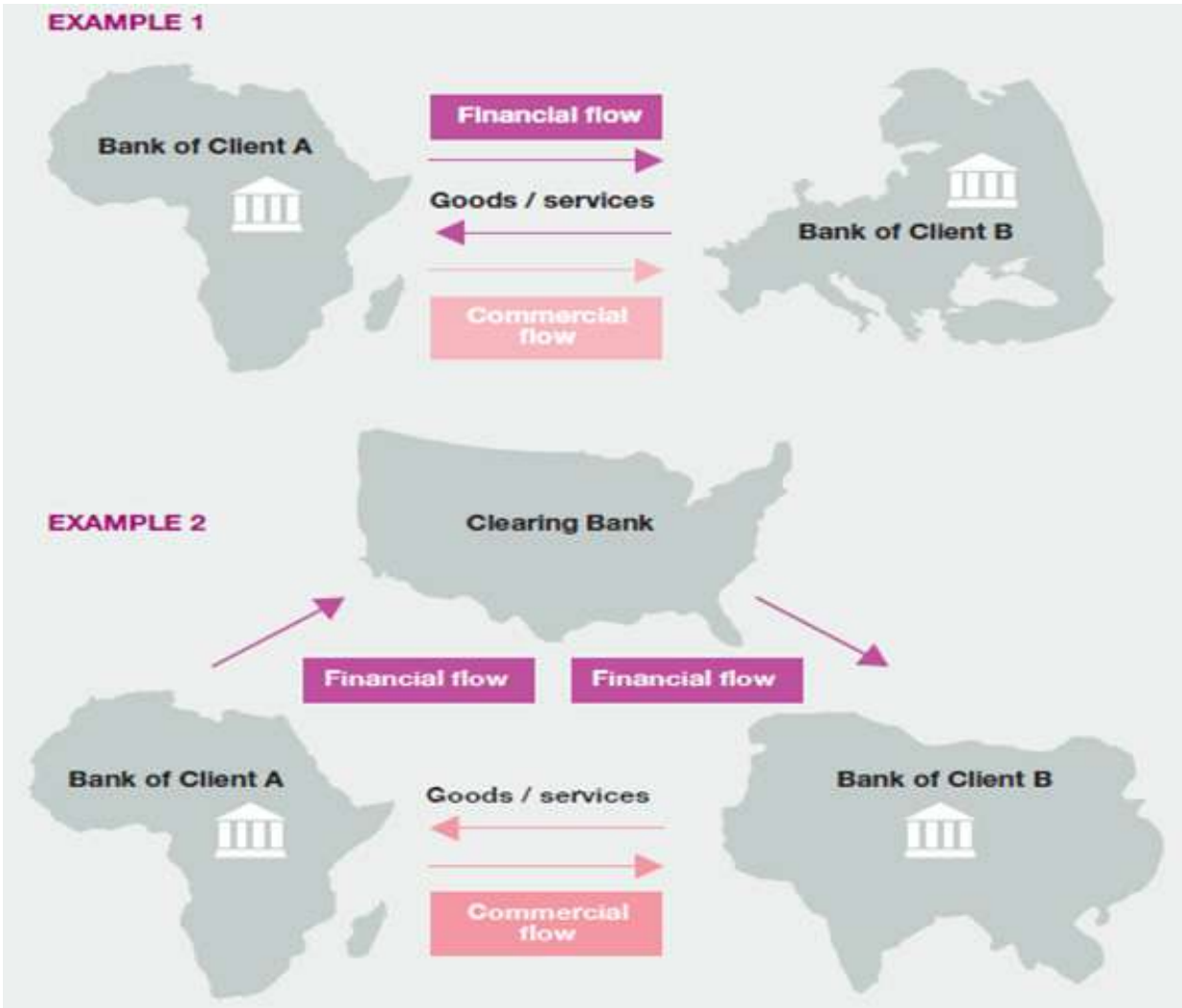
- Reduce transaction cost
- Reduce duration time
- Decrease the liquidity requirement
- Strengthening oversight of cross-payment

SWIFT Payment System for Africa

SWIFT is widely recognized as the trusted financial telecommunication service provider for the payments clearing market and provides messaging services for more than 115 domestic and international payments clearing systems worldwide in 130 countries. SWIFT is a cooperative company under Belgian law. The system is overseen by the G10 central banks, as well as the European Central Bank, with its lead overseer being the National Bank of Belgium.

The technical overview of SWIFT revealed that the transaction flows are based on cross-border commercial payments because this mirrors actual trade flows and generates the associated financial flows. Meanwhile, the financial flows represent the payment route used for the settlement of the transaction. They are measured using the number of commercial payments sent by banks from Africa to the country of the counterparty bank.

Figure 8: Transaction flow

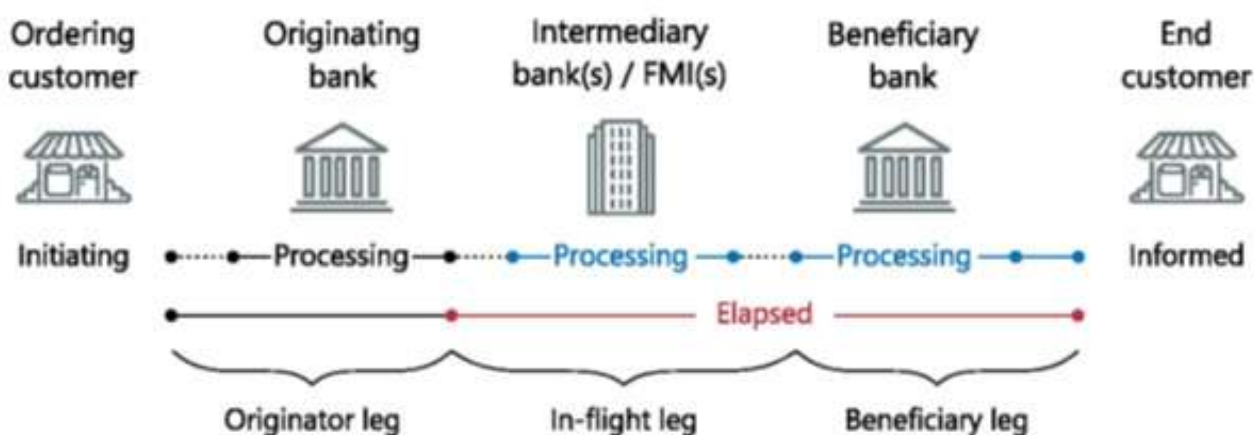


Source: CPMI (2022)

A careful observation of the commercial and financial flows illustrated in figure 1 denotes that with an African import from Europe where the payment is directly routed to a European bank, or show a disconnect with an African import from Asia intermediated by a clearing bank in the United States.

According to CPMI (2022), cross-border payments on SWIFT involve, on average, just over one intermediary between the originator and beneficiary banks. Each additional intermediary prolongs payment time to a limited extent, while the size of time zone differences between banks has no apparent effect on speed. Moreover, the SWIFT identical infrastructure does not affect the volume of payments to the beneficiary country. The payment amount and whether it involves a currency conversion hardly affect processing time.

Figure 9: Typical cross-border payment on SWIFT



Source: BIS (2022)

Note: Data from the SWIFT gpi Observer only track the in-flight and beneficiary legs, that is, the blue and red parts of processing time and elapsed time, respectively.

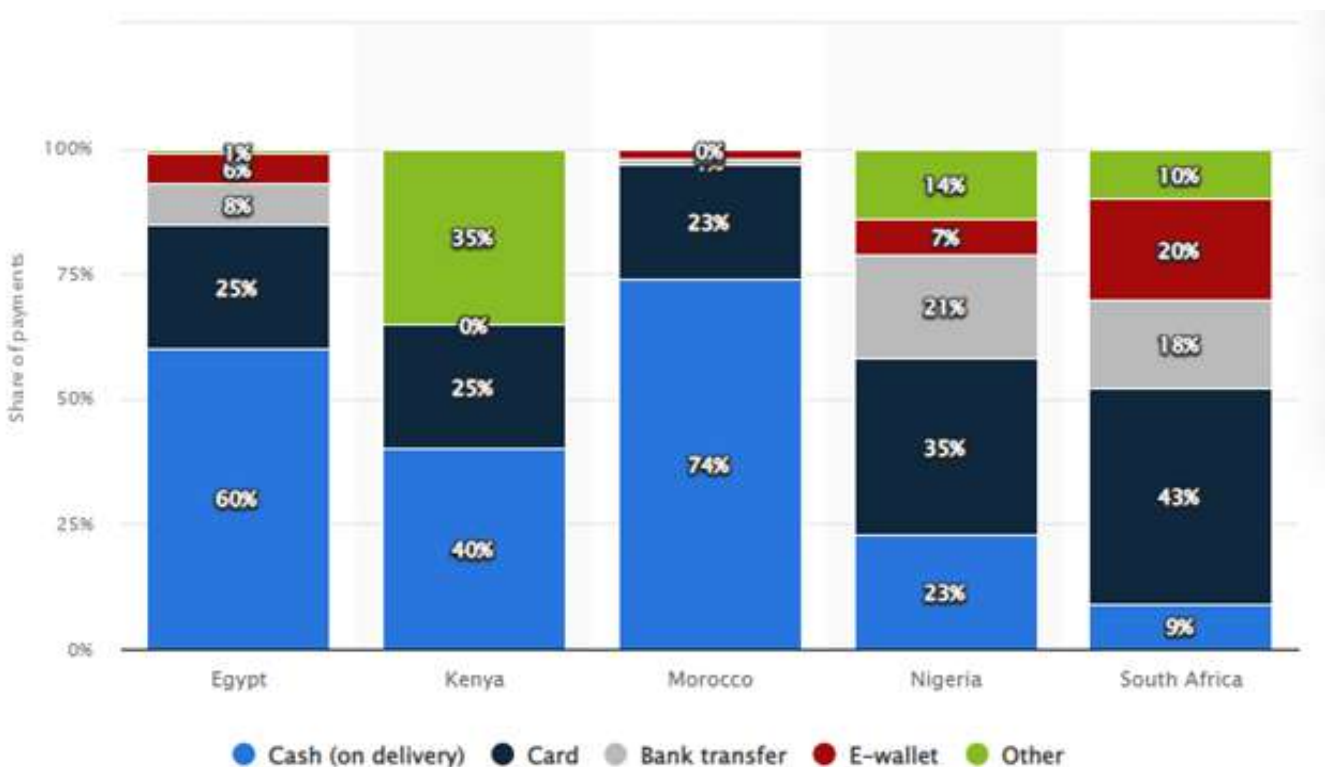
In Africa, SWIFT constituent countries and dependent territories are; Eastern Africa, Northern Africa, Southern, Central Africa, Western Africa. Another challenge with SWIFT is no clearing house or Bank in Africa. All the commercial and central banks act as intermediaries to the sending or receiving person or institution. Economic growth in Africa is represented by transaction flows on the SWIFT network. With the exception of 2009, transaction flows sent by banks in Africa have shown a year-on-year growth of around 10%.

Online Payment Methods

The majority of the transactions in Africa occur in cash. Most countries on the continent rely significantly on cash, which is frequently used also in informal economies. Since credit cards are still not common in Africa, other payment methods are usually preferred. The same applies to online retail. When purchasing online, customers often use cash-on-delivery payments. Despite country-specific differences, cash remains the leading payment method in Africa.

As of 2021, cash was the main payment method used in online retail in Morocco, Egypt, Kenya, and Morocco, accounting for 74 percent, 60 percent, and 40 percent of the total, respectively. On the other hand, cash was not that prevalent in Nigeria, where 35 percent of e-commerce payments occurred by card and 21 percent by bank transfer. In South Africa, most digital buyers used card-based payments (43 percent) and e-wallets (20 percent).

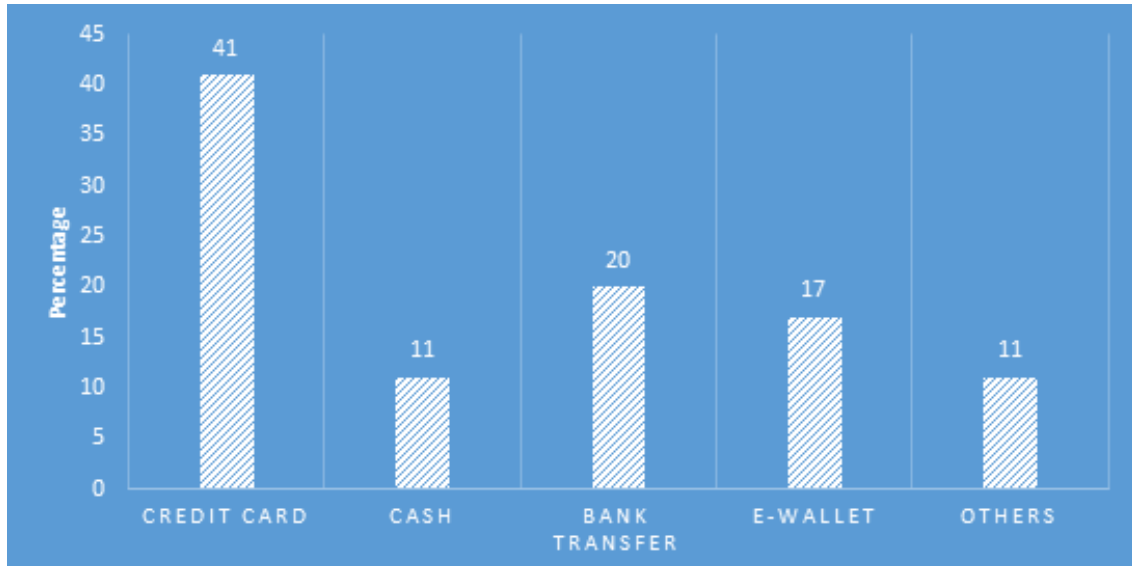
Figure 10: Online payment methods in selected African countries as of 2021



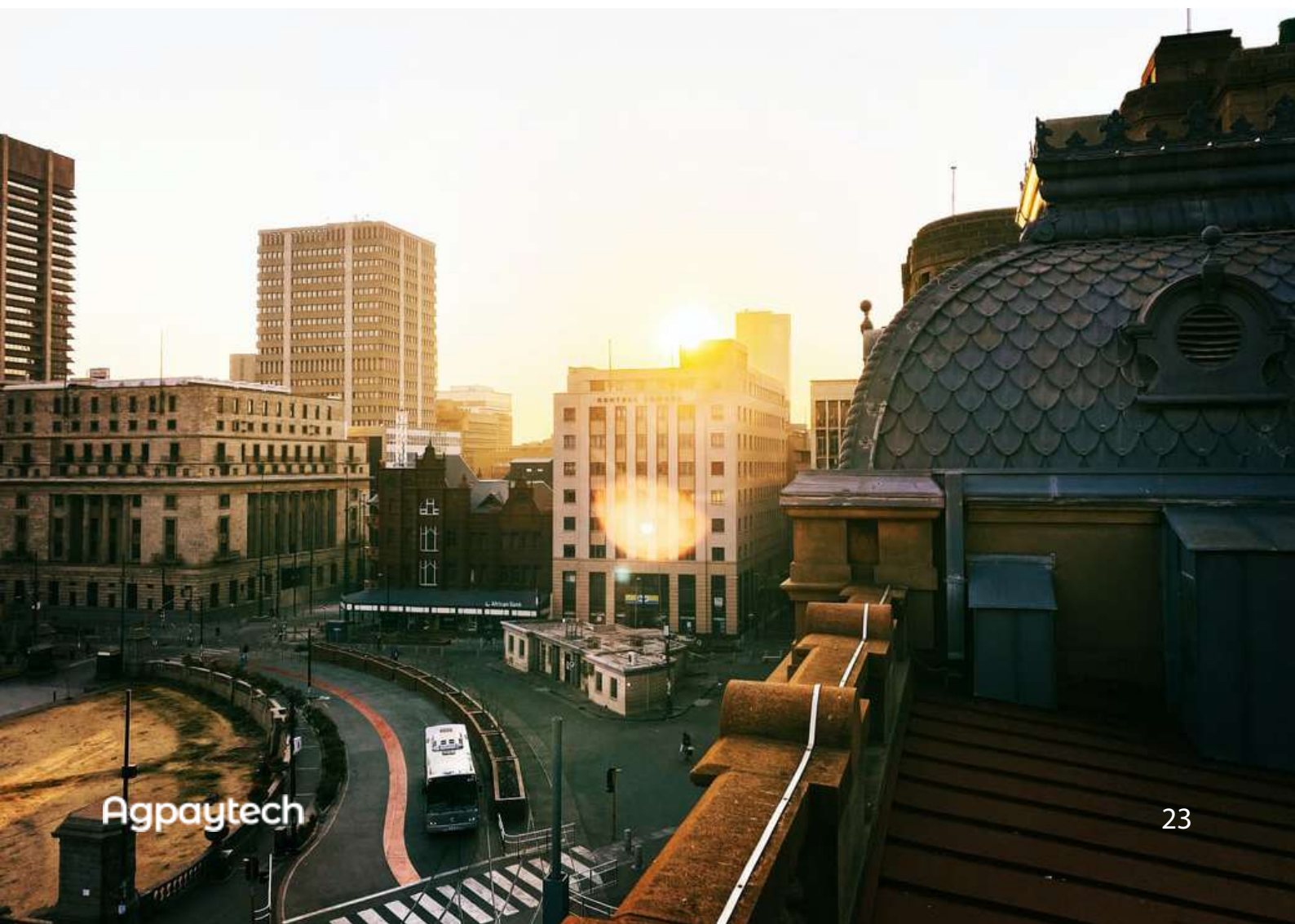
Source: Statista report, 2022

As of January 2020, it was found that 41 percent of e-commerce transactions in South Africa were completed by using a credit card. Bank transfers were ranked second, accounting for 20 percent of all e-commerce purchases in South Africa.

Figure 11: Online payment method, South Africa 2020



Source: Statista.com



Mobile Money Payment

Africa is home to more mobile money users than any other region, with 175 million active users as of 2020. Of the world's 1.2 billion registered accounts, 604 million are registered to users in either Sub-Saharan Africa or the Middle East & Northern Africa. According to the Global Payment System Survey (2020), the most popular transactions with mobile money products are person-to-person (P2P) payments (90% at the global level), bill payments (88%), and international remittances (84%), and associated deposits and withdrawals. For instance, between 2012 and 2015, the total transaction volume for mobile payments grew by an impressive 58.66 percent.

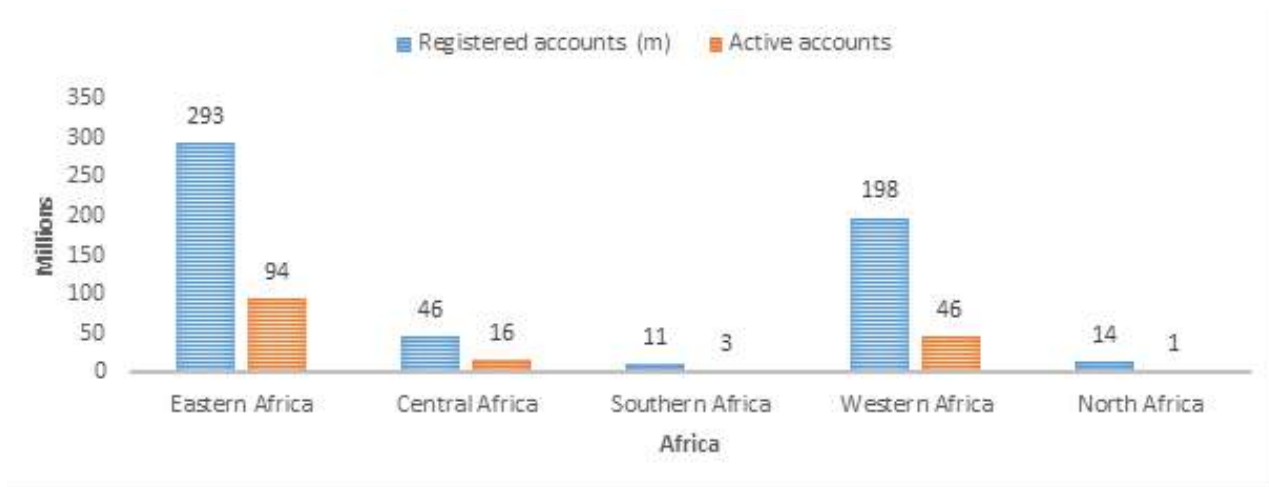
The increase in mobile money payments is driven mainly by recent collaborative efforts between banks and telecommunications operators to reach the unbanked sections of society which current account for around 70 percent of Africa's total population (GPSS, 2020).

Table 1: Mobile money growth in Africa 2020

| Regions | Registered Accounts (m) | Active Accounts (m) | Transaction Volume | Transaction Value |
|-----------------|-------------------------|---------------------|--------------------|-------------------|
| Eastern Africa | 293 | 94 | 18.6b | 273bn |
| Central Africa | 46 | 16 | 2.2b | 35.7bn |
| Southern Africa | 11 | 3 | 284m | 3.0bn |
| Western Africa | 198 | 46 | 6.4b | 178bn |
| North Africa | 14 | 1 | 77m | 5.4bn |

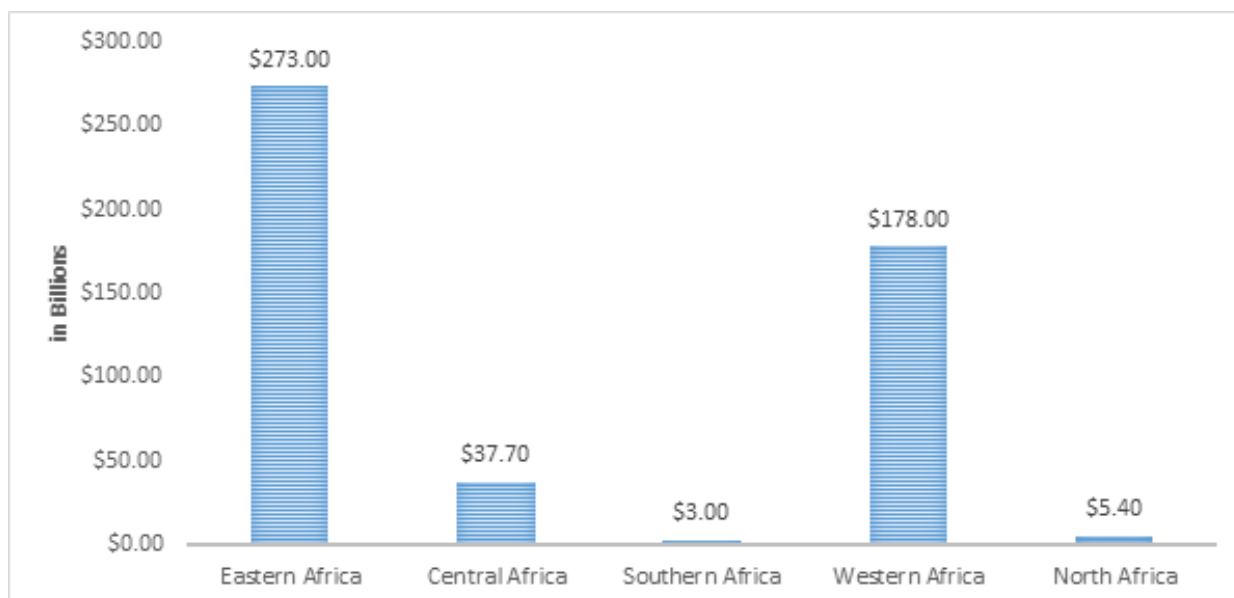
Source: GSMA (2020)

Figure 12: Registered and active mobile accounts



Source: GSMA (2020)

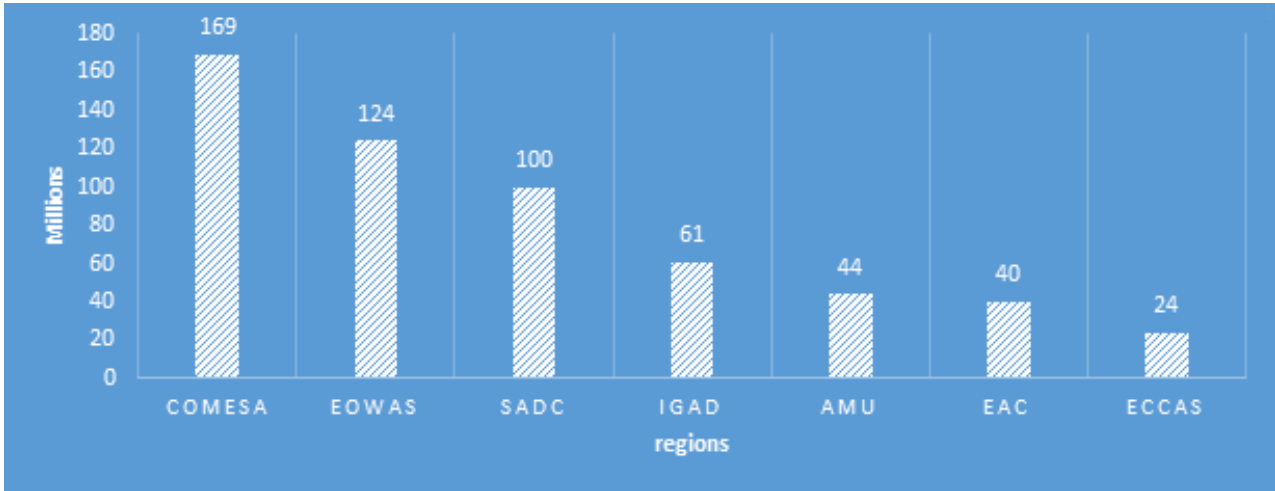
Figure 13: Mobile money transaction value (in billions)



Source: GSMA (2020)

In 2019, the number of registered mobile money accounts reached 1.04 billion. Sub-Saharan Africa is the enduring epicenter of mobile money, adding over 50 million registered accounts in 2019. This was driven by strong growth in Western Africa (21 million new accounts) and Central Africa (six million new accounts), as well as steady growth in Eastern Africa (22 million new accounts) [GSMA, 2020].

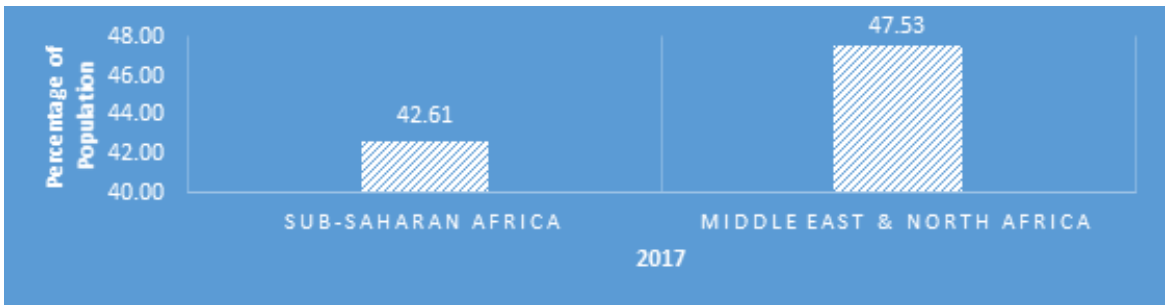
Figure 14: Non-Account holders in Africa by REC



Source: GSMA (2017)

Note [Adults without an account at a financial institution or through a mobile money provider, by the regional economic community (rec) (millions, 2017)]

Figure 15: Account ownership (Banks & MMO)



Source: Statista.com

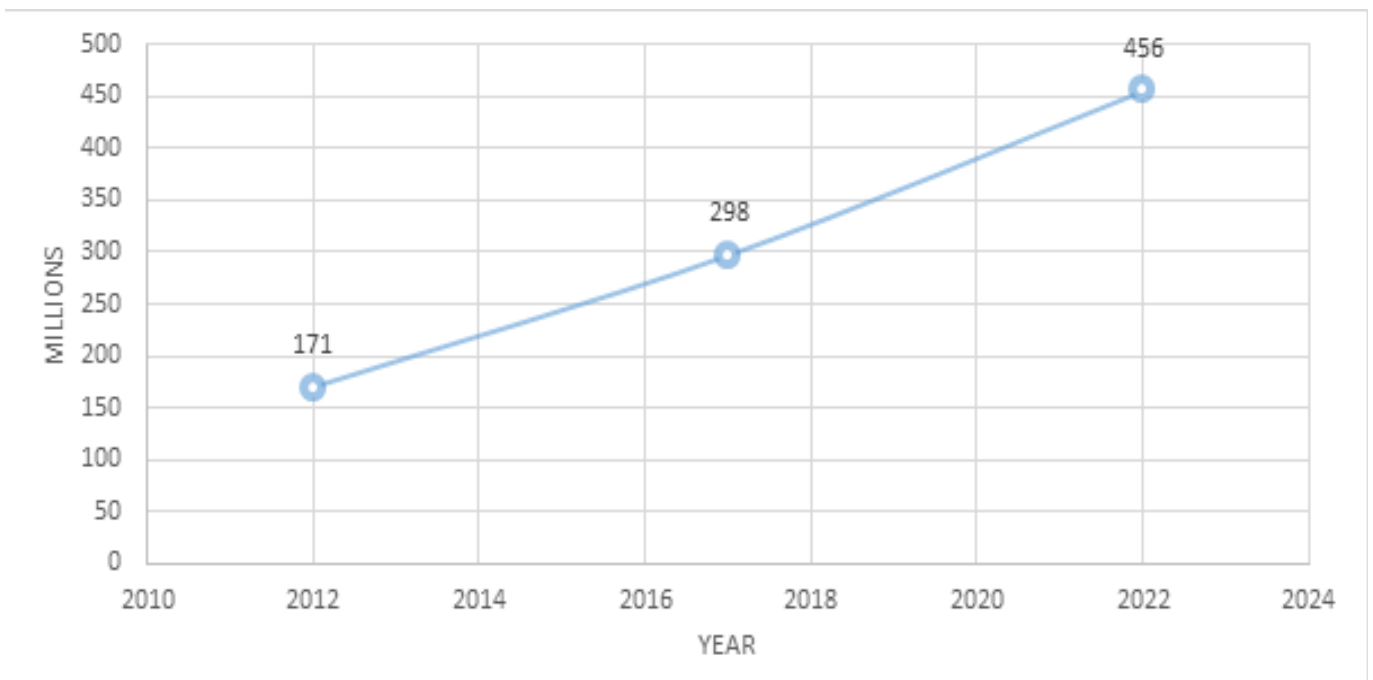
Note: Account ownership at a financial institution or with a mobile-money-service provider (% of population ages 15+)



Bank Account Holders in Africa

The term “Bank Account Holder” means the person listed or identified as the holder of a licensed Financial institution (commercial bank, merchant bank, etc.). The number of people with a bank account is just a fraction of the total population. For example, the number of African adults with a bank account in 2012 and 2017, with a forecast for 2022, is illustrated in figure 16. By the end of 2022, 456 million adults in Africa were expected to have a bank account (statista.com, 2022)

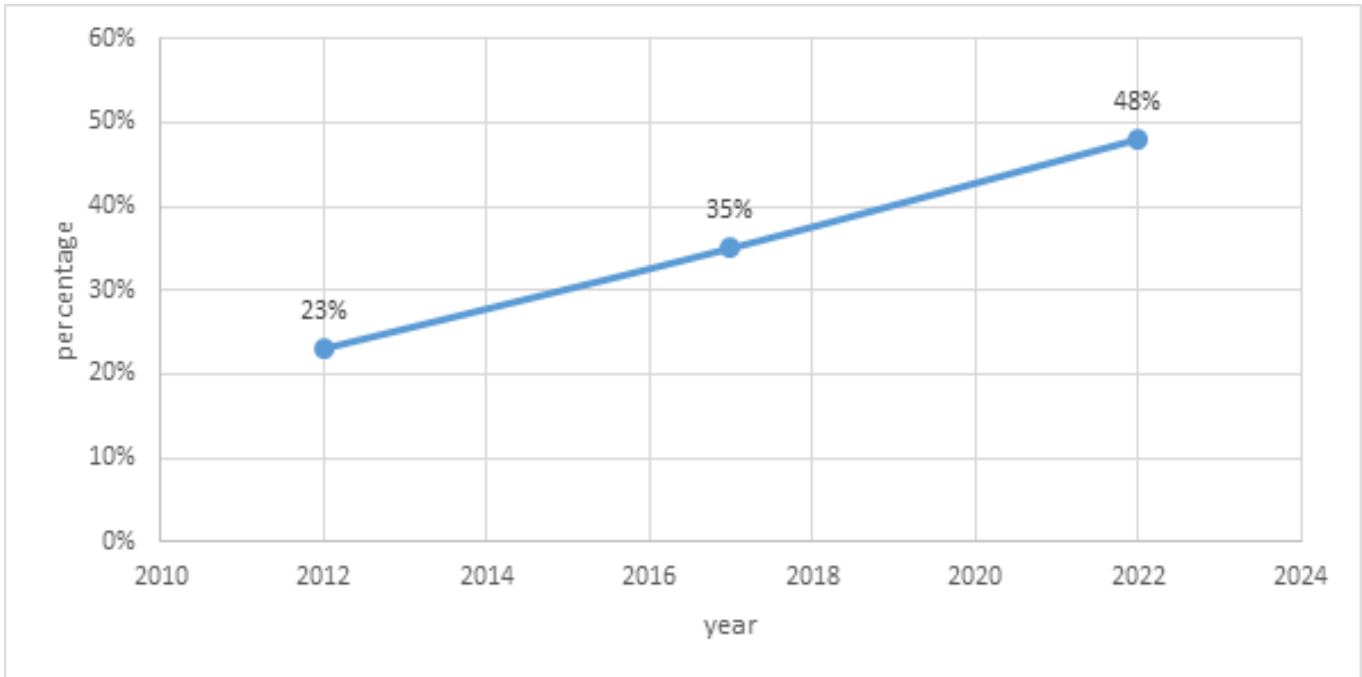
Figure 16: Population with a bank account in Africa



Source: Statista.com

Figure 17 presents the share of the population with access to banking in Africa from 2012 to 2022. In 2017, 35% of the adult population had access to banking services in Africa, and this figure was projected to increase to 48% by the end of 2020. This means that a large proportion of the adult population in Africa has no access to banking services. This is a significant threat to financial inclusion, deposit volume, and revenue mobilization.

Figure 17: Population with access to banking services in Africa

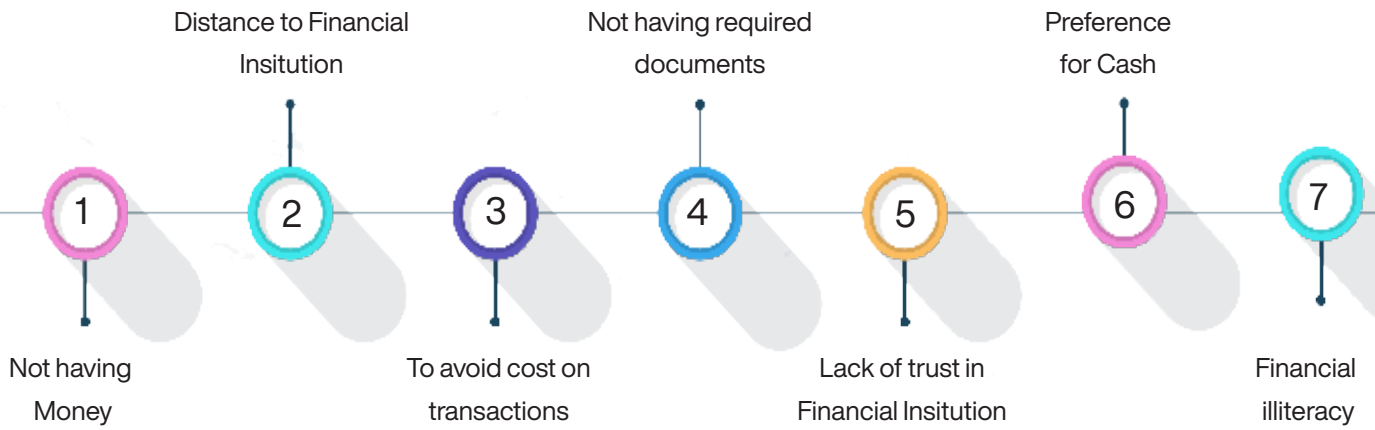


Source: Statista.com

Why no account?

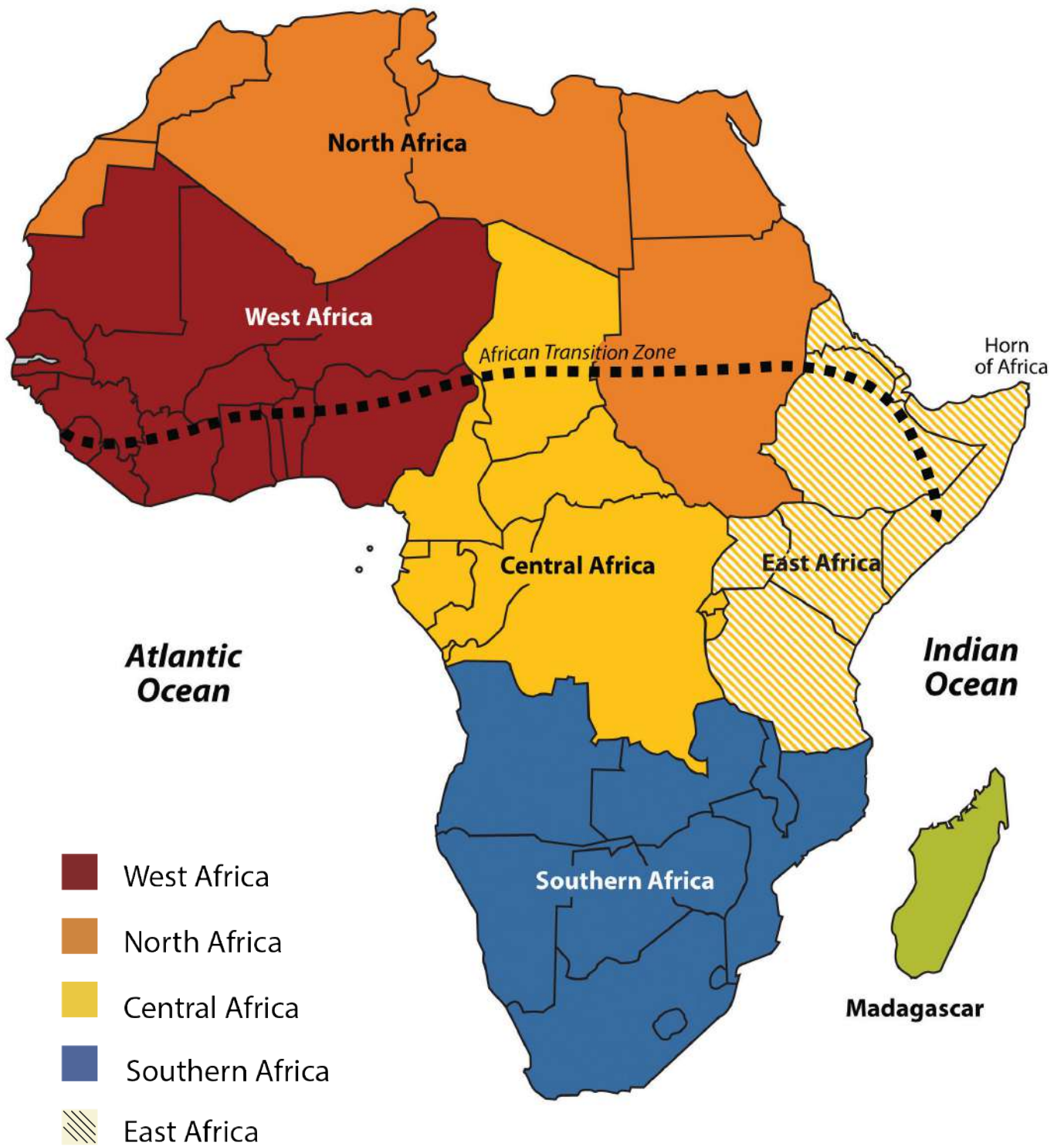
Levels of financial exclusion also vary significantly across countries, subregions, and regional economic communities (RECs) in Africa. Countries with larger populations such as Nigeria, Egypt, Ethiopia, and DR Congo account for a majority of the financially excluded adults in Africa (46%). However, Kenya and Uganda are positive exceptions where the proliferation of mobile money has helped to expand financial access. In figure 20, the report presents the possible reasons most people do not have an account with banks.

Figure 18: Reason for not having a bank account



Source: Agpaytech Research





Payment System by Regions in Africa

Africa is the world's second largest continent in area. The countries differ immensely geographically, politically, socially, economically, and culturally. The UN Statistics Division has subdivided the African continent into five regions, Northern Africa, Central or Middle Africa, Southern Africa, East Africa, and Western Africa. These subdivisions include the following countries:

Table 2: Regions in Africa

| Regions | Number of Countries | Countries |
|------------------------------------|---------------------|---|
| Northern Africa | 7 | Algeria, Egypt, Libya, Morocco, Sudan, Tunisia, and Western Sahara |
| Central or Middle Africa Countries | 9 | Angola, Cameroon, Central African Republic, Chad, Congo Republic Brazzaville, Democratic Republic of Congo, Equatorial Guinea, Gabon, and São Tomé & Príncipe |
| Southern African Countries | 5 | Botswana, Lesotho, Namibia, South Africa, and Swaziland |
| East African | 19 | Burundi, Comoros, Djibouti, Ethiopia, Eritrea, Kenya, Madagascar, Malawi, Mauritius, Mozambique, Réunion, Rwanda, Seychelles, Somalia, Somaliland, Tanzania, Uganda, Zambia, and Zimbabwe |
| Western Africa | 17 | Benin, Burkina Faso, Cape Verde, Côte D'Ivoire, Gambia, Ghana, Guinea, Guinea-Bissau, Liberia, Mali, Mauritania, Niger, Nigeria, Senegal, Sierra Leone, and Togo |

Source: UN Statistics Division

West Africa Payment System

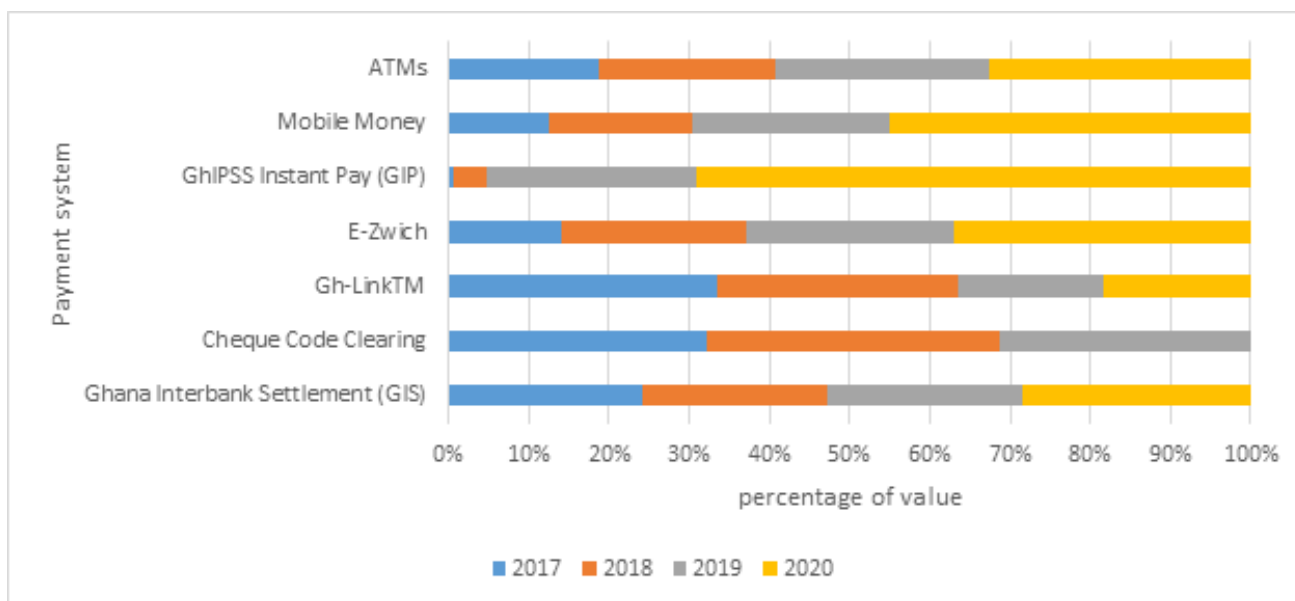
The West African Monetary Zone is a group of six member states comprising: The Gambia, Ghana, Guinea, Liberia, Nigeria, and Sierra Leone, established by the West African Monetary Zone (2000). The WAMZ Agreement made provision for the establishment of the West African Monetary Institute (WAMI), tasked with undertaking technical preparations for the establishment of a standard West African Central Bank (WACB) and the launch of a single currency for the West African Monetary Zone (WAMZ). The project aims to improve the basic infrastructure of the financial sector in the West African Monetary Zone (WAMZ) region through the upgrade of the payment systems of four countries in the zone: The Gambia, Guinea, Sierra Leone, and Liberia. At the time the WAMZ Payments System Development Project was designed in 2008, Liberia, was not ready to participate owing to other priorities of post-conflict Rehabilitation. The project comprises the following key components: (i) Real Time Gross Settlement (RTGS); (ii) Retail Payments Automation (RPA); (iii) Central Banking Application (CBA); (iv) Infrastructure Upgrade; and (v) Project management.

Ghana's Payment Development

Ghana's payment system has undergone many developmental transitions from the era of barter trade to digitalization. Among some of the remarkable financial transformations includes the implementation of the Ghana Interbank Settlement (GIS) system, which is one of the first few Real Time Gross Settlement (RTGS) system, Ghana Interbank Payment and Settlement Systems (GhIPSS), Automated Clearing House (ACH) system and the Cheque Codeline Clearing with truncation (CCC) system. Currently, mobile money and ATMs play a vital role in the paperless transaction system in Ghana.

In 2020 GhIPSS Instant Pay (GIP) recorded a growth of 62.2%. The total volume of transactions was 6,804,754, with a value of GH¢ 9.15 billion, compared with 1,905,267 and GH¢ 3.46 billion, respectively, in 2019. Ghana Inter-bank Settlement (GIS) system transactions increased by 4.8 % from 1,376,094 in 2019 to 1,442,182 in end-December 2020. ATM transactions continued to dominate Gh-link™ platform transactions and constituted more than 99.0 % of the total transactions. The total value of mobile money transactions grew by 82.4 % over the 2019 value to GH¢564.16 billion at end-December 2020.

Figure 19: Comparative Payment System Statistics, 2017-2020



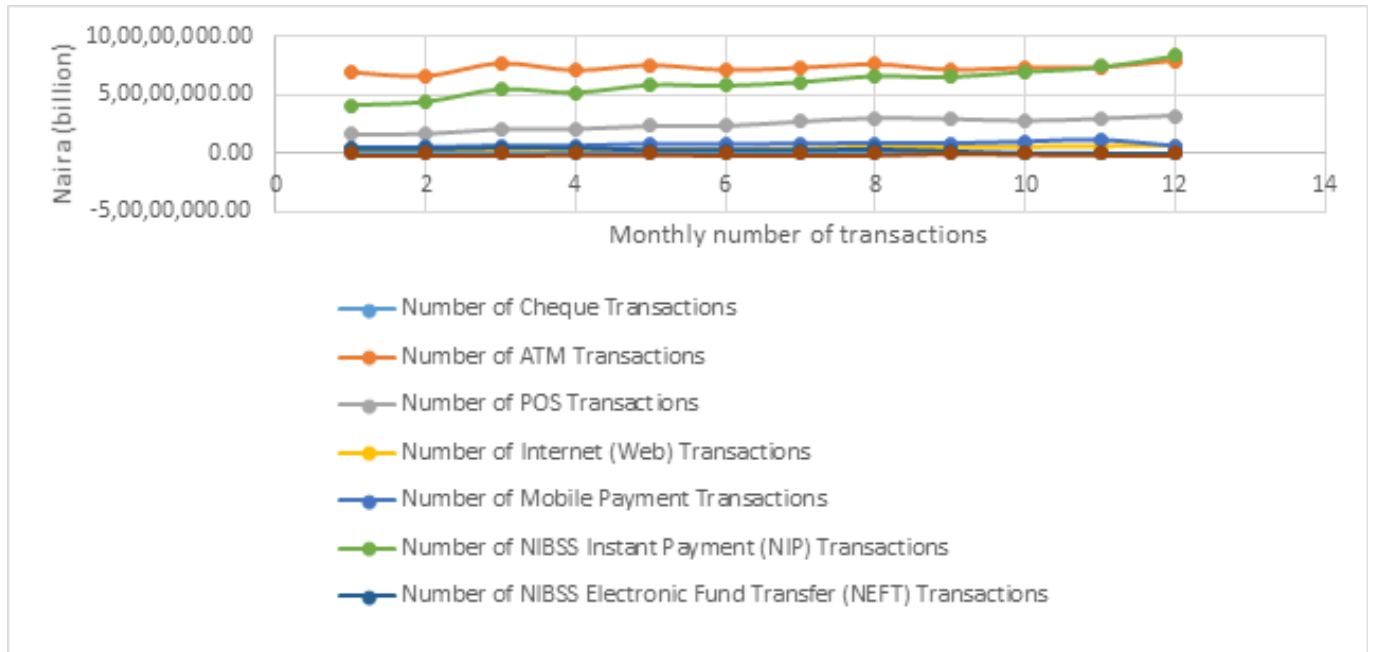
Source: Bank of Ghana

Nigeria Payment System

Nigeria has a robust payment system for its domestic and international payments. For instance, in line with global trends in managing inherent payment and settlement risks in large-value payments, the Central Bank of Nigeria (CBN) has instituted a new RTGS system, which was deployed on December 18, 2013, along with the Central Securities Depository (CSD) capable of meeting all the users’ requirements. In its effort to strengthen the oversight of the payments system, the Bank established the Payments System Policy and Oversight Office to monitor existing and planned payments systems effectively.

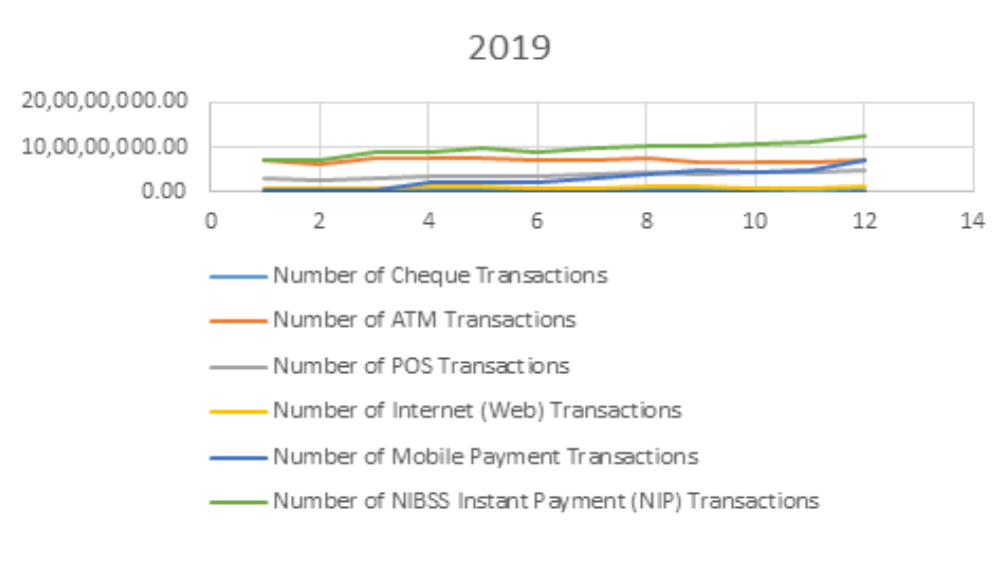
The Nigerian Payments System witnessed remarkable achievements in the recent past, introducing several initiatives under the Payments System Vision 2020. The CBN has implemented over 25 payment structures and regulations to stabilize and make payment more convenient. The payment facilities are; card payment schemes, mobile money operators, switching & processing companies, payment solution service, payment terminals, etc. Nigeria Inter-Bank Clearing and Settlement System

Figure 20: Payment system statistics (number of transactions for months in 2018)



Source: Central Bank of Nigeria

Figure 21: Payment system statistics (number of transactions for months in 2019)



Source: Central Bank of Nigeria

East Africa Payment System

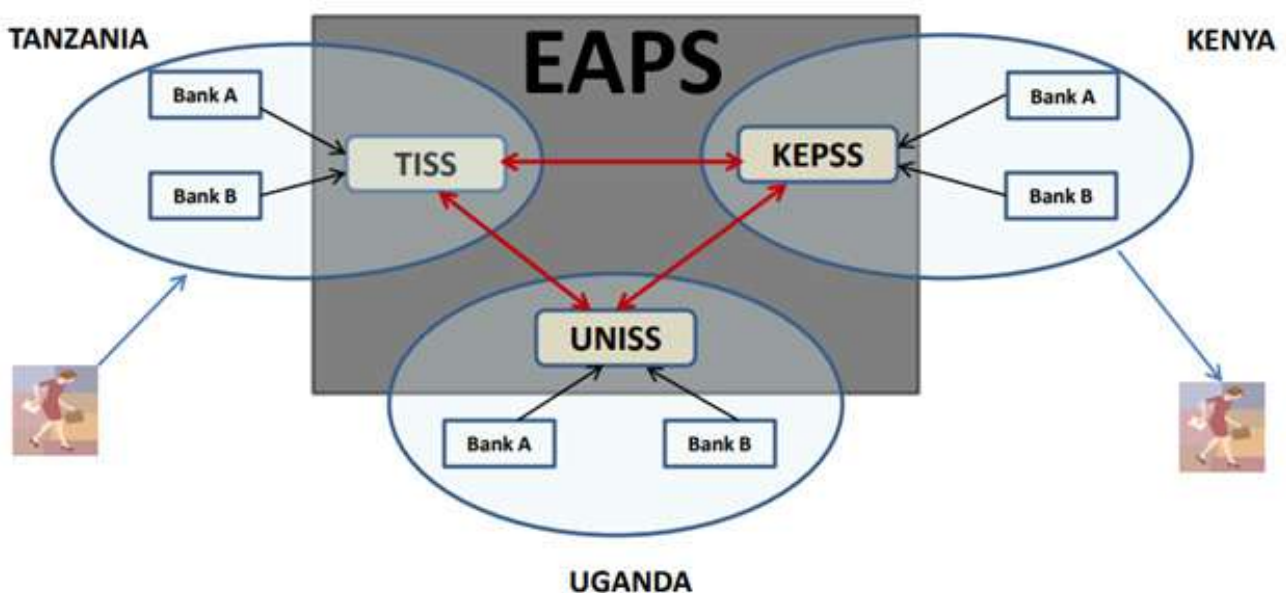
The East African Community (EAC) is a regional organization mandated by the Governments of the Republics of Burundi, Kenya, Rwanda, Uganda, South Sudan and the United Republic of Tanzania to spearhead the East African economic, social and political integration.

The partner countries have coordinated among themselves on areas such as customs, market, payment systems and other economic growth perspectives. The EAC region aims to implement a secure, efficient, reliable and integrated payment and settlement system for an integrated trading and securities depository system in the financial market. The systems operate on a real time gross settlement basis by utilizing the linkage between the various Partner States' Real Time Gross Settlement (RTGS) systems using SWIFT messaging network and the local currencies of the East African Partner States countries. It is a multi-currency system that uses currencies of the partner states.

The EAC initiative for payment and settlement covers the following

- Supporting the implementation and upgrade of Real Time Gross Settlement (RTGS) systems
- Support Retail Payment System Automation and clearing systems ACHs
- Support SWIFT messaging platforms

Figure 22: EAPS Architecture



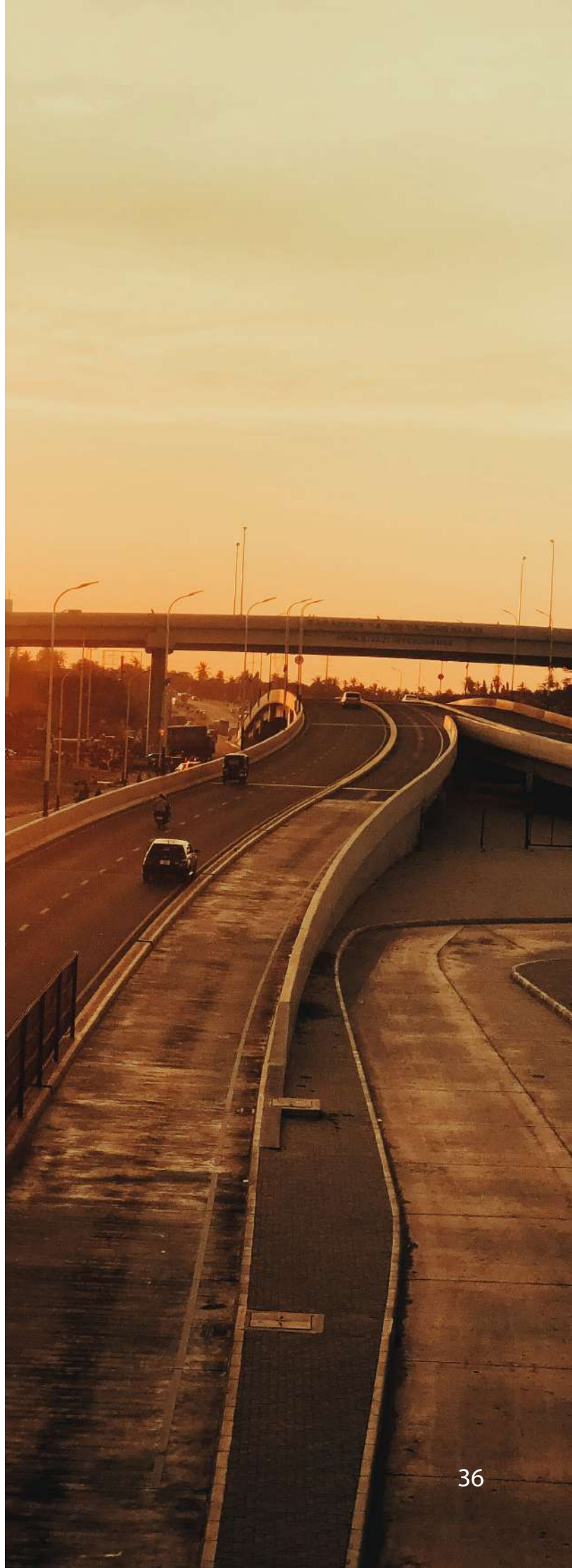
Source: EAC Report, 2019

Tanzania Payment System

In Tanzania, cash is the most popular medium/instrument of payment. However, other non-cash payment instruments have been introduced, including Paper-based instruments (cheques, payment orders, bills of exchange, promissory notes), Electronic Funds Transfers (EFTs), card payments (credit cards, debit cards, prepaid cards), internet banking, mobile banking, and mobile money.

The Bank of Tanzania is empowered by the National Payment Systems (NPS) Act 2015 and the Bank of Tanzania Act 2006 to regulate and supervise the payment systems services and products offered by both banks and non-bank institutions in Tanzania.

The Bank of Tanzania collaborates with various stakeholders in strengthening the safety and smooth run of the payment systems in the country. These stakeholders include Financial Institutions, infrastructural services providers like telecommunication companies, Consumers of payment systems like individuals, companies, and governments. Regulatory authorities in the financial sector like the Dar es Salaam Stock Exchange, Providers of payment services like SWIFT, operators of payment cards, the Capital Markets and Securities Authority, Regional and International Financial authorities like the East African Community, International Monetary Fund, and the World Bank.



Moreover, Tanzania's RTGS system is supported by many clearing systems that provide an effective payment ecosystem. The real-time gross settlement (RTGS) system – known as the Tanzania Interbank Settlement System or TISS – was developed by the BOT to process high-value and time-sensitive payments on a real-time basis.

Clearing and Settlement Systems

- Tanzania Automated Clearing House (TACH)
- Tanzania Interbank Settlement System (TISS)
- East Africa Payment System (EAPS)
- SADC RTGS

Payment Systems Initiatives

➤ **Mobile Financial Services Interoperability:** The Bank of Tanzania is currently implementing a project to build an interoperable payment system known as Tanzania Instant Payments System (TIPS), expected to go live in June 2020. TIPS is an interoperable digital payment platform to be operated by the Bank of Tanzania, which allows the transfer of payments between different Digital Financial Service Providers (DFSPs), both banks and non-banks such as e-money issuers. TIPS will handle real-time payments exchanged among participating Digital Financial Service Providers (DFSPs).

➤ **TISS Modernization:** With the changing demands in technology and the financial industry, having a reliable and secure payment system is a priority in most Central Banks. The Directorate of National Payments Systems is continuously enhancing the current Real-time Gross Settlement System to ensure safe, reliable, and faster processing of payments. In this TISS Modernization project, the current TISS will be enhanced to cope with the changing needs in the industry.

➤ **Establishing the Financial Services Registry:** Bank of Tanzania is undertaking a project to develop a Financial Services Registry (FSR), mapping financial services access points and the type of services across the country. FSR will offer a sustainable mechanism of capturing the GPS location of all publicly accessible financial services outlets and their services.

Figure 23: Money remittance for 2019



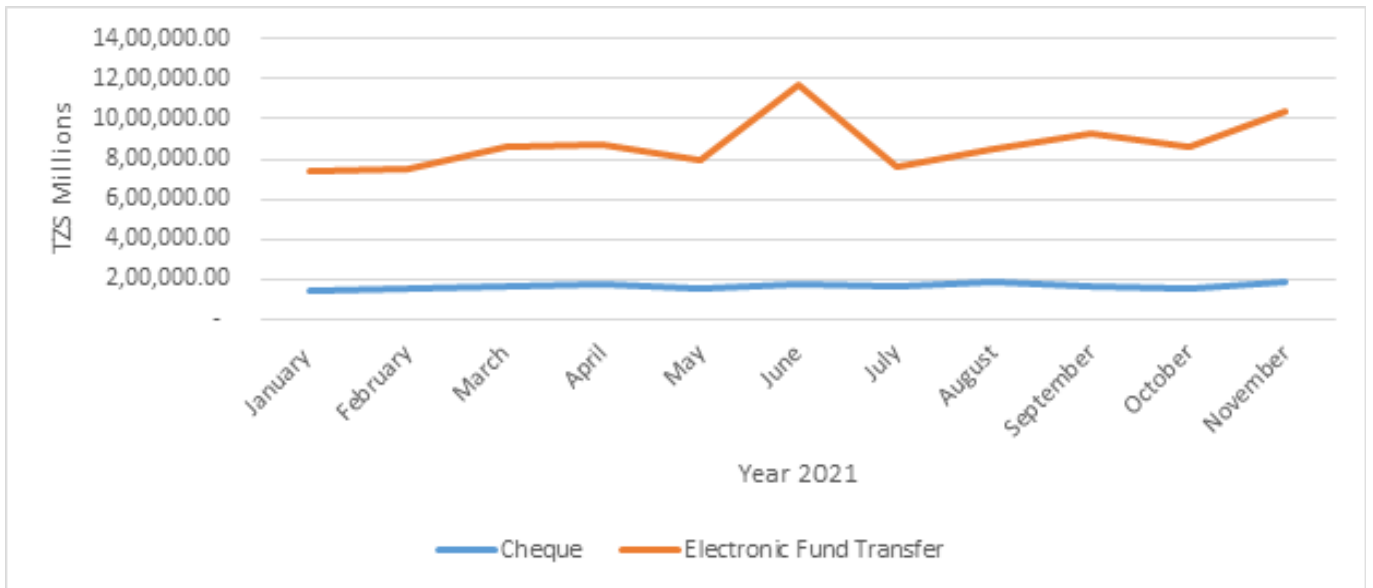
Source: Bank of Tanzania

Figure 24: Mobile money and banking transaction values for 2021



Source: Bank of Tanzania

Figure 25: Clearing house transactions for 2021



Source: Bank of Tanzania

Figure 26: Large volume transactions



Source: Bank of Tanzania

Note Tanzania Interbank Settlement System (TISS);
East Africa Payment System (EAPS)

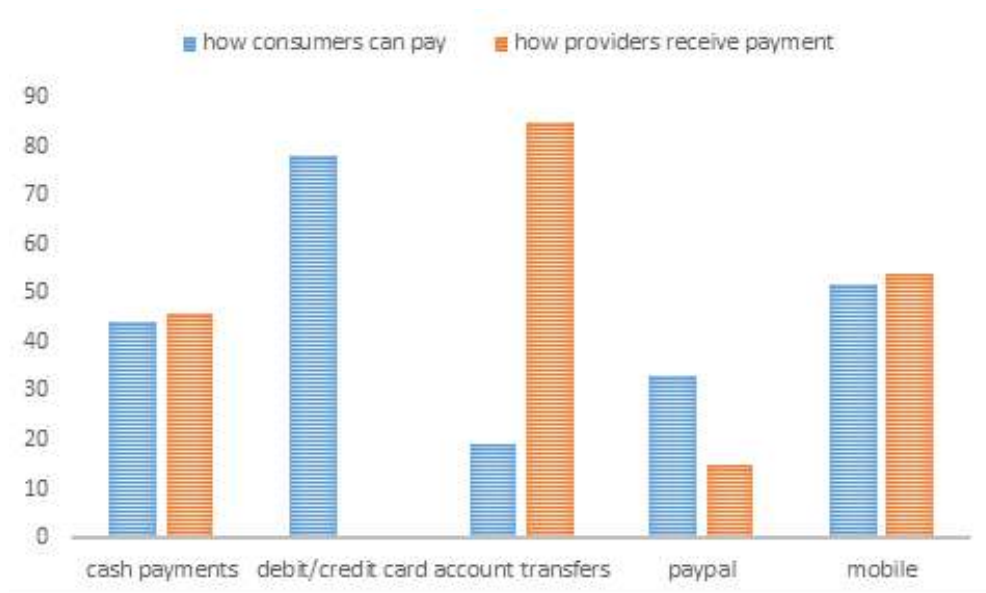
Rwanda payment system

Payment system is a set of instruments, banking procedures and, typically, interbank funds transfer systems that ensure the circulation of money. Payment System plays 4 critical roles in any economy financial stability, monetary policy implementation, economic efficiency, and financial inclusion.

Rwanda National Payment System went through much progress with introduction of various payment systems/services including RIPPS (Rwanda Integrated Payments Processing System), card based payment services both on Automated Teller Machines (ATMs) and Point of Sales (POS) terminals, new types of POS (such as mobile, QR, NFC), internet and mobile phone based payment services in addition to cash and paper based instruments like cheques and credit transfers.

As of 2018, 78 percent of digital platforms allowed Rwandan consumers to pay with credit or debit cards. Additionally, 19 percent of platforms could receive consumer payments from bank accounts. The East African country of Rwanda has a population of 12.21 million people and uses the Rwandan franc (RWF) as its currency.

Figure 27: Payment methods accepted by digital platforms in Rwanda as of 2018



Source: Central bank of Rwanda

Kenya Payment system

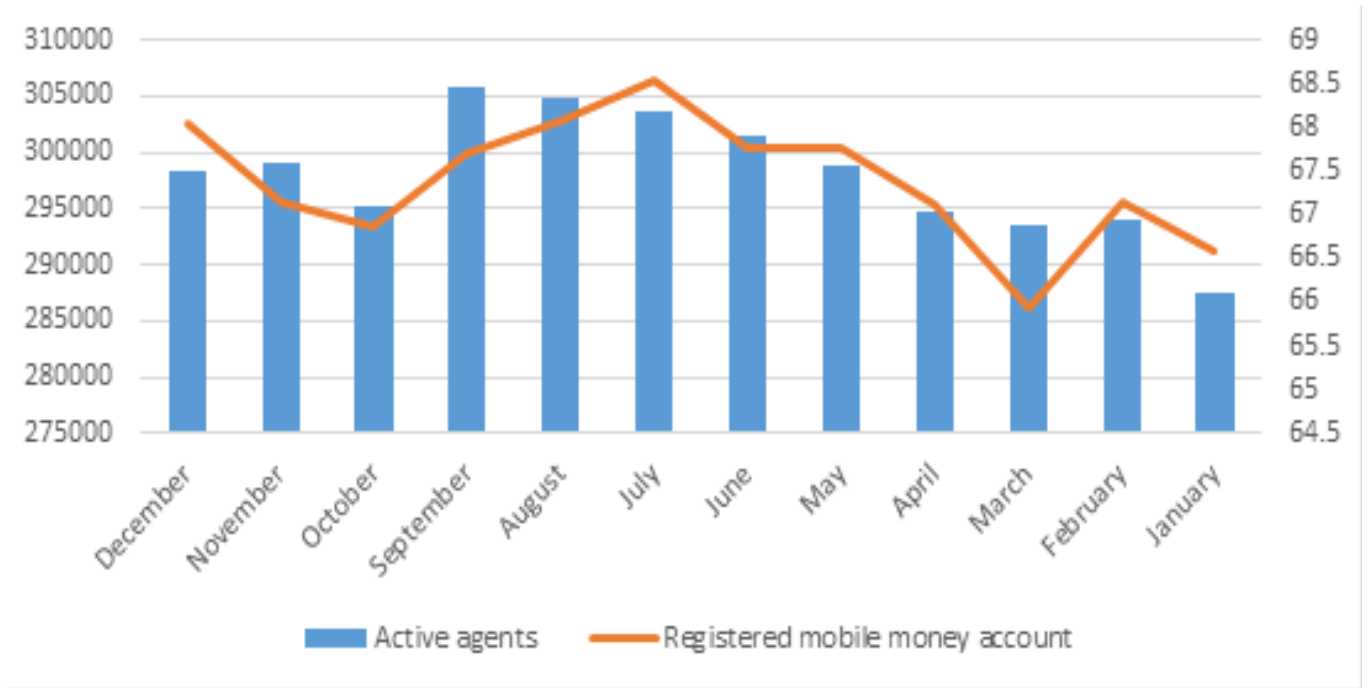
The Kenya's National Payments System are the conduits through which buyers and sellers of financial products and services make transactions and are an important component of a country's financial system. In Kenya participants comprise of the Central Bank of Kenya, the Government, Commercial Banks, Financial Institutions and Payment System Providers. National Payments Systems in Kenya are classified into two categories; Large Value (Wholesale) and Low Value (Retail) Payment Systems

Table 3: Kenya's major payment and settlement system

| Key payment facilities | Description |
|--|---|
| Large Value Payment Systems | |
| Kenya Electronic Payment and Settlement System (KEPSS) | The Kenya Electronic Payment and Settlement System (KEPSS) is a Real Time Gross Settlement (RTGS) system, meaning that transactions are cleared and settled on a continuous basis. The transactions are settled individually, continuously and in real time in the accounts of the participants in the Central Bank provided that the sending participant has sufficient covering balance or credit (settlement limit). |
| Regional Payment Systems | There are two regional payment systems. The East African Payment System (EAPS) and the Regional Payment and Settlement System (REPSS) objectives are to facilitate cross border payment and settlement within the EAC and COMESA regions, respectively. Both are integrated in KEPSS. |
| Retail / Low Value Payment Systems | |
| Nairobi Automated Clearing House | This infrastructure is used to clear cheques and Electronic Fund Transfers in the country. The Central Bank of Kenya in conjunction with the Kenya Bankers Association and in liaison with the Ministry of Finance implemented the value capping policy in October 2009. This reduced values cleared to less than Kshs. 1 million per cheque pushing payments above that ceiling amount to the RTGS. |
| Payments Card Industry | Payment cards include credit, debit and prepaid cards, which hold a strong foothold not only in Kenya but globally, offering everyone better access to their money. The banking sector continues to adopt more secure, convenient and safe technology at their cash points to curb insecurity and at the same time enlighten their customers. |
| Mobile Phone Money Transfer Services | The mobile phone money transfer operators are authorised as Payment Service Providers under the National Payment System Act 2011 and National Payment System Regulations 2014 under various categories including; Provision of Electronic Retail Transfers, Small Money Issuer, E Money Issuer and Designation of Payment Instrument. |

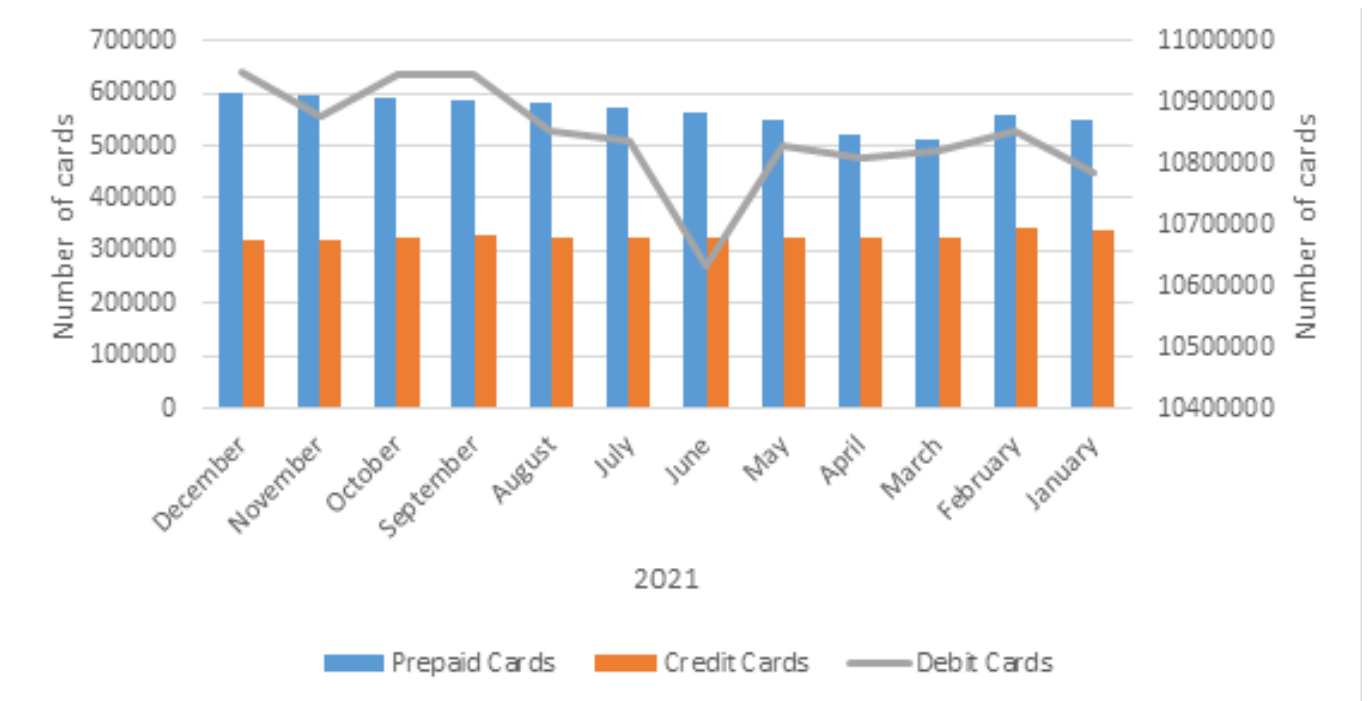
Source: Central Bank of Kenya

Figure 28: Mobile Payments: Active agents and registered accounts



Source: Central Bank of Kenya

Figure 29: Number of cards in Kenya



Source: Central Bank of Kenya

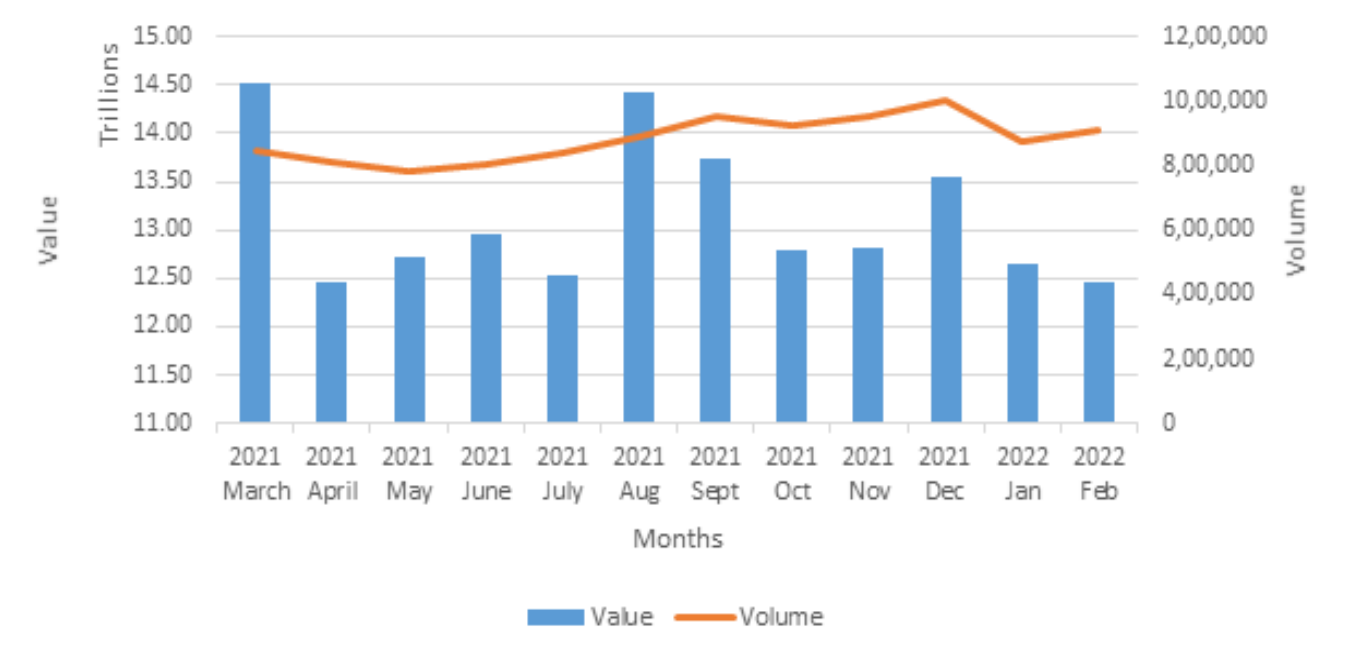
South Africa Payment System

The South African payment system is characterized by two main pillars; the South African Multiple Option Settlement (SAMOS) system and the SADC regional cross-border real-time gross settlement (RTGS) system.

➤ SAMOS system.

The SAMOS system is a real-time gross settlement (RTGS) system owned and operated by the SARB. It was introduced on March 9, 1998, linked to various participating banks, clearing systems, and operators. The SAMOS system facilitates the settlement of domestic individual high-value payment transactions, retail transaction batches, and bond and equity market settlement obligations. It is an automated system that settles obligations in real-time or in a delayed settlement arrangement. Each settlement participant has an account with the SARB from which interbank settlement obligations are settled. In February 2022, SAMOS processed 909,157 transactions to the value of R12,457,896,995,041.60.

Figure 30: SAMOS Message Values and Volumes



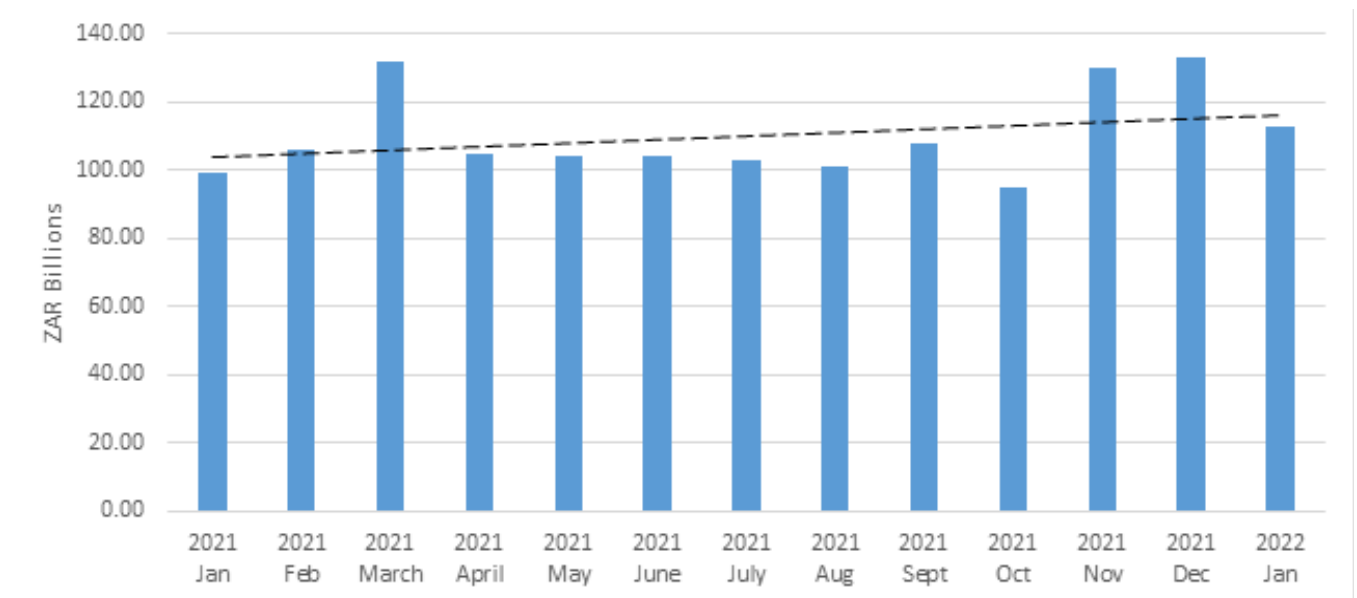
Source: SARB

► SADC-RTGS operations

The SADC-RTGS (formerly known as SIRESS) is the regional cross-border real-time gross settlement (RTGS) system in the SADC region. SADC-RTGS is an automated interbank settlement system operated by the South African Reserve Bank, appointed by the SADC participating central banks. Participants in SADC-RTGS include central banks and financial institutions. Thus, banks and non-banks in the SADC region that their respective central Bank authorizes to participate. Membership comprises 16 countries: Angola, Botswana, Comoros, Democratic Republic of Congo, Eswatini, Lesotho, Madagascar, Malawi, Mauritius, Mozambique, and Namibia Seychelles, South Africa, Tanzania, Zambia, and Zimbabwe.

SADC-RTGS processed 30,464 transactions to the value of ZAR 112.76 billion in January. The average number of transactions processed per day was 1,451 representing the average value of ZAR 5.37 Billion. Figure 31 shows the total value of transactions settled in 2021.

Figure 31: Total value of transactions settled



Source: SARB

North Africa Payment System

The northern part of Africa is capturing only a fraction of its digital potential, revealing significant opportunities for digitalization and payment system looking forward. World Bank Group (2021) reported low levels of financial literacy; limited understanding and/or trust of DFS; limited payment and Internet infrastructures; and limited attention from the media to the fintech phenomenon in the region. Despite many challenges associated with their payment systems, the North African countries have made a significant improvement in its financial payment environment. The region is very diverse, and its countries vary considerably in terms of economic and financial-sector development.

There are four waves of retail payment innovations among the North African countries.

- (i) digital access to bank accounts,
- (ii) delinking of payments from bank accounts,
- (iii) delinking of payment initiation from account maintenance, and
- (iv) delinking of accounts from payments.

Most of the other countries are still between the first and the second. Given the high degree of regional diversity, the approach takes into account the different country circumstances and uniqueness and is “multilevel,” where each level refers to one of the following three types of payment systems.

Table 4: Changing payment system in North Africa

| Basic | Evolving | Innovating |
|---|--|---|
| <p>Most banks offer only basic payment services with minimal attention to internet banking, mobile banking, with few non-bank PSPs (mobile money merchants)</p> | <p>Banks show activeness in payment market. There is inter-bank settlements, clearing house, mobile an internet bank and others.</p> | <p>Characterized by sophisticated services provided by a diversified range of PSPs. Digital and online payments available with speed, secure and reliability.</p> |

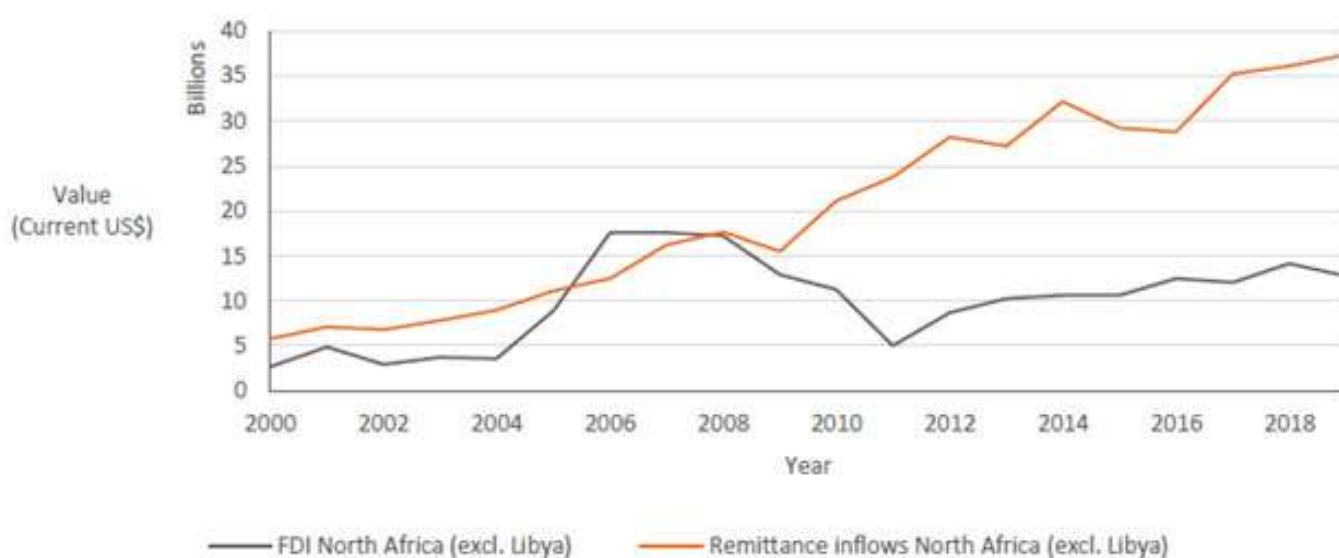
Source: Agpaytech Research

Algeria, Egypt, Morocco and Tunisia share a range of characteristics. They are all countries with large diasporas which have in general followed a similar development trajectory. Remittances represent a significant resource for all four.

Overall, the scale of remittance inflows to Algeria, Egypt, Morocco and Tunisia is significant and growing. Whereas in 2008 they were worth \$17.7 billion, by 2019 this had increased to \$37.3 billion. They vastly outstrip the scale of foreign direct investment (FDI): in 2019 the aggregate annual remittance inflows to these four countries was three times the size of FDI transfers to them. Although the countries of North Africa share several social, economic and development characteristics, in terms of the scale, source and significance of their remittance inflows they vary significantly. Egypt receives the largest remittance inflows in North Africa (\$26 781 million in 2019), and is also the sixth largest remittance receiver of any country in the world.

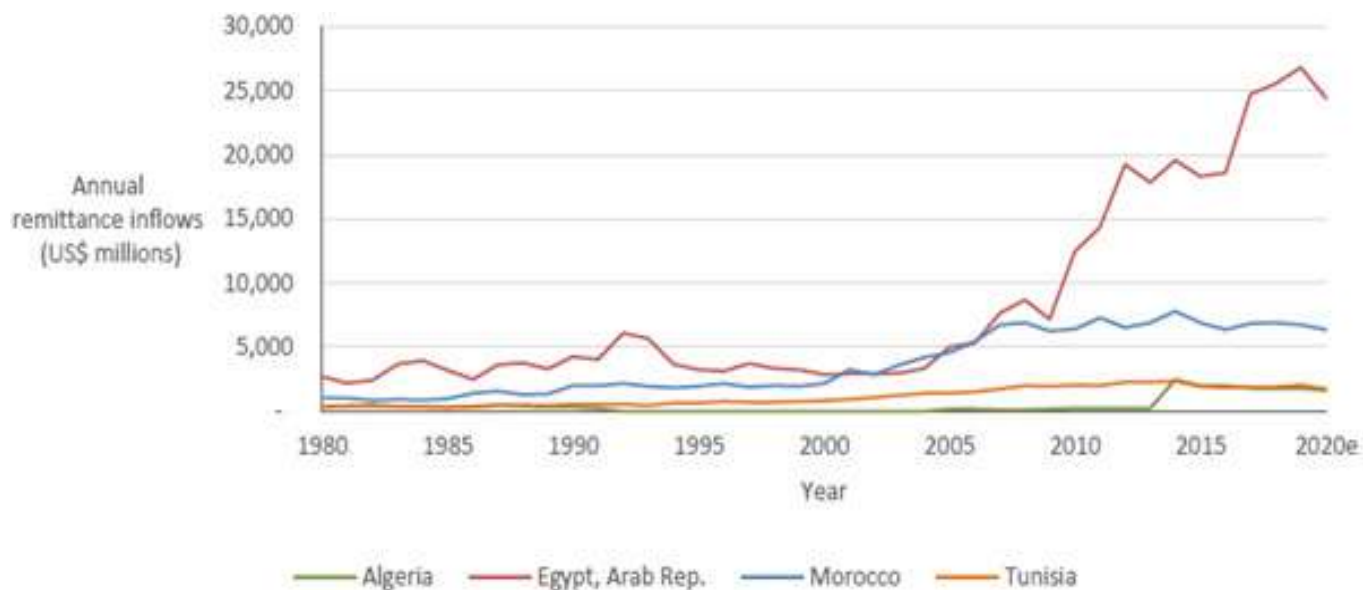


Figure 32: Foreign Direct Investment and Remittance inflows to North Africa



Sources: World Bank World Development Indicators, World Bank

Figure 33: Remittance inflows to North African countries



Sources: World Bank World Development Indicators, World Bank

Algeria Payment System

Algeria is largely a cash-based economy. Payment card penetration rate is low but rising as consumers become more comfortable using cards as a payment method. For example, in Q1 2021, there were 1,782,213 internet transactions carried out by CIB and Edahabia cards, a 340.65% increase on the same period 2020. Value rose from DZD 634 million to DZD 2.2 billion. Limited electronic banking services are available from some banks. These services are primarily used by larger companies. There is no national electronic banking system in Algeria, so companies use banks' proprietary services. Limited online and mobile banking services are provided by the country's leading banks. The use of digital financial services is low: 16% of adults use digital payments.

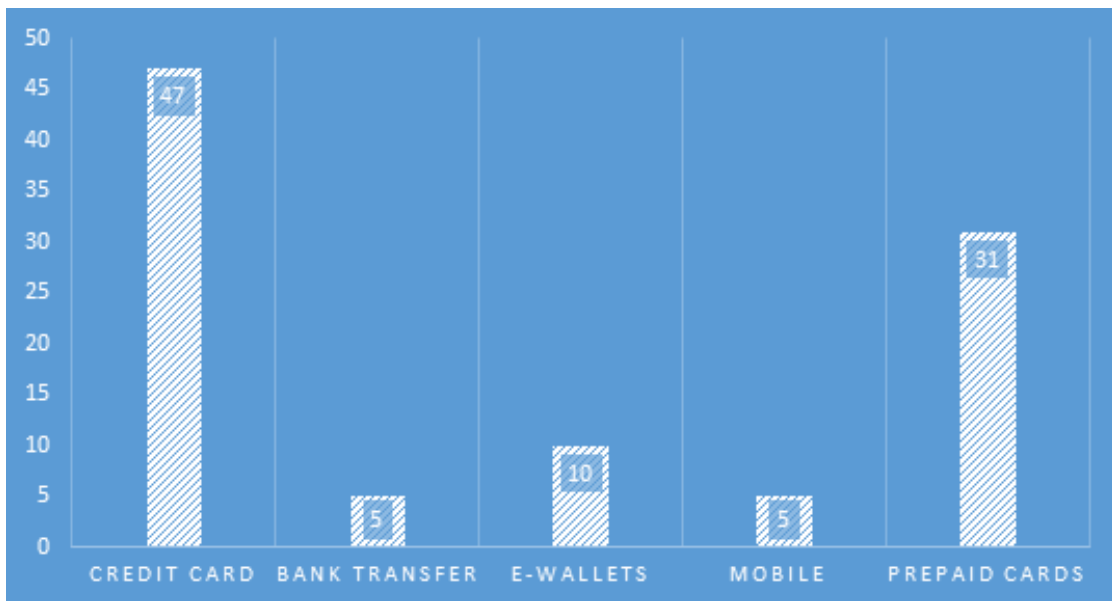


Table 5: Payment method in Algeria

| Major payment method | Description |
|----------------------|---|
| Credit Transfers | Credit transfers are used by companies to pay salaries and suppliers. High-value credit transfers are settled in real time via ARTS. Low-value credit transfers are settled on a same-day basis via ATCI. Cross-border transfers can be made via SWIFT and settled through. |
| Direct Debits | Direct debits are used for regular payments, such as utility bills. Direct debits are settled on a same-day basis via ATCI, with the beneficiary able to access funds on a next-day basis. |
| Cheques | The cheque is the most popular cashless payment instruments, used by both consumers and companies. Cheques are truncated into electronic items before being settled on a same-day basis via ATCI. The beneficiary is able to access funds on a T+2 basis. |
| Card Payments | <p>Card penetration, particularly of credit cards, is low in Algeria but rising, There are approximately 6.5 million cardholders. The Carte Interbancaire (CIB) debit card scheme is operated by SATIM (Société d'Automatisation des Transactions Interbancaires et de Monétique). There are over two million SATIM cards in circulation. The CIB card can be used to pay for services and bills online.</p> <p>Algeria's national CIB card payments are cleared by SATIM. Sixteen banks and Algérie Poste participate in SATIM. Internationally-branded card payments can be processed via the card-issuing companies.</p> |
| ATM/POS | There are approximately 3,030 ATMs in Algeria. There are 38,144 very small enterprises using TPEs (electronic payment terminals) in Algeria. In May 2021, there were 195,440 TPE payments transacted, with a value of DZD 1,297.8 million. SATIM operates Algeria's ATM and EFTPOS networks. Payments can be settled on a same-day basis via by SATIM. |
| Electronic Wallet | Electronic money schemes are available in the form of reloadable pre-paid cards. In 2020, Algérie Poste launched its electronic payments system for mobile phones. Barid PAY allows users to pay for items using just their phones. |

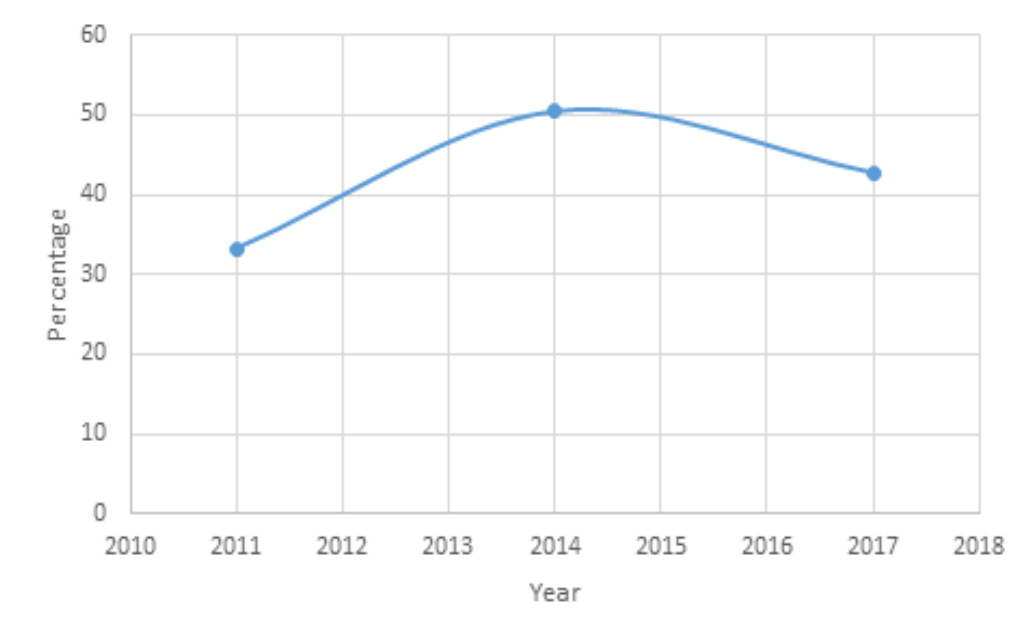
Source: Agpaytech Research

Figure 34: Algerian payment system methods by market share



Source: Paymentwall

Figure 35: Account ownership at a financial institution or with a mobile-money-service provider (% of population ages 15+) - Algeria



Source: Statista.com

Egypt Payment System

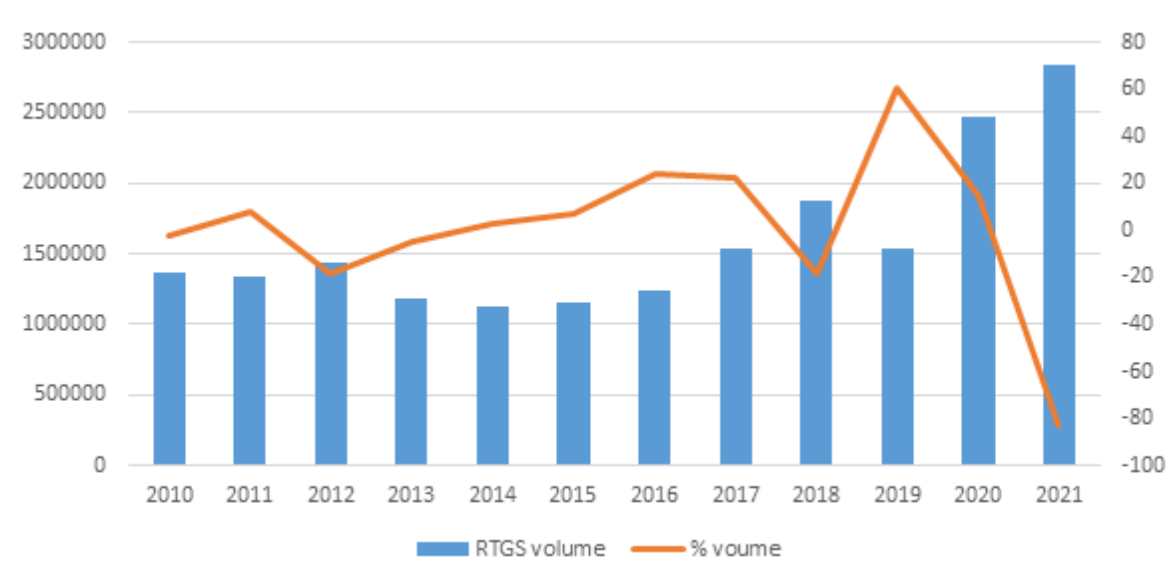
The Egyptian National Payment System comprises a functional core responsibility in the formulation of the financial infrastructure of the nation. It consists of the Real Time Gross Settlement System (RTGS) for large value payments, book entry system for Governmental Securities, in addition to the Cheques Clearing House for cheques clearing and netting, the National Switch (123 brand) for ATM transactions, and the Automated Clearing House operated by Egyptian Banks Company (EBC). The National Payment System consists as well of all payment services provided by banks to customers, including Internet, Mobile, and Phone Banking, All Governmental Payment and Collection services, and Bill Payment Services.

Table 6: Table Payment system of Egypt

| Payment variables | Major Activities |
|-----------------------------------|--|
| Real Time Gross Settlement (RTGS) | <ul style="list-style-type: none"> • The Central Bank of Egypt has launched its RTGS system successfully on the 15th, of March 2009. • RTGS in Egypt is based on latest business concepts in Large Value Payment Systems and state of the art technology. • RTGS system is owned and operated by the Central Bank of Egypt. • Settlement in RTGS is final and irrevocable. • The RTGS system is considered a hybrid system, which settles both single payment requests and netting results of clearing houses. • The RTGS settles Cash leg of government securities primary and secondary markets. • The Central Bank of Egypt offers a free of charge and collateralized intraday loan facility to banks based on a haircut. Accepted collaterals within the system are the Treasury Bills (through intra-day repos with the Central Bank) and Commercial Banks deposits –other than one night deposits- at the Central Bank (By blocking deposits). |
| MultiCurrency RTGS | <ul style="list-style-type: none"> • The Egyptian real time gross settlement system facilitates settlement of payments in both domestic & foreign currencies. • Provision of Liquidity optimization mechanism and thus, making the best use of liquidity in foreign currencies. • Preserving Finality of settlement; • Provision of effective, efficient and reliable real-time Financial Market Infrastructures in domestic and foreign currencies. |
| Cheque Clearing House (CCH) | <ul style="list-style-type: none"> • Currently, the CBE operates the Cheques Clearing House (CCH) and Governmental Cheques Clearing House (known as Financial cheques clearing house -FCCH) which process around 70 thousands cheques per day. |

Source: Central Bank of Egypt

Figure 36: RTGS transactions of Egypt



Source: Central Bank of Egypt

Morocco Payment System

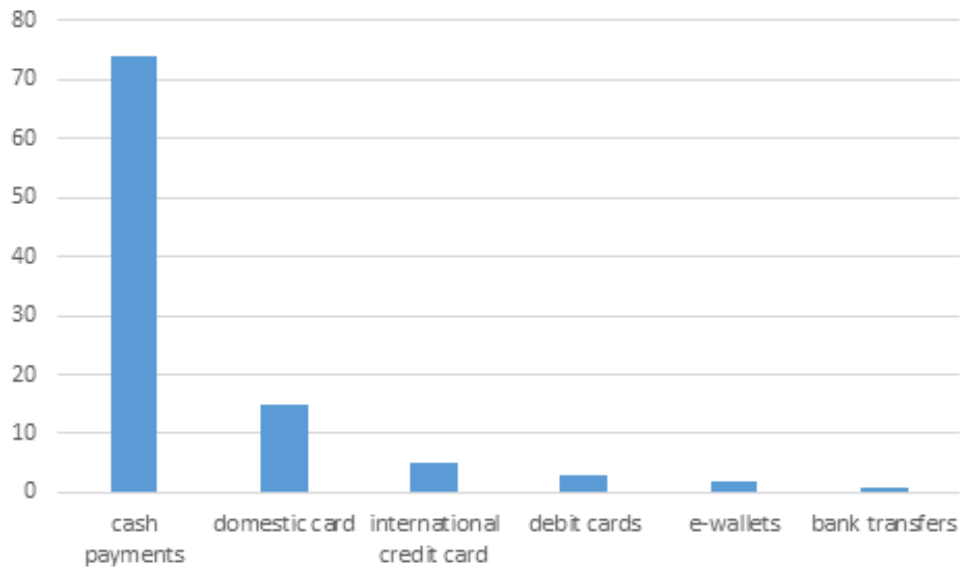
Like many African countries, Cash-on-delivery remains the essential payment method for eCommerce companies selling physical goods in Morocco. Non-cash means of payment are comprised of all the instruments allowing the circulation of non-cash money (all sight deposits with the banking system) and playing only a support role in the payments (cheque, card, transfer, direct debit, bill of exchange, etc.).

Table 7: Morocco payment and settlement system

| Basic | Description |
|---|--|
| Morocco's Gross Settlements System (SRBM) | This system, structuring for the financial centre, constitutes a payment infrastructure that allows efficient and secure transfers between participating financial institutions and contributes to strengthening the effectiveness of monetary policy. |
| Central Securities Depository, Maroclear | It offers its customers, who are exclusively made up of issuers, banks and brokerage firms, a wide range of services that meet both market needs and compliance requirements with international standards. |
| Moroccan Interbank Clearing System | This is a market infrastructure which has replaced the physical exchange system for non-cash means of payment through clearing houses. It operates on the basis of multilateral net netting, with deferred settlement taking place once a day in "central bank money" on participants' central settlement accounts opened in the SRBM. |

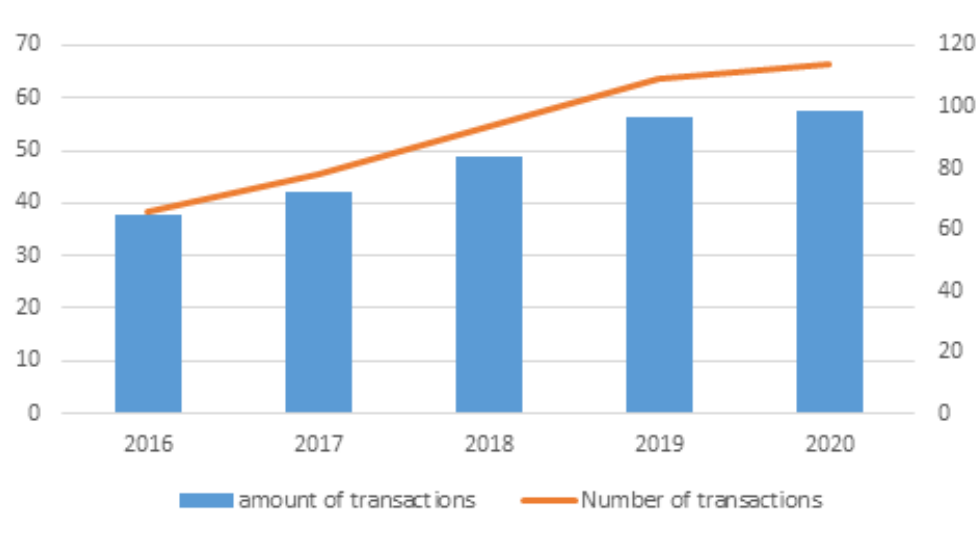
Source: Central Bank of Morocco

Figure 37: Morocco's payment by percentage of population



Source: Dlocal

Figure 38: Interbank money switch in Morocco



Source: Bank of Morocco

Tunisia Payment System

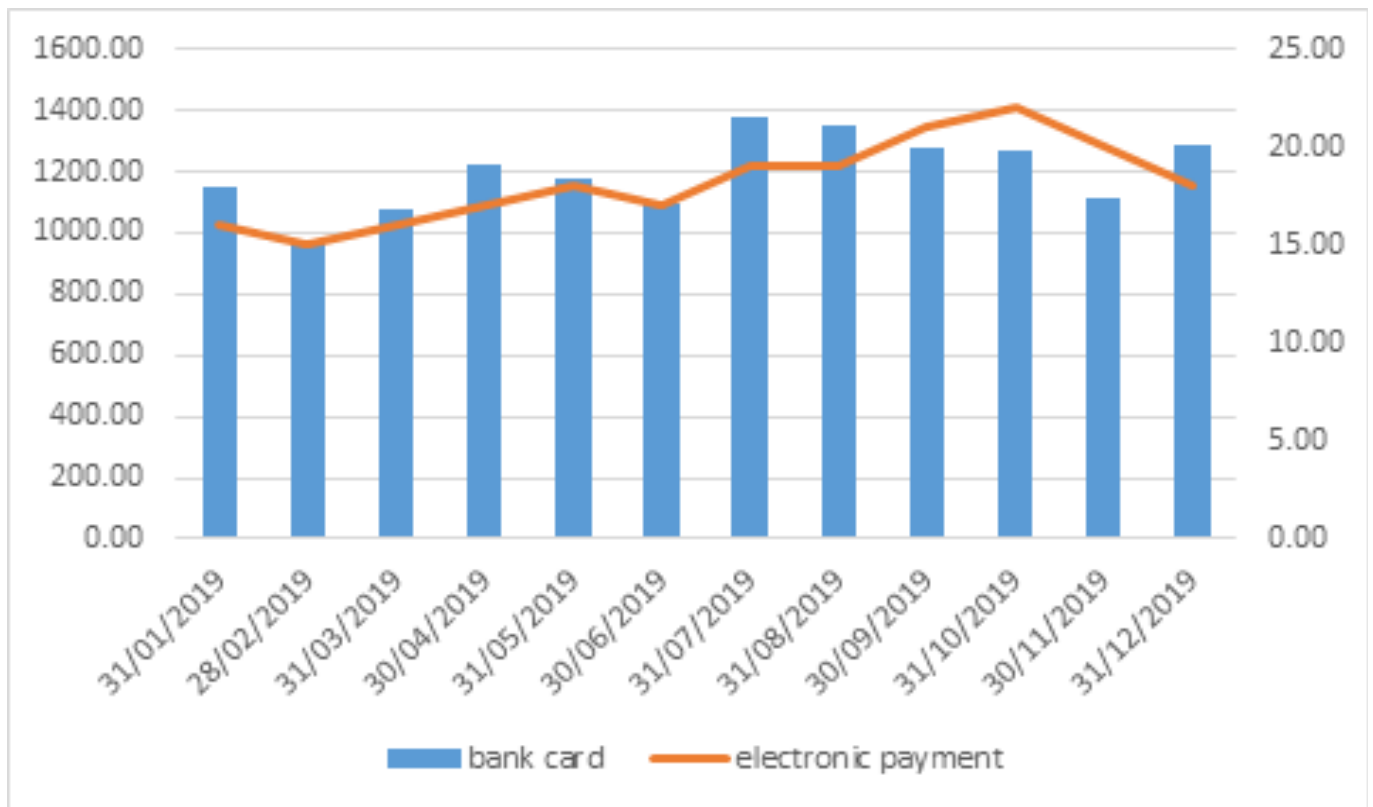
The Tunisian System for Transfer of Gross Amounts is the RTGS (Real Time Gross Settlement) managed by the Central Bank of Tunisia. This system, put into operation in November 2006, represents a payment infrastructure that helps to carry out fast and secure payment between participating financial institutions. It helps in particular to: Carry out real time individual payment, in full safety, thanks to irrevocable bank money settlement, through a highly secured SWIFT network.

Table 8: Traditional payment method in Tunisia

| Traditional Method | Description |
|----------------------|---|
| Transfer | This operation ensures the transfer of funds from one account to another. The payer and the beneficiary can be either the same person or two different persons. |
| Direct debit | Direct debit allows for automatic collection of claims with a repetitive nature. It is the ideal means of payment of regularly issued invoices (fixed telephony, electricity) |
| Cheque | The cheque is a sight means of payment. It is a written document through which the drawer, the person who draws up the cheque, orders the drawee, his/her bank, to debit a sum from his/her account on behalf of a third party (the beneficiary). |
| Commercial paper | It is a security representing a claim that gives the right to payment of a sum of money on a maturity (bill of exchange, promissory note). |
| The Bill of exchange | It involves three persons: the drawer, the drawee and the beneficiary. |
| Monetic car | The monetic card is a means of payment used to carry out withdrawal operations at cash dispensers and/or payments on Electronic Payment Terminals or online. |

Source: Central Bank of Tunisia

Figure 39: Traditional transfer vs electronic payment in Tunisia



Source: Central Bank of Tunisia

Libya Payment System

The payment and settlement system of Libya comprises of the accounting system, Automated processing system, System of self-withdrawal machines/ POS management cards, Electronic Clearing System, Instant Gross Settlement system.



Table 9: Libya's payment system

| Payment and Settlement | Description |
|--|--|
| Accounting system | The most important features of this system include the support of multiple branches (the possibility to carryout financial transactions through any branch without reference to the branch in which customer's account are located), support of accounts in different currencies, support of multiple means of communication,multi channel payment, centralized customer and account database where banks will be able to use this system to provide distinguished services to customers |
| Automated processing system | This system works on clearing inter- bank instruments electronically by adoption of a scanning and digital file mechanism and transferring the net operations to the automated clearinghouse system, allowing to settle the values of instruments between banks with ease and security. |
| System of self-withdrawal machines/ POS management cards | This system provides the infrastructure for the national self – extractor, facilitating all customers' accounts in any of the operating banks and cash withdrawals are facilitated by means of self – drawling machines using national cards through the national network including using the international cards such as MasterCard and Visa through the global network |
| Electronic Clearing System | The electronic payment system is used to implement and process transfers with low value and high volume, less than 10,000 L.D., through implementation of a system with a series of frequent transfers such as (salaries, electricity bills, etc.). |
| Instant Gross Settlement system | The Central Bank and commercial banks have embarked on a program aimed at developing financial transfer system and settlements of accounts between banks and public organizations, at the Central Bank of Libya electronically. Irrevocably before the end every workday, the system initiates transfers of high value transactions at the same time between banks. |

Source: Central Bank of Libya

Digital Finance & Financial Inclusion in Africa

Digital Finance

Digital finance has significantly changed the way people do finance every day and has enabled the digital economy. In many countries around the world, people have the ability to check balances on a real-time basis, transfer and receive money electronically, and pay bills online. They can assess on-screen economic information that is relevant to their activity, and they can buy and sell securities basically from every location where they can use a digital device. Also, in Asia and much of Africa, insurance companies have embraced the data and payment infrastructure provided by mobile telephony, revolutionizing the provision of insurance to first-time buyers, and improved customer experience in areas like claims processing (Wrede 2018).

Table 10: Evolution of financial services

| User Needs | Traditional Model | Gap | Technical Innovations | | | | Fintech Solutions |
|-------------|--|--------------|-----------------------|----------------------|------------|--------|--|
| | | | AI | Data cloud platforms | DLT/crypto | Mobile | |
| Pay | Cash/ATM Check Wire/MOT's Debit/ Credit cards Centralized settlement | Speed | L | H | H | H | Virtual currencies Remittances Mobile payments Mobile PoS P2P payments B2B transactions DLT-based settlement |
| Save | Bank deposits Mutual funds Bonds Equities | Cost | L | H | H | L | Virtual currencies Mobile market funds Blockchain bonds |
| Borrow | Bank loan Bonds Mortgages Trade credit | Transparency | H | H | H | L | Credit modeling Platform lending Crowd-funding Blockchain bonds Auto-underwriting |
| Manage Risk | Brokerage underwriting Structured products Trading regulatory Compliance KYC Insurance | Access | H | L | H | L | Regtech, Smart contracts Suptech Crypto-asset exchanges eKYC, Digital ID |
| Get Advice | Financial planner Investment advisor | Security | H | M | L | M | Robo-advising Automated wealth management |

Source: IMF-World Bank (2019).

Digital Currency

Mikhalev et al. (2021) described central bank digital currency (CBDC) as a new form of electronic money that, unlike well-known cryptocurrencies, e.g. Bitcoin or Ether, is issued by central banks of certain countries. The CBDC have same value as the cash, and it central banks can issue either whole or retail CBDC. Several countries have launched their own central bank digital currency across the globe, while many are researching the architectural design choice of their CBDC and its potential consequences on the financial industry. Only Nigeria has launched and rollout its digital currency called eNaira in Africa. Ghana, Mauritius, and South Africa are piloting their retail CBDC. Most other African countries are researching the CBDC feasibility and its potential applicability to their financial sector.

Financial Inclusion

Financial inclusion means that individuals and businesses have access to valuable and affordable financial products and services that meet their needs (WBG, 2018). The increased accessibility and owning a mobile and bank account penetration rate is a significant step toward broader financial inclusion. This will allow people to send, receive and store for transactional purposes.

Table 11 gives clues to policymakers to achieve more comprehensive financial coverage.

Table 11: Financial inclusion strategies

| Individuals & households | Businesses | Government |
|---|---|---|
| Widening financial access | | |
| <ul style="list-style-type: none"> ▪ Research and development ▪ Promoting mobile banking ▪ Promoting mobile money payment ▪ Instituting unified National payment platforms ▪ QR code adoption for P2P transfer ▪ Reduce transaction charges | <ul style="list-style-type: none"> ▪ Building efficient technology system for business or merchant transfers of funds ▪ Regulating fintech companies, MNOs ▪ Reducing attractive rates on loans, and process charges ▪ Encouraging savings, investment, and technology adoption | <ul style="list-style-type: none"> ▪ Digitalizing revenue collection, payments, and fees collection ▪ Instituting diaspora investment fund/bond ▪ Promoting sharing economy ▪ Review regulations to encourage business start-ups. |

Source: Agpaytech Research

Table 12: Drivers of digital financial services (DFS) in Africa

| DFS | Description |
|---------------------------|--|
| Digital Currencies | Digital currencies are more controlled and legal fiat money with the same value as the country's cash denominations. African countries should explore either whole or retail CBDCs and weigh the pros and cons. Nigeria has launched its eNaira, and Ghana is piloting its eCedi. |
| Online payment method | The ability of the payment facilities to accept online payment efficiently will drive e-commerce business. Online marketing is experiencing tremendous growth, and there is the need for a robust, unified, secure, and reliable online payment platform to facilitate the market. |
| Mobile banking | Mobile banking (or m-banking) is a bank or other financial institution service that allows its customers to conduct conventional financial transactions remotely using a mobile device such as a simple feature phone, smartphone, or tablet. |
| Internet banking | Internet banking (or e-banking) is an electronic payment system that enables customers of a bank to conduct various financial transactions through the financial institution's website. |
| Debit card | The debit card is a bank card that allows bank account holders to pay third parties directly from their account balances electronically. |
| Prepaid card | Unlike a debit card, a prepaid card is not linked to a bank account. Generally, when a customer uses a prepaid card, they are using money that has been loaded onto the card in advance. |
| Agent or merchant network | An agent is any third-party acting on behalf of a financial institution or a non-bank institution to deal directly with customers. |

Source: Agpaytech Research

Conclusion

Africa continues to be a continent of growth and opportunity despite challenging global economic conditions, especially in the payment system. The report confirms the significance of intra-regional trade corridors, both for financial and commercial flows. Regional initiatives across the continent, including payment market infrastructures and trade agreements such as the Continental Free Trade Area, will contribute to these flows in the future. This paper provides that countries establish effective governing regulations, technologies, and reforms to revolute their national payment system.

The report highlights many discrepancies in the payment system in Africa, primarily due to countless currencies in circulation, lack of a unified payment system, and overlapping goals from diverse monetary and regional zones within the continent. Despite these limitations, the paper found that mobile money payment, ATMs, RTGS, mobile and internet banking, Fintechs are helping to transform the African payment environment. The report supports the innovative ideas behind PAPSS to drive financial integration across borders in Africa through Afrexim Bank.

Furthermore, Agpaytech recommends regional harmonization projects that will continue to promote local currencies, the composition of African trade means, and a robust unified payment system that could drive online payment surge, digital currencies, e-commerce, and financial inclusion across Africa.

Lastly, disjoint regional and monetary groups in the continent need to be integrated into a single amalgamated RTGS to provide strong oversight on transaction volumes and values and enhance stable currency for foreign exchange settlements and remittance.

The Cross-border payment perspectives are technically achievable, although they require essential characteristics of the existing and future payment systems. In the period of globalization, domestic currencies regional or zonal monetary groups must design a comprehensive digital platform that could integrate, recognize, link multiple interfaces with the existing payment facility for all countries in Africa.

➤ **Mobile money interoperability: the next step for mobile money in Africa**
Proper financial regulations and compliances can expand the mobile money interoperability system among telecommunication networks across Africa. Since mobile subscribers and mobile money account users keep surging in many countries, cross-border mobile interoperability will be a massive channel for financial inclusion.

➤ Central banks and private PSPs adoption of PAPSS

An essential approach is the speedy usage of PAPSS by all central and commercial banks in Africa. Moreover, there is a need to institute a research center to consider standard and single CBDC projects for all monetary zones, regional communities, central banks, network providers, Fintechs, and PSPs in Sub-Saharan Africa.

➤ Single CBDC model

Integrating multiple CBDCs in a single multi-CBDC system for all countries in Africa

➤ There should be thorough research on standardizing a common currency for Sub-Sahara African countries.

Proposing a Unified Payment System for Africa

Regional payment and settlement system is fragmented among regions such as EAC, COMESA, SADC and ECOWAS. Each region has its major payment (large or small value) system. However, this system does not facilitate cross border payment and settlement within the continent. Working toward implementing an Africa-customized set of principles presents several benefits in the near term: standardized requirements would mitigate the risk of extreme fragmentation in the continental approach to wholesale payments. Agpaytech Research recommends a “Unified Payment System” (UPS) like the PAPSS to co-joint all regional payment systems.

Table 13: Large value transaction payment system

| Region | Major large value transaction system |
|----------------|---|
| West Africa | WAMZ Payments System Development Project, SWIFT, PAPSS, RTGS, National RTGS, PAPSS |
| East Africa | East Africa Payment System (EAPS) REPSS, SWIFT, National RTGS |
| South Africa | SADC-RTGS, SWIFT, National RTGS |
| North Africa | National RTGS, CCH, ACH, MENA RTGS, Arab Regional Payment System (ARPS), SWIFT |
| Central Africa | RTGS, CCH, ACH, MENA RTGS Arab Regional Payment System (ARPS), SWIFT, National RTGS |

Source: Agpaytech Research

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Appendix

List of Central Banks in Africa

| <i>Regions & Countries</i> | <i>Name of Central Bank</i> | <i>Currency</i> | <i>Symbol</i> |
|--------------------------------|--|-----------------------------|---------------|
| Northern Africa | | | |
| Algeria | Bank of Algeria | Algerian dinar | DZD |
| Egypt | Central Bank of Egypt | Egyptian pound | EGP |
| Libyan Arab Jamahiriya | Central Bank of Libya | Libyan dinar | LYD |
| Morocco | Bank Al-Maghrib | Moroccan dirham | MAD |
| Tunisia | Central Bank of Tunisia | Tunisian dinar | TND |
| Eastern Africa | | | |
| Burundi | Bank of the Republic of Burundi | Burundi franc | BIF |
| Comoros | Central Bank of Comoros | Comorian franc | KMF |
| Djibouti | Central Bank of Djibouti | Djiboutian franc | DJF |
| Eritrea | Bank of Eritrea | Eritrean nakfa | ERN |
| Ethiopia | National Bank of Ethiopia | Ethiopian birr | ETB |
| Kenya | Central Bank of Kenya | Kenyan shilling | KES |
| Madagascar | Central Bank of Madagascar | Malagasy ariary | MGA |
| Malawi | Reserve Bank of Malawi | Malawian kwacha | MWK |
| Mauritius | Bank of Mauritius | Mauritian rupee | MUR |
| Mozambique | Bank of Mozambique | Mozambican metical | MZN |
| Rwanda | National Bank of Rwanda | Rwandan franc | RWF |
| Somalia | Central Bank of Somalia | Somali shilling | SOS |
| Sudan | Bank of South Sudan | Sudanese pound | SDG |
| Uganda | Bank of Uganda | Ugandan shilling | UGX |
| United Republic of Tanzania | Bank of Tanzania | Tanzanian shilling | TZS |
| Zambia | Bank of Zambia | Zambian kwacha | ZMW |
| Zimbabwe | Reserve Bank of Zimbabwe | United States dollar | USD |
| Central Africa | | | |
| Angola | Banco Nacional de Angola | Angolan kwanza | AOA |
| Cameroon | Bank of Central African States | Central African CFA franc | XAF |
| Central African Republic | Bank of Central African States | Central African CFA franc | XAF |
| Chad | Bank of Central African States | Central African CFA franc | XAF |
| Congo | Bank of Central African States | Central African CFA franc | XAF |
| Democratic Republic, | Central Bank of the Congo | Congolese franc | CDF |
| Congo | Bank of Central African States | Central African CFA franc | XAF |
| Equatorial Guinea | Bank of Central African States | Central African CFA franc | XAF |
| Gabon | National Bank of São Tomé and Príncipe | Sao Tome and Principe dobra | STN |

Source: Agpaytech Research

List of Central Banks in Africa

| <i>Regions & Countries</i> | <i>Name of Central Bank</i> | <i>Currency</i> | <i>Symbol</i> |
|--------------------------------|--|------------------------|---------------|
| <i>Southern Africa</i> | | | |
| Botswana | Bank of Botswana | Botswana pula | BWP |
| Lesotho | Central Bank of Lesotho | Lesotho loti | LSL |
| Namibia | Bank of Namibia | Mozambican metical | MZN |
| South Africa | South African Reserve Bank | South African rand | ZAR |
| <i>Western Africa</i> | | | |
| Benin | Central Bank of West African States | West African CFA franc | XOF |
| Burkina Faso | Central Bank of West African States | West African CFA franc | XOF |
| Cape Verde | Bank of Cape Verde | Cabo Verdean escudo | CVE |
| Côte d'Ivoire | Central Bank of West African States | West African CFA franc | XOF |
| Gambia | Central Bank of The Gambia | Gambian dalasi | GMD |
| Ghana | Bank of Ghana | Ghanaian cedi | GHS |
| Guinea | Central Bank of the Republic of Guinea | Guinean franc | GNF |
| Guinea-Bissau | Central Bank of West African States | West African CFA franc | XOF |
| Liberia | Central Bank of Liberia | Liberian dollar | LRD |
| Mali | Central Bank of West African States | West African CFA franc | XOF |
| Mauritania | Central Bank of Mauritania | Mauritian rupee | MUR |
| Niger | Central Bank of West African States | West African CFA franc | XOF |
| Nigeria | Central Bank of Nigeria | Nigerian naira | NGN |
| Senegal | Central Bank of West African States | West African CFA franc | XOF |
| Sierra Leone | Bank of Sierra Leone | Sierra Leonean Leone | SLL |
| Togo | Central Bank of West African States | West African CFA franc | XOF |

Source: Agpaytech Research

Major payment system available for large and retail transaction

| <i>Region</i> | <i>Major large value transaction system</i> | <i>Major retail value transaction system</i> |
|----------------|---|---|
| West Africa | WAMZ Payments System Development Project, SWIFT, PAPSS, RTGS, National RTGS, PAPSS | Major retail value transaction system |
| East Africa | East Africa Payment System (EAPS) REPSS, SWIFT, National RTGS | Mobile money, debit/credit card, cheque, cash |
| South Africa | SADC-RTGS, SWIFT, National RTGS | Mobile money, debit or credit card, cash |
| North | National RTGS, CCH, ACH, MENA RTGS Arab Regional Payment System (ARPS), SWIFT | Cheque, cash |
| Central Africa | RTGS, CCH, ACH, MENA RTGS Arab Regional Payment System (ARPS), SWIFT, National RTGS | Cheque cash |

Source: Agpaytech Research

Regional demographic statistics in Africa

| Region | Population (2020) | Yearly Change | Density (P/Km ²) | Area (Km ²) | Migrants (net) | Med. Age | World Share |
|-----------------|-------------------|---------------|------------------------------|-------------------------|----------------|----------|-------------|
| Eastern Africa | 445,405,606 | 2.65 % | 67 | 6,667,493 | -262,405 | 19 | 5.7 % |
| Western Africa | 401,861,254 | 2.66 % | 66 | 6,064,060 | -177,002 | 18 | 5.2 % |
| Northern Africa | 246,232,518 | 1.84 % | 32 | 7,769,438 | -149,870 | 26 | 3.2 % |
| Middle Africa | 179,595,134 | 3.03 % | 28 | 6,496,820 | 1,053 | 17 | 2.3 % |
| Southern Africa | 67,503,635 | 1.31 % | 25 | 2,650,670 | 125,199 | 27 | 0.9 % |

Source: Woldometer

About Agpaytech

Agpaytech is a company pioneering in the Fintech Space with a focused approach on building robust technologies for eCommerce Card Processing Solution for Payment Service Providers (PSPs). Additionally, we provide Compliance and Regulatory Umbrella, Remittance-as-a-Service White-Label Solution, Foreign Exchange, Cross Border Payments, digital currency technology. We have partnered with multiple banks, non-banking financial institutions, and corporate organizations to create a solid service delivery model for them and their customers to ease their international remittances and payments concerns. info@agpaytech.com



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