Blueprint for e-Payments for the Facilitation of Digital Trade across Africa

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DISCLAIMER

The views expressed in this Blueprint are those of the authors and should not be attributed to the Smart Africa Alliance. Care has been taken in the preparation of this Blueprint, but all advice, analysis, calculations, information, forecasts, and recommendations are supplied for the assistance of the client and are not a substitution for the exercise of judgment by that client or any other readers. Any errors remaining are the sole responsibility of the authors.
WORKING GROUP MEMBERSHIP

‘In order to develop this Blueprint on ‘e-Payments for the facilitation of digital trade across Africa’, the Smart Africa Secretariat would like to thank the contributions of the Republic of Ghana in their role as the champion of this Blueprint process as their Flagship project within the Alliance. In addition, the Secretariat would like to acknowledge the invaluable support of the German Federal Ministry of Economic Cooperation and Development (BMZ) through the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH. Finally, the Secretariat would like to thank the team from GFA Consulting Group, for facilitating the Working Group sessions in conjunction with the Secretariat and pulling all of the contributions from the Working Group members and other partners into the document you see before you.’
FOREWORD BY GHANA MINISTER OF ICT

Trade among African countries is mostly undertaken through normal cross border commercial activity however, e-commerce offers great opportunity for building sustainable economic development and integration on the continent. Although intra-African trade is increasing in volume, studies show that Africa lags behind other regions of the world in continental trade. According to the African Development Bank, intra-Africa exports amount to only 16.6% of total trade. The absence of effective and efficient regional payments systems which make cross-border payments expensive and time-consuming is a major reason for the low level of intra African trade. Financial transactions currently go through third-party clearing banks and financial systems which are mostly located outside the continent making concluding such continental transactions a slow laborious and expensive process. This situation does not foster regional trade and improving payment systems across the continent by digitalizing the process is a sure way to promote greater intra-African trade.

Payment for goods and services forms a major part of the trade and individual African countries have put in place different policies and strategies to facilitate digital payments in their respective countries. In Ghana, among other e-payment methods, the use of mobile money transactions has become increasingly utilised for its convenience, easy availability and accessibility. To facilitate its uptake, the Government addressed some bottlenecks to financial inclusion by establishing a mobile money interoperability platform to enable the seamless flow of transactions among the various mobile networks. This was part of efforts to promote a cashlight society and provide alternative channels for accessing digital financial services made possible by Ghana’s robust mobile telephony infrastructure. In May 2020, Ghana became the first African country to introduce a universal QR Code and this was formally launched in November of the same year. Ghana’s Universal QR Code can meet the needs of both banked and unbanked customers, and it is the first of its kind in the world, ensuring deeper financial inclusion. The harmonization of QR codes on a national level facilitates payments from multiple funding sources such as mobile wallets, cards, or bank accounts, on any platform.

Although the African Continental Free Trade Area Agreement spells out strategies to accelerate trade among African Countries to propel socio-economic growth on the continent, no emphasis was placed on cross-border e-payment which is a necessary element of e-commerce. How do we ensure that the different e-payment systems deployed in our individual States are harmonized and made interoperable with sister - African States to facilitate seamless trade on the continent?
The blueprint for e-payments, a Smart Africa initiative to facilitate digital trade across Africa, presents a framework to guide the growth of continental trade and commerce in Africa by making cross-border e-payments less challenging. Under three major pillars, the document recommends the creation of a continent-wide policy and regulatory framework to guide cross-border payments that would see to the removal of unnecessary barriers to effective payments; highlights important elements to consider in the creation of enabling infrastructure and adoption of standards for interoperability with a special focus on cybersecurity and how to address it; and also discusses issues to consider in promoting business ecosystems and strategic partnerships.

With a reported surge in mobile phone acquisition, internet usage, and mobile financial transactions in Africa, the Continent’s digital economy no doubt holds a lot of prospects and opportunities. With this enabling environment, Governments should leverage the recommendations from this blueprint to facilitate the operationalization of a robust e-payment process for effective cross-border trade in Africa. Boosting cross-border trade has the potential to create jobs for our youth and improve our livelihoods.

MRS URSULA GIFTY OWUSU-EKUFUL (MP)
MINISTER FOR COMMUNICATIONS & DIGITALISATION
GHANA
Since the endorsement of the Smart Africa Manifesto by Seven (7) Heads of State on 29 October 2013, the Smart Africa Alliance has since grown in size and in strength and includes 31 African Member States that represent over 800 million people (As of December 2020). The same Manifesto was also endorsed by all Heads of State and Government of the African Union at the 22nd Ordinary Session of the Assembly of the African Union in Addis Ababa. This development placed the Manifesto at the heart of the ICT agenda for Africa.

Chaired by His Excellency President Paul Kagame, President of Rwanda, the Smart Africa Board brings together the 31 Heads of States and Government along with the International Telecommunication Union, the African Union Commission as well as Smart Africa’s Platinum members, with one common goal: To transform Africa into a single digital market.

One of the critical challenges preventing the continent from matching into this bold new future is the inability to conduct cross-border payments for goods and services due to both lack of solutions and crippling policies. In many parts of the continent citizens on either sides of the border are barred from transacting in most forms of financial instruments other than cash.

To operationalize the Smart Africa Manifesto, the Smart Africa Alliance identified flagship projects led by Member States. One of these flagship projects is “e-Payments for facilitation of digital trade” led by the government of Ghana and with great support from BMZ through GIZ.

The participation in this working group and the level of interest shown on this topic only revealed the deep desire of the continent and hunger for an interoperable, safe, affordable, inclusive and responsible African cross-border e-payment ecosystem to increase trade across the continent.
This blueprint recommends solutions across the three main pillars of the digital ecosystem for Africa, namely 1) creating a conducive policy and regulatory framework; 2) enabling payments infrastructure and encouraging the adoption of global standards for interoperability, and 3) promoting business ecosystem and strategic partnerships. We also look forward to working with AACB on the regulatory aspects that present challenges and finally with AfCFTA for development of protocols that promote digital trade.

Our deep gratitude goes to our partners The Republic of Rwanda, the Republic of Ghana, the Republic of Egypt, the Republic of Kenya, GSMA, WB, GIZ, AfDB, AfCFTA, Afreximbank, MFS Africa, UNECA, WEF, Better than Cash Alliance, ITU, CENFRI and Central Banks of Kenya, Ghana and Rwanda for availing their expertise that helped materialize this Blueprint.

MR. LACINA KONÉ
DIRECTOR GENERAL, SMART AFRICA SECRETARIAT
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<td>AACB</td>
<td>Association of African Central Banks</td>
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<td>ACH</td>
<td>Automated Clearing Houses</td>
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<tr>
<td>ADLA</td>
<td>Authorised Dealers with Limited Authority</td>
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<tr>
<td>AEC</td>
<td>African Economic Community</td>
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<td>AfCFTA</td>
<td>African Continental Free Trade Area</td>
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<td>AFI</td>
<td>Alliance for Financial Inclusion</td>
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<tr>
<td>AI</td>
<td>Artificial Intelligence</td>
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<td>AML</td>
<td>Anti-Money Laundering</td>
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<td>APEC</td>
<td>Asia-Pacific Economic Cooperation</td>
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<td>API</td>
<td>Application Protocol Interface</td>
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<td>ASIG</td>
<td>API Standardization Industry Group</td>
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<td>ATM</td>
<td>Automated Teller Machine</td>
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<td>BATC</td>
<td>Better Than Cash Alliance</td>
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<td>BCG</td>
<td>Boston Consulting Group</td>
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<td>BEAC</td>
<td>Bank of Central African States</td>
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<td>BIS</td>
<td>Bank for International Settlements</td>
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<td>CAPS</td>
<td>Convenient Access to Payment Services</td>
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<td>CBDC</td>
<td>Central Bank Digital Currencies</td>
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<td>CBN</td>
<td>Central Bank of Nigeria</td>
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<td>CCH</td>
<td>COMESA Clearing House</td>
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<tr>
<td>CDD</td>
<td>Customer Due Diligence</td>
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<td>CEMAC</td>
<td>The Central African Economic and Monetary Community</td>
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<td>Acronym</td>
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<td>CENFRI</td>
<td>Centre for Financial Regulation and Inclusion</td>
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<td>CFT</td>
<td>Counter Financing of Terrorism</td>
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<tr>
<td>COMESA</td>
<td>The Common Market for Eastern and Southern Africa</td>
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<td>CMA</td>
<td>Common Monetary Area</td>
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<td>CSP</td>
<td>Cloud Service Provider</td>
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<td>Direct Carrier Billing</td>
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<td>DDA</td>
<td>Durable Data API</td>
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<td>Digital Financial Services</td>
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<td>DMF</td>
<td>Data Management Framework</td>
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<td>DLP</td>
<td>Data Loss Prevention</td>
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<td>EBICS</td>
<td>Electronic Banking Internet Communication Standard</td>
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<td>ECIPE</td>
<td>European Centre for International Political Economy</td>
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<td>EFT</td>
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<td>eKYC</td>
<td>electronic Know Your Customer</td>
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<td>EU</td>
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<td>FATF</td>
<td>Financial Action Task Force</td>
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<td>FDI</td>
<td>Foreign Direct Investment</td>
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<td>Financial Intelligence Centre</td>
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<td>FMI</td>
<td>Financial Market Infrastructure</td>
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<td>FSP</td>
<td>Financial Service Providers</td>
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<td>FS-ISAC</td>
<td>Financial Services Sharing and Information Sharing and Analysis Center</td>
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<td>GDP</td>
<td>Gross Domestic Product</td>
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<td>GDPR</td>
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<td>GFIN</td>
<td>Global Financial Innovation Network</td>
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<td>GIM-UEMOA</td>
<td>Groupement Interbancaire Monétique de l’Union Economique et Monétaire Ouest Africaine (Interbank Monetary Union of the West African Economic and Monetary Union)</td>
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<td>GIMAC</td>
<td>Interbank Electronic Banking Group of Central Africa</td>
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<td>HTTP</td>
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<td>Informal Cross-border Trade</td>
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<td>ITU</td>
<td>International Telecommunications Union</td>
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<td>KYC</td>
<td>Know Your Customer</td>
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<td>LDC</td>
<td>Least Developed Country (Also Economy)</td>
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<td>MCC</td>
<td>Model Contractual Clauses for Cross Border Data Flows</td>
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<td>Mobile Finance Systems</td>
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<td>MNO</td>
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<td>MSMEs</td>
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<td>Mobile Money Operator</td>
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<td>MTO</td>
<td>Money Transfer Operator</td>
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<td>Mwh</td>
<td>Megawatt-hour</td>
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<td>M&amp;E</td>
<td>Monitoring &amp; Evaluation</td>
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<td>NACS</td>
<td>Nigerian Automated Clearing System</td>
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<td>NIBBS</td>
<td>Nigerian Interbank Settlement System</td>
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<td>NMLLS</td>
<td>Nationwide Multistate Licensing System and Registry</td>
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<td>NPS</td>
<td>National Payment System</td>
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<td>Open Financial Exchange</td>
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<td>OECD</td>
<td>Organisation for Economic Co-operation and Development</td>
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<td>PPP</td>
<td>Public Private Partnership</td>
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<td>Person to Business</td>
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<td>P2P</td>
<td>Peer-to-Peer</td>
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<td>QR</td>
<td>Quick Response</td>
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<td>Regional Economic Communities</td>
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<td>REI</td>
<td>Regional Economic Integration</td>
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<td>REPPS</td>
<td>Regional Payment and Settlement System</td>
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<td>RPEs</td>
<td>Retail Payment Entities</td>
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<td>RPSs</td>
<td>Retail Payment Systems</td>
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<td>RPSS</td>
<td>Regional Payments and Settlement Systems</td>
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<td>RPW</td>
<td>Remittance Price Worldwide</td>
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<td>RTGS</td>
<td>Real Time Gross Settlement</td>
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<td>RT-RPS</td>
<td>Real-Time Retail Payment Systems</td>
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<td>SAA</td>
<td>Smart Africa Alliance</td>
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<td>SADC-RTGS</td>
<td>Southern African Development Community Real-Time Gross Settlement System</td>
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<td>SARB</td>
<td>South African Reserve Bank</td>
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<td>SAS</td>
<td>Smart Africa Secretariat</td>
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<td>SDG</td>
<td>Sustainable Development Goal</td>
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<td>SME</td>
<td>Small and Medium sized Enterprises</td>
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<td>SMS</td>
<td>Short Message Service</td>
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<tr>
<td>SSA</td>
<td>Sub Saharan Africa</td>
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<tr>
<td>SWIFT</td>
<td>Society for Worldwide Interbank Financial Telecommunication</td>
</tr>
<tr>
<td>TCIB</td>
<td>Transactions Cleared on an immediate Basis</td>
</tr>
<tr>
<td>UAAR</td>
<td>Uniform Authorized Agent Reporting</td>
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<tr>
<td>Acronym</td>
<td>Full Form</td>
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<tr>
<td>UMAC</td>
<td>Central African Monetary Union</td>
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<tr>
<td>UNECA</td>
<td>United Nations Economic Commission for Africa</td>
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<tr>
<td>USMCA</td>
<td>United States-Mexico-Canada Agreement</td>
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<tr>
<td>WAEMU</td>
<td>West African Economic and Monetary Union</td>
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<td>WAMZ</td>
<td>West African Monetary Zone</td>
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<td>WEF</td>
<td>World Economic Forum</td>
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<tr>
<td>XBRL</td>
<td>eXtensible Business Reporting Language</td>
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<tr>
<td>XML</td>
<td>eXtensible Markup Language</td>
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</table>
GLOSSARY

Application Programming Interface (API). An application programming interface (API) is software that defines interactions between multiple applications or mixed hardware-software intermediaries with seamless scalability.

Clearing house. A multilateral system or arrangement that provides its participants with clearing services for payment instructions, securities transactions, derivatives transactions, and in some cases, settlement services (CPMI, 2016).

Cross-border payment. A payment in which the financial institutions of the payer and the payee are located in different jurisdictions (CPMI, 2016).

De-risking refers to the phenomenon in which financial institutions terminate or restrict business relationships with clients or categories of clients to avoid, rather than manage, risk. De-risking can be the result of various drivers, such as concerns about profitability, prudential requirements, anxiety after the global financial crisis, and reputational risk (FATF, 2014).

Electronic money (or “e-money”) is a monetary value represented as a claim on the issuer which is stored on an electronic device and accepted as a means of payment by undertakings other than the issuer (by contrast with single-purpose prepaid instruments, where the issuer and acceptor are one and the same). E-money can be either hardware-based (i.e., stored on a device, including a card) or software-based (i.e., stored on a computer server) (ECB, 2010; Ofcom, 2014).

E-Payment refers to payments made over the internet using remote payment card transactions, online banking systems or e-payment providers with which the consumer has set up individual accounts (Omotubora & Basu, 2018).

Financial Inclusion. Access to useful and affordable financial products and services that meet their needs—transactions, payments, savings, credit, and insurance—delivered in a responsible and sustainable way (World Bank, 2020).

Financial literacy is a combination of awareness, knowledge, skill, attitude, and behaviour necessary to make sound financial decisions and ultimately achieve individual financial wellbeing (OECD, 2012).

Gross settlement system. A transfer system in which the settlement of payments, transfer instructions, or other obligations occurs individually on a transaction-by-transaction basis for full value (CPMI, 2016).

Interoperability Agreement is an arrangement among retail payment systems (RPSs) and retail payment entities (RPEs) to facilitate the delivery of interoperable payment services to users (ITU, 2016).
Interoperability. The technical or legal compatibility that enables a system or mechanism to be used in conjunction with other systems or mechanisms. Interoperability allows participants in different systems to conduct clear and settle payments or financial transactions across systems without participating in multiple systems (CPMI, 2016). CGAP identifies three ways interoperability in payments systems can be achieved: (i) through simple scheme interoperability, (ii) by connecting networks through network interoperability, or (iii) by creating a business environment that enables parallel system interoperability to occur (CGAP, 2016).

Mobile payment refers to any payment which is conducted on mobile devices such as mobile phones, PDAs, and Tablets. VISA defines mobile payment platform as any comprehensive suite of technology tools, security standard, and business models which enable issuer and mobile operators to offer mobile services (See http://www.visa.ca)

Open Banking refers to the practice of sharing financial information electronically, securely, and only under conditions that customers approve of to provide them with better financial services.

Passporting is a term used in the context of financial services, whereby a firm that is authorised to undertake certain activities by the regulator of one country can apply for a ‘passport’ to do business in the jurisdiction of another country or group of countries without needing further authorisation.

Payment Infrastructure Providers (PIPs) include providers of automated clearing houses, automated cheque processing, payment switches, and settlement systems (ITU, 2016).

Payment Service Providers (PSPs) include deposit-taking institutions, credit institutions, and other authorized service providers like postal offices, money transfer organizations, or e-money institutions (ITU, 2016).

Payment system. A set of instruments, procedures and rules for the transfer of funds between or among participants; the system includes the participants and the entity operating the arrangement (CPMI, 2016).

Real-Time Gross Settlement (RTGS). The real-time settlement of payments, transfer instructions, or other obligations individually on a transaction-by-transaction basis (CPMI, 2016).

Retail Payment System (RPS). A funds transfer system that typically handles a large volume of relatively low-value payments in such forms as cheques, credit transfers, direct debits, and card payment transactions (CPMI, 2016).
EXECUTIVE SUMMARY

E-PAYMENTS IN AFRICA

The blueprint for e-payments is an initiative of the Smart Africa Alliance that aims to drive forward continental trade and digital commerce by unlocking the major challenges faced in making intra-continental cross-border e-payments.

Intra-African trade in general and e-commerce specifically is on the rise and is expected to deliver immense benefits to African livelihoods and the overall economy. E-payments are fundamental to the full-fledged development of e-commerce. Payment is evolving in Africa, particularly though mobile payment platforms, but also through regional integration efforts in real-time gross settlement frameworks, which aim to drive down costs, allow payments in local currencies, and reduce transaction processing time. Rising upon this context, COVID-19 has further accelerated the need for innovative ways of deploying cross-border retail payments.

Interbank messaging systems and clearance houses have also been revolutionized with technological advancements. In addition to technology permit algorithms and smart matching technology, as well as electronic Know Your Customer (eKYC) integration to improve the efficiency of existing systems, new payment service platforms have been launched to facilitate settlements for intra-continental trade among African countries.

Digital strategies are gaining importance in national policy agendas across Africa. Strategies such as Rwanda’s Smart Rwanda Masterplan, Kenya’s Digital Economy Blueprint, Egypt’s E-Commerce strategy, Nigeria’s Digital Economy Policy and Strategy, and Mauritius’ Digital Government Transformation Strategy Framework have been launched with e-payments and digital business as emerging recurrent pillars. Further, stakeholders have called for a pan-Africa Digital Economy to facilitate, inter alia, the development of regional markets, harmonization of policies and regulations, to advance continental interoperability of payment systems and best practice sharing, particularly in the context of the African Continental Free Trade Area (AfCFTA).

The successful history of Africa’s mobile-first payment landscape strengthens the credence to shape an African solution. African consumers have experienced a leapfrog of transitioning directly from cash to mobile payments without ever owning a plastic card. According to estimates, mobile payments revenue would rise from USD 3.5 billion today to between USD 14 billion and USD 20 billion by 2025. The ultimate size of the market across Africa could be as high as 850 million customers, supporting about USD 2.5 trillion to USD 3 trillion in transaction volume and USD 25 billion to USD 30 billion in yearly revenue from the financial transactions alone.

African FinTech landscape is bustling. As of 2020, there were 674 active FinTech companies in Africa, about 80 percent of which are of domestic origin. Like the FinTech sector in other countries, the payments sector dominates the African FinTech arena, accounting for 45 percent of the deals and 24 percent of the total venture money.
WHY IS A BLUEPRINT FOR E-PAYMENTS NEEDED?

The Blueprint has been crafted on the basis of the pre-developed concept note “e-Payments for the facilitation of digital trade across Africa” by the SAA. It is further guided by other strategic documents, among others, the Agenda 2063, the Agenda 2030, the African Union’s Digital Transformation Strategy for Africa (2020-2030). It will serve as a guiding document to promote the sustainable development and use of e-payments in Africa.

Agenda 2063 is Africa’s 50-year term blueprint and master plan for transforming Africa into the global powerhouse of the future. It is the continent’s strategic framework that aims to deliver on its goal for inclusive and sustainable development and is a concrete manifestation of the pan-African drive for unity, self-determination, freedom, progress, and collective prosperity pursued under Pan-Africanism and African Renaissance (African Union, 2021c).

Agenda 2030 is the United Nations Agenda for Sustainable Development that lists 17 Sustainable Development Goals (SDGs) to be achieved to build a socially inclusive, environmentally sustainable, and economically prosperous society. The 17 goals and 169 targets seek to realise sustainable development in its three dimensions – economic, social, and environmental – in a balanced and integrated manner (United Nations, n.d.).

The African Union’s Digital Transformation Strategy for Africa (2020-2030) is a blueprint and master plan for transforming the continent’s economy and societies. Its main aim is to serve as a frame of reference in order to achieve the common vision of creating an integrated and inclusive digital society and economy in Africa that improves the quality of life of its citizens, strengthens and enables the diversification and development of the existing economic sector, and ensures continental ownership, with Africa as a producer and not only a consumer in the global economy (UNECA, 2020).

The blueprint’s vision is to enable “an interoperable, safe, affordable, universally accessible, inclusive and responsible African cross-border e-payments ecosystem to increase trade across the continent”. Built on this vision, recommendations are made for strategic interventions across the three main pillars of the e-payment ecosystem for Africa, namely 1) creating a conducive policy and regulatory framework; 2) enabling payments infrastructure and encouraging the adoption of global standards for interoperability, and 3) promoting business ecosystem and strategic partnerships. These pillars are supported by horizontal measures to build gender equity, digital and financial literacy, and financial inclusion.
Pillar 1. Creating a conducive policy and regulatory framework. There is a need for a continent-wide regulatory framework for cross-border payment systems to move away from the fragmentation of national and regional legal systems for cross-border payments, which creates confusion, legal uncertainty and hampers integration and interoperability. Accordingly, Africa needs a modern and coherent legal and regulatory framework for payment services at the continental level to remove cross-border barriers to payments, level the playing field, and ensure an integrated approach to cross-border payments.

The pillar provides a comprehensive discussion on two core and current cross-cutting issues related to (i) data governance, and (ii) licensing, both of which are critical in enabling a cross-border e-payments framework. In the digital economy, data is a vital resource for its monetization potential and ability to contribute significantly to numerous processes and activities that drive commerce, government services, and other quotidian activities. A balanced approach to regulation, individual rights, and technological progress needs to be carefully crafted. Recommendations in the blueprint thus focus on (i) adopting and enacting new legal and economic frameworks to enable trusted and permitted flow of data across borders; (ii) embracing new technologies in digital identity, digital authorization, and data tracing in the toolbox for liberalising a modern data governance regime; (iii) leveraging commitment on privacy, standards for digital identity through bilateral or regional trade agreements, such as the AfCFTA, and other preceding initiatives such as the Digital Identity Blueprint by SAA.
Other critical areas of importance in addressing the notable barriers against regional harmonization of the legal and regulatory environment for e-payments are insufficient national legal and oversight systems, different financial market structures, and varied rules and technical standards within African countries. Digital financial technologies are increasingly forming the backbone of financial infrastructures. However, there remains a regulatory lag in licensing, as laws have not kept up-to-date with the sophistication of financial products and services, as well as financial innovation in general. There are a number of approaches to licensing models for digitally-enabled cross-border payments services proposed in the Blueprint, namely (i) using regulatory sandboxes for companies to test innovative solutions; (ii) granting license passporting for e-payments service providers to allow to the provision of services beyond the authorising jurisdiction to other countries that are part of the regional harmonization of the e-payments framework.

To enhance remittance markets, the Blueprint proposes to (i) authorize digital providers of remittance services to operate without having an agency agreement with the banks or other licensed financial institutions with suitable conditions and capacity requirements.; (ii) ensure that foreign exchange reporting requirements applicable to remittance transactions must be in proportion to the value of remittances transacted; and (iii) use tiered Know Your Customer (KYC) requirements, guided by a risk-based approach, should be implemented to allow for the use of regulated remittance services while proportionately decreasing compliance obligations for remittance service providers. In particular, policymakers should promote cohesion between the customer identification obligations to the marginalised groups to become regulated participants for remittance services.

**Pillar 2: Enabling infrastructure and adoption of standards for interoperability**

While the basic infrastructure for e-payments covers a broad range of essential components, ranging from the electrical power supply, telecommunications infrastructure, to computer hardware and software for the operational systems of the banking and finance sector, payments infrastructure will be the focus of this Blueprint.

Core components of an integrated Payment Market Infrastructure (PMI) are Automated Clearing Houses (ACH); Payment Card Platforms (PCP); Payment Service Provider (PSP); Real-Time Retail Payment Systems (RT-RPS) and Real-Time Gross Settlement System (RTGS). A prime objective of RTGS is to reduce systemic risk by preventing the failure of payment or of a participant having knock-on effects on other participants and thereby endangering the stability of the financial system. While the intra-African clearing of payments has been increasing, North America and Europe remain the main payment route of financial flows from Africa.

Africa’s Regional Economic Communities (RECs) have started operating linked RTGSs. WAEMU, CEMAC, EAC, SADC, COMESA, and WAMZ all have operational regional payment systems. The EAC launched the East African Payment System (EAPS) in 2014. COMESA has the Regional Payment and Settlement System (REPSS), which started live
operations in October 2012. The West African Economic and Monetary Union (WAEMU), through the Central Bank of West African States (BCEAO), runs different RTGS systems: the Automated Transfer and Settlement System (STAR-UEMOA) and the Automated Interbank Clearing System (SICA-UEMOA), plus the WAEMU Interbank Electronic Banking Group/ Card Processing Grouping (GIM-UEMOA). SADC has the SADC-RTGS (formerly known as SIRESS) that went live in 2013. CEMAC has the BEAC as the regional central bank and operates an ACH and RTGS. Additionally, the COMESA Business Council has cooperated with the BCEAO on an Interoperability Initiative, Continental integration initiative driven by the Association of African Central Banks (AACB). In WAMZ, Afreximbank has launched an initiative to unify cross-border payments for trade with the Pan-African Payment and Settlement System (PAPSS) that will enable each African country to use its own currency in any transaction.

The e-payments infrastructure goes beyond just the PMI as previously described to encompass alternative forms of payment. The explosive growth in mobile networks has led to African payments innovation on par with Asia and ahead of many OECD countries, but this growth has been driven by low bandwidth technology supported by the more common 2G mobile network. Mobile wallets are now starting to gain traction for e-payments in Africa and are an alternative to credit cards which have low penetration on the continent. There is an emerging sector in financial technology that has also taken a firm root in Africa through the rise of FinTech companies.

The Blueprint emphasizes the following channels for further deepening the scope and improving the effectiveness of the payment infrastructure. Some suggested recommendations include (i) encouraging the AUC and the AACB to take a more active role in pursuing REC integration; (ii) encouraging the RECs to integrate further their RTGSs with their other RECs RTGSs which will eventually lead to an African-wide integration payments stems; (iii) encouraging the move to 'Open Finance' to provide customers with better financial services, the practice of sharing financial information electronically, securely, and only with customers’ approval under ‘consent per transaction’ approach; (iv) encouraging the use of sandboxes for FinTech’s and developers to test online solutions for and financial inclusion and KYC/AML/ATF using open standards such as the OpenID Foundation Financial API, under the supervision of regulators; and (vi) enabling the secure cross-border transfer of financial information for all providers of e-payments (including banks, MNO's, MTO's, MMO's and FinTechs) with appropriate regulatory oversight.

There is also a need to consider pan-African cybersecurity coordination to better plan, monitor, and respond to cybersecurity incidents that could impact the payment systems infrastructure. Security is only as strong as the weakest link in the chain. There will be a need for the adoption of international standards with regards to securing the digital payments infrastructure as well as standard processes in place to respond to cybersecurity incidents, reporting of such incidents, and monitoring compliance with established security controls as required. All stakeholders who are involved in providing e-payments such as Banks, MNOs, MMOs, FinTechs, and regulators should be involved in this process.
The suggested opportunities and solutions concerning the adoption of global standards and improving transparency and inclusiveness in the payments infrastructure include (i) adapting or updating existing closed/proprietary systems to use open standards including security and governance; (ii) building new financial payments standards infrastructure using ISO 20022 as the data messaging standards for all payment systems; (iii) encouraging the use of API’s using industry standards, such as the Open Financial Exchange (OFX) and other industry consortia standards; and (iv) considering the use of Cloud computing infrastructure for open finance/banking.

**Pillar 3: Promoting business ecosystems and strategic partnerships**

New business models and digitalisation have introduced major disruptions to the cross-border payment ecosystem. Innovative technologies are a key part of Africa’s ecosystem expansion- new business models are emerging, and non-bank financial services providers increasingly offering cross-border payments. App and web-based cross-border FinTech services such as Chippercash, Eversend, and EastPesa are gradually gaining ground in a competitive landscape. Online peer-to-peer platforms match senders in two countries without the need for money to cross-borders. Transactions are processed through bank accounts, cards, or closed-loop wallets offered by various FSP’s. Virtual currencies, including blockchain-based cryptocurrencies, are upcoming, although uptake is much slower and regulatory appetites are low.

Coopetition is visible through technology infrastructure and channel collaboration. For example, Mobile Money Operators MPESA, MTN, and Orange have partnered with International Money transfer operators, such as Western Union, MoneyGram, WorldRemit, and RIA. In 2018, Mowali (an acronym for Mobile Wallet Interoperability), a joint venture between Orange and MTN group was launched. It connects over 100 million mobile money accounts and mobile money operations in 22 of sub-Saharan Africa’s 46 markets. Implemented by Mojaloop, Mowali enables interoperability between MTN Mobile Money and Orange Money customers and aims to extend the same services to close to 160 million mobile money accounts in Africa.

At the same time, cross-border payment hubs such as Mobile Finance Systems (MFS) Africa, Homesend, Terrapay, and Thunes now offer API integration to connect various e-payments service providers such as mobile payment operators, cards, and online service providers in both inter- and intra-African corridors. MTN Group recently launched an open API Marketplace called Chenosis, in partnership with BluSalt, Gwirio, and Finclude, to support integration with FinTechs and MNO’s product development efforts. This marketplace enables developers to tap into a broad spectrum of API products and services from across the continent, ranging from telecommunications, e-health, e-government, IoT, FinTech, e-commerce, identity and authentication, payments, and collections, from a single marketplace.

Despite the bright outlook, Africa’s cross-border payment ecosystem has barriers that impede payments efficiency. The continent faces unique challenges when it comes to cross-border payments, especially for digital trade. Payment systems are
rapidly emerging but are hampered by existing inefficiencies arising from complexity, inflexibility, and cost. Some of these issues have been covered in pillar one, such as licensing and compliance costs. Other issues include (i) high transfer costs, which are considered a symptom of supply-side barriers, and expenditures associated with managing intermediary bank relationships, liquidity cost for pre-funding and foreign exchange conversion rates; (ii) limited de-risking options, due to a lack of reliable data providing clear risk profiles of correspondent banking clients and their jurisdictions; and (iii) foreign currency management challenges.

There are various notable ongoing efforts to address most of the cross-border payment barriers outlined above. Joint efforts between regulators, the private sector, and development partners are required to address long-standing regulatory and market structure challenges, such as the regional and pan-African RTGS initiatives aim to support direct settlement between local African currencies, thus reducing dependence on US dollars and other hard currencies. Participation of non-bank entities in domestic and other payment infrastructures can be addressed by designing non-costly partnerships to foster direct participation in core payment infrastructures. Including non-bank participants from the start in such ownership, structures would enable their participation at par with other participants. Hybrid solutions in the pipeline championed by mobile money providers include M-PESA Africa’s solution, which offers integrated cross-border payments in seven African markets, and similar solutions by other MNOs including MTN, Airtel, and Orange Money. De-risking and complex regulatory requirements can be addressed by developing payment rails that are less dependent on correspondent banking relationships. At the same time, Financial Service Providers (FSPs) can invest in compliance technology systems that increase accuracy and efficiency.

Cross-cutting areas to ensure impact, inclusiveness, and sustainability

Digitalisation contributes significantly to the acceleration and realisation of the Sustainable Development Goals (SDGs). It supports the achievement of a better quality of life via applications and platforms to foster inclusive economic growth, better quality education, and health services. Digital applications facilitate timely monitoring of climate change, noise pollution, air pollution, ocean pollution for ecological and environmental benefits. Through digital platforms, multiple stakeholders can be brought together for shared vision and collaboration to find solutions for the attainment of the SDGs. The focus of the blueprint cross-cutting areas has been on putting in place the right policies and strategies to enable greater (i) digital and financial literacy; (ii) gender equality; and (iii) financial inclusion.

Despite a remarkable growth in financial inclusion rates in Sub-Saharan Africa, the gender gap remains. Studies carried out separately by the Global Banking Alliance for Women and GSMA highlight cultural and gender traits that differentiate women’s behaviour and, by extension, needs, wants, interests, and modes of engagement with solutions presented to them.
In the context of gender inclusion, some considerations in defining opportunities and recommendations include (i) promoting pro-gender initiatives for empowering female end-users. Initiatives such as e-trade for Women, a UNCTAD-led initiative that aims to empower women digital entrepreneurs in developing countries are timely; and designing tailor-made payment products that fit the specific needs and using patterns of female end-users could further advance the gender inclusion goal of payment services; (ii) promoting a segmented approach to customised financial products to ensure diverse user needs are met, which includes the development of gender-specific strategies for increasing usage of e-payments for digital trade; and (iii) strengthening collaboration between development partners implementing interventions targeting women’s participation in digital trade and those promoting the use of e-payments and working with the private sector to develop compelling business cases for serving women.

Digital and financial literacy have become essential in the digitization trend of financial products and services. With the increasing number of financial products introduced and the benefits promised for those who can seize the opportunities, low levels of digital and financial literacy and skills could result in significant disadvantages not only to individuals but to their future generations, the financial service industry, and the economy as a whole. Therefore, addressing low digital and financial literacy should be a priority in the working agenda of policy makers, financial service regulators, and all stakeholders involved. Digital literacy is crucial to enable citizens and businesses to participate in the digital ecosystem actively. The majority of the populations in African countries have relatively low financial literacy levels.

In the context of digital and financial literacy, some recommendations include (i) embedding digital and financial skill training and education in school and TVET programmes to ensure that relevant digital and financial knowledge and skills are acquired by the younger generation and all people; (ii) providing capacity building for MSMEs and start-ups in digital and financial skills will get them ready for the digital age and promote the development of applications and services delivery at grass-root levels as a way to stimulate demand and make rolling out of ICT more sustainable; (iii) incentivising financial institutions and PSPs to provide financial literacy programmes to clients, such as supporting services, material, and tools in making financial choices; (iv) prioritizing the skills development of women and girls and provide new opportunities for women entrepreneurs; (v) embracing the good practice principles for furthering financial inclusion, including the Guiding Principle 6 of Payment Aspects of Financial Inclusion (PAFI) relating to the formulation of regulations (for regulators), supporting programmes (for development partners), and service provision (for FIs and PSPs) and the Digital Financial Services Consumer Competences Framework developed by the ITU under the Financial Inclusion Global Initiative (FIGI) which provides a curriculum for digital literacy for consumers.
Despite the growth of the economy and the financial sector, many individuals and firms are still excluded from access to financial services in Africa. Multiple obstacles have hindered the improving financial access across the continent, such as low savings, cost, distance, and documentation requirements. Additionally, Informal Cross-border Trade (ICBT) constitutes a sizeable share of trade across Africa and usually operates outside of the formal payments systems. Introducing and scaling digital solutions is an opportunity to formalize cross-border trade, fostering inclusive growth and women’s empowerment.

In the context of improving financial inclusion, recommendations in the Blueprint include (i) providing incentives for PSPs to offer unique advantages to compete with informal remittance channels and addressing gaps in access and usage; (ii) empowering women, youth and SME’s by smoothening their entry and operational barriers; (iii) tailoring platforms and products/services for usage in rural and underdeveloped settings to bridge the geographical exclusion; (iv) deploying easily accessible innovative payment options (such as virtual payment cards); and (v) promoting the adoption of a good practices framework\(^1\), for consideration in the policy-making and service design in the move from cash to digital payments. The wide adoption and compliance with these principles will create a healthy financial ecosystem that will encourage participation, enhancing trust from the clients in embedding digital financial services into their daily activities, thus increasing life quality and generate a knock-on effect to reducing poverty and driving inclusive growth.

Roadmap

On the basis of the challenges and recommendations, a roadmap has been formulated that lays out the recommended prioritised strategic interventions, baseline conditions, expected results, associated implementation timeline, and estimated resources required. The recommendations in the roadmap represent the views emanating from discussions within the Working Group over February-April 2021, and existing documents presented and recommended by the Working Group. Building on the existing Working Group structure, and taking into consideration the proposed actions of the roadmap, it is proposed that SAS maintain a relevant structure for the oversight of the implementation of the Blueprint Action Roadmap (i.e., the ‘e-Payments Working Group’). The implementation of this Blueprint Roadmap should be coordinated by the SAS e-Payments Working Group (ePWG). The main responsibilities of the ePWG will be to initiate, monitor, and review the implementation of the Blueprint Roadmap; mobilise resources for its implementation; as well as to promote the wide adoption of the Blueprint recommendations and principles. The ePWG should cover the technical work arising from the Blueprint, take stock of the implementation of relevant activities and programmes, and be the link among stakeholders.

\(^1\) such as the UN Principles for Responsible Digital Payments UNCDF (re-issued based on the BTCA’s Guidelines for Responsible Digital Payments), the Global Partnership for Financial Inclusion (GPFI) G20 High-Level Principles for Digital Financial Inclusion, the Financial Inclusion Global Initiative (FIGI), Outputs from ITU Focus Group on Digital Financial Services, Global Dialogue on Digital Financial Inclusion by ITU, etc.
To make the ePWG fully functional, sufficient technical human and financial resources should be allocated. An effective M&E system is required for this.

Lastly, but most importantly, cross-border e-payment is a critical element of financial services and e-commerce, and therefore cross-border e-payment should be part of the ongoing AfCFTA negotiations on trade in services and e-commerce. However, the AfCFTA does not currently have an established committee or technical working group in charge of dealing with payment-related matters. In this context, it is proposed that the prospective Sub-Committee on Financial Service (under Committee on Trade in Services) should play the key role in ensuring the coordination and implementation of the payment-related aspects in the AfCFTA Phase II negotiations (including for Trade in Service Specific Schedule of Commitments and Digital Trade Protocol) These should include, but not limited to, proposing approaches and modalities for payment services-related negotiations, undertaking situational analysis of payment across the continent, providing technical assistance and recommendations to support the AfCFTA negotiations.
1. INTRODUCTION AND MISSION

The blueprint for e-payments is an initiative of the Smart Africa Alliance that aims to drive forward continental trade and digital commerce. The blueprint brings together key public and private stakeholders from across the continent and within the digital trade and finance landscape.

Founded on a commitment by the Heads of State and Governments of African nations, Smart Africa Alliance (SAA) is a bold and innovative commitment to accelerate sustainable socio-economic development on the continent and usher Africa into the knowledge economy through affordable access to broadband and usage of Information and Communications Technologies (ICT) (Smart Africa Manifesto, 2013). SAA’s audacious vision is to build a single digital market by 2030, with digital products and services accessible easily throughout the continent and seamlessly operating with the rest of the world.

The creation of Smart Africa is a testimony of our resolve to put in place the right policy and regulatory environment that will encourage partnerships, entrepreneurship, job creation, and knowledge sharing.

H.E Paul Kagame, President of the Republic of Rwanda & Chairman of the Smart Africa Board

The 24 Member States of Smart Africa represent a market of more than 600 million people, or 44 percent population of the continent (Smart Africa, 2021). While this offers incredible trade opportunities, the current reality is that regulatory and other barriers have led to low intra-African trade. Intra-Africa trade accounted for 15 percent of Africa’s total trade in 2019. Over the last ten years, intra-Africa trade has remained low; the highest was recorded in 2015 and 2016 with 19 percent and 20 percent of total trade (TRALAC, 2019). This low level of intra-African trade has left the continent with lost opportunities from its vast internal market (Smart Africa Secretariat, 2020).

In this context, a Concept Note on e-Payments for the Facilitation of Digital Trade across Africa was developed through the collaboration with the Republic of Ghana, German Development Cooperation (GIZ), Smart Africa Secretariat (SAS), and other key stakeholders (the SAA Member States, the Private Sector, International Organizations, Academia, and Entrepreneurs). The Concept Note identified the inherent difficulty in making payments across borders as a major obstacle to Africa from intracontinental trade. Enabling cross-border e-payments is therefore an important building block for the growth of continental trade and digital commerce. In order to achieve the long-term goal of free flow of payments across the continent, the Concept Note identified the specific outcomes of the blueprint to rest on the following:

- Jointly shape policies for simple, safe, and inclusive e-Payments across Africa;
- Foster African-led innovation and expertise for such an e-Payments ecosystem;
Develop uniquely African solutions for cross-border e-Payments in line with global standards; and

Promote economic connectivity across the continent through utilizing this ecosystem for the facilitation of digital trade across Africa.

The e-Payments Blueprint (the ‘Blueprint’) is a special intervention of the Smart Africa Alliance that aims to drive forward continental trade and digital commerce. This Blueprint shall provide a framework for the development of interoperable, future-proof, accessible, and inclusive e-Payment systems at the national, regional, and pan-African levels. More specifically, it shall place e-Payments at the centre of digital trade development across the continent through working towards the goal of connecting financial service providers (FSPs) and customers in one inclusive network open to any financial services provider in Africa, including banks, mobile network operators (MNOs), money transfer operators (MTOs), FinTech firms, and other FSPs. Ultimately, this will enable money to circulate freely between digital wallets and accounts with financial institutions from any financial service providers across the continent and increase financial inclusion in Africa (Smart Africa Secretariat, 2020).

In order to develop the Blueprint, a Cross-border E-Payments Working Group has been established, bringing together a diversified cohort of experts from prestigious institutions in both public and private sectors, with the shared goal of achieving pan-African interoperability in a digital single market by 2030. Interoperability refers to the ability to seamlessly transfer funds between parties and across national and regional borders. This capability is expected to increase efficiency and effectiveness by reducing duplication and fragmentation of payment systems, reduce the transaction costs of inter-African transactions, and thus accelerating economic growth on the continent by complementing the African Continental Free Trade Agreement (AfCFTA).

Throughout the development phase of the Blueprint, a collaborative approach with Smart Africa Secretariat and the Working Group members was adopted. The involvement of the stakeholders was ensured through:

- Focus Working Sessions for the presentation and feedback around the identified pillars of the cross-border e-payments ecosystem (standards, interoperability, platforms, regulatory framework, overall business ecosystem and partnership). The Working Sessions enabled the multidimensional exchange for in-depth analyses and recommendations, taking into account the concerns of the stakeholders. The Working Sessions were followed by Working Group meetings to take stock of the discussed points and refine the analyses and recommendations for the next steps.

- Bilateral Consultations with key stakeholders at the Ghanaian government level, the Working Group Members, and the Smart Africa team.

- An Online Survey that was distributed to stakeholders in the private sector, academic sector, public sector, support structures, financing structures, donors... through the Working Group Members’ network.

- A Validation Workshop to validate the work and deepen the recommendations.
To address its mandate, this Blueprint is presented in three main sections. Section 2 provides an overview of the global cross-border e-payment landscape, then further delves deeper into the African context to examine the opportunities and challenges faced by the continent in transforming the cross-border payment system towards the digital path. Building on those specific considerations, Section 3 starts with the broad aspirations of the Blueprint to the Africa payment landscape, digital trade, and the overall economy as a whole. It is then followed by an in-depth analysis of the specific obstacles and general recommendations for the fulfilment of the aspired e-payments systems around the three core pillars (legal framework, infrastructure, and interoperability, ecosystem) and cross-cutting areas (covering digital and financial inclusion, gender equity, and financial inclusion). Finally, on the basis of the vision and framework built in previous sections, Section 4 presents in further detail the recommended strategic interventions to deliver the ultimate goal of an effective e-payments system to facilitate digital trade across the continent. These sections elaborate on the pre-developed Concept Note and are further guided by other strategic development guiding documents (among others, Agenda 2063, Agenda 2030, The Digital Transformation Strategy for Africa 2020-2030).

The Blueprint benefits from valuable inputs by the Working Group Members. Virtual meetings were held from February 4th to April 29th, 2021. During this time, participants of the Smart Africa Cross-border e-Payments Working Group came together to discuss the necessary requirements for an African cross-border e-payments ecosystem to increase trade across the continent for all Africans. It is thanks to the participants from the institutions listed below (in alphabetical order)\(^2\) that the Blueprint could be completed:

- Afreximbank
- African Development Bank
- Asante Finance Mauritius
- Bank of Ghana
- Bank National du Rwanda
- Better Than Cash Alliance
- Central Bank of Kenya
- Centre for Financial Regulation and Inclusion (CENFRI)
- Deutsche Gesellschaft für Internationale Zusammenarbeit GmbH (GIZ)
- Duis Primo
- Ministry of Telecommunications of Egypt
- Ghana National Information Technology Agency
- Ghana Telecommunications Chamber of Commerce
- GSMA
- International Telecommunication Union
- MFS Africa Group
- Ministry of ICT and Innovation Rwanda
- Omidyar
- Organisation for Economic Co-operation and Development (OECD)
- Safaricom - M-Pesa
- UNCAPital Development Fund
- United Nations Economic Commission for Africa (UNECA)
- World Bank/ IFC
- World Economic Forum

\(^2\) Also see Annex 1 for the list of Contributors to the Blueprint.
2. CROSS-BORDER E-PAYMENTS LANDSCAPE

This section provides an overview of the global cross-border e-payment landscape, then further delves deeper into the African context to examine the opportunities and challenges faced by the continent in transforming the cross-border payment system towards the digital path.

Why Cross-Border E-Payment can unlock Africa's development

Intra-African trade in general and e-commerce specifically, is on the rise and is expected to deliver immense benefits to African livelihoods and the broader economy. According to Boston Consulting Group (BCG), online marketplaces could create around 3 million new jobs across the continent by 2025. These businesses could also boost African economies by expanding the supply of goods and services, making assets more productive, and unlocking new demand in remote locations, which will augment consumer spending (BCG, 2019). Additionally, e-commerce can be a force for sustainable development, as it opens markets to isolated rural communities to service Africa's fast-growing consumer class and enable women entrepreneurs to tap into e-business opportunities where previously social norms or family duties may have kept them out of the traditional workforce (WEF, 2019). The African Continental Free Trade Area (AfCFTA) aims to grow intra-African trade through a variety of commitments in trade, investment, and other policy areas critical for businesses to thrive. E-commerce negotiations have been accelerated in the preparations for a seamless AfCFTA and have witnessed a surge of activity in light of COVID-19.

E-payments are fundamental to the full-fledged digitalised development of e-commerce. E-payments will help to mitigate the security risks and costs of handling cash. The ability to accept e-payments from consumers abroad also gives businesses access to more markets. Additionally, e-payment has been shown to have a positive correlation to economic growth. Imperial College London estimates that moving 25 percent of paper-based transactions to digital in retail payments, government-to-person (G2P), e-commerce, cross-border remittances as well as for Small and medium-sized enterprises (SMEs), governments, businesses, and consumers could unlock between USD 350 to 400 billion in annual savings (Imperial College London, 2016). Another study found that a 1 percent change in online retail sales enabled by e-payments is associated with 0.175 percent change in Gross Domestic Product (GDP) per capita among these economies (TRPC & RMIT, 2016).

Digital payment solutions can also help to address financial inclusion issues. As noted by the Bank for International Settlements (BIS), financial inclusion starts with payments, which serve as a gateway to other financial services, such as savings, credit, and insurance (BIS, 2020d). E-payment solutions, such as mobile payments, have proven to be a viable alternative to many customers who do not have access to formal financial services, including bank accounts, credit cards, and debit cards. According to the World Economic Forum (WEF), just 37 percent of women in sub-Saharan Africa have a bank account, compared with 48 percent of men. In this context, FinTech can help
bring financial services directly to women who may otherwise have faced difficulties in getting paid for an e-commerce sale (WEF, 2019).

Payment is evolving beyond traditional methods. According to the World Bank’s latest Global Payment Systems Survey (GPSS) in 2018, the number of cashless transactions per capita per year worldwide rose to 88.31 [transactions] in 2017, representing a 25 percent increase over the indicator observed in 2015 (World Bank, 2020c). In the past, during the 2014-16 Ebola crisis, e-transfers helped to deliver the much-needed cash support for isolated rural households (IMF, 2020). Throughout the current COVID-19 crisis, internet banking/direct account transfers were the preferred payment method, followed by contactless (tap-to-pay) cards, and digital wallets, as confirmed by 68 percent, 64 percent, and 48 percent of respondents, respectively (Capgemini, 2020).

Digital currencies are a potential channel underpinning future digital payments. Digital currencies, including crypto-currencies and global stable coins, could satisfy public policy goals, including financial inclusion, security, and consumer protection, as well privacy in payments (Lagarde, 2018). Central bank digital currencies (CBDCs) are also considered by 86 percent of the central banks recently surveyed by the BIS (BIS, 2021). The motivation for speeding up the development of CBDCs includes the level of the informal economy and financial inclusion, the degree of cross-border transactions taking place (particularly remittances as a share of GDP), and public interest. The level of the digital infrastructure, innovation capacity, and institutional capacity have played the role of drivers for shaping CBDCs (Auer, Cornelli, & Frost, 2020). The EU has considered issuing a regional digital currency called the Digital Euro (Mersch, 2020). In Kenya, Bitpesa, now part of AZA Group, has processed over USD 500 million in cross-border transfers through digital currencies. South Africa’s Centbee has also attracted high interest, with even lower fees and faster transaction times using Bitcoin SV (Kaaru, 2020). Another crypto-currency exchange launched by Luno in 2013, recorded on average USD 4.5 million per day of transactions during 2020 (Arcane Research & Luno, 2020). The Digital Currency Global Initiative, a collaboration between ITU and Stanford Digital Currency programme, is working on identifying areas where technical standards are required for central bank digital currency, stablecoins, e-Money, and cryptocurrencies, with a focus on thematic areas such as policy and governance, architecture, requirements for interoperability and security.

Africa represents a fertile ground for e-payments. BCG estimated that the potential market for mobile payments for banks in sub-Saharan Africa (SSA) is USD 500 billion; predominantly concentrated in the form of peer-to-peer (P2P) payments. For example, Paxful is a popular P2P exchange platform across Africa, with 1,350,000 wallets, accounting for 45 percent of its global count and a yearly increase of 64 percent in the number of trades across the continent in 2019. The scope of services provided to current banking customers can also be expanded via mobile payments, including those such as energy-as-a-service and healthcare-as-a-service, education, and ride-sharing-style transportation services. By 2025, the mobile payment market could reach 650 million to 750 million customers in SSA. If that were to happen, mobile payments revenue, which tends to average about 1.1 percent of overall transaction volume, would rise from USD
3.5 billion today to between USD 14 billion and USD 20 billion. The ultimate size of the market across Africa could be as high as 850 million customers, supporting about USD 2.5 trillion to USD 3 trillion in transaction volume and USD 25 billion to USD 30 billion in yearly revenue from the financial transactions alone (BCG, 2020).

The results of the World Bank’s GPSS 2020 confirm the prevalence of mobile payment over other available innovative payment services in Africa. As indicated in Figure 1, SSA belonged to the leading group with regard to the availability of mobile money services and the acceptance of payments with mobile money. However, the region lags in other categories of payment services, such as merchant aggregation services, bill payment aggregation, white-label Automated Teller Machine (ATM) networks, or payment initiation services via third parties using APIs.

**Figure 1. Availability of new payment services**

The survey also reveals a relatively high level of interoperability of services that are available via mobile money in sub-Saharan (see Figure 2). Interoperability is more common for person-to-person (P2P) funds transfers and lower for other types of transactions, such as payment to merchants (under person-to-business, or P2B, transactions), bill payment, transfer from bank accounts, and cash-in cash-out at agents. Notably, the availability of international remittances via mobile money accounts is limited to only 36 percent.

Note: The number of firms surveyed in Africa is 16. Source: World Bank (2020)
The successful history of Africa’s mobile-first payment landscape strengthens the credence to shaping an African solution. Many African consumers have experienced a leapfrog of transitioning directly from cash to mobile payments without ever owning a plastic card. Mobile payment seems to be a perfect solution for the African market: the payment threshold is low, which would then require simpler Customer Due Diligence (CDD) processes, while the large volume of transactions makes up for the low margin for the PSPs. Since its introduction into Africa, the continent’s mobile money has expanded into a diversified ecosystem with over 157 mobile money services, accounting for more than half of the total mobile money services operating worldwide. The market players include mobile network operators (MNOs), banks, FinTech, or a combination thereof (McKinsey, 2017).

Technology development has brought about a bright outlook for the payment sector, leading to the introduction of new payment products and services as well as access channels. Application programming interfaces (APIs), big data analytics, biometric technologies, cloud computing, contactless technologies (including quick response (QR) codes), digital identification, distributed ledger technologies (DLT), and the Internet of Things (IoT) have been identified as the most avant-garde technologies (Figure 3). The Payment Aspects of Financial Inclusion (PAFI) identified two pathways through which new technologies will introduce changes to the existing system: (i) offer new modes of accessing new products such as electronic wallets, open banking, and super apps, and (ii) allow payments to be initiated via traditional transaction accounts and/or payment instruments in a more optimised way(BIS, 2020d).
Interbank messaging systems and clearance houses have also been revolutionized with technology. In addition to the long-established secure financial messaging services by the Society for Worldwide Interbank Financial Telecommunication (SWIFT), advancements in technology permit algorithms and smart matching technology, as well as eKYC integration to improve the efficiency of existing systems. The Pan African Payments and Settlement System (PAPSS), a platform developed and operated by African Export-Import Bank’s (Afreximbank), aims to facilitate net settlements among African countries for intra-continental trade and complement the implementation of the African Continental Free Trade Area (AfCFTA) (Mwaba, 2020). Formally launched at the African Union extraordinary summit in July 2019, the PAPSS platform aims to localize intra-regional payments and is expected to create savings of over USD 5 billion in yearly transaction costs. The platform will use African national currencies, thereby cutting out the reliance on the USD and other hard currencies in clearing transactions (Wass, 2019).

African FinTech landscape is bustling. As of 2020, there were 674 active FinTech companies on the African continent; about 80 percent of which are of domestic origin. Similar to FinTech sectors in other countries, the payments sector dominates the African FinTech arena. Around 45 percent of the deals and 24 percent of the total venture money raised by FinTech companies went into the payments sector (Figure 4). The ongoing pandemic has caused dropping interest in FinTech for the benefit of healthtech, leading to a decline of venture deal value from USD 678 million for 105 startups in 2019 to USD 250 million for 97 deals in 2020. However, the increasing need for contactless payments caused by the pandemic will be a driver for growing the market of electronic payments and other digital financial products (Weetracker, 2021). Foreign Direct Investment (FDI) flows into Africa to fuel innovation remain low compared to other regions, accounting for only 3.5 percent of the global total in 2018, while tech funding specifically may be 5-6 times lower (WEF, 2019).
In terms of geographical distribution, most investment is concentrated in a handful of economies. The four main FinTech hubs of the continent (i.e., Egypt, Kenya, Nigeria, and South Africa) make up approximately 85 percent of the total FinTech investments in 2019. In 2020, Ghana, Uganda, and Zambia rose as emerging markets thanks to an increasing number of investments in the FinTech space as well as total startups upcoming every quarter (Weetracker, 2021). In comparison, the African Tech Ecosystems of the Future rankings, an initiative of fDi and research company Briter Bridges placed South Africa, Kenya, Egypt, Ghana, Tunisia, and Nigeria as Africa’s leading tech ecosystems (fDi, 2021).

Figure 4. FinTech investments in Africa, by sector, 2020

Payment systems in Africa, however, are currently unable to fully support innovation due to the absence of a harmonised payment system vision and inefficiencies with regard to infrastructure, regulation, and payment ecosystem. Payment systems in the continent have developed in an uncoordinated fashion, both domestically and regionally. This has then led to inefficiencies due to duplication of infrastructure, which is expensive to maintain and often ill-suited to small, underdeveloped economies (CENFRI, 2018b). There are currently a number of initiatives at regional and cross-regional levels, as will be discussed in the following sections. However, more coordinated effort at all levels, i.e., national, regional, and inter-regional, will be needed in order to secure successful outcomes and benefits to all people. It is therefore called for a comprehensive guiding document that helps to unlock effective e-Payment solutions for the facilitation of digital trade across the African continent via regional coordination of digital payment and digital trade strategies, economic initiatives, and policies, which will be laid out in the fourth section of this document.

Source: Data from Africo.io

Payment systems in Africa, however, are currently unable to fully support innovation due to the absence of a harmonised payment system vision and inefficiencies with regard to infrastructure, regulation, and payment ecosystem. Payment systems in the continent have developed in an uncoordinated fashion, both domestically and regionally. This has then led to inefficiencies due to duplication of infrastructure, which is expensive to maintain and often ill-suited to small, underdeveloped economies (CENFRI, 2018b). There are currently a number of initiatives at regional and cross-regional levels, as will be discussed in the following sections. However, more coordinated effort at all levels, i.e., national, regional, and inter-regional, will be needed in order to secure successful outcomes and benefits to all people. It is therefore called for a comprehensive guiding document that helps to unlock effective e-Payment solutions for the facilitation of digital trade across the African continent via regional coordination of digital payment and digital trade strategies, economic initiatives, and policies, which will be laid out in the fourth section of this document.

4 The ranking is based on indicators including number of start-ups, total investment and distribution of technology hubs.
2.2. STATE OF PLAY AND LINKS TO AFCFTA AND REGIONAL INITIATIVES

2.2.1. Role of cross-border payments in Africa's digital trade

Digital trade facilitation refers to making full use of ICTs and going paperless for all steps of the cross-border trade process (UNCTAD, 2020b). Cross-border digital trade is considered the fastest-growing contributor to cross-border e-payments in Africa. Intra-Africa trade volumes are increasing, almost 20 percent of all cross-border commercial payments sent by African banks now remain within the continent, up from 16.7 percent in 2013. Intra-African clearing of payments has increased from 10.2 percent in 2013 to 12.3 percent in 2017. SWIFT (2018) hence reasons for developing an African payment solution (SWIFT, 2018).

Digital strategies are gaining importance in national policy agendas across Africa. Strategies such as Rwanda’s Smart Rwanda Masterplan, Kenya’s Digital Economy Blueprint, Egypt’s E-Commerce strategy, Nigeria’s Digital Economy Policy and Strategy, and Mauritius’ Digital Government Transformation Strategy Framework have been launched with e-payments and digital business emerging recurrent pillars. Further, stakeholders have made calls for a pan-Africa Digital Economy to facilitate, inter alia, the development of regional markets, harmonization of policies and regulations, to advance continental interoperability of payment systems and best practice sharing particularly in the context of the AfCFTA (UNCTAD, 2018). Specific to the African context, mobile money has been an integral part of the continent’s response to COVID-19 mainly due to (i) the necessity to reduce cash transactions; (ii) the capability of mobile money to be used by the government as a channel for cash transfer programmes; and (iii) the established ability of mobile money to help ensure smooth functioning of payments systems.

Financial services, including payment services, are part of the first round of the AfCFTA trade liberalization for which a number of offers have been made. The deadline for the conclusion of these negotiations has been set for June 2021. Cross-border e-payments may be covered under the Protocol on E-Commerce, but there may be aspects of it that are also covered under a future regulatory framework on financial service, according to an update on the AfCFTA negotiations by the African Union (AU).

In this context, Smart Africa Alliance positions e-Payments at the centre of increasing digital trade across the continent through working towards the goal of connecting financial service providers and customers in one inclusive network open to any financial services provider in Africa (Smart Africa Secretariat, 2020). There are tailwinds and headwinds for the development of a continental cross-border e-payments ecosystem in Africa. Factors shaping e-payments for e-commerce usage across Africa include ongoing initiatives for digital identity, cybersecurity, increasing smartphone device ownership. On the other hand, cyberattacks, strict requirements for regulatory compliance (including Anti-Money-Laundering (AML) & Countering Financing of Terrorism (CFT)), the exclusion of underserved segments, and informal trade and payments are persistent impediments (Central Bank of Kenya, 2021).
As digital trade in services continues to gain prominence, e-payments are the preferred payment method. The emergence of an online gig workforce in the last few years has reshaped the concept of work. More people, especially the youth, are turning to freelance and the gig economy, working directly or through platform-based marketplaces and receiving wages remotely. Among the emerging digital services are, inter alia, software development, web-enabled services, buyer and seller intermediary services, information, entertainment, e-learning, telemedicine, and specialised services.

There is a growing preference from digital service providers, especially freelancers, app developers, and influencers to receive digital payments directly into their wallets than traditional bank accounts. This is largely driven by the fact that they are millennials who are typically early adopters of e-payments (Citibank, 2018). However, traditional payments by card, bank transfer, and cash remain the dominant ways to pay and get paid for e-commerce across Africa. Figure 5 below illustrates the main payment methods accepted at African and International Marketplaces.

**Figure 5. African and International e-commerce marketplace payment methods**

Digital channels are the most affordable means of sending money within sub-Saharan Africa, while banks are the costliest. Mobile money, as the instrument to fund the transaction and as the means to disburse, has consistently been the least costly payment instrument. At the channel level, banks remain the most expensive type of service provider, with an average cost of 10.73 percent, while digital channels typically cost 6.24 percent (World Bank, 2020d). The price disruption anticipated from the growing cross-border e-payments channels, particularly mobile money, will be gradual.

Industry price comparison information portals have increasingly emerged to enhance transparency through informed consumer choice. Cross-border money transfer price comparison sites emerged as one amongst many solutions aimed at enabling consumers to access the most affordable prices. Portals such as Remittance Prices Worldwide, Monito, FX Compared, and finder promote full price disclosure including fee, foreign exchange margins, and other additional costs between a specified send and receive market (CENFRI, 2020).
2.2.2. Role of regional economic integration in promoting cross-border e-payments

The African Regional Economic Communities (RECs) have been driving various regional initiatives aimed at creating free trade areas, customs unions, single markets, central banks, common currencies, and regional payment systems. The AU has set the harmonization and coordination of trade liberalization and facilitation regimes across the RECs since they provide a solid foundation for achieving the objective of boosting intra-continental trade and ultimately creating a single market. In this regard, the establishment of the African Continental Free Trade Area (AfCFTA) is a key achievement in the regional integration process in Africa and this now needs to be supported by faster, reliable, and cheaper cross-border payments, inter alia.

The African Union Commission and the Africa Association of Central Banks (AACB) have been given the responsibility of inter alia, establishing the African central bank to achieve monetary cooperation, promote exchange stability, assist in the establishment of a multilateral system of payments in respect of current transactions between members and eliminate foreign exchange restrictions that hamper the growth of international trade.

The AfCFTA agreement demonstrates the continent's appetite for cross-border trade as well as regulatory and process modernization. Pioneered by the African Union, it is the world's largest trading bloc, covering a market of 1.27 billion consumers, expected to reach 1.7 billion by 2030. The agreement aims at ambitious intra-continental trade liberalisation, whereby member states agree to progressively waive tariffs of 97 percent of goods and reducing non-tariff measures, allowing free access to commodities, goods, and services across the continent (African Union, 2021a). In this context, digital trade is expected to play a critical role in realizing the AfCFTA aspirations as it has the potential to lift intra-African trade from the current rate of 18 percent and to boost Africa's share of global trade, currently estimated at less than 3 percent. A number of regional payment integration initiatives have been carried out to support the delivery of the AfCFTA goals, including various regional payment systems.

Regional African payment system integration efforts have also proliferated for more than 15 years with efforts from RECs (World Bank, 2019). Established in accordance with the vision of the Abuja Treaty (1991), Africa's RECs facilitate regional economic integration between members of individual countries and through the wider African Economic Community (AEC). Regional economic groupings are gradually increasing in importance, and as payment flows rise due to open trade among member states and gradually improving infrastructure, so does the need for integrated cross-border regional payment systems. Some RECs have made progress towards establishing regional payment systems across Africa (CENFRI, 2018b). These include:

- The East Africa Payment System (EAPS)
- The Southern African Development Community Real-Time Gross Settlement System (SADC-RTGS)
The COMESA's Regional Payment and Settlement System (REPPS)

The West African Economic and Monetary (WAEMU), through the Central Bank of West African States (BCEAO) run two RTGS systems: the Automated Transfer and Settlement System (STAR-UEMOA) for large value payments and the Automated Interbank Clearing System (SICA-UEMOA) for retail, plus the WAEMU Interbank Electronic Banking Group/ Card Processing Grouping (GIM-UEMOA).

The Interbank Electronic Banking Group of Central Africa (GIMAC), a BEAC-led regional switch/ACH and an RTGS in the Economic and Monetary Community of Central Africa (CEMAC).

Details about the above regional payment and settlement systems are provided in Annex 2 of this Blueprint.

**Figure 6. African high-value payment integration schemes**

1. **UEMOA (STAR-UEMOA):** Benin, Burkina Faso, Côte d’Ivoire, Guinea-Bissau, Mali, Niger, Senegal, Togo
2. **CEMAC (SYGMA):** Cameroon, Central African Republic, Chad, Equatorial Guinea, Gabon, Republic of the Congo
3. **COMESA (REPSS):** Burundi, Comoros, Djibouti, DRC, Egypt, Eritrea, Ethiopia, Kenya, Libya, Madagascar, Malawi, Mauritius, Rwanda, Seychelles, Somalia, Sudan, Eswatini, Tunisia, Uganda, Zambia, Zimbabwe¹
4. **EAC (EAPS):** Burundi, Kenya, Rwanda, Uganda, South Sudan, Tanzania
5. **SADC (SIRESS / SADC RTGS):** Angola, Botswana, DRC, Lesotho, Malawi, Mauritius, Tanzania, Zambia, Zimbabwe
6. **WAMZ (PAPSP - in partnership with Afreximbank):** The Gambia, Ghana, Guinea, Liberia, Nigeria, Sierra Leone


In addition to the above systems, Pan-African Payment and Settlement System (PAPSS) is a new system being implemented by Afreximbank to enable payments to occur instantly and in local currencies. Launched in July 2019, PAPSS stemmed from an effort to integrate retail payments but was expanded to high-value payments due to client demand (World Bank, 2019). It aims to facilitate intra-African cross-border payments and to boost intra-African trade under the African Continental Free Trade Agreement (AfCFTA). The PAPSS is expected to support the implementation of the AfCFTA by enabling African trade and commerce payments to be made in African currencies in furtherance of the goals of the AfCFTA. It is expected to create new and faster financial
flows and successfully facilitate trade and other economic activities among African countries. It will also minimize the financial cost of cross-border trade and improve financial integration as well as Africa’s trade and investment competitiveness.

**Box 1. Pan-African Payment and Settlement System**

The PAPSS is an international payment, clearing, and multilateral net settlement system, which provides instant payment for low-value, high-value, and time-critical payments for cross-border transactions. Its major features include:

- A centralised cross-border payment and settlement system (not overlapping with national payment systems);
- A common framework for transacting, clearing, and settling cross-border transactions;
- Payment is instant and in local currencies;
- Settlement is on a multilateral net basis and on agreed settlement currencies.

Operate 24x7 and messages are ISO 20022 standards.

The PAPSS architecture is described in Figure 7. Overall, the PAPSS covers a broad range of membership, from central banks to commercial banks, and non-bank PSPs who provide cross-border payment services to last-mile customers. These include Money Transfer Operators (MTOs), Mobile Money Operators (MMOs), other PSPs including FinTechs, and ancillary system operators such as securities settlement systems and clearing and settlement systems.

The PAPSS is currently being implemented in the West African Monetary Zone (WAMZ). This decision was driven by the fact that this economic community does not already have a settlement platform. The rolling out of PAPSS in WAMZ followed the implementation of the AfDB-funded WAMZ Payments System Development Project that aspired to deliver a modernised national payments system in Gambia, Guinea, Liberia, and Sierra Leone. The project has created the necessary payment system infrastructure to prepare for the next steps of member countries’ monetary integration progress (AACB, 2019). Recognising the importance of mobility, the software was designed from the outset to be available on mobile devices via an Application Protocol Interface (API) (BIS, 2020c), thus it also has the interest of the FinTech industry. PAPSS would facilitate the clearing and settlement of intra-African trade transactions in African currencies, and significantly reduce the dependence on US dollars and other hard currencies in the settlement of regional trade (Afreximbank, 2020c).
2.3. GENERAL CHALLENGES TO CONTINENTAL-WIDE E-PAYMENTS

Despite efforts to streamline e-payments for Digital Trade in Africa, barriers persist at global, regional, and national levels, mostly resulting from regulatory and infrastructure gaps. Making cross-border payments from Africa has been described as inherently difficult and as such a critical market barrier. Below illustrates the major general challenges to the continental-wide cross-border e-payment, while the next section will delve into challenges specific to the building pillars of the Blueprint.

At the global level, de-risking limits access to the global financial system and threatens the financial inclusion of the most vulnerable. Globally, regulations that impose strong prudential controls and stringent repercussions for exposure to potential money-laundering and terrorist financing have led to this phenomenon. Global banking partners terminate correspondent banking relationships with African financial service providers who are considered high risk. Alternatively, correspondent banking costs are significantly increased to cover additional compliance. Smaller banks and cross-border money transfer providers have been adversely impacted leading to increased transaction fees. Since 2013, most African regions have experienced a significant reduction of correspondent banking relationships, with the highest level of 47.25 percent in the Maghreb region (SWIFT, 2018).

At the regional level, cross-border payments to Africa cost more than to any other region in the world. According to Remittance Price Worldwide (RPW) Q4/2020, it costs an average of 6.5 percent to send USD 200 globally, 4.88 percent to South Asia, 6.58 percent to the Middle East and North Africa, and 8.19 percent to sub-Saharan Africa (World Bank, 2020d). Figure 8 shows the average cost (as a percentage of the sent amount) of sending USD 200 by region.
Figure 8. Average cost of sending USD 200 by region

<table>
<thead>
<tr>
<th>Region</th>
<th>Average Cost of Sending $200 (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>East Asia &amp; Pacific</td>
<td>6.86</td>
</tr>
<tr>
<td>Europe &amp; Central Asia</td>
<td>6.42</td>
</tr>
<tr>
<td>Latin America &amp; Caribbean</td>
<td>5.56</td>
</tr>
<tr>
<td>Middle East &amp; North Africa</td>
<td>6.58</td>
</tr>
<tr>
<td>South Asia</td>
<td>4.88</td>
</tr>
<tr>
<td>Sub-Saharan Africa</td>
<td>8.19</td>
</tr>
</tbody>
</table>

Source: World Bank (2020)

While costs vary from country to country, they are above the global level and the SDG 10.c recommended average of 3 percent. Various initiatives are ongoing to bring costs down but mostly focused on remittances and not trade. Apart from increasing compliance costs, cost drivers include exchange rate volatility, low tradability of some local currencies; requirements for pre-funding accounts, a bloated value chain including payment aggregators, taxation of local and cross-border e-payments and digital marketplaces, and dominance of top international MTOs using old pricing structures (WEF, 2018). Mobile money, as the instrument to fund the transaction and as the means to disburse, has been the least costly instrument consistently.

There is also a virtual versus reality verification phenomenon. Despite all the existing digital payment solutions, African marketplaces mostly accept payment on delivery; the majority of which is settled in cash. Other pay-on-delivery methods include mobile money, bank transfer, and card payments. This is mainly attributed to inter alia, poor payments infrastructure, low trust in e-commerce, and inconsistent quality standards compliance. Heavy reliance on payment-on-delivery presents challenges for cross-border digital trade.

African Regional Payments and Settlement Systems (RPSS) are not designed for low-value retail e-payments, and banks have an undue advantage. A horizon scan of the African RPSS (see section 2.2.2) shows systems have been designed for large-value payments with virtually exclusive access for banks. Except for SADC-RTGS, most RPSS categorise non-bank payments as low-value retail payments and in most countries, despite large transaction volumes and value, mobile money transactions are settled in commercial banks. Integration with digital cross-border retail channels would be a lower cost, faster, and more accessible proposition. To reform the National Payment System (NPS) in the respective countries/regions, a phased approach was intended that would first establish wholesale systems used for settlement and then follow with retail payments, however, the pace of incorporating retail payments has been quite slow.
Local currency convertibility remains an issue. The existence of parallel exchange rate markets among member states and the difficulties in promoting the acceptability of regional currencies to member states to enable seamless transfer of cash across the continent at both retail and wholesale levels is a challenge that should be addressed. There is a critical need to allow regional currencies to be freely convertible to enable transactions without having to convert national currencies into dollars to enhance regional trade and lower transaction costs.

At the national level, most countries focus more on cross-border inflows possibly due to their more direct national contribution to foreign reserves, Official Development Assistance (ODA), GDP, and socioeconomic benefits for beneficiaries. Similarly, market data insights provided by regulators were biased towards this view. The growing digital cross-border trade space necessitates a balanced focus.

Non-conducive regulatory frameworks create barriers for foreign entrants. Examples include the cap on equity requirements for foreign firms, as observed in Ghana, Ethiopia, Senegal, and soon Kenya; and tight restrictions on cross-border outflows in Ethiopia, Nigeria, Zimbabwe, and partly in Ghana. Although justified in some instances such as countries with forex shortfalls and currency controls, these onerous requirements limit the number of players who can offer cross-border money transfer services in these countries even when they have extensive global coverage and suitable market experience (WEF, 2018). For foreign entrants receiving approvals, set up and time-to-market can take years to complete.

Lack of policy and regulatory harmonization for cross-border e-payments is a persistent hurdle. Countries in the region have adopted varying regulations regarding licensing for cross-border e-payment providers. While most regulatory frameworks in East and Southern regions permit non-bank providers to conduct such transactions, their counterparts in the West and Northern regions have not.

For example, in Ghana, only selected commercial banks can facilitate outbound cross-border transfers. In the Central African Economic and Monetary Community (CEMAC) region, international transfers via electronic money are made through international prepaid cards. This is also the electronic money instrument most commonly used to get money out of the CEMAC. However, in June 2017, the Governor of the Bank of Central African States (BEAC), issued an instruction to MTN Cameroon and its banking partner Afriland First Bank to cease all cross-border money transfer operations outside of the CEMAC region. MTN Cameroon has launched International Money Transfer Services to 25 countries within Africa. The regulation is silent on the provision of cross-border transfers as well as microcredit, micro-savings, and crowdfunding. A stringent and risk-averse regulatory landscape, as well as unfavourable tax regimes, are amongst factors that limit the growth of private sector participation in Digital payments in Cameroon (World Bank, 2020a). There is also a need for Consumer Protection and Security to safeguard customers from fraud and related harmful practices and at the same time build trust in the DFS market (ITU, 2017).
Existing e-payment solutions are not fully supporting cross-border digital trade. Historically, formal cross-border trade flows were conducted exclusively by banks through trade finance solutions both at enterprise and individual levels. Remittance channels have also been used for lower-value transfers. Most e-payment services offer individuals accounts mainly designed for person-to-person, low-value remittance type transfers. Enterprise solutions are limited, such as cross-border bulk payments, B2C, C2B.

Embedding digital trade within social media is prevalent but presents risks in a low-trust business environment. Online traders typically set up shop on social media platforms through specially designed pages such as Facebook Marketplace, WhatsApp Business, or other online marketplaces (CIO, 2020). However, for these increasingly common types of e-commerce, payment and delivery systems are not integrated into the e-commerce platforms and have to be agreed upon between the buyer and the seller.

Settlement workarounds present increased costs and risks. In some cases, start-ups and more established businesses venturing into e-Commerce businesses use work-around solutions that are inefficient, expensive, and potentially risky, such as settling in private accounts overseas, using PayPal or crypto-currencies. These solutions have increased as the result of the COVID pandemic which reduced cross-border trade for some artisanal MSME e-merchants and made it too expensive for them to use such e-marketplaces as Esty, which they had used previously. Poor payments and logistical infrastructure, high payment gateway set-up costs, and prevalence of informal small e-commerce businesses are some of the main causal factors.
3. A FRAMEWORK FOR CROSS-BORDER E-PAYMENTS IN AFRICA

3.1. VISION

The Blueprint has been crafted out of the pre-developed concept note “e-Payments for the facilitation of digital trade across Africa” by the SAA. It is further guided by other strategic documents, among others, the Agenda 2063, the Agenda 2030, the Digital Transformation Strategy for Africa (2020-2030). It aims to serve as a guiding document to promote the sustainable development and use of e-Payments in Africa.

Figure 9. Word cloud of the keywords for the Vision

Source: SAA Working Group Survey Results

Smart Africa’s Concept Note on e-Payment emphasises that the Blueprint will ensure interoperable, future-proof, accessible, and inclusive e-Payment systems at the national, regional, and pan-African levels. More specifically, this Blueprint shall place e-Payments at the centre of increasing digital trade across the continent through working towards the goal of connecting financial service providers and customers in one inclusive network open to any financial services provider in Africa, including banks, MNOs, MTOs, FinTech firms, and other FSPs. This will enable money to circulate freely between digital wallets and accounts with financial institutions from any FSPs across the continent and increase financial inclusion in Africa. The Working Group has discussed at great length to identify an ambitious, yet simple and achievable goal for the African cross-border payment ecosystem as follows. Box 2. Blueprint Vision

Cross-border E-Payments Blueprint Vision 2025

An interoperable, safe, affordable, universally accessible, inclusive and responsible African cross-border e-payments ecosystem to increase trade across the continent.

- Smart Africa e-Payments Working Group, February – April 2021

The above vision statement presents the aspiration as identified by the SAS Working Group on how Africa’s cross-border e-payment landscape will be in five to ten years. This
vision will be further articulated by the principles capturing the key features of the future continental cross-border e-payments ecosystem. Following that, further analysis will be done for the identified building pillars (see Figure 10) gearing toward the realisation of the blueprint vision. Actionable recommendations on strategic interventions for the Roadmap and the monitoring framework will also be built around the agreed vision and principles.

**Principles of the Blueprint**

**Interoperable:** One ecosystem open to all financial services providers that allows cross-border payments to be executed seamlessly across diversified payment instruments and channels through the adoption of industry and global standards.

**Target:** Wide adoption of ISO 20022, Open banking & APIs

**Safe:** A secure and resilient system to safeguard availability, integrity, and confidentiality of payments across channels to engender customers’ trust by adopting state-of-the-art security technologies and enforcement data privacy.

**Target:** Data protection regulations are adopted with a privacy-by-design approach and are enforceable to protect users’ right to data and safeguard users’ data privacy while not inhibiting business growth. Data breaches and payment system outages due to cyberattacks remain low compared to international benchmarks.

**Affordable:** A system where cross-border payments are executed in a timely, cost-effective, and reliable manner that meets the payment needs of individuals and businesses. Currently, Sub-Sahara Africa’s average costs for sending money is 8.94 percent for cash and 6.44 percent for digital services (according to World Bank’s Remittance Prices Worldwide database).

**Target:** Bring down transaction cost to the level as identified in SDG Target 10.c. (By 2030, reduce to less than 3 percent the transaction costs of migrant remittances and eliminate remittance corridors with costs higher than 5 percent)

**Inclusive and Responsible:** End-users’ rights to fair use of services are ensured with a sound consumer protection regulatory framework and service providers proactively taking steps to protect their clients.

**Target:** Best practices on inclusive and responsible payment are adopted by all countries and payment service providers.

**Universally Accessible:** Streamline processes for end-users to obtain access to a transaction account to become financially included

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5 Including banks, Mobile Network Operators (MNOs), Money Transfer Operators (MTOs), FinTech firms, and other non-bank payment service providers
Target: Countries have adopted digital ID to better streamline processes for digital on-boarding of users, reducing the time to open a bank account and enable eKYC for compliance to AML and customers’ due diligence requirements.

**Creating the enabling environment to promote cross-border trade:** Through the adoption of the suggested blueprint reforms and support measures, promote intra-African trade.

Target: Countries increase intra-African trade from 15% in 2019 to 30% by 2024.

### 3.2. PILLARS OF THE BLUEPRINT

Building on the context of chapter 2 and the vision in section 3.1, this section takes a deeper dive into the current status of the continental digital payment ecosystem, challenges, and recommended solutions, across the three main pillars of the digital ecosystem for Africa, namely

- creating a conducive policy and regulatory framework;
- enabling payments infrastructure and encouraging the adoption of global standards for interoperability, and
- promoting business ecosystem and strategic partnerships.

These pillars are supported by horizontal measures aimed at building gender equity, digital and financial literacy, and financial inclusion. All these pillars are interconnected and mutually affect the influence of each other on cross-border e-payments. E-payments and electronic banking can only be adopted with increased access to the internet through robust digital infrastructure and the skills required to inclusively participate in the development of digital economies, especially in developing countries. The pillars are illustrated in Figure 10 below.

*Figure 10. Pillars of the E-Payments Blueprint for Africa*
3.2.1. **PILLAR 1: CREATING A CONDUCIVE POLICY AND REGULATORY FRAMEWORK**

This section charts a roadmap for the harmonized development and implementation of policy guidelines and provisions governing relevant issues, both current and burgeoning, in respect of developing a robust enabling e-payments framework. The recommendations proffered are practical and takes into consideration issues in respect of resource availability, cultural realities, and other contextual practicalities of the African continent. Considerations in respect of these issues aim to ensure that the recommendations put forth can be implemented in a manner that will facilitate and promote enforcement and uptake.

**Key Considerations for the Regulation of E-Payment Systems**

There is a need for a continent-wide regulatory framework for cross-border payment systems to move away from the fragmentation of national and regional legal systems, which creates confusion, legal uncertainty, and hampers integration and interoperability. Accordingly, Africa needs a modern and coherent legal and regulatory framework for payment services harmonised at the continental level, so as to remove cross-border barriers to payments, level the playing field, and ensure an integrated approach to cross-border payments.

Regulations for e-payments systems should be guided by at least three considerations, as highlighted in Figure 11.
Cost consideration is highlighted as an important factor in respect of regulating the e-payments system. This consideration supports reducing costs associated with disparate national laws which may be inconsistent or excessive in different jurisdictions. The efficiency of the regulatory framework in governing e-payments systems can be linked to the extent to which it enables the reduction of costs resulting from variations in national legal systems.

Figure 11. Guiding Considerations for the Regulation of E-Payments Systems

Non-discriminatory principle means that similar treatment is applied to institutions. This consideration promotes similar treatment between heavily regulated institutions such as banks and non-bank financial service providers that are not regulated. This facilitates the creation of an even playing field and establishes common industry standards for industry participants to comply with.

Borderless e-payments require a regulatory regime that enables cross-border transactions. This aims to ensure that cross-border transactions occur, with due consideration to the role of international standards in providing payments systems that are globally accessible. In this respect, a sound e-payments system is regarded as an enabler of trade and e-commerce.

A critical goal of African policymakers in catering for multiple stakeholders must be to eliminate legal ambiguities in the efficient operation of the e-payments system by creating regulations. Financial stability is of course the overarching consideration in the regulation of financial services such as e-Payments systems. Important aspects that these regulations should address may include:

- the scope of the “payments system”;
- licensing and light regulation of payment service providers which fall outside the scope of regulated financial institutions as they can add to innovation and competition to the scope of officially recognized payment service providers;
the rights, liabilities, and remedies of participants within the payment system for non-cash payment transactions (including intermediaries) and the applicable law in the cross-border context.

In addition, it is important to highlight that a robust enabling framework governing e-payments will, by extension, interplay, and co-govern issues in respect of trade, business, and commerce (see Figure 12).

**Figure 12. Elements of Framework governing e-payments, trade, business, and commerce**

![Diagram showing elements of framework governing e-payments, trade, business, and commerce]

This pillar focuses on two core and current cross-cutting issues, i.e., data governance (specifically data localisation), and licensing, given the importance of these issues in respect of enabling an e-payments framework that the absence of extensive discourse in these fields in relation to Africa. The overarching legal framework for e-commerce facilitated by the UNCITRAL texts is also provided. Issues such as cybersecurity have been the subject of discourse in Africa at continental and national levels\(^6\) and issues relating to financial consumer protection\(^7\) are also well documented, and therefore will not be discussed in detail in this Blueprint.

### 3.2.1.1. E-COMMERCE AND UNCITRAL TEXTS

At the multilateral level, efforts are being exerted to negotiate rules and advance the use of e-commerce as a development tool. Over 80 Member States of the World Trade Organization (WTO) are currently negotiating trade-related aspects of electronic commerce under the Joint Statement Initiative (JSI). It is hoped that a Joint Statement

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\(^6\) See for instance, CPMI-IOSCO PFMI or Guidance for the cyber resilience of FMIs, available at [https://www.bis.org/cpmi/publ/d146.pdf](https://www.bis.org/cpmi/publ/d146.pdf)

will be concluded and put forth at the 12th WTO ministerial conference. However, as
many developing countries are not participating in the JSI, the outcome of which will
undoubtedly impact the governance framework of e-commerce for the entire multilateral
trading system. The e-Trade Readiness assessments conducted by the United Nations
Conference on Trade and Development (UNCTAD) in 27 developing and least developed
countries highlighted several challenges and shortcomings in respect of strategic
focus, connectivity, skills, logistics, finance, and legal and regulatory environment. It is
recognised that there is a need for developing countries to better understanding the
benefits and implications in respect of e-commerce and the importance of an adequate
governing framework (Durant, 2021).

With respect to the regulatory framework for e-commerce, the United Nations
Commission on International Trade Law (UNCITRAL) represents the principal legal
institution within the United Nations system for the harmonization and modernisation
of international trade law. In implementing its mandate, several uniformed legal texts have
been issued to educate stakeholders and further guide the interpretation of these texts
consistently across various thematic trade-related areas, including that of e-commerce
(Castellani, 2015).

**Box 3. Principal legal texts developed for enabling and governing the digital economy**

<table>
<thead>
<tr>
<th>Principal legal texts developed for enabling and governing the digital economy include:</th>
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<tbody>
<tr>
<td>✗ UNCITRAL Model Law on Electronic Commerce, 1996, adopted in 76 States</td>
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<tr>
<td>✗ UNCITRAL Model Law on Electronic Signatures, 2001, adopted in 35 States</td>
</tr>
<tr>
<td>✗ United Nations Convention on the Use of Electronic Communications in International Contracts, 2005, with 15 States parties</td>
</tr>
<tr>
<td>✗ UNCITRAL Model Law on Electronic Transferable Records, 2017, adopted in 3 jurisdictions³</td>
</tr>
</tbody>
</table>

The UNCITRAL Model Law on Electronic Transferable Records (MLETR) is a key
development in digital trade, enabling the use of electronic transferable records. The
MLETR thus opens the door to a number of developments in trade financing, supply
chain and logistics management, and Financial Technology (FinTech). The MLETR
promotes legal recognition to the use of electronically transferable records (such as bills
of exchange, promissory notes, and warehouse receipts) that are functionally equivalent
to transferable documents by establishing a legal equivalence between control of an
electronic transferable record and possession of a transferable document or instrument.
It should also be noted that the G7 tech-leaders signed a joint declaration that includes
endorsement of a Framework for G7 Collaboration on Electronic Transferable Records.

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³ The UNCITRAL Model Law on Electronic Transferable Records, 2017 has been adopted by 2 States (Bahrain and Singapore) and 01 Freezone with Independent Jurisdiction (the Abu Dhabi Global Market)
3.2.1.2. DATA PROTECTION AND DATA LOCALISATION

The approaches utilized by nations globally in designing safeguards and enablers for data governance will have spill-over effects for the real economy. A core piece of African Union legislation on privacy and data protection was signed in 2014, known as the Malabo Convention (African Union, 2014). The facilitation of data sharing among market players can play an invaluable role in promoting competition and encouraging innovation. However, the rigidity of data safeguards and other regulatory measures governing cross-border data-enabled services can become overly restrictive (World Bank, 2021a). It is therefore important that there be a balance between regulating data use and ensuring that its actual use yields the benefits as intended.

Data Governance Policy

In the digital economy, data is a vital resource for its monetization potential and ability to contribute significantly to numerous processes and activities that drive commerce, public and private services, and other quotidian activities. There are however significant risks associated with the misuse and manipulation of data for nefarious purposes. It is, therefore, crucial to understand the key issues in respect of data usage. Furthermore, consumer protection standards are to be established and regularised to reduce potential harms arising from the use of data in an effort to protect individuals (Cheikosman, 2021). Consumer protection principles applicable in this regard are intended to achieve a fair, healthy, and sustainable digital economy (BEUC, 2021). Having a keen understanding of data policy and related issues, therefore, aids in minimizing possible adverse effects of data usage and further promotes efficient and responsible data practices.

Figure 13. Key issues in respect of Data Policy
Data policy issues undoubtedly influence and further guide how various sectors of the economy interact with technological advancements. Leveraging the full potential of data must be undertaken with due respect paid to the fact that there are responsibilities and rights that accompany the use of such data. When data policies are adequately aligned, the untapped potential of data can serve to resolve many of the socio-economic development challenges and assist economic growth.

There are however key data policy issues that must be addressed. Of notable concern is the isolated approach taken in addressing data policy and related management issues by the public and private sectors respectively. Such a siloed approach often results in misalignment of purposes and erosion of synergies. Stakeholder consultations with the private sector will facilitate the presentation and discussion of the main elements of any proposed policy or legislation, affords the stakeholders a platform to share concerns, issues, and proposed recommendations to strengthen the application, relevance, and scope of the policy or law. Key comments and recommendations proffered by public and private sector stakeholders during consultations help to strengthen the content and relevance of the proposals and better align the policy or legal and regulatory framework with international best practices.

The rights of individuals must be respected and balanced against the responsibilities related to data usage. Africa should therefore ensure that it develops responsible data governance practices in an effort to minimize the adverse effects of data usage and build a foundation for future generations, to yield broad-based benefits. Moreover, it is important to understand data needs and adequately scope data set parameters in pursuit of data quality, accuracy, and fitness for purposes. Devoid of this, one runs the risk of charting a path of misinformation and low utility of accurate data. In addition, one notes that given the sophistication of cybercriminal activity targeting the public and private sectors alike, there is a critical need for enhancing data security/cybersecurity in Africa.

It is also imperative to have data policy safeguards in the digital economy. Accordingly, it is recommended that transparent data architectural frameworks, designed to meet data needs are pursued and established. The use of a common API framework for data privacy and sharing of information for automating transaction payments can also be considered to ensure that money remains digital throughout the transaction cycle. Furthermore, an inclusive and people-centred approach to the management, storage, integration, and processing of data must also be undertaken to obtain an equilibrium of regulatory adequacy, creativity, innovation, effective utility, and functionality. These concepts interplay with some of the most relevant issues in respect of data policy and should be pursued and implemented by industry participants. These issues are presented in Figure 13.
Box 4. Data policy in Africa

Data policy is considered an important priority in enabling free movement of data consistent with member states’ interests in protecting privacy and ensuring security, according to the African Union. Cooperation on cybersecurity; protection of personal information of consumers and protection against fraud; and defining commonly agreed-upon principles and rules would also be important.

Within Africa, considerable progress has been made from 10 years ago, when only a handful of countries had any data protection legislation. Today, there are 34 countries having data protection laws, leaving 21 without ones. In many countries, the adoption of the EU GDPR has accelerated domestic legislation. The African Union Convention on Cyber Security and Personal Data Protection of 2014 (Malabo Convention) was a first step towards developing national legislative frameworks for cybersecurity and data protection. The Convention began to achieve traction with 14 signatures and 8 countries ratifying as of 2020. However, it needs 15 countries to ratify to take effect.

It should however be underscored that Article 15 of the AfCFTA Trade in Services Protocol does not specifically address issues with respect to data protection or privacy, given that the provisions therein are largely based on the General Exception of the GATS which determines that ‘commitments in trade in services shall not prevent signatories from adopting measures concerning data protection and privacy’.

Under the Protocol on Trade in Services (Article 15 (c) (ii)), protection of privacy of individuals in relation to the processing and dissemination of personal data and the protection of confidentiality of individual records and accounts, is an exception to the restraint on trade. That said, a common and harmonising framework for data protection among countries can help build online consumer trust and facilitate B2C e-commerce.

No specific proposals relating to data localisation have been tabled. However, suggestions have been made by some experts that data localisation policies that allow policy space to require that data pertaining to critical information such as finance should be stored and processed locally. Then sector-specific data could be exchanged with licensed entities that offer the same or adequate protection and privacy of data for market access.

In order to retain policy space on data localisation, there would be the need to put in place accompanying measures to lower the cost of data storage investments, e.g. subsidies on electricity rates; improve infrastructure e.g. internet connectivity, installation of reliable power supply, strengthen data security e.g. strict cybersecurity laws.

Source: Information provided by the staff of African Union to E-Payments Working Group in April 2021.

The AfCFTA however can be leveraged as a tool for improving cybercrime, data protection, and consumer protection regimes. These can be particularly addressed through the AfCFTA Digital Trade protocol and can feature issues in respect of promoting cooperation and information sharing mechanisms, as well as the establishment of minimum standards or certain principles.
African countries should therefore develop the requisite legal and regulatory framework with a balanced approach. This approach must also be undertaken in a harmonized manner at the continental level. It is also imperative to examine issues arising from GDPR-styled acts to avoid problems and pitfalls. Key lessons to be learnt and considerations to be borne in mind are presented in Figure 14.

**Figure 14. Lessons learned in examining issues arising from GDPR-styled Acts**

- **Addressing Issues in respect of transfers out of countries**
  - Countries not making "adequacy" decisions, should do so through Standard Contractual Clauses or some other mechanism (less intrusive), as in Australia

- **Powers and Robustness of the Regulator**
  - the DPAs in Europe (e.g., CNIL in France and in the German states) and the ICO in the UK are very well-resourced

- **Imposition of Harsh penalties for Non-Compliance**
  - The imposition of such penalties for small businesses or those trying to comply may become counterproductive

- **Consider Exceptions for Smaller Businesses**
  - Case analyses are to be undertaken as different standards can be applied to smaller business.

Source: Authors’ compilation from working group inputs

**Data localisation**

Data localisation is the practice of storing data on a device physically present within the borders of the jurisdiction where the data is generated. Data localisation requirements serve multiple governance and monitoring purposes, such as:

- Enhanced **data privacy** and sovereignty from foreign surveillance
- Greater **efficiency** in the data monitoring, owing to less fettered local supervisory access of data and reduced dependency in infrastructure located outside of Africa
- Increased **regulatory control** as national governments and regulators can more effectively enforce laws within their jurisdictions and greater **accountability** in respect of end-use of data
- Greater affordability as content and services hosted locally are cheaper to download

It is also important to note that while some data localization practices restrict the transfer of outside of one’s jurisdiction, there can be legislative provisions implemented requiring that that a copy of the data transferred abroad is available locally, for investigation purposes and other reasons as statutorily required. This is relevant in situations particularly involving e-payment solutions and assist in the regulation of fraud, money laundering and other electronic crimes.
Notwithstanding the highlighted advantages, serious costs and trade-offs need to be considered in respect of data localisation. Several policy debates surrounding data localisation note that this practice threatens to undermine many of the efficiencies and economic opportunities of the digital economy (IIF, 2020). Proponents of this side of the debate proffer that other mechanisms can be employed which may yield the same benefits of data localisation, notably in respect of enhanced privacy, security, and digital opportunity.

The International Institute of Finance (IIF) notes that data localisation has several shortcomings which may undermine the value of data by inhibiting the free flow across companies, sectors, and national borders. The major shortcomings, challenges, and disadvantages of data localisation are noted in Box 5 and discussed in Annex 3.

**Box 5. Economy-wide costs of Data localisation**

<table>
<thead>
<tr>
<th>Data Localisation has economy-wide costs, namely:</th>
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</thead>
<tbody>
<tr>
<td>Reduced connections to digital trade, negative impact on economic growth and development, and constrained ease of doing business.</td>
</tr>
<tr>
<td>Weakened fraud prevention, cyber security defence, and potential new AML solutions.</td>
</tr>
<tr>
<td>Slowed scientific discovery, health diagnostics, and telemedicine.</td>
</tr>
<tr>
<td>Reduced access to the best and newest cloud-based software, technology, and future cloud-first technologies such as quantum computing.</td>
</tr>
<tr>
<td>Undermined cost-effectiveness of cloud-based computing.</td>
</tr>
<tr>
<td>Blocked innovation and competition through curtailed access to the public cloud, a key enabler to the development of FinTech and other innovative start-ups by providing low entry costs, scalable platforms, and embedded services.</td>
</tr>
<tr>
<td>Derailed fast payments, low-cost remittances, and other services individuals, households, and small businesses need to function in the digital economy.</td>
</tr>
<tr>
<td>Weakened resilience of the financial system. The ability to have seamless failover redundancy systems and storage outside geographical borders could be essential in the case of a natural disaster, war, or other catastrophic events.</td>
</tr>
<tr>
<td>Added hard costs of redundant local data infrastructure.</td>
</tr>
</tbody>
</table>

*Source: IIF (2020)*

As data is required and transferred at every step of a transaction in cross-border e-payment services, data localisation regulations form a significant legal barrier to both market entry and operations for e-payment service providers. Cross-border data flows are required in e-payments not just in transnational transactions but also often in purely domestic transactions.

In many instances, data localisation has created a barrier to the use of cloud computing services to store data and process transactions. This negatively affects not only foreign
firms but also local firms, especially start-ups and governments and, ultimately, the consumers. Moreover, data localisation is a barrier to the use of integrated, secure, and efficient payment systems worldwide, creates barriers to competition, increases costs to all. This has negative implications not only for innovation, but also for security and fraud prevention.

A number of countries in Africa have enacted data protection laws and made data localisation an integral part of their data policy, like Rwanda and Uganda. As more countries look to amend or enact more GDPR style legislation, there is an increasing possibility of the proliferation of data localisation laws. It is imperative that efforts are exerted to strengthen the pan-African harmonization and enforcement regimes in respect of data protection, while balancing the need to facilitate the free flow of information with relevant controls implemented. In an effort to harmonize the enforcement framework, supervisory authorities are to implement collaborative and cooperative measures both intra-Africa and externally. These authorities must however be adequately resourced to implement these measures and must engage in open information sharing practices. It would also be prudent to co-opt partnership with key institutional arrangements and organisations such as the Roundtable of African Data Protection Authorities (RADPA) will be crucial to this end.

It must be underscored that several initiatives have been implemented to further promote and achieve harmonization in data protection laws across Africa. Some of these include:

- 2008 East African Community Framework for Cyberlaws
- 2010 Supplementary Act on Personal Data Protection of the Economic Community of West African States
- 2013 Southern African Development Community model law harmonizing policies for the ICT Market in sub-Saharan Africa. In 2014

Recommendations

Having analysed the shortcomings and challenges in respect of data localisation, alternative approaches to promote the safety, security, and equal access to data while securing a necessary level of protection could be considered as provided below:

i. The adoption of legal and economic frameworks to enable trusted and permissioned cross-border data flows has been offered as a solution to be considered. Mandatory localisation requirements however can be reserved for exceptional circumstances and can be limited to specific types of data.

ii. New technologies in digital identity, digital authorisation, and data tracing should be placed in the toolbox for liberalising a modern data governance regime. The EU’s General Data Protection Regulation (GDPR), the Council of Europe’s Conven-
iii. In the absence of global frameworks, countries can address issues related to digital trade, data flow, data protection and privacy, standards for digital identity via bilateral or regional trade agreements. The Digital Economy Partnership Agreement is a flagship model framework addressing a comprehensive set of issues, including data localisation and the transfer of data across borders for, among others, the financial sector in the new digital economy. Other possible reference models for data governance across sectors and jurisdictions are provided in the United States-Mexico-Canada Agreement (USMCA) and US-Japan Digital Trade Agreement. With the upcoming AfCFTA negotiations on service trade commitments and e-commerce, these provisions in data governance and cross-border data transfer will be more relevant than ever in creating the cross-border interoperability of data protection standards at the continental level. Preceding initiatives on digital identities, such as the Digital Identity Blueprint by SAA, which spells out an agreed approach to actualizing digital identity, should also be integrated with driving e-payments efforts.

iv. Observance should be made, and lessons be withdrawn from the plurilateral efforts and good practices to promote international standards for data governance rule-making. Among the well-established initiatives are the Osaka Track, the APEC Cross-Border Privacy Rules (CBPR) System, and the Association of Southeast Asian Nations (ASEAN) Data Management Framework (DMF) and Model Contractual Clauses (MCCs) for Cross Border Data Flows. The Osaka Track outlines the architecture for data governance that provides principles to inform global standards. The APEC Cross-Border Privacy Rules (CBPR) System is a government-backed data privacy certification that companies can join to demonstrate compliance with internationally recognized data privacy protections (APEC, 2019). The ASEAN DMF is designed to provide practical guidance for all private sector businesses in the implementation of a data management system based on good management practices and fundamental principles, using a risk-based methodology. The MCCs are standard contractual terms and conditions that are recommended in agreements relating to the cross-border transfer of personal data between businesses in the region, and which are meant to encapsulate key data protection obligations and reduce negotiation and compliance costs (Kennedy & Lee, 2021). While all of these initiatives are far from achieving their full scope and impact, they provide great starting points and good practices in building up regional and international data governance standards towards an open digital economy. Recommendations in this area are to feed into and align to the activities related to data protection that have been defined by SAA under the Data Protection Working Group.

3.2.1.3. REGULATORY HARMONISATION AROUND LICENSING

Notable barriers against regional harmonization of the legal and regulatory environment for e-payments are insufficient national legal and oversight systems, as well as different financial market structures and varied rules and technical standards within African countries. These barriers inhibit the provision of a common framework
for transacting, clearing, and settling cross-border transactions. They particularly affect SMEs from efficiently trading across the continent.

**Financial integration across Africa has not been cohesive.** Robust and secure financial market infrastructures are present in some regions of Africa, leading to greater cross-border trade (see Box 6). Central Banks and regulators of the banking and finance sector are assisting in the growth of payment systems, for example in Ethiopia, where its National Bank has indicated that it will grant two licences for new entrants to offer mobile money services; and the Central Bank of Nigeria that has been advocating a cashless agenda (Mavadiya, 2020). African countries have buzzing mobile money networks, with thirty-five markets having more than one active service provider. Despite this, only seven of these countries have progressive and widespread domestic integration programmes (via a blend of directives by regulators and measures by independent industry). Uneven domestic financial integration measures can lead to systemic challenges for the emergence of a harmonized cross-border regulatory infrastructure.

**Box 6. Benefits of a regional harmonized regulatory system**

The benefits of a regional harmonized regulatory system include:

- Creating orderly and reliable markets that provide certainty to market participants and advance economies of scale, leading to lower operating costs. Both incumbents and entrepreneurs will be able to operate in the market based on clear rules.
- Harmonised laws and standards afford consumers and other market participants mechanisms for redress, thereby minimizing risks created by a non-harmonised system. Customer satisfaction will be enhanced due to increased product offerings and clearer avenues for dispute resolution.
- System security is enhanced by reducing risks to third parties and the wider economy by limiting the spread of risks through harmonized standards.

**Licensing Regulations for FinTech**

**There is a regulatory lag in licensing, as laws have not kept up-to-date with the sophistication of financial products and services, as well as financial innovation in general.** Digital financial technologies are increasingly forming the backbone of financial infrastructures. In order to fully realize the benefits of a modern financial system, financial policy must be anchored on three key pillars:

- recognizing the impact of FinTech on financial inclusion;
- updating financial regulatory frameworks
- fostering the adoption of technology (Gorfine, 2021).

Different FinTech innovations have enjoyed varying levels of success throughout Africa. For example, in Sub-Saharan Africa, mobile money has “played an important role in reducing the number of unbanked people in Kenya and Tanzania”, while crowdfunding is
used to finance projects that fall outside of the normal banking system (Didenko, 2017). In Nigeria, the most widely used FinTech products and services are payment solutions, online lending, personal saving solutions, mobile money and fund transfers, and online betting. Other areas of interest have been crowdfunding, blockchain, cryptocurrency, and digital banking (Senbore, Arome, & Obuka, 2019). In South Africa, most FinTech start-ups offer payments and money transfer services, with the others approximately involved in trading, investment and crowdfunding, blockchain and Bitcoin, and lending, financing, and retail banking services.

**The current regulatory framework for the FinTech industry across Africa can be described as ad hoc and unfit for purpose.** For example, Nigeria's FinTech regulation is reflected as "not adequately cover legal issues that may arise from FinTech products, such as crowdfunding, blockchain technology, cryptocurrencies, and robo-advisers" (Senbore, Arome, & Obuka, 2019). Meanwhile, South African financial services legislation is described as "wide enough to apply to most FinTech products and services providers [...] For example, a cryptocurrency lending platform will not trigger any registration requirements under the National Credit Act" (Geral, et al., 2019).

The legal challenges arise from the different paces at which regulation and FinTech innovation evolve, as well as the broad range of FinTech products and services with different technological sophistication. As noted in a round-table discussion on licensing regulation, FinTech innovation is not confined to a particular jurisdiction, causing different business models and delivery service methods to fall outside of existing regulatory mechanisms. The existing legal and regulatory systems in most countries were primarily designed for traditional financial service providers and products before FinTech solutions gained popularity in Africa. Principal instruments include the Banking Act, Financial Institutions Act, Securities Act, and Payment System Act. It should be noted that while National Payment System Acts have been modernized in many countries, the holistic suite of laws affecting the payment system, has not been retooled in most countries. New forms of payment services have to adopt cumbersome workarounds while waiting for their tailor-made regulations in some countries.

For example, without regulations on payment services that allow PSPs to issue e-money, for years mobile money transactions were primarily carried out by telecommunications companies, which entered into technical agreements with licensed banks who had the authority to issue e-money. There has however been a notable change as now many countries and monetary unions in Africa have a legal framework for e-money issuance.

Additionally, telecommunications operators entered into agreements with mobile money agents who operate as distributors or sub-distributors. These mobile money agents were provided with a bank account connected to the telecommunication operator’s third party or escrow account established by a licensed bank. The mobile money agent was required to place a minimal amount into the escrow account. The identical figure was moved to the agent’s phone as e-money. It was this money that the agent used to

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transfer to other mobile money users as required or was exchanged for physical cash (Djengue & Mbanda, 2019). It should however be noted that some Central Banks forbid escrow FinTechs from operating cross-border, thus creating a barrier for operators.

Licensing requirements for traditional financial service providers prescribe, inter alia, the type of institution that should be regulated, minimal capital requirements, and infrastructural requirements with which it must adhere. Existing laws for FinTech products such as crowdfunding, blockchain technology, cryptocurrencies, and robo-advisers are inadequate to address the legal issues arising from their use.

**There are a number of approaches to licensing models for digitally-enabled cross-border payments services.** The most restrictive approach is to licence banks only and not FinTech institutions that wish to provide cross-border remittances. A more facilitative approach is to license a non-bank FinTech institution to collaborate with a local bank by serving as the distribution channel to the bank which provides the primary cross-border remittance services. The most expansive authorization approach is to license non-bank digital financial services providers directly, using their current business operating licence or a specific money remitter licence (Djengue & Mbanda, 2019).

Efforts to respond to and regulate the complexity of the FinTech landscape have led to the fragmentation of legal and regulatory frameworks. Some of the most prominent trends are observed as follows:

1. **Prohibiting FinTech products and services or leaving them unregulated.** Attitudes are mixed towards the approach to be adopted for certain FinTech products and services (LOC, 2018). Some jurisdictions explicitly ban cryptocurrencies, while some view them as intangible assets that are exempt from taxation. Others have been more ambiguous by stating that they are neither legal tender nor illegal assets. In South Africa, Central Bank Digital Currencies (CBDC) are prominently featured in global discussions in an effort to promote financial inclusion, strengthen monetary policy and enhance financial stability (Tempest & Chivunga, 2021). The South African Reserve Bank (SARB) in 2014 issued a Position Paper on Virtual Currencies in which it indicated that virtual currencies are not legal tender in South Africa and should not be used as payment in meeting obligations that may give the inference that they are a suitable substitute of legal tender (SARB, 2014). Despite this position, SARB does not prohibit or regulate cryptocurrencies. However, international standards, as recommended by the Financial Action Task Force (FATF), would require that virtual assets be regulated for mitigating AML/CFT risks.10

2. **Using regulatory sandboxes for FinTech companies.** A regulatory sandbox is defined as a controlled, time-bound, live testing environment, which may feature regulatory waivers at regulators’ discretion (World Bank, 2020b). It allows a special operational framework with certain limits or parameters for FinTech entities that fall outside the existing formal business categories. Companies within a sandbox may enjoy several benefits, including bespoke licensing processes, waivers of regulatory requirements and not being subject to enforcement proceedings. The re-

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10 The amendment to FATF Recommendation 15 (on New Technologies) requires jurisdictions to regulate crypto assets and crypto asset service providers (CASP) by a system of licensing or registration.
Regulators may require the sandboxed entity to submit information about its operation and products to facilitate the crafting of the most appropriate regulatory action to take with which such entities must comply. An effective partnership between regulators and market participants should lead to a correct balance between facilitating FinTech services and products and mitigating risks. In designing regulatory sandboxes, it is critical to ensure that the criteria for eligibility be transparent and devoid of arbitrary conduct. It obviates the need for an urgent need to update existing regulatory systems. In Nigeria, the CBN and the Nigerian Interbank Settlement System (NIBSS) have announced their intention to establish a joint regulatory sandbox and will oversee the Financial Service Innovators Association of Nigeria (FSI) which was formed to promote the implementation of a regulatory sandbox (Komolafe, 2018). In Kenya, the Capital Markets Authority (CMA) launched a regulatory sandbox in March 2019, targeting FinTechs and technology innovators. South Africa has also shown interest in setting up regulatory sandboxes in the future (Didenko, 2017). In February 2021, the Bank of Ghana announced the launch of a new regulatory and innovation sandbox to provide a controlled testing environment for new financial products and services in partnership with US-based technology firm Emtech (Central Banking, 2021).

iii. Creating a framework for authorizations that is specifically designed to accommodate the operation of FinTech companies. The most potent of these are FinTech-specific laws and rules that are promulgated as independent legal and regulatory instruments, or amend existing instruments. New legal and regulatory initiatives have been implemented by some African countries and could serve as a good starting point for replication across Africa. For example, The Central Bank of Nigeria (CBN) issued the *International Money Transfer Services Guidelines in 2014* to address licensing of indigenous and international money transfer service operators in Nigeria; and the Guidelines for the *Licensing and Regulation of Payment Service Banks* in 2018. The South African Reserve Bank (SARB) set out its regulatory approach to mobile money in its *Position Paper on Electronic Money NPS 01/2009*. It examines the existing rules, differentiating between activities that can be provided by non-banks as payment services, as well as those that are deposit-taking institutions as regulated by the Banking Act and required a licence (Didenko, 2017).

Within the Central African Economic and Monetary Community (CEMAC), *Regulation No 04/18/CEMAC/UMAC/COBAC (2018 CEMAC Regulation)* on payment services was adopted by the Ministerial Committee of the Central African Monetary Union (UMAC) on 21 December 2018. It came into force on 1 January 2019 and introduced several innovations. The major changes introduced include the recognition of the non-banking model, by which e-money issuance is expanded from the current scope of credit or microfinance institutions to also include non-banking institutions or payment institutions.¹¹ It is noted that this exists in UEMOA since even earlier 2015.

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¹¹ Article 7 of the 2018 CEMAC Regulation defines Payment Institution as a non-banking institution that provide exclusively payment and related services. They cannot make available or manage foreign exchange payment instruments, in particular cheques, promissory notes, bills of exchange and documentary credits. Payment services include several activities that relate to providing or managing instruments that allow a person to transfer funds, notwithstanding the medium or technical process used, including the issuing and management of e-money.
In addition to traditional market participants, the new participants are approved or authorised payment institutions and distributors and sub-distributors of payment services. Authority is put under the purview of the National Monetary Authority of the CEMAC Member State in which the company is incorporated subject to the approval of the Banking Commission of Central Africa (COBAC). Under this Regulation, FinTech companies are no longer required to partner with banks and other financial institutions to issue e-money. However, Article 9, COBAC Regulation R-2019/01 on the authorisation and change in the situation of payment services providers requires that companies providing payment services through a mobile phone technical platform also needs authorization for the use of the specific technology (Djengue & Mbanda, 2019).

A FinTech licensing regime that addresses the various types of services can be designed. For example, Nigeria has created several licences, including payment licences that depend on the actual services provided, including payment service banks (PSBs), payment solution service providers (PSSPs) and payment terminal service providers (PTSPs); online lending licences; personal savings solution licences which are issued to microfinance banks; mobile money licences issued to mobile money operators; money transfer licences issued to money transfer services operators; online betting licences. Neither crowdfunding licences nor cryptocurrency licences are available (Senbore, Arome, & Obuka, 2019). The Central Bank of Nigeria has also issued various regulations and guidelines relating to payment services, including Guidelines on Operations of Electronic Payment Channels 2016, Guidelines on Transaction Switching 2016, Guidelines on Mobile Money Services, Guidelines on International Mobile Money Remittance, Circular on the Implementation of Interchange Fee dated November 1, 2016, and Regulation for Bill Payments 2018. On the other hand, in South Africa, no licences are directly applicable to FinTech businesses. They can only be issued with a licence if the FinTech products or services are similar to the regulated financial products and services, such as the insurance, financial services, and credit lending industries (Geral, et al., 2019).

Recommendations

**General legal framework.** In general, a recommended FinTech licensing regime should facilitate various business models and should address the following:

- A maximum limit for public deposits;
- Use of deposits limited only to deposit business (no interest margin business);
- Minimum capital that is less than that of a banking licence;
- Capital and liquidity requirements – none;
- Supervision and monitoring – reduced requirements on auditors and reduced audit frequency by request;
- Accounting;
- Deposit guarantee – none;
- Organisational requirements – substantial relaxation of requirements are possible.\(^\text{12}\)

\(^{12}\) Based on the Swiss fintech licence model. See more at (PwC, 2020).
License passporting. Access to all of Africa’s financial markets by international or national financial service providers will entail working through numerous regulatory and legal conditions. This might cause administrative and financial burdens for businesses. A recommended response to this situation is “passporting of licences”. License passporting for e-payments or FinTech services can be described as a licence or authorization given to an e-payments or FinTech company that would allow it to provide services beyond the jurisdiction from which it is authorized to operate in any part of the African continent that is a part of the regional harmonization of the e-payments framework. Benefits of this single authorization include a significant reduction in regulatory and bureaucratic impediments to operations and expansion of FinTech services. The Smart Africa Digital Identity Blueprint recommends the creation of a Smart Africa Trust Alliance (SATA), “a governance structure and technical framework based on aligned decision-making processes and the mutual recognition of respective ID systems, based on common standards and rules”. The suggested framework of SATA may be considered for this purpose. Additionally, it would also be useful to consider the inclusion of provisions governing license passporting; under the scope of AfCFTA financial services negotiations.

As a good example, the European Union (EU) endorses a single authorization to be issued by competent authorities of the home Member State under which the authorised entity is licensed for operating banks and financial services in the entire EU Single Market, either by establishing branches or providing cross-border services (Antoniou & McCollum, 2018). In the United States, state regulators have established cooperative mechanisms among themselves to ensure easy flow of remittances across State borders. More specifically, the Department of Financial Services (DFS) allows money transmitters to use the Nationwide Multistate Licensing System and Registry (NMLS) to oversee applications for licences and ongoing regulation. DFS also uses the NMLS Uniform Authorized Agent Reporting (UAAR) functionality to facilitate agent reporting requirements (DFS, n.d.). Though the NMLS itself does not grant or deny licenses, the mechanism has provided for improved coordination and information sharing among regulators, increased efficiencies for industry, and enhanced consumer protection (NMLS, 2021).

Some of the key points that should be considered in allowing for the passporting of licenses include:

i. Regulatory cooperation between competent authorities, including effective arrangements for home/host supervisory cooperation through Memorandum of Understanding (MOU) between home and host supervisory authorities; consolidated supervision of all activities across multiple jurisdictions; cross-border frameworks for crisis management; trusted exchange of relevant information on a bilateral or multilateral basis between home and host countries. It is critical for there to exist collaboration between host and home regulators during the authorisation and supervision phases.

ii. Collaborating with competent authorities of the home and host countries by adhering to technical standards and protocols for the exchange of information by entities operating through branches.
iii. Harmonisation of documents and procedures used. There should be common templates for the type of passporting notifications that must be provided between competent authorities of home and host countries, the standard forms to be used, and the purposes for these notifications.

iv. Regional guidelines should be developed to provide, inter alia, for the following:

v. standard notification form for cross-border services

vi. standard notification form for branch establishment;

vii. the list of Competent Authorities for notification of cross-border services and branch establishment;

viii. the list of competent bodies for receipt of complaints and out-of-court settlements of complaints.

Restrictions on Outflows and Entities Permitted to Carry Out Cross-Border Transactions

Legal and regulatory challenges exist that restrict an expansive provision of digital cross-border remittances across the African States. They arise from varying legal and regulatory requirements in these territories. Some of the primary differences are noted to include:

i. Licensing restrictions on the type of entities authorized to provide digital cross-border remittance. Examples of regulatory restrictions in the South African Development Community include regulations and practices imposed by the Bank of Tanzania which require that MTOs must operate in collaboration with a bank or other licensed financial institution under agency agreements, and in the locations of a financial institution. This restriction has constrained new MTOs from expanding to other locations, limiting market entrants, as the locations for operations are finite. In Madagascar, the Foreign Exchange Code requires only authorized financial intermediaries to facilitate cross-border remittances between residents and non-residents of Madagascar, restricting MTO services to only those premises. Similar restrictions exist in Mozambique where only banks can provide cross-border remittance services on their own accord or in collaboration MTOs. However, MTOs are allowed to provide inflow remittance services as agents of the banks. Namibia also permits MTOs to only provide their services in collaboration with Authorised Dealers of foreign exchange (such as banks) or Authorised Dealers with Limited Authority (ADLA’s) (such as a bureau of exchange) (World Bank, 2018d). Measures such as these present barriers for low-cost remittance service providers (RSPs).

ii. Onerous KYC/AML requirements. While some countries have simplified KYC requirements, others have strict documentation requirements include formal identification, proof of residential address, proof of a valid work or residence permit, and in some cases, proof of source of funds. The Immigration Act of 2002 South Africa obliges financial institutions, including RSPs, to verify the nationality or immigration status of foreign nationals before they can initiate commercial transactions. Although the Financial Intelligence Centre (FICA) Act exempts low-value remittances, SADC’s undocumented migrants still face challenges in meeting these requirements due to the varied interpretations given by banks to these le-
gal provisions. Some SADC countries have put in place tiered KYC requirements or exemptions from some AML conditions, especially for small-value remittance services. Examples include tiered KYC guidelines by the Bank of Zambia that allow individuals carrying out domestic or international money transfers not exceeding K10,000 (equivalent to USD 1,000) to provide only formal identification, and transfers exceeding K10,000 and up to K20,000, complete KYC processes. Some banks and payment service providers in Zimbabwe offer remittance services via simplified KYC transactional accounts and cards which permit stored value functionality and low-cost remittances (World Bank, 2018d). As cross-border payment flows increase both in volume and complexity, governing institutions have raised the bar on regulatory compliance. In turn, cross-border payment providers in Africa cite onerous and costly compliance requirements as well as hefty fines and penalties for non-compliance that is deemed not to match the level of risk exposure. In the absence of a risk-based approach, AML/CFT checks are conducted on all transactions and depending on value, multiple times and using different sanctions lists as they move along various parts of the payment chain. This complexity increases with the number of intermediaries in the payment chain, and for transactions originating or terminating in high-risk corridors. Other requirements may include mandatory placement of a trained compliance officer, data protection, customer awareness, and rigorous reporting.

iii. Exchange control authorizations or reporting and limits on transaction amounts. Several SADC countries have placed in their laws controls on foreign exchange remittances, particularly restrictions on foreign exchange outflows. The reporting obligations with which MTOs must conform are usually heavy and unbalanced compared to the average value of remittances sent and received. Lesotho’s Exchange Control Act and Regulations impose restrictions on the free flow of funds within the Common Monetary Area (CMA) in Southern Africa, and permits a single discretionary allowance of R1 million per adult and R200,000 per child per calendar year for purposes of travel, study allowance, gifts, donations, and maintenance. There are no limits on inflows from non-CMA countries. For Malawi, the Exchange Control Act and Regulations have no limit on inflows, but a limit of USD 1,000 per transaction is placed on outflows. For Namibia, the Currencies and Exchanges Act and Regulations allow free flow of funds within the CMA; no limit is imposed on inflows from non-CMA countries; and a single discretionary allowance of R1 million per adult and R200,000 per child per calendar year for purposes of travel, study allowance, gifts, donations, and maintenance is allowed. For South Africa, its Exchange Control Regulations allow free flow of funds within the CMA; no limit on inflows exist from non-CMA countries; and a single discretionary allowance of R1 million per adult and R200,000 per child per calendar year for purposes of travel, study allowance, gifts, donations, and maintenance is allowed (World Bank, 2018d).

Three categories of operational regulatory approaches toward cross-border remittances can be identified: (i) receipt (only) of funds from an entity based in a foreign jurisdiction (incoming); (ii) sending (only) of funds from or to an entity in a foreign jurisdiction; and (iii) receiving and sending funds from entities in different jurisdictions (hybrid) (AFI, 2018).
Africa has been contending with the issue of Illicit Financial Flows (IFFs) for some time. UNCTAD report estimated that USD 88.6 billion leaves Africa as IFFs; this represents almost 4 percent of Africa’s Gross Domestic Product (GDP) (UNCTAD, 2020a). In response and in an effort to curb this practice and reduce lost revenues, UNCTAD and the UN Office for Drugs and Crime (UNODC) developed a template in March 2021 to assist governments in better monitoring IFFs designing effective policy responses (UNODC, 2021).

More countries worldwide have allowed inbound remittances to non-bank digital service providers, while restricting outbound remittances. In a survey done by the Alliance for Financial Inclusion (AFI), three out of the fifteen participating countries indicated that they have regulations, guidelines, or policies for digitally-enabled cross-border remittances by non-banks services, with Rwanda and Tanzania allowing a two-way flow of remittances under an e-money or similar license, and Afghanistan permitting inward remittances flow only.

The inclusion of non-traditional providers is critical in transforming the current restrictive legal and regulatory framework. Digital technologies have brought change to the way digital remittances are transmitted across borders, expanding beyond traditional banks. Business models that facilitate cross-border remittances have, over time, transformed from mobile money-based cross-border remittances to online, peer-to-peer, and bitcoin/blockchain (AFI, 2018).

Box 7. Non-traditional entities providing cross-border digital remittances in Africa

Several non-traditional entities provide cross-border digital remittance transactions. For example, Orange Money initiated services between Cote d’Ivoire, Mali, and Senegal in 2013. The Be Mobile bank, using hybrid financial infrastructure to offer its services specifically to the African market, is broadening the scope of financial flows by enabling access to digital assets. Its payment networks in Africa serve 30 markets, support 22 fiat currencies, and now allow its clients to use stablecoins on the Ethereum blockchain. Stablecoins are denominated in USD or EUR to minimize possible losses, thereby facilitating greater ease in conducting transactions and present a buffer against unpredictable African currencies. Be Mobile customers are able to exchange stablecoins among themselves in real-time and accept stablecoins as payments. Be Mobile also offers foreign exchange for substantially lower costs than traditional participants (30 percent). Its low-cost remittance services are facilitated by the blockchain technology it uses. Seven out of the fifteen AFI countries surveyed indicated that they have peer-to-peer international transfer services, such as Transferwise and CurrencyFair. Jurisdictions like Rwanda, Jordan, Tanzania, and El Salvador indicated that they have online/internet-based transfer services (Worldremit, Xoom, etc.). Cryptocurrency-based services (primarily bitcoin) and blockchain-based services are also increasing their popularity in jurisdictions such as Rwanda (AFI, 2018).

13 See Article 27, National Bank of Rwanda’s Regulations Governing Electronic Money Issuers
Recommendations

In accordance with the General Principles for International Remittances Services (GP3), remittance services should be based on a sound, predictable, non-discriminatory, and proportionate legal and regulatory framework. Advances in technology should therefore be factored into respecting the “non-discriminatory” aspect of how these digital services are provided. The following initiatives are recommended at the national and regional levels to enhance remittance markets:

1. Concerning licensing obligations, **digital providers of remittance services should be authorized to operate without having an agency agreement with the banks or other licensed financial institutions**, with suitable conditions and capacity requirements. The regulatory framework for remittance services should be crafted in a balanced manner, providing equality between all types of remittance service providers.

2. **Balance of Payments reporting requirements applicable to remittance transactions must be in proportion to the value of remittances transacted.** Examples include limiting the regularity of reports relating to remittance transactions below a specified amount; and implementing digital avenues for storing and submitting information on remittance customers and transactions.

3. **Tiered KYC requirements, guided by a risk-based approach**, should be implemented to allow for the use of regulated remittance services while decreasing compliance obligations for remittance service providers. Policymakers should promote cohesion between the customer identification obligations to the marginalised groups to become regulated participants for remittance services. KYC and AML obligations in receiving jurisdictions should also be applied evenly to promote the use of regulated services within Africa.

4. **Africa can look at an approach used in South America**, where fees and transaction costs charged by the digital financial services providers are differentiated by user type, size, and volume of transactions.

5. Consideration should be given to the creation of a **Smart Africa Trust Alliance** establishing a framework of agreed principles, procedures and technical standards, and a secure, federated governance to build trust among all parties involved. This Alliance should further facilitate the honouring of the sovereignty of Member Countries and must moreover advance the principles of openness of information, harmonization, cooperation and collaboration. A certification and audit process must also be established.

6. **Cross-border data flows regulations** should be simplified and are to be accompanied by a robust harmonized governance framework which advances the protection of African states' interests.
3.2.2. PILLAR 2: ENABLING INFRASTRUCTURE AND ADOPTION OF STANDARDS FOR INTEROPERABILITY

The basic supporting infrastructure for e-payments comprises three essential components: (i) an electrical power supply; ii) a telecommunications infrastructure, and iii) computer hardware and software for operating the banking and finance systems. How these three components interact is different from the perspective of the originator of an e-payment transaction (customer) through to the service provider (intermediary), to the settlements between service providers (financial intermediaries), to the end recipient (customer). For example, devices used by customers typically involved today are a fixed device (desktop or notebook) or a mobile device (phone/tablet) that interact across a phone network to a payment service provider who processes the instruction and delivers payment to the recipient. Intermediaries on the other hand rely on mainframe computing power, requiring a reliable and stable power supply, and a sophisticated secure network managed by the telecommunication service providers.

The confidence of users to adopt e-payments depends to a large extent on the actions taken to engender trust and confidence in the supporting infrastructure and the ability to manage it. Figure 15 provides a simplified framework for assessing the performance of infrastructure and remaining gaps in cross-border e-payments.

**Figure 15. Assessment considerations of infrastructure performance**

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<td><strong>Compatibility</strong></td>
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The above basic supporting infrastructures are important due to their interconnectedness and mutual influence of other pillars of cross-border e-payments. E-payments and electronic banking can only be adopted with increased access to the internet through robust digital infrastructure and the supporting infrastructures at the financial institutions and PSPs. These issues have been addressed in other initiatives at the national and continental levels. For example, improving telecommunication infrastructure is the focus of the SAA’s Broadband Strategy 2025 (Smart Africa, 2020). Due to their broad-based nature across the economy and not just e-payments, as well as the fact that the related issues have been addressed elsewhere in the national and regional strategies, these elements will be discussed in Annex 4 and Annex 5 of this Blueprint. The following sections will focus on the major elements of payment infrastructures and standards for interoperability.

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15 As mentioned in Section 2.2, such as the Rwanda’s Smart Rwanda Masterplan, Kenya’s Digital Economy Blueprint, Egypt’s E-Commerce strategy, Nigeria’s Digital Economy Policy and Strategy, and Mauritius’ Digital Government Transformation Strategy Framework, etc.
3.2.2.1. THE PAYMENT INFRASTRUCTURE

i. The incumbent payment infrastructure

Financial infrastructure (FI) can be defined as a legal or functional entity organized to provide multilateral transaction and post-transaction services for payments, securities, derivatives, and other financial transactions (World Bank, 2014). Functionally, FIs refer additionally to other types of infrastructures, shared transaction systems for payments, such as traditional ATM and point of sale (POS) card payment networks, the emerging app-driven online and mobile payment networks, as well as trading systems for securities, derivatives, and foreign exchange.

There are approximately 900 banks in Africa, including a mix of small national institutions that serve local markets and other larger institutions with regional and international branches. Technology has enabled Africans to embrace financial mobility. For example, ALAT, Africa’s first fully digital bank, was launched in May 2017 by Wema Bank in Nigeria (Alat, 2021). Ecobank is an example that has leveraged technology to go international. Headquartered in Togo, Ecobank has a footprint in 24 African countries and offers an e-account for paperless, mobile banking (Ecobank, 2021). Ecobank partners with Rapidtransfer International via a mobile app for transfers from France and 14 other European countries to send money to 33 African countries, as well as within Africa (Rapidtransfer, 2021).

Moroccan banks are also branching out and are now present in 16 African countries, up from just three in 2005. This brings cross-border transactions under the umbrella of a single payment system of a bank and should increase the speed of a transfer and decrease transaction costs for both parties if they have an account at the bank in each country. There may however be other hurdles, such as regulatory compliance differences that may prevent a non-resident from opening an account in another country, a delay in the transaction, and an increase in costs.

Core components of an integrated Payment Market Infrastructure (PMI) are Automated Clearing Houses (ACH); Payment Card Platforms (PCP); PSP; Real-Time Retail Payment Systems (RT-RPS) and Real-Time Gross Settlement System (RTGS) (SWIFT, 2021a).

ACH and PCP are mature technologies that have been in use for many years. An ACH is a network for processing domestic payments, between participating financial institutions. It may support both credit transfers and direct debits. The ACH system is designed to process batches of payments containing numerous transactions and charge fees low enough to encourage its use for its initial objective to replace or reduce the use of paper cheques to save banks processing costs (BoE, 2021). ACHs are an important part of a PMI for low-value payments that are processed in batches; they are being augmented or replaced by an RTGS.

Payment Card Platforms were first used for credit card transactions in the late 1970s. Today the PCP has morphed into the PSP; using platforms for all manner of payments (please see the next section for a more detailed description of a PSP) (PSP, 2021).
RT-RPS is the backbone of instantaneous payment systems whereby funds leave a payer’s account, and then at the physical speed of the communication network, the funds are deposited with the payee (SWIFT, 2015). This has been a major part of the success of MNO’s in Africa with mobile money; its speed (as mobile money is transacted on the MNO network, this takes only seconds) the ability to see the transaction on a device as being both paid and received. It is what makes paying a taxi fare in Nairobi possible using M-Pesa.

**Another key component of modern banking is the Real Time Gross Settlement System (RTGS).** The term refers to a funds transfer system that allows for the instantaneous transfer of money and/or securities between banks (Investopedia, 2021). RTGS is being rolled out in Africa by central banks replacing the national electronic funds transfer system (EFT) which was handled in batches at the end of the trading period (usually daily). An integrated RTGS system is a core component of an e-payments banking infrastructure that enables participants to affect all transfer instructions. These instructions would be settled if and when participant’s accounts are funded.

A prime objective of RTGS is to reduce systemic risk, by preventing the failure of payment or of a participant having knock-on effects on other participants and thereby endangering the stability of the financial system. RTGS significantly reduces the risk associated with the older net settlement system in operations and also accelerates the payment process, while guaranteeing finality and irrevocability of transfers.

Some of the features of an RTGS System include instruction processing; settlement processing; liquidity risk management; queue management; settlement account monitoring and connectivity to other systems such as mobile money, FinTech, mobile wallets, etc. The messaging infrastructure for the majority of RTGS is supplied by the SWIFT Certified Application RTGS (SWIFT, 2019).

As an example, the Central Bank of Nigeria has integrated SWIFT messaging and uses its RTGS software for high-value payments to support improvements in the country’s financial infrastructure. This does not replace the Nigerian Automated Clearing System (NACS) run by the Nigerian Interbank Settlement System (NIBSS) which has been updated to accommodate RTGS (CBN, 2018).

**While the intra-African clearing of payments has been increasing, North America and Europe remain the main payment route of financial flows from Africa** (SWIFT, 2018). SWIFT has emphasised the role of the RECs and their potential to increase intra-African trade, and thus intra-Africa payment flows, in advance of the roll-out of the AfCFTA in 2021.

**In order to foster intra-continental payment and settlement systems, Africa’s regional economic communities (RECs) have started operating linked RTGS.** The EAC launched the East African Payment System (EAPS) in 2014 (TRALAC, 2014). COMESA has the Regional Payment and Settlement System (REPSS) which started live operations in October 2012. The CEMAC region has an ACH and RTGS SADC has the SADC-RTGS
Box 8. Regional Payments Integration Programs

Regional integration efforts, such as the South African Development Community (SADC) and the Single European Payment Area (SEPA) share common traits, including the establishment of empowered centralised governance bodies, a common regional payments framework, strong public-private collaboration early in the effort, utilisation of global best practices & expertise, and the use of global standards such as ISO 20022 for interbank messaging.

The Interbank Monetary Group of the West African Economic and Monetary Union (GIM-UEMOA) provides a platform for member banks’ customers to make payment transactions independently of their own bank throughout the WAEMU territory through the GIM network. GIM is also making available banking and financial products and services on the mobile phone.

Afreximbank is working towards facilitating cross-border payments with the Pan-African Payment and Settlement System (PAPSS) that aim to enable pan-African trade using local currencies (Afreximbank, 2020b). In doing so, Afreximbank provides overdraft facilities to enable settlement between countries (via Central Banks). It will not set exchange rates; the Central Banks will do so, as they are already doing between the USD and respective local currencies. Afreximbank has also stated that although PAPSS will primarily support settlement in central bank funds, it may also support settlement with private funds (e.g., commercial banks, mobile telecom companies, mobile money services providers, FinTechs, etc.). This will facilitate African regional banks wishing to provide payment services across their footprint in the continent or through partner banks. According to Afreximbank, PAPSS’s ambition to eventually domesticate intra-regional payments, saving the continent more than USD 5 billion in payment transaction costs per annum, formalising a significant proportion of the estimated USD 50 billion of informal intra-African trade, and therefore contribute significantly to boosting intra-African trade (Wass, 2019). At the end of the settlement day, the only countries that will have to pay dollars will be those in deficit.

The challenges will be to get the RECs and individual countries to buy into a centralised system, in particular from individual countries that presently benefit from the current system. These tend to be the larger economies within the RECs that have a more developed PMI and a larger user base so benefit from scale. Smaller economies that do not have the cross-border financial market connectivity and liquidity may benefit from increased financial stability (IMF, 2018). The users of cross-border financial services will see significant benefits as proportionally, transaction costs are higher for smaller countries.
ii. The e-payments infrastructure

The e-payments infrastructure goes beyond just the PMI as previously described to encompass alternative forms of payment. The e-payment infrastructure, therefore, refers to the layers of platforms and services provided by most notably the MNOs with mobile money services as pioneers within Africa, but also other PSPs.

The explosive growth in mobile networks has led to African payments innovation on a par with Asia and ahead of many OECD countries, but this growth has been driven by low bandwidth technology supported by the more common 2G mobile network. Africa is the global leader in e-payments using mobile money, which has become an important component of Africa's financial services landscape. This has led to over 100 million active mobile money accounts (used by one in ten African adults). This far exceeds customer adoption in South Asia, according to McKinsey (McKinsey, 2017).

The seeds were sown for growing a robust e-payments infrastructure when M-PESA was launched in Kenya by Vodafone in 2007. The Vodafone/ Safaricom innovation of mobile money was to enable the transfer via a basic 2G mobile phone. M-PESA has since been adopted by seven African countries in total (Mpesa, 2019). Value-added services have since expanded from simple payments to SME credit, insurance, and in particular cross-border remittances.

The mobile money platforms are connected with each other and with other digital stores of value by third-party technology companies. MFS Africa is a major provider of platform services in Africa that enables interoperability at scale through a single integration point, facilitating remittance/money transfers, and payments. MFS Africa connects more than 320 million mobile money accounts to other money transfers organisations including Ecobank, MoneyGram, WorldRemit, and Xoom, (a PayPal service) as well as the VISA network (VISA, 2021) for two-way transfers in and out of accounts (MFS Africa, 2021). In doing so, they enable consumers and businesses to transfer money within, into, and beyond Africa They also offer a suit of other financial services such as micro-lending and micro-insurance in partnership with players such as Inclusivity Solutions and Numida (Santosdiaz, 2020; Kene-Okafor, 2021).

These platforms are providing profound social benefits. For example, bus trips from large towns and cities to villages and rural hamlets where there are no bank branches, have decreased as the money can be made available through agents via mobile phones. It is also closing the gender gap as in many traditional societies the male controls the finances and therefore the banking. As there is greater gender equality of mobile phone ownership, this bias is reduced when it comes to the ability to make e-payments via mobile phones (GSMA, 2020g). The dramatic lowering of the cost of ownership for a ‘smart feature phone’ such as Vodacom’s ‘Smart Kitochi 4G’ phone in Tanzania, the Orange 4G Sanza in Botswana, the MTN Kamunye in Uganda, and Telma Wi-Kif + 4G in Madagascar at much more affordable price points – as low as USD 20, will greatly accelerate this (Leung, 2019).
Telcos in Africa are also growing their share in payments through Direct Carrier Billing (McNab, 2018). This permits customers to access online content and pay for products and services using their Mobile Station International Subscriber Directory Number (MSISDN) encoded in the phone’s SIM card that identifies where to bill. In Africa, DCB has greater consumer reach than traditional card and mobile wallet payment solutions and is growing fast together with mobile money.

Mobile wallets are now starting to gain traction for e-payments in Africa and are an alternative to credit cards which have low penetration on the continent. The conclusion is clear; for the successful uptake of an inclusive e-payments system in Africa the penetration of fast and affordable access by MNO’s to embrace mobility is key.

Forward-looking governments are embracing new technology. For example, the Government of Nigeria is working with the private sector to launch the new national e-identify card which has electronic payments functionality built into an embedded EMV smart chip (EMV, 2021). The e-ID card forms a key component of the Nigerian Identity Management System, will provide millions of Nigerians – the majority of whom have never had access to a banking product – with the security, convenience, and reliability of electronic payments and may be linked to the citizens mobile phone SIM for mobile identity verification to enable secure verified payment (GON, 2021).

There is an emerging sector in financial technology that has also taken a firm root in Africa – the rise of the FinTech companies. While all banks use modern technology, the term ‘FinTech’ usually means a stand-alone business outside the traditional banking system that is innovating in the Financial Service sector (banking, insurance, and securities). There is a cross-border FinTech industry emerging in Africa that already has launched initiatives for e-payments, as mentioned this may be supported by the PAPSS. The Africa FinTech Network is made up of self-regulating National FinTech Associations in each African country (AFN, 2021). This in turn leads to what will be one of the key aims of a crowded bank/Fintech market: lowering the cost of transactions to as close to zero as possible.

New forms of financial infrastructure driven by new players in Financial Innovation are now emerging in Africa, like Digital ID infrastructures, KYC registries, Bill Payment infrastructures, Receivables and E-Invoicing platforms which are getting closely linked to payment and market infrastructures operated by banks. MANSAAFRICA is one example of a consolidated customer due diligence hub providing a single point of reference for online due diligence (MANSAAFRICA, 2021).

FinTech technology has extended and enabled the portability of customer data to the PSPs and other services, should the customers so request it. Technology developed by the FinTech companies typically relies on the Cloud to host their infrastructure and

16 The mobile wallet is an app that can be installed on a smartphone or it is a built-in feature of newer smartphones. A mobile wallet stores credit card, debit card, coupons, or reward card information. Once the app is installed and activated, the user inputs their payment information. The wallet stores this information by linking a personal identification format, such as a number or key, QR code or an image of the owner to each card that is stored.
access is via an API. To stimulate the use of open APIs it may be necessary to enact open banking/finance legislation similar to the EU’s Second Payment Services Directive (PSD2) (UKF, 2016) by the central banks. This increases the choice of customers to use services outside their traditional bank, increasing competition and lowering prices.

**To further enable cross-border e-payments, banking regulation initiatives similar to the PSD should be incorporated** to ensure FinTechs have an incentive to facilitate greater interoperability and innovation in the electronic payments ecosystem. The integration of mobile money with national RTGS systems, the cloud, and innovation for the FinTechs will ensure access to more services for the underbanked and the unbanked.

In summary, some of the key challenges which remain are the following:

- Fragmented payment systems among the RECs resulting in relatively high cost of payments both within countries and cross-border
- No automated technical solution for KYC/AML/ATF

**The suggested opportunities and solutions** include the following:

- Encourage the AUC and the AACB to take a more active role in pursuing REC integration and to adopt guidelines developed by the AACB payment systems integration working group from its work on a framework for the establishment of a new integrated payment infrastructure to facilitate inter-regional payment flows using ISO/BIS recommended standards.
- Encourage the Central Banks to facilitate the integration with infrastructure at the continental level that handles both Real-Time Retail Payments and RTGSs.
- Encourage the RECs to further integrate their RTGSs with their other RECs RTGSs which will eventually lead to an African-wide integrated payment system.
- Encourage the move to ‘Open Finance’, the practice of sharing financial information electronically, securely, and only under conditions that customers approve of to provide them with better financial services (BIS, 2020b). To differentiate from traditional paper-based financial forms of consent (one consent checkbox for ‘everything’), in the context of real-time e-Payments and platform, it would be ideal to accommodate ‘consent per transaction’ approach, taking advantage of the fact that the process is digitalised and can therefore adopt authorization to consent during the transaction online process under the notion of Open Finance.
- Encourage the use of sandboxes (Jenik, 2017) for FinTech’s and developers to test online solutions for and financial inclusion and KYC/AML/ATF using open standards such as the OpenID Foundation Financial API (FAPI, 2019), under the supervision of regulators.
- Enable secure cross-border transfer of financial information for all providers of e-payments.; Banks, MNO’s, MTO’s, MMO’s and FinTechs with appropriate regulatory oversight.
3.2.2.2. STANDARDS & INTEROPERABILITY

i. Standards - Communication networks

The combination of standards and product certification for equipment, when implemented together, aims to ensure seamless connectivity and interoperability between heterogeneous platforms over the global telecommunication network.

Internet access for consumers and increasingly business in Africa is primarily by a mobile device connected to the GSM standard network. Coverage is not uniform in Africa, as may be seen from the interactive GSMA Mobile Connectivity Index map (GSMA, 2020c). The 2019 Mobile connectivity factsheet from the GSMA indicates that across Africa, about half are still connecting via the 2G telecommunication standard, but 3G is rapidly increasing to between 35-45 percent with the balance on 4G networks. 3/4G users may access the internet if using a smartphone or tablet (GSMA, 2019b).

The adoption of new technology such as 5G will result in faster and more secure e-payment transactions than with the earlier technology, thus increasing trust in the system. The 5G telecommunication architecture is being gradually introduced in larger cities in Africa but is not a requirement for current e-payments systems. 5G will allow more efficient access over mobile networks which will permit encryption of all data without compromising performance. In terms of making an e-payments transaction via a 5G compatible mobile device, the user experience will be seamless; they will mainly note the connection is more stable and faster. The MNO’s will be the main drivers in incentivising early adopters of e-payments to use 5G when widely available.

ii. Standards - Data Exchange

Data Exchange is the sharing of information across information systems. Standards in the context of finance deal in structured information (numbers and supporting text) that is exchanged or flows both ways between two or more parties.

Box 9. Technology and telecommunications standards-setting organisations

Two international organisations compile the definitive register of standards for technology and communications: the International Standards Organisation (ISO) founded in 1947 as a UN agency deals with all standards, including standards for secure messaging, system security, data privacy, business continuity, and IT governance; and the International Telecommunications Union (ITU) founded in 1865 as the International Telegraph Union, which has responsibility specifically for communication standards from telegraphy through to the modern world of satellites, mobile phones, and the Internet. All African countries are voting, affiliate, or correspondent members of these organisations, and their national standards bodies represent them at all forums.

The ISO and the ITU interface with many organisations, both global and national, and are the main setters of technical standards for data interchange. For the Internet, the Internet Engineering Task Force (IETF) is the main standards body, developing open
technical standards through consultation and manages the hypertext transfer protocol (HTTP), a key standard that enabled the World Wide Web to emerge in 1990.

Data compatibility is one of the main issues that need to be addressed in various connectivity projects in and around the region. Thus, if data harmonization through standardization can be built into systems as early as possible, seamless data exchange will be achieved with minimising compatibility issues if based on internationally recognised open standards.

The XML eXtensible Markup Language (XML) is derived from an ISO standard (ISO 8879) that defines a set of rules for encoding documents in a format that is the most common standard to ensure data harmonisation and interoperability across the Internet. The eXtensible Business Reporting Language (XBRL) framework for exchanging business information and is the de facto industry standard today in the field of banking, securities, and other financial services (XBRL Int., 2021).

In banking, the European Banking Authority publishes technical standards for banking that are widely adopted outside Europe as best practices (EBA, 2021). One such standard is the Electronic Banking Internet Communication Standard (EBICS), a European communication banking standard developed in Germany to replace standards that became obsolete as they were not suitable for use over the internet (EBICS, 2021). The routing data elements are encoded in XML, which allows the use of standard HTTP with TLS encryption (HTTPS) for the transport of data elements with PKI certificates for security. The standard is compatible with the SWIFT messaging standards and the Sterling B2B Integrator, both commonly used in commercial banking (IBM, 2021).

The European Central Bank has also mandated the use of the ISO 20022 XML standard for payments. Developed by SWIFT for electronic data interchange between financial institutions, ISO 20022 will enable participants in the entire payments ecosystem to send richer information on transactions than in the past. It is rapidly gaining acceptance as an internationally accepted standard and is used on e-Payment platforms as the messaging standard. Technically, ISO 20022 is a standard, utilising a set of XML and ASN.1 design rules to convert the message models into XML or ASN.1 schemas, whenever the use of the ISO 20022 XML or ASN.1-based syntax is preferred (ISO, 2021b).

Today proprietary or closed standards have largely given way to open standards that are made available from the ISO/ITU or industry consortia, in particular in the building of Application Protocol Interfaces a small piece of software that defines interactions between multiple software intermediaries to connect them to enable interoperability (Techterms, 2021). For Financial API standards, Open Banking has API standards that consist of five distinct types of specifications. These include Read/Write API Specifications, Open Data API Specifications, Directory Specifications, Dynamic Client Registration Specifications, and finally MI Reporting Specifications (Open Banking Limited, 2021). This is particularly important for compliance monitoring.

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17 The eXtensible Business Reporting Language is a global open international standard for digital business reporting
The relevance of open technical standards for e-payments in Africa is that they already exist and are completely agnostic as to hardware. Developers within Africa may use these to leapfrog into the future of API access making payments on mobile devices. For a full list of Open Banking APIs please refer to Annex 8.

**Box 10. Success story - Standards adoption**

In Tanzania, an industry-led approach was adopted and is regarded as a success story. The industry developed a common set of standards and principles for the operation of mobile payments, through extensive consultations, negotiations, debates, and working sessions. Members of the industry were then afforded the opportunity to adopt and implement these standards and principles, thus strengthening their relationship and collaboration with other industry players. Though not all mobile money providers in Tanzania adopt the new standards, a sufficient number who did so, including the largest MNOs such as TIGO and Vodacom, has created the much-needed ecosystem to facilitate and achieve the intended purpose of interoperability of digital payment providers. In another industry-led attempt to create private-switch among card service providers, the Umoja Switch failed to secure participation from the largest banks, and thus the sufficient transaction volumes to achieve scale for multiplying success.

Efficient data exchange, via the adoption of international open standards that are built into e-Payment platforms at the design stage, will enable frictionless interoperability. Interoperability in the context of e-payments enables content from multiple and independent hardware, devices, and computer systems to seamlessly exchange data that is oblivious to the user. This is particularly important when designing the API to enable access from a mobile device due to the relatively low memory capacity of most devices. There are a number of standards for APIs as mentioned in the previous section as well as de facto industry standards, such as Swagger that are adopted widely to enable developers to create the Software Development Kit (SDK) to link them all together (Swagger, 2021).

When aligned to global and industry technical standards, disparate systems will be able to interact with each other to ensure data flows seamlessly. Network protocols allow interoperability of communication in much the same way that is oblivious to the user; the phone simply works driven by a myriad of ITU standards such as the Short Messaging Service (SMS) which is the basis for M-Pesa payments (3GPP, 2021).

The use of ISO/ITU standards is a fundamental building block. The XML eXtensible Markup Language (XML) standard, and its derivatives, is the benchmark for data interoperability. The most recent financial messaging standard is ISO 20022, which is built upon the XML schema. The wider adoption of ISO 20022 could reduce cross-border payment friction in two important ways. First, central banks sharing a common messaging standard will be able to make more transactions and pass along richer information important for clearing transactions (e.g. KYC information, AML/ATF reporting, etc.). Second, by adopting an international standard for important financial infrastructure, other payment
providers wishing to connect with this infrastructure have an economic incentive to update their older messaging systems increasing both interoperability and security.

This in turn could have multiplier effects throughout the broader ecosystem, in which players use common standards to send messages to each other and within their own payment networks, either through a real-time payment system or through other open, interoperable networks. Finally, adopting a common, open standard reduces the costs associated with developing APIs to integrate with other systems. ISO 20022 is widely used in Financial Services. Organizations participating in ISO 20022 include FIX Protocol Limited (FIX), ISDA (FpML), ISITC, Omgeo, SWIFT, Visa, etc.

In summary, interoperability may be enabled by utilising a common set of ISO, ITU, and open industry standards that are available for use right now in Africa for e-Payment services, and to adopt new standards as they emerge.

**Box 11. Case study on international collaboration in APIs**

The ASEAN Financial Innovation Network (AFIN) was established as a non-profit organization in 2018 by the ASEAN Bankers Association (ABA), International Finance Corporation (IFC), a member of the World Bank Group, and the Monetary Authority of Singapore (MAS). The AFIN created the API Exchange (APIX). APIX is the world’s first cross-border, open-architecture API marketplace and sandbox platform for collaboration between FinTechs and financial institutions in which participants can integrate and test solutions with each other via a cloud-based architecture. The platform is open to participants from outside the region to be able to test their technical solutions.

Source: https://apixplatform.com/static/about/

**iii. Standards – Cybersecurity**

There is also a need to consider pan-African cybersecurity coordination to better plan, monitor, and respond to cybersecurity incidents that could impact the payment systems infrastructure. Security is only as strong as the weakest link in the chain. There will be a need for the adoption of international standards with regards to securing the digital payments infrastructure as well as standard processes in place to respond to cybersecurity incidents, reporting such incidents, and monitoring compliance with established security controls as required. All stakeholders who are involved in providing e-payments such as Banks, MNOs, MMOs, FinTechs, and regulators should be involved in this process.

**Trust in the security and reliability of e-payments service providers will be critical to get users to widely adopt e-payments.** Growing such confidence depends to a large extent on the actions taken by management in implementing and communicating how they are protecting their customers. In the same way that banks protect their client’s information, not just from loss to external threats but also comingling (by ensuring the separation of data) there have to be robust systems in place for physical and logical separation of user’s data.
The World Bank uses the number of secure Internet servers by region and country as a measure of baseline infrastructure for cybersecurity. In Africa, these grew by a factor of ten from 2016 to 2018 but have recently plateaued (World Bank, 2020e).

The baseline standard for information security management system is ISO: 27001/2 (ISO, 2021a) and its subsets; in particular ISO/IEC 27110: Information technology, cybersecurity, and privacy protection — Cybersecurity framework development guidelines, which has just been updated; implementation and compliance will ensure a high level of security.

Although not a technical standard, the guideline issued by the CPMI-IOSCO for cyber resilience of FMIs provides a framework for institutions to build upon (CPMI-IOSCO, 2016). Central banks have updated this, for example the Reserve Bank of New Zealand issued new guidelines in 2021 (RBNZ, 2021). Similarly, the DFS Security Assurance Framework developed by the ITU under the FIGI provides a security risk management framework for DFS providers which is compliant with ISO 27001 (ITU, 2021a).

This may then be combined with end-to-end encryption, which may employ various levels of cryptography, according to the value of the data as classified by the owner. Encryption key management provides access to data and may be held by the data controller (the ‘owner’), with varying levels of encryption to cypher strength 19 128, 256, 512, or even 1024 (bits) as outlined within the ISO/IEC 18033-3 standard, as well as compliance with ISO 27001.

An emerging technology that has implications for security is Distributed Ledger Technology (DLT), usually referred to as the Blockchain. The US Blockchain NISTIR 8202 is a useful reference point for Blockchain definition, which is as follows: Blockchains are tamper-evident and tamper-resistant digital ledgers implemented in a distributed fashion (i.e., without a central repository) and usually without a central authority (i.e., a bank, company, or government). International Standards for blockchain are still emerging (see Annex 8) (NIST, 2018).

At their basic level, DLTs enable a community of users to record transactions in a shared ledger within that community, such that under normal operation of the Blockchain network no transaction can be changed once published. DLT’s are being evaluated in the EU, UK, Singapore, and Brazil. In Africa, the South African Reserve Bank’s Project Khokha is an initiative running on an Ethereum based DLT platform for payments. (SARB, 2018). Please see Annex 7 for further information.

It should be noted the higher the level of encryption, the greater the bandwidth will be required to reduce latency. These approaches ensure that controllers are the gatekeepers to permit access to sensitive information, not the IT administrator.

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18 ISO/IEC 27001 specifies the requirements for establishing, implementing, maintaining and continually improving an information security management system.

19 Cipher strength is the number of bits in the key used to encrypt data. The bigger the number, the more secure it will be, but it will take longer to encrypt/decrypt and the slower its transmission will be over the Internet.

Action to be taken to ensure security here is to ensure the adoption and regular certification of ISO: 27001/2 and the ISO: 18033-3 standard. Due to the bandwidth requirements, DLT/Blockchain should be incorporated in near future e-payments plans as 4G/5G is widely adopted.

FinTechs should be sandbox testing DLT within the next two years so they have a robust solution when the telecommunication infrastructure can support it.

iv. Standards - Resilience

Business continuity and data loss prevention (DLP) are core components of resilience in terms of managing banking technology risk. Resilience is the ability to bounce back from adversity, in other words, to recover and continue the same as before a destructive event. The relevant international standard is ISO 22301:2019, Security and resilience – Business continuity management systems.

Africa’s e-payments framework must ensure that there are procedures in place to minimise disruption so sound backup procedures are required to prevent data loss. In the event of a disaster, hardware and networks can be replaced, and facilities can be moved to a new location, almost every company asset can be replaced - with the exception of the data, which is the lifeblood of any finance or standalone e-payments system (Alam, 2017).

A DLP policy combines data classification, storage and recovery technology, and staff training/testing to mitigate the risk and recovery. Banks and securities exchanges address this by having duplicate systems running milliseconds apart (active/active) for fault tolerance in OLTP (online transaction processing) so that if one fails for whatever reason the other takes seamlessly over in as short a time as physically possible with no loss of data. This is expensive, but essential for real-time financial services. For the FinTech players in e-payments, the most economical fail-safe system is to utilise Cloud computing, just as the majority of B2C and C2C platforms do (also most email systems).

All of the leading Cloud Service Providers (CSP) utilise geographic replication, building highly secure hyper-scale data centres (Kleyman, 2017) around the world, which enable them to securely host data and provide services in stable regions with reliable power supply and minimal risk of being affected by natural, local or regional emergencies. They also deploy hundreds of security experts to monitor their systems 24/7, an expense that anything short of a major bank or central government may find prohibitive.

Currently, there are four hyper-scale data centres operating on the continent, all located in South Africa. Cloud services may also be partly hosted within a customer’s data centre, a hybrid cloud, a third-party-owned data centre or supplied by a CSP from their data centre. In the context of commercial platforms, the overwhelming choice is to use a global CSP, such as Amazon Web Services, Microsoft’s Azure, Google, or IBM. Cloud APIs allow data to be accessed - but not stored - on mobile devices which drives down the manufacturing cost (as they have very little memory) increasing affordability and also increasing security in the event of loss of a device, as very little data is retained on it.
Therefore, if an e-payment services provider loses access to its servers due to a massive power failure, natural disaster such as cyclone, flood, earthquake, criminal attack, civil disturbance, or external conflict, having a failover to back up in the Cloud can ensure business continuity and recovery in the shortest time possible with minimal disruption and no data loss.

**Challenges in implementing a cloud backup are not the technology, but regulatory (cross-border data flows/ data residency/sovereignty) and a reliable high-capacity power supply.**

The regulatory challenges may be solved within the AfCFTA protocols and schedules, in particular, phase one for financial services and communication liberalisation and E-Commerce in phase 2 or 3.

**In summary, the challenges with respect to standards adoption for e-payments revolve primarily around the unsuitability of the infrastructure of the core banking systems. Specifically, these concern:**

- Legacy banking software and hardware that is now aging and needs to be updated; it was never designed for e-payments or online banking.
- Many disparate and incompatible systems using older standards that inhibit data interchange and therefore interoperability.
- The combination of the above leads to increased maintenance and therefore costs.

**The suggested opportunities and solutions** include the following:

- Adapt or update existing closed/proprietary systems to use open standards including security and governance. This not only facilitates interoperability for cross-border payments but also avoids lock-in with a specific vendor and as such can be implemented by different vendors. This may also reduce transaction costs for cross-border retail payments making them affordable to more communities.
- Update financial payments standards infrastructure using ISO 20022 as the data messaging standards for all payment systems and CPMI-IOSCO frameworks.
- Encourage the use of APIs using industry-developed standards, such as the Open Financial Exchange -OFX (Open Financial Exchange, 2021) and other industry consortia (GSMA, 2016a). Please refer to Annex 8, Open Finance API Standards.
- Consider the use of Cloud computing infrastructure for open finance/banking.

To address the myriad challenges for e-payment infrastructure will require a strong collaborative approach and commitment from all stakeholders; the AU, the RECs, governments, Central Bank, other financial regulators, and the private sector.
3.2.3. PILLAR 3: PROMOTING BUSINESS ECOSYSTEM AND STRATEGIC PARTNERSHIPS

This section analyses the cross-border business ecosystem to identify key barriers to efficient cross-border digital trade e-payments in Africa. These include market competitiveness, high costs, complex compliance requirements, de-risking, and foreign exchange management. On the basis of the analysis, this section further outlines recommendations for addressing the identified gaps. The analysis is based on the outcomes of discussions held with members of the SAA working group, working sessions, and specific one-to-one discussions held with selected financial service providers. As the three pillars are mutually interactive, the robustness of the regulatory framework and the interconnectedness of the payment infrastructure will lay the foundation for the thriving business ecosystem. As such, elements which have been analysed in the previous sections will not be repeated here.

3.2.3.1. OVERVIEW OF THE EXISTING CROSS-BORDER PAYMENT ECOSYSTEM

Africa’s digital payments landscape is rapidly evolving; cross-border payments are becoming a touchstone for financial innovation. The business ecosystem has diverse players with a marked shift from solely traditional financial institutions (FIs) that provide payment services.

The Committee on Payments and Market Infrastructures (CPMI) and the World Bank articulate General principles for international remittance services. General Principle 4 on the Market Structure and Competition outlines the significance of fostering competitive market conditions, including appropriate access to domestic payment infrastructures for bank and non-bank cross-border payment providers.

Non-competitive markets tend to have higher fees, fewer payment options, and significant entry barriers for non-traditional FSPs. Market dynamics differ across Africa, and some markets have comparatively lower cross-border payment volumes. Considering the relatively complex cross-border payments landscape, lowering entry barriers especially for non-bank cross-border payment providers will drive efficiency of payments with resulting benefits being experienced by all participants in the business ecosystem. Competition policies that keep up with the dynamic pace of technology innovation are useful to eradicate barriers to entry and level the playing field, especially for emerging non-traditional cross-border payment providers.

New business models and digitalisation have introduced major disruptions to the cross-border payment ecosystem. Financial Service Providers (FSPs) - banks, MTOs, digital service providers, governments, merchants, businesses, and aggregators - are all experiencing the impact of these disruptions. There is a rapid shift in customer behaviour, higher demand, and adoption of new cross-border payment methods, especially those delivering payments faster, more securely, and affordably. Merchants are constantly seeking better payment methods to streamline trade transactions and improve the overall customer experience. Figure 17 illustrates the business ecosystem players and activity flow.

21 While the blueprint focus is on Digital Trade flows, there are areas of alignment with the General principles for International remittances given that both remittances and trade payments flow through the same payments’ infrastructure.
Figure 16. Cross-border payments ecosystem

Source: FBS 2020
Innovative technologies are a key part of Africa’s ecosystem expansion—new business models are emerging and non-bank financial Services providers increasingly offering cross-border payments. App and web-based cross-border FinTech services such as Chippercash, Eversend, and EastPesa are gradually gaining ground in a competitive landscape. Online peer-to-peer platforms match senders in two countries without the need for money to cross-borders. Transactions are processed through bank accounts, cards, or closed-loop wallets offered by various FSPs. Virtual currencies including blockchain-based cryptocurrencies are emerging although uptake is much slower and regulatory appetites are low (AFI, 2018).

‘Co-opetition’ (collaboration and competition) is visible through technology infrastructure and channel collaboration. For example, Mobile Money Operators MPESA, MTN, and Orange have partnered with International Money transfer operators - Western Union, MoneyGram, World Remit, and RIA. In 2018, Mowali (an acronym for Mobile Wallet Interoperability), a joint venture between Orange and MTN group was launched. It connects over 100 million mobile money accounts and mobile money operations in 22 of sub-Saharan Africa’s 46 markets. Implemented by Mojaloop, Mowali enables interoperability between MTN Mobile Money and Orange Money customers and aims to extend the same services to close to 160 million mobile money accounts in Africa (GSMA, 2018b). This provides a different model of coopetition in combining marketplaces in the continent in the context of mobile money interoperability to facilitate intra-Africa payments.

At the same time, cross-border payment hubs such as MFS Africa, Homesend, Terrapay, and Thunes now offer API integration to connect various e-payment services providers such as mobile payment operators, card, and online service providers in both inter- and intra-African corridors. Another example of cooperation includes the launch of open APIs across various countries in Africa by MTN Group (in partnership with BluSalt, Gwirio, and Finclude) to support integration with FinTechs and MNOs product development efforts. This marketplace enables developers to tap into a broad spectrum of API products and services from across the continent, ranging from telecommunications, e-health, e-government, IoT, FinTech, e-commerce, identity and authentication, payments, and collections, from a single portal (MTN Group, 2020).

A combination of global leaders and niche cross-border e-payment providers has tapped into the African market through partnerships with payment service providers. These partnerships enable, inter alia, technological infrastructure sharing, increased market penetration, channel expansion, new customer segments, and regulatory compliance and include:

22 For example, we refer to parties involves in the transactions as Sender A in country X and Sender C in country Y. Sender A wants to transfer a certain amount to Receiver B in country Y, while Sender C want to send money to Receiver D in country X. The cross-border online peer-to-peer payment service enables money transfer by facilitating local transfer from Sender A to Receiver D and from Sender C to Receiver B. In country X, Funds will flow from Sender A to the P2P Service Provider who deposits the funds in an account belonging to Receiver D. In country Y, Funds will flow from Sender C to P2P Service Provider who deposits the funds in an account belonging to Receiver B.

23 Coopetition refers to the act of working together with a person or company who is a party’s business competitor in a way that benefits both parties. See (Cambridge Dictionary, 2021).
**Bilateral Payments Service Provider Partnerships.** These are mainly targeted at extending the cross-border scope. The partnerships are happening among different groups of market players, including (i) banks and MNOs, such as MTN Uganda and Stanbic Bank for cross-border transfers, and the previously mentioned Mowali (ii) Bank/MNO and FinTech; or Bank, FinTech, MNO to MTO, such as Airtel Group and Mukuru Money Transfer; (iii) between MNOs, such as MTN and Orange in West Africa, or M-Pesa and MTN in East Africa; and (iv) e-commerce service providers and cross-border payments providers, such as Jumia and MasterCard/Airtel group. SendWave, Skrill, XendPay, Azimo, Remitly, Xoom, Transferwise are further examples of bilateral partnerships. Incumbent payment service providers are also partnering with mobile money providers to offer digital-focused cross-border money transfer services. For example, PayPal shook hand with M-PESA and Equity in Kenya, a service that is regularly used by online gig workers receiving payments in foreign currencies; while China Pay closed the deal with Standard Bank and FNB bank in South Africa to offer the Union pay - a Yuan-denominated card (TechCabal, 2020).

**Global and Niche player partnerships and acquisitions are driving rapid consolidation and globalization.** Examples include:

- **VISA and Interswitch** – Partnership aimed to create an instant card acceptance network across Africa (VISA, 2019).
- **Visa and MFS Africa** - Partnership aimed to enable instant Visa virtual cards linked to a mobile money account to use for remittances and e-commerce transactions (MFS Africa, 2019).
- **China Pay and Interswitch** partnership enabled China’s UnionPay cards to be accepted across East Africa’s ATMs, Points-of-Sale, QR Payments, and online platforms.
- **Stripe’s acquisition of PayStack** is intended to accelerate online commerce across Africa, making online and offline payments easier for African businesses and enabling more global companies to enter the fast-growing region (Stripe, 2020).
- **Alipay and Flutterwave** – FinTech start-up Flutterwave and Chinese e-commerce company Alibaba’s Alipay partnership is intended to extend cross-border payments between Africa and China (TechCrunch, 2019).
- **Flutterwave and PayPal** – Recently announced a collaboration to pay African merchants, especially SMEs and freelancers, through Flutterwave’s platform to address challenges presented by the highly fragmented and complex payment and banking infrastructure, as well as connecting them with more than 377 million PayPal account holders globally (Flutterwave, 2021).

### 3.2.3.2. KEY CHALLENGES AND SOLUTIONS FOR AFRICA’S CROSS-BORDER PAYMENT ECOSYSTEM

Despite the bright outlook, Africa’s cross-border payment ecosystem has barriers that impede payments efficiency. As discussed in section 2.3 of this Blueprint, cross-border payments to and within Africa cost more than to any other region in the world: the average cost to send USD 200 to Africa is 26 percent higher than the global average, and 68 percent higher than that of South Asia (World Bank, 2020d).
The continent faces unique challenges when it comes to cross-border payments, especially for digital trade. Payment systems are rapidly emerging but are hampered by inefficiencies arising from the inherent complexity and inflexibility of the sector. As a result, high transfer fees present as a symptom of the inefficiencies caused by supply-side barriers and low market competitiveness.

As mentioned in section 3.2.1, the limited licensing regime has contributed to the low market competitiveness by limiting direct access to core domestic payment infrastructure, thus leading to costly partnerships and introducing additional cost layers for non-traditional players. From the supply side, factors contributing to the high costs include operational costs, compliance costs (e.g., AML/CFT), expenditures associated with managing intermediary bank relationships, and liquidity costs for pre-funding and foreign exchange conversion rates (CENFRI, 2018a). Limited access to foreign exchange combined with currency volatility causes most suppliers to demand payments in US dollars or other G10 currencies. This in turn leads to higher transaction fees of about 3-10 percent and 3-5 days longer settlement periods. SMEs in Africa may pay nearly 200 percent more than larger businesses to clear transactions through formal channels leading to a preference for informal channels (WEF, 2020).

High transaction fees and foreign exchange margins in turn impact individuals and small and medium-sized companies (SMEs), especially for low-value trade payments. At the same time, high costs are a common push for informal channel usage, which may present potential adverse consequences for the integrity of financial systems.

As a result of the increasing AML/CFT scrutiny, de-risking is hampering progress made in access to the global financial system and threatens financial inclusion. De-risking can be the result of various drivers, such as concerns about profitability and regulatory scrutiny, prudential requirements, anxiety after the global financial crisis, lack of confidence in the RSPs’ procedures, and perceived reputational risk. It may take place at different levels: i) Local financial institution level to individual or customer categories, ii) Large local financial institutions to smaller financial institutions depending on them for correspondent banking relationships, and iii) Correspondent banks to local banks. One level of de-risking, for example, from correspondent bank to local bank, may easily cause a chain reaction to the other levels.

**Box 12. Definition of de-risking**

The Financial Action Task Force (FATF), the global standard-setting body on Anti-Money Laundering and Combating the Financing of Terrorism (AML/CFT), defines de-risking as a phenomenon where financial institutions terminate or restrict business relationships with clients or categories of clients by eliminating rather than mitigating risks presented in line with the recommended FATF’s risk-based approach (FATF, 2014).
Decisions to de-risk are largely driven by lack of reliable data providing clear risk profiles of correspondent banking clients and their jurisdictions; heavy costs of AML/CFT compliance vis-à-vis benefits derived from serving high-risk clientele, and stiff penalties levied on financial institutions for non-compliance including by bank clients.

In the last few years, the East African region faced heightened AML/CFT concerns following an increase in terrorism activities. As a result, a number of financial institutions providing correspondent banking services in the region terminated their relationships or increased compliance requirements for these settlement accounts to mitigate potential risks. This has caused an adverse impact on the sending and receiving markets with customers turning to informal services to bridge the gap.

Legacy global payment systems and correspondent banking networks are inefficient and complex, involving multiple banks across different locations, increasing transaction settlement costs. While overreliance on correspondent banking relationships can be addressed by using alternative settlement systems such as SADC-RTGS, these often limit participation to banks locking out other potential non-bank participants to the detriment of the business ecosystem.

Recommendations

Based on the above analysis, some recommendations can be built on various notable ongoing efforts to address the cross-border payment barriers by multiple institutions and market players. Above all, joint efforts between regulators, the private sector, and development partners are required to address long-standing regulatory and market structure challenges.

Among others, more support should be given to the continued expansion and integration of the regional and pan-African RTGS initiatives that aim to support direct settlement between local African currencies, thus reducing dependence on US dollars and other hard currencies. Besides the established regional RTGS, initiatives such as the PAPSS have been designed with a digital trade focus and a focus to address persistent barriers in cross-border trade. They offer opportunities for the provision of a pre-funding facility for SMEs and expanding access through widely used digital channels such as mobile technology.

Digital payment channels, particularly mobile money, are demonstrating increased efficiencies and cost reductions and should be a focus of the solutions. Of the 73 percent increase in remittances in 2020, 69 percent was sent via mobile money, average values increased by 18 percent from US 106 in September 2019 to USD 124 in June 2020 (GSMA, 2021). Mobile money is expected to pave the way towards achieving SDG target 10.c which aims to reduce the transaction costs of migrant remittances higher than 5 percent to 3 percent by 2030. Safaricom M-PESA Kenya is trailblazing by recently eliminating cross-border remittance send fees on 8 selected corridors and reducing FX margins from 5 to 3 percent.
Hybrid solutions in the pipeline championed by mobile money providers include M-PESA Africa's solution which offers integrated cross-border payments in seven African markets, and similar solutions by other MNOs including Airtel, MTN, Orange Money, or Mowali (a joint-venture of MTN and Orange JV). Through the AACB, initiatives such as the payment systems integration working group (AACB, 2020) to develop the planned African Central Bank and African Monetary Institute are fostering policy and regulatory coherence.

Participation of non-bank entities in domestic and other payment infrastructures can be addressed by designing non-costly partnerships to foster direct participation in core payment infrastructures. In most African markets, national payment switches are exclusively owned by banks directly or through their Bankers Associations. Including non-bank participants from the start in such structures would enable their participation at par with other key players. Additionally, building the institutional capacity of regulators to develop a deeper understanding and enhancing engagement in rapidly evolving business models through public-private collaboration would greatly add value.

De-risking and complex regulatory requirements can be addressed by developing payment rails that are less dependent on correspondent banking relationships. At the same time, FSPs can invest in compliance technology systems that increase accuracy and efficiency. These have been developed by big tech companies and FinTechs to serve various capacities depending on the size of the FSP.
3.2.4. CROSS-CUTTING AREAS TO ENSURE IMPACT, INCLUSIVENESS, AND SUSTAINABILITY

This section analyses the cross-cutting areas in order to achieve impact, inclusiveness, and sustainability for the pan-African cross-border e-payments framework. These areas include gender equity, digital and financial literacy, and financial inclusion.

Digitalisation contributes significantly to the acceleration and realisation of the Sustainable Development Goals (SDGs). It supports the achievement of a better quality of life via applications and platforms to foster inclusive economic growth, better quality education, and health services. Digital applications facilitate timely monitoring of climate change, noise pollution, air pollution, ocean pollution for ecological and environmental benefits. Through digital platforms, multiple stakeholders can be brought together for shared vision and collaboration to find solutions for the attainment of the SDGs. Specific to mobile technology, its contribution to economic, social, and environmental gains is delivered via multiple channels. Since 2015, mobile connectivity has contributed USD 360 billion to global GDP, or 4 percent of overall growth, around 5 million in global employment, and roughly 30 million jobs in 2019. Avoided emissions made possible by mobile technologies such as Machine-to-Machine (M2M) and the Internet of Things (IoT) enabled a 1.44 billion megawatt-hour (Mwh) reduction in energy and saved 521 billion litres of fuel globally (GSMA, 2020a).

Being a part of the digital technology realm, e-payment also contributes to achieving progress in specific SDGs, directly or indirectly via facilitating digital trade and other social aspects. Some of the major implications of e-Payments on the SDGs are illustrated below.

**Goal 1: No Poverty, Goal 2: Zero Hunger, and Goal 8: Decent Work and Economic Growth**

Digital payment is a catalyst for businesses, especially Micro, Small & Medium Enterprises (MSMEs) to address a number of the financial challenges they typically face, including overall bookkeeping capabilities, cash flow, and liquidity management. For example, the GSMA’s demand-side research in Naivasha, Kenya shows that mobile money has made a significant contribution to the SME sector since the majority of the traders relied on it [mobile money] as opposed to the formal banking sector for their day-to-day transactions. Surveyed business owners also confirmed that those services positively contributed to their business growth. Opening a mobile money account is the first time that many people used a formal financial service, and as such represents a key step for them to join the formal economy (GSMA, 2016b). As illustrated in section 2.1, increasing investment in FinTech and payment solution start-ups is an indicator of this sector’s potential. The growth of e-payment services will undoubtedly create positive externalities which will contribute to the creation of more jobs and facilitate economic growth and development.
**Goal 5: Gender Equality**

Women significantly contribute to economies around the world – inspiring and making an impact as household leaders, small business owners, and entrepreneurs. Yet women are universally underpaid, underrepresented, and face many barriers, such as access to formal financial services (Hogg, 2020). According to the World Bank, 70 percent of women-owned SMEs in developing countries are either shut out by financial institutions or are unable to receive financial services on adequate terms to meet their needs, which results in a nearly USD 300 billion annual credit deficit to formal women-owned SMEs (World Bank, 2018b). In this context, digital financial services (DFS) improve the level of access to finance and create new opportunities for women’s economic empowerment through several pathways. For example, by making information available to service providers, DFS can help eliminate biases against women as potential borrowers and consequently improve their access to finance. Moreover, by offering quick and affordable transfers, DFS can help women expand networks beyond their vicinity, enabling them to better manage shocks independently (Heath, Sulaiman, & Jahan, 2020). The Global Partnership for Financial Inclusion also pointed out pathways through which DFS can increase women’s economic participation. Examples such as increasing labour force participation and control over their money, increasing cost and time savings related to receiving and withdrawing funds from a wider social network, improving women’s ability to make business investments, improving women’s safety needs, and improving women’s ability to manage a crisis by collecting funds from relatives and friends during an economic emergency, were all cited as ways in which DFS payments enhance the economic participation of women (GPFI, 2020).

**Goal 9: Industry, Innovation, and Infrastructure**

Access to digital payment solutions can provide businesses with digital financial services and formalise their operations. In least developed countries (LDC’s), access to finance remains one of the biggest challenges, especially for MSMEs and start-ups. Flexible financing options can open up opportunities for firms to access credit. Data generating from electronic transactions can serve as a source of information signaling firms’ credibility. The Kopo Kopo model in Kenya is an interesting example of how e-payment solutions are efficiently tied to financing options for businesses. Kopo Kopo provides tools to facilitate mobile payments that enable small and medium businesses to accept mobile money payments from their customers. After consistently transacting on a Lipa Na Mpesa account through Kopo Kopo for 90 days, businesses will qualify for a cash advance, the limit of which is proportional to the transaction volumes and patterns (Kopo Kopo, 2021). Also as shown in section 2.1 of this report, the optimistic landscape of FinTech and investment in payment technology will in its turn spur research and innovation in this sector.
Goal 10: Reduce inequality within and among countries

Access to digital payment solutions will promote economic inclusion by increasing access to formal financial services and other services. This is of extreme importance to a large number of financially excluded populations, thus opening up more economic opportunities to improve their life quality. Additionally, a sound cross-border e-payments framework will act as a beacon to harmonise the regulation, monitor financial markets and institutions, and strengthen the implementation of such regulations. These all will contribute to an accessible, affordable, and fair financial system for all, as aspired in SDG 10 targets.

Goal 11: Sustainable Cities and Communities

According to the UN Population Report 2018, the population shift from rural areas could mean 2.5 billion more people will be living in urban centres by 2050, 90 percent of which will take place in Asia and Africa (UNDESA, 2018). This vast urbanisation will have an immense impact on life patterns in cities, including the use of public services and transportation (see example in Box 13). Digital payments, in combination with other technology like the Internet of Things (IoT) and Artificial Intelligence (AI) can give cities the information they need to orchestrate the increasing flows and demand for public transportation. Built on open networks and based on global acceptance standards, digital payments can help cities connect all forms of transportation as well as pool data for better-informed decision-making in city planning.

Box 13. Rwanda’s Public transportation cards Tap&Go

Introduced by AC Group/Asis – a Rwandan technology company providing smart transport solutions- in 2015, Rwanda's Tap&Go is a contactless smart card with an automated fare collection system used on all public buses in Kigali. Cardholders can simply buy the card from any service agent, load it with money and tap it on the card reader at the bus entrance. Commuters can also load their cards using MTN Mobile Money (Mudingu, 2019). Other features include booking trips on the website or the Tap&Go application and using an automatically generated QR code for boarding instead of tapping the card (Kuteesa, 2019).

Goal 12: Responsible Consumption and Production

Greater insight into consumers’ current and projected spending could contribute to influencing a shift toward a preference for sustainable consumption. Raising awareness of the environmental footprint associated with purchasing and production activities, while making that data readily and consistently available can reinforce responsible consumption and production. For example, VISA’s payments data suggest that consumers in the Nordics are responding to the call to action to protect the planet by
taking fewer flights (Hogg, 2020). An application linking passengers’ travel patterns and the carbon footprint can help them calculate the estimated impact of their travel and choose more environment-friendly options. Combined with a rewarding system, such as credit for later use of public transportation services or other public services will further reinforce the responsible use patterns.

3.2.4.1. GENDER EQUITY IN E-PAYMENTS AND DIGITAL TRADE

Despite a remarkable growth in financial inclusion rates in Sub-Saharan Africa, the gender gap remains. Women across the African continent do the majority of purchasing both offline and online. A GSMA 2020 study found that in 60 percent of South African households, women were the primary purchasers, yet they were less likely to have a bank account, mobile money account, or credit card (GSMA, 2020b). General barriers to access and usage specifically impacting women are outlined below:

Figure 17. Women’s Financial Access and Usage Barriers

<table>
<thead>
<tr>
<th>Client</th>
</tr>
</thead>
<tbody>
<tr>
<td>✗ Low awareness</td>
</tr>
<tr>
<td>✗ Lack of compelling use cases</td>
</tr>
<tr>
<td>✗ Inadequate channels</td>
</tr>
<tr>
<td>✗ Low levels of financial literacy</td>
</tr>
<tr>
<td>✗ Low phone / SIM ownership</td>
</tr>
<tr>
<td>✗ Restrictive social and cultural norms</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Institutional</th>
</tr>
</thead>
<tbody>
<tr>
<td>✗ Limited understanding of women’s unique customer needs</td>
</tr>
<tr>
<td>✗ Lack of data on business case and technical expertise to serve women</td>
</tr>
<tr>
<td>✗ Lack of gender disaggregated data to guide gender based decision making</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Ecosystem</th>
</tr>
</thead>
<tbody>
<tr>
<td>✗ Lack of uniform ID</td>
</tr>
<tr>
<td>✗ Lack of tiered KYC suitable for those not meeting basic requirements</td>
</tr>
<tr>
<td>✗ Lack of Regulation on new entities(e.g., FinTech)</td>
</tr>
<tr>
<td>✗ Poor connectivity and infrastructure(e.g., in rural areas)</td>
</tr>
</tbody>
</table>

Source: Adapted from (Women’s World Banking, 2019)

Smartphone ownership is a key barrier as are affordability, gender bias, lack of representation, unequal access to the internet, and limited digital skills. According to GSMA, in 2019, the gender gap was 13 percent for mobile device ownership and 37 percent for mobile internet usage in sub-Saharan Africa, the highest after South Asia (Figure 18). These constraints limit women’s participation in digital trade, and if they do, they are likely to use offline or cash payment on delivery options (ITC, 2020).
Studies carried out separately by the Global Banking Alliance for Women and GSMA highlight cultural and gender traits that differentiate women's behaviour and by extension needs, wants, interests, and modes of engagement with solutions presented to them. These include limited time due to time-intensive and sometimes invisible roles in the homestead; higher price sensitivity; use of informal channels for information gathering; more likely to act on peer recommendations; and considerably more loyal customers. Additionally, although their participation in financial services may be less than that of men, their activity rates are higher and they seek both emotional and financial returns on investments. At the same time, some women may have limited capacity to afford data plans and their level of digital and financial literacy is often lower than men's levels.

Yet, these behavioural traits have not been adequately factored in during product design. As an example, women-owned MSMEs are less likely to own capital and assets, to have strong banking relationships or sophisticated financial documentation needed to access higher volumes of trade finance, and are therefore more likely to be denied trade finance (DiCaprio, Yao, & Simms, 2017).

Addressing the gender gaps in Africa is crucial in delivering the significant benefits of digital trade to the whole continent. By proactively considering women's needs, demands, and constraints, and by designing products, services, and operational approaches in response, financial service providers stand not only to gain market share but also to contribute to exponential gains in social impact. For example, on the business side, more effective outreach to women can lead to a larger client base, more stable and loyal savings depositors, higher loan portfolio quality, opportunities for strategic cross-selling, and the opportunity to attract more numerous and better institutional investment (AgDevCo, 2018).
Greater economic inclusion of women has been shown to result in larger social impacts, such as increased decision-making power at household, community, and supply chain level; improved household incomes through investments in productive assets such as seeds, tools, and livestock, increased yields and productivity, superior product quality, reduced post-harvest losses, and a more stable supply chain.

In this context, some considerations in defining opportunities and recommendations include the following.

- **Promote pro-gender initiatives for empowering female end-users.** Initiatives such as e-trade for Women, a UNCTAD-led initiative that aims to empower women digital entrepreneurs in developing countries are timely (UNCTAD, 2020c). Other initiatives, such as designing tailor-made payment products that fit the specific needs and using patterns of female end-users could further advance the gender inclusion goal of payment services.

- **Promote a segmented approach to customised financial products.** Payment service providers should take a segmented approach to ensure diverse user needs are met, which includes the development of gender-specific strategies for increasing usage of e-payments for digital trade.

- **Strengthen collaboration between development partners implementing interventions** targeting women’s participation in digital trade and those promoting the use of e-payments and working with the private sector to develop compelling business cases for serving women.

### 3.2.4.2. DIGITAL AND FINANCIAL LITERACY

Digital and financial literacy have become essential in the digitization trend of financial products and services. With the increasing number of financial products introduced and the benefits promised for those who can seize the opportunities, low levels of digital and financial literacy and skills could result in major disadvantages not only to individuals but to their future generations, the financial service industry, and the economy as a whole. Therefore, addressing low digital and financial literacy should be a priority in the working agenda of policymakers, financial service regulators, and all stakeholders involved.

**Digital literacy is crucial to enable citizens and businesses to actively participate in the digital ecosystem.** There is strong demand for digital skills in Sub-Saharan Africa driven both by latent economic growth as well as the digitization and automation of agriculture, manufacturing sectors, and digital trade. Inclusive digital literacy skill-building initiatives that specifically target excluded segments will realize better outcomes.

The World Bank sets out that in the coming decades, while nobody can predict the full impact of technological change, “**policymakers face a race between technology and education, and the winners will be those who encourage skill upgrading so that all can benefit from digital opportunities**” (World Bank, 2016).
Greater awareness is important to boost digital trade. As it’s largely still growing, improved knowledge of the phenomenon can help to enhance its appeal to consumers and businesses. Consumers and small enterprises may be unaware of how to buy and sell in an online marketplace, how online payments work, or how digital trade may benefit them. Filling information gaps and raising awareness in these diverse areas are therefore crucial. Businesses, in particular MSMEs, would benefit from more awareness of consumer rights and their businesses’ obligations to consumers concerning digital commerce and payment. Stakeholders such as retailers, platform companies, banks, education, and training institutions, should contribute to raising awareness and disseminating information on digital trade and related e-payments and services, leveraging all media channels.

In addition to digital literacy, financial literacy is vital to the financial success of all economic actors to thrive in the digital era. The OECD identified financial literacy as a combination of awareness, knowledge, skill, attitude, and behaviour necessary to make sound financial decisions and ultimately achieve individual financial wellbeing (OECD, 2012). On the individual and household levels, financial literacy helps one to budget, manage debt, create savings, plan investment and retirement, and ultimately take control of their financial situation. For businesses, sound financial knowledge will allow them to effectively participate in the financial market, manage financial flows, and access trade finance products that match their financial goals. In the larger financial system and economy, financial literacy will stimulate economic activities, better regulation, and healthier competition of the industry (Kyereboah, 2020).

The greater majority of the populations in African countries have relatively low financial literacy levels. According to S&P’s Global Financial Literacy Survey, the level of financial literacy across the continent ranges from the highest of 51 percent in Botswana to the lowest of 15 percent in Somalia (Klapper, Lusardi, & Oudheusden, 2015). However, the situation is changing with the higher access to the internet and mobile phones, including smartphones. The rise of mobile money markets and digital financial service platforms can contribute to raising awareness and understanding of financial literacy. For instance, the M-Shwari 52 Week Challenge is a good example of how mobile money operators cultivate a saving culture among the population.
Box 14. M-Shwari 52 Week Challenge

M-Shwari 52 Week Challenge is a saving programme provided through the use of M-Shwari service in Kenya. The service allows clients to set a target and an amount they would like to save securely onto a mobile wallet. For example, one client can start from KSHs.50 at the beginning, making incrementally increasing deposits every week, and end up saving KSHs.68,900 by the end of the 52 weeks. The weekly savings also lead to increasing loan limits and an interest rate of 6 percent per annum. By allowing small amounts of deposits, this programme makes it easier to have saving accounts and thus cultivating the saving culture among Kenyans.

Source: Safaricom, 2021

In this context, some considerations in finding solutions to bridge the digital and financial literacy gaps include the following:

Embed digital and financial skill training and education in school and TVET programmes to ensure that relevant digital and financial knowledge and skills are acquired by the next generation and all people.

Provide capacity building for MSMEs and start-ups in digital and financial skills will get them ready for the digital age and promote the development of applications and services delivery at grass-root levels as a way to stimulate demand and make rolling out of ICT more sustainable.

Incentivise financial institutions and PSPs to provide financial literacy programmes to clients, such as supporting services, materials, and tools in making financial choices.

Prioritize the skills development of women and girls. Digital literacy of women in African countries remains low, and women are underrepresented in the ICT sector workforce. Therefore, prioritizing digital skills development for women and girls would help to bridge the gender divide, bring more working women into the formal sector and provide new opportunities for women entrepreneurs.

Embrace the Guiding principle 6 of Payment Aspects of Financial Inclusion (PAFI) Report on financial literacy and recommended key actions thereof in the formulation of regulations (for regulators), supporting programmes (for development partners), and service provision (for FIs and PSPs).

3.2.4.3. FINANCIAL INCLUSION

Despite the growth of the economy and the financial sector, many individuals and firms are still excluded from access to financial services in Africa. The World Bank identifies financial inclusion as “individuals and businesses have access to useful and affordable financial products and services that meet their needs – transactions, payments, savings, credit, and insurance – delivered in a responsible and sustainable

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24 This Guiding Principle 6: “Awareness and financial literacy: Individuals gain knowledge, through awareness and financial literacy efforts, of the benefits of adopting transaction accounts, how to use those accounts effectively for payment and store-of-value purposes, and how to access other financial services.”
way” (World Bank, 2018a). In 2011, the level of financial inclusion in Sub-Saharan Africa was just over 23 percent. In 2017, it was almost 43 percent, with a significant increase coming from digital financial services (Mastercard, 2018). However, this figure is still relatively low compared to other regions in the world.

Multiple obstacles have hindered the improving financial access across the continent. In addition to ‘having too little money to use an account’, cost, distance, and documentation requirements are also important obstacles (World Bank, 2018c). The World Bank points out that barriers to finance faced by both individuals and businesses tend to be lower in countries with more competitive, open, market-oriented, and well-regulated financial systems with more developed contractual and informational infrastructures. However, removing physical, bureaucratic, and financial barriers to expand financial inclusion is challenging since this requires addressing the underlying structural causes (World Bank, 2012). In this context, technology and innovation could help lower down these barriers and create dramatic changes in financial engagement, as evidenced by the success story of mobile money in Africa.

In addition to other factors, Informal Cross-border Trade (ICBT) is a weighty phenomenon across Africa. However, its contribution to GDP is obscured (Afreximbank, 2020a). Informal Cross Border Trade (ICBT) is mostly characterized by the movement of people across borders and contributes significantly to the intra-regional trade however the gains from ICBT are rarely recognized mainly because of the lack of an effective and coordinated payment system. This has been further exacerbated by the COVID-19 pandemic which has adversely affected African economies as trade has been disrupted due to border closures. It is estimated that a substantial share (30 percent – 40 percent) of Africa’s regional trade is informal, and that four times as many cross-border traders are likely to be operating outside the formal economy than within it (Zarrilli & Lopez, 2020). Informal trade and payments are not captured in national or regional reporting hence their actual contribution is largely unknown. This creates unfair competition for formally registered cross-border service providers who pay license fees and incur regulatory and operational costs and informal trade and payments lack transparency and can easily be used for illegal activities (UNCTAD, 2017).

Similarly, informal cross-border payments are prevalent in SSA, indicative of a formal market that is not functioning optimally to serve people’s needs, and especially lower-income people and women. High cross-border transfer costs, lack of access to required identity documentation, and lack of trust in formal financial services are major drivers (CENFRI, 2020). According to GSMA, lack of available and easily accessible formal remittance channels and familiarity with informal channels are additional factors (GSMA, 2018a). A combination of barriers in the formal sector and the unavailability of more trusted informal channels drive users to informal services.
Box 15. Informal Service Providers

Informal channels are preferred by certain customer segments because of their soft stance towards Know Your Customer (KYC) processes. Increasingly, informal service providers are modelled after formal providers and may have tellers, instant transfers, or formal digital channels. They also frequently offer better foreign exchange rates. In corridors that have suffered de-risking, informal providers are often the only links for cross-border transfers. Although the level of risk posed by their unregulated services can be high, informal channels are often more trusted than banks given their knowledge of and close interactions with consumer communities.

Source: CENFRI (2018)

Introducing and scaling digital solutions can support the growth and formalisation of cross-border trade, fostering inclusive growth and women’s empowerment. Insights from future studies can also continue to inform policies that create an enabling regulatory environment for mobile money and other digital solutions that can unlock greater efficiencies in Intra African trade and help achieve the Sustainable Development Goals (SDGs).

In this context, the suggested opportunities to improve financial inclusion include the following:

Provide incentives for PSPs to offer unique advantages to compete with informal remittance channels and addressing gaps in access and usage (such as the urban-rural gap and the gender gap in access to payment services).

Empower women, youth, and SMEs by smoothening their entry and operational barriers.

Tailor platforms and products/services for usage in rural and underdeveloped settings to bridge the geographical exclusion.

Use of easily accessible innovative payment options (such as virtual payment cards offered by Zazu in Zambia and others).

Promote the adoption of a good practices framework, such as the UN Principles for Responsible Digital Payments (replacing the UN-based BTCA's “Responsible Digital Payments Guidelines”), the Global Partnership for Financial Inclusion (GPFI) G20 High-Level Principles for Digital Financial Inclusion, the Financial Inclusion Global Initiative (FIGI), Outputs from ITU Focus Group on Digital Financial Services, Global Dialogue on Digital Financial Inclusion by ITU, and the adoption of the Digital Financial Services

26 See more detail at [https://www.itu.int/en/mediacentre/Pages/2017-PR36.aspx](https://www.itu.int/en/mediacentre/Pages/2017-PR36.aspx)
Consumer Competences Framework (29) for consideration in the policy-making and service design in the move from cash to digital payments. The wide adoption and compliance with these principles will create a healthy financial ecosystem that will encourage participation, enhance trust from the clients in embedding digital financial services into their daily activities, thus increasing life quality and generate knock-on effects to reducing poverty and driving inclusive growth.

**Box 16. Responsible Digital Payment Principles/Guidelines**

The UN-based Better Than Cash Alliance (BTCA) “Responsible Digital Payments Guidelines” provide a helpful framework for all stakeholders supporting responsible practices in the move from cash to digital payments in order to reduce poverty and drive inclusive growth. It identifies eight good practices for engaging with clients who are sending or receiving digital payments and who have previously been financially excluded or underserved. As a rule of thumb, the guideline points out that for clients to adopt and use digital payments, they need to be treated fairly and feel protected from risks, such as loss of privacy, exposure to fraud, and unauthorized fees. Therefore, service providers should proactively take steps to protect their clients and that regulators should ensure a sound consumer protection regulatory framework. Moreover, in an inclusive digital payments ecosystem, it is important for all the stakeholders to do their part to ensure that digital payments are made responsibly. At the time of writing the guidelines are being re-issued under the title of UN Principles for Responsible Digital Payment.

Source: (BTCA, 2016)

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29 The Digital Financial Services Consumer Competences Framework provides a curriculum for digital literacy for consumers and was developed by the ITU under the Financial Inclusion Global Initiative (FIGI). FIGI is a joint programme of the ITU, World Bank and Bank for International Settlements (BIS) that aim at implementing the recommendations of the Payment Aspects of Financial Inclusion (PAFI) report at country level.
Box 17. G20 High-Level Principles for Digital Financial Inclusion

The G20 High-Level Principles for Digital Financial Inclusion provide a basis for country action plans reflecting country context and national circumstances to leverage the huge potential offered by digital technologies. The eight principles are based on the rich experience reflected in G20 and international standard-setting bodies’ standards and guidance. They also recognize the need to support innovation while managing risk and encouraging the development of digital financial products and services.

Source: (GPFI, 2016)

Box 18. The Financial Inclusion Global Initiative

The Financial Inclusion Global Initiative (FIGI) is a three-year programme implemented in partnership by the World Bank Group (WBG), the Committee on Payments and Market Infrastructure (CPMI), and the International Telecommunication Union (ITU), funded by the Bill & Melinda Gates Foundation (BMGF), to support and accelerate the implementation of country-led reform actions to meet national financial inclusion targets, and ultimately the global ‘Universal Financial Access’ goal. Together these organizations are implementing the work of the CPMI–World Bank Group Task Force on the Payment Aspects of Financial Inclusion (PAFI), the BMGF’s Level One Project, and the ITU Focus Group – Digital Financial Services recommendations, to deliver implementation solutions, deep topical analyses and practical investigations, working toward the goal of Universal Financial Access.

4. BLUEPRINT ROADMAP

On the basis of the vision and framework built in previous sections, this section presents in further detail the strategic intervention to deliver the ultimate goal of an effective e-payments system to facilitate digital trade across the continent. The strategic interventions will aim to first of all address the challenges and leverage the potential of the digital transformation for e-payments in Africa. Feedback and insights collected during the consultations serve as valuable inputs for the action roadmap. This section also includes recommendations for an institutional framework to ensure regional cooperation and an M&E system to monitor the blueprint implementation and expected outcomes.

4.1. ACTION ROADMAP

This section lays out the recommended actions, associated implementation timeline, resources, and estimated level of budget to deliver the ultimate goal of an effective e-payments system to facilitate digital trade across the continent. The recommended actions are based on the situational analysis and subsequent general recommendation made in the previous section, the pre-developed e-payment concept note, and other digital blueprints (such as the Blueprint for Digital Identity, the Blueprint for the Development of an ICT Start-Up and Innovation Ecosystem, etc.). Additionally, the recommendations are also inspired from the discussion within the Working Group over the months of February-March 2021, the documents presented and recommended by the Working Groups, among others, the UN Principles for Responsible Digital Payments, the G20 High-Level Principles for Digital Financial Inclusion, the Committee on Payments and Market Infrastructures’ 19 building blocks of a global roadmap for enhancing cross-border payments, etc. (CPMI, 2020; BTCA, 2016; GPFI, 2016). While the roadmap was formulated by the Member States of SAS, outreach to all 54 nations in Africa is highly recommended.
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<tr>
<th>No.</th>
<th>Strategic Intervention</th>
<th>Baseline condition</th>
<th>Expected Results</th>
<th>Time-line*</th>
<th>Priority level**</th>
<th>Resources ***</th>
<th>Potential Partner</th>
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<tbody>
<tr>
<td>1</td>
<td>Establish a Sub-Committee on Financial Service (under AIFTA negotiation on E-Commerce) to support the upcoming negotiations for Schedules of Specific Commitments on Trade in Services (including Financial Services and Digital Financial Services)</td>
<td>TSWG/Expert Group still being formed mid-2021</td>
<td>Integrated approaches to facilitate market access commitments to liberalisation financial markets (including payments services), harmonisation, and mutual recognition of regulatory regimes for digital payment</td>
<td>1 year</td>
<td>Medium-High</td>
<td>Medium-High</td>
<td>AfCFTA Secretariat, AU, Relevant Ministries, International Donors</td>
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<td>2</td>
<td>Strengthen the Financial Consumer Protection Regime, to address issues in respect of responsibilities of financial service providers; prohibition of abusive practices; privacy and security of client data; and the implementation of internal policies and procedures, among other things</td>
<td>Gaps and shortcomings in current financial consumer protection regime, especially in respect of data use</td>
<td>Reduction of potential harms arising from the improper use of data and enhancement of protection of individuals in general and in cross-border e-payment transactions in specific</td>
<td>1-3 years</td>
<td>Medium-High</td>
<td>Medium-High</td>
<td>AfCFTA Secretariat, AU, Relevant Ministries, International Donors, Donors</td>
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<td></td>
<td>Enhancing regulatory framework for PSPs licensing and operation</td>
<td>Licensing laws largely not aligned with developments and innovations associated with financial products and services</td>
<td>Enhanced licensing regulatory framework which aligns with the sophistication of financial products and services and facilitates the development of a modern financial system and financial inclusion</td>
<td>3-5 years</td>
<td>High</td>
<td>Medium</td>
<td>Central Banks and Financial Regulators, PSPs, FinTech players</td>
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<td></td>
<td><strong>Activity 1.</strong> Review and revise licensing laws to achieve regulatory harmonization, focusing on the regulation and recognition of the impact of FinTech on financial inclusion, updating financial regulatory frameworks, and fostering the adoption of technology</td>
<td>The Regulatory framework governing the FinTech industry is determined to be ad hoc, such that harmonization of approaches to regulation through the AACB and harmonisation of core standards across the industry is needed</td>
<td>Use of regulatory sandboxes for FinTech companies and the creation of a harmonized approach which can promote Fintech's cross-border operations/establishment</td>
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<td><strong>Activity 2.</strong> Enhance the harmonisation of standards governing the FinTech industry across Africa, through the creation of a coordinated and cohesive approach in promoting innovation</td>
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**Infrastructure & Interoperability**
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<th>Expected Results</th>
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<th>Potential Partner</th>
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<tbody>
<tr>
<td>1</td>
<td>Adopting open standards for interoperability</td>
<td>Industry-wide adaption of open standards, across payment systems</td>
<td>Disaggregation of identity information, duplicated due diligence process, fragmented data systems, and lack of civil identity information leading to costly due diligence processes and/or low level of access to financial services.</td>
<td>3-5 years</td>
<td>Med</td>
<td>Low</td>
<td>AACB, AfCFTA Secretariat, Relevant Ministries, Financial Regulators, FinTechs</td>
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<td>2</td>
<td>Integrated information systems to facilitate access to financial services</td>
<td>The proliferation of proprietary/closed-loop payment networks inhibiting the interoperability that also drives up costs.</td>
<td>Industry-wide adoption of open standards across payment systems</td>
<td>1-3 years</td>
<td>High</td>
<td>Low</td>
<td>AACB, AfCFTA Secretariat, Financial Regulators, Fragile States Institute</td>
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<td>3</td>
<td>Preparing a white paper on recommending the most relevant open standard, adapted to the African e-payments landscape.</td>
<td>Activity 1: Prepare a white paper on recommending the most relevant open standard, adapted to the African e-payments landscape.</td>
<td>Activity 2: Support countries in the adoption of relevant open standards across all payment systems</td>
<td>3-5 years</td>
<td>Med</td>
<td>Low</td>
<td>AACB, AfCFTA Secretariat, Financial Regulators, FinTechs</td>
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<td>4</td>
<td>Support countries in the adoption of relevant open standards across all payment systems</td>
<td>Activity 1: Support countries in the adoption of relevant open standards across all payment systems</td>
<td>Activity 2: Establish interoperable, technology-neutral systems for both natural persons' and legal entities' identity systems, linking relevant civil registration and identity systems and appropriately and securely accessible to authorized parties, such as financial service providers, in accordance with data protection laws</td>
<td>3-5 years</td>
<td>Med</td>
<td>Low</td>
<td>AACB, AfCFTA Secretariat, Relevant Ministries, Financial Regulators, FinTechs</td>
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<td></td>
<td>Integrated payment systems</td>
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<td><strong>Activity 1.</strong> Encourage the adoption of guidelines developed by the African Union’s Payment Systems Integration Working Group (PSIWG) from its work on a framework for the establishment of a new integrated payment infrastructure to facilitate inter-regional payment flows using ISO/BIS recommended standards.</td>
<td>Fragmented payment systems resulting in relatively high cost of payments both within countries and cross-border.</td>
<td>Enabling access and ability to pay across borders</td>
<td>1 year</td>
<td>Med</td>
<td>Low</td>
<td>AUC, AACB, AfCFTA Secretariat, Central Banks, WB, AfDB</td>
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<td><strong>Activity 2.</strong> Facilitate payment system integration at the continental level for both real-time retail payment systems and RTGSs.</td>
<td>No standardised operational guidelines between REC’s or countries that provide certainty of transactions between the whole range of e-payments providers</td>
<td>Expanding adoption of Open Finance to enhance financial services; Enabling access and ability to pay across borders</td>
<td>1-3 years</td>
<td>Med</td>
<td>Low</td>
<td>Central Banks, Financial Regulators, AACB, AfCFTA Secretariat, WB, AfDB</td>
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<td>Promoting Open Finance</td>
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<td><strong>Activity 1.</strong> Enact regulations and issue guidelines to encourage the move to ‘Open Finance’ for permissioned sharing of financial information electronically, securely, and strictly subject to customers’ consent to provide them with better financial services.</td>
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<td><strong>Activity 2.</strong> Run pilots of Open Finance solutions at national and regional levels, under the close supervision of regulators.</td>
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<td>Business Ecosystem &amp; Strategic Partnerships</td>
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<td>Lowering the cost for cross-border payments</td>
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<td><strong>Activity 1.</strong> Conduct studies on pricing for cross-border payment for digital trade in Africa</td>
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<td>AfCFTA; Development partners</td>
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<td><strong>Activity 2.</strong> Provide technical assistance for FSPs to develop competitive pricing strategies</td>
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<td>SSA fees are the highest globally at 8.9 percent and below SDG 10.c recommended 3 percent. High fees and FX margins a key contributor to informality which obscures the real market potential</td>
<td>1-3 years</td>
<td>Medium</td>
<td>Low</td>
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<td>Support new business partnerships models</td>
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<td><strong>Activity 1.</strong> Strengthen and support new models that can integrate multiple cross-border payment systems tailored for trade flows.</td>
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<td><strong>Activity 2.</strong> Promote the integration of payment aggregators in cross-border payment platforms to ease access for digital trade.</td>
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<td><strong>Activity 3.</strong> Support and advocate for more competitive cross-border payment ecosystems, call to action for adoption and partnerships between payment system operators and other PSPs to address entry barriers into cross-border digital payments, such as complex compliance requirements, currency, high fees and ultimately reduce reliance on correspondent banking relationships.</td>
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<th>Potential Partner</th>
<th>Cross-cutting area(s)</th>
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<td>Fragmented payment systems with limited interoperability to FSP's offering the same services (e.g., MNO's or Banks.)</td>
<td>Promote the adoption of Interoperability agreements and other partnerships among different PSPs to facilitate the delivery of interoperable payment services to users</td>
<td>3-5 years</td>
<td>Medium</td>
<td>Low</td>
<td>Central Banks, AACB, PSPs &amp; Other payment aggregators</td>
<td>Payment Infrastructure, Interoperability</td>
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<td>Develop implementable pilot plans to demonstrate practical use cases and iterate for subsequent scaling based on pilot results. An E-commerce use case: a selected test case with a platform provider, merchants, and payment service providers. Pilot locations Ghana, Rwanda, then Kenya corridor in a phased approach. In the future open up to Egypt, Ivory Coast, and Uganda (See more details in Annex 9)</td>
<td>Recommendations arising from such studies are often not tested and therefore not implemented despite being robust and useful</td>
<td>Improving the ecosystem via showcasing the possibility of enhancing partnership across all market players (e-commerce platform, PSPs, MNO)</td>
<td>1 year (1-3 months preparation 6 -9 months pilot and review)</td>
<td>High</td>
<td>Low</td>
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<tr>
<td>Cross-cutting areas</td>
<td>Established Africa Digital Financial Inclusion Taskforce at the continental level, and National Digital Financial Inclusion Taskforces at the national level, comprising of public sector/regulators (policymakers, central banks, financial supervisors, relevant regulatory authorities, financial ombudsmen, and others with responsibilities related to digital financial services, including telecommunications, competition, and consumer protection), as well as representative from private sectors (commercial banks, other non-bank financial institution, FinTech, consumer protection association, etc.) to lead, involve in or be consulting for, and monitor the progress of initiatives related to digital financial inclusion</td>
<td>Digital financial services and related services are regulated under different agencies leading to fragmented improvement and delayed adoption of new initiatives</td>
<td>A Focal Point to ensure effective coordination and collaboration, as well as an experience- and knowledge-sharing mechanism to drive the digital financial inclusion initiatives forward and boost universal access to finance and digital finance across the continent</td>
<td>1-3 years</td>
<td>High</td>
<td>Medium</td>
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<th>Potential Partner</th>
<th>Cross-cutting area(s)</th>
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<tr>
<td>1</td>
<td>Tailoring and/or Diversifying Digital Financial Products/Services</td>
<td>Underserved population due to geographical, gender, and other barriers in access to financial services</td>
<td>Higher percentage of population, including female, rural citizen, and youth, having access to digital payment services that suit their spending patterns and goals</td>
<td>1 year</td>
<td>Medium</td>
<td>Medium</td>
<td>Development finance institutions (e.g., UNCDF, World Bank, ITU, CEN-FRI, WEF)</td>
<td>Business ecosystem</td>
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| 2   | **Activity 1.** Hold a hackathon among PSPs and Digital Financial Services Providers (DFSPs) for designing innovative tailor-made digital payment products that fit the specific needs and usage practices of female end-users. **
   **Activity 2.** Hold a hackathon among PSPs and DFSPs for designing innovative digital payment, and digital lending, products, and services for rural and underdeveloped settings to bridge the geographical exclusion. | Build and pilot Voluntary Evaluation Programmes or Certification mark for certifying adoption of good practices frameworks (such as the UN Principles for Responsible Digital Payments or the Global Partnership for Financial Inclusion (GPFI) G20 High-Level Principles for Digital Financial Inclusion in the policy-making (by regulators) and service design (by DFSPs) in the move from cash to digital payments. Geographical coverage: West Africa, then the other SAA Member States | The adoption of good practices and principles are not systematically adopted, recorded, or aligned across countries | The wide adoption of good practices framework by both regulators and service providers to ensure a fair, interoperable, and responsible e-payment ecosystem leading to wider inclusion and usage of e-payments systems | 3-5 years | Medium | Low | Central Banks, Ministries of ICT in Member States, Development finance institutions (e.g., UNCDF, World Bank), ITU, CEN-FRI, GPFI | Regulatory Framework-Business ecosystem, Interoperability |
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<th>Cross-cutting area(s)</th>
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<td>Capacity building programmes</td>
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<td></td>
<td><strong>Activity 1.</strong> Provide capacity building programmes (such as training at national and regional levels, peer learning programmes/platforms) for supervisors of the legal and regulatory framework on digital financial inclusion and the adoption of digital technologies to rule-making and supervision (i.e., regtech), as appropriate, to improve their processes and capacity for supervision.</td>
<td>Regulations and practical skills in using digital and financial management tools are considerably lagging compared to the pace of technology development</td>
<td>Regulations are developing at a pace sufficient to catch up with changes in technology and business models that will allow digital financial services and cross-border e-payment to thrive; Public and private Institutions possessing enhanced capacity to adopt new technology to increase productivity and financial management for sustainable growth</td>
<td>1-3 years</td>
<td>High</td>
<td>Medium</td>
<td>Central Banks, Ministries of ICT in Member States, Private Sector, Development finance institutions (e.g., UNCDF, World Bank), ITU, CEN-FRI</td>
<td>Regulatory Framework-Business ecosystem</td>
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<td></td>
<td><strong>Activity 2.</strong> Provide capacity building programmes for MSMEs and start-ups in practical digital and financial skills (how to source and sell online, how to make payment online, how to manage cash flows, and access to finance)</td>
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</tr>
<tr>
<td>No.</td>
<td>Strategic Intervention</td>
<td>Baseline condition</td>
<td>Expected Results</td>
<td>Priority level**</td>
<td>Time-line*</td>
<td>Resources ***</td>
<td>Potential Partner</td>
<td></td>
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</tr>
<tr>
<td>Activity 1.</td>
<td>Develop collaborative programmes with financial institutions, PPs, and DFSPs to provide financial literacy training to clients, in collaboration with the responsible government agencies or development partners, such as supporting services, material and tools in making financial choices relevant to their products and services.</td>
<td>Client-Financial Service Providers relationship is currently governed by lengthy, puzzling service agreements that engender little or harm trust.</td>
<td>Enhanced digital and financial literacy, increasing number of highly skilled professional in digital finance, especially for women and youth</td>
<td>High</td>
<td>3-5 years</td>
<td>Medium</td>
<td>Central Banks, Ministries of ICT in Member States, Private Sector, Development finance institutions (e.g., UNCDF, World Bank), ITU, CI, SO, CSOs</td>
<td></td>
</tr>
<tr>
<td>Activity 2.</td>
<td>Adopt digital tools into financial literacy and digital literacy programmes to build fundamental understanding, confidence in using digital financial services. For example, using SMS messages to inform specific consumer decisions or remind savings goals; online tools such as games to teach fundamental financial management skills; digital toolkits for support individual and business financial management; interactive educational programmes, etc.</td>
<td>Digital and financial literacy currently at a relatively low level.</td>
<td>Lack of technical professional in new technology areas linked to e-payments</td>
<td>Medium</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Activity 3.</td>
<td>Develop and embed practical digital and financial skills training programmes into school and TVET curricula (for example, part of science, technology, engineering, and mathematics – or STEM education), such as how to calculate interest and manage financial flows.</td>
<td>Low practical use of digital and financial knowledge</td>
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</tr>
<tr>
<td>Activity 4.</td>
<td>Develop technical training programmes with a focus on new generations of professionals (e.g., data architects, solution engineers, AI Machine Learning developers, etc.)</td>
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</tr>
<tr>
<td>Activity 5.</td>
<td>Develop digital and financial skill training programmes for women and girls, such as replication and expanding opportunities to join financial and digital boot camps for females (in corporation with programmes such as SheTrades, SheCode)</td>
<td></td>
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</tr>
<tr>
<td>No.</td>
<td>Strategic intervention</td>
<td>Baseline condition</td>
<td>Expected Results</td>
<td>Time-line*</td>
<td>Priority level**</td>
<td>Resources ***</td>
<td>Potential Partner</td>
<td>Cross-cutting area(s)</td>
</tr>
<tr>
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</tr>
<tr>
<td>1</td>
<td>Develop a robust M&amp;E framework to track progress on digital financial inclusion, which could include, for example, establishing key performance indicators for the uptake and usage of digital financial products and services, conducting demand-side surveys of individuals and firms on financial inclusion, establishing online data portal and/or publish regular reports on the adoption of digital financial services, conducting impact assessments of key activities relevant to digital financial inclusion, etc.</td>
<td>Lack of a robust M&amp;E framework to inform new policy-making process and new interventions</td>
<td>A robust M&amp;E framework to inform new policy-making process and new interventions</td>
<td>1-3 years</td>
<td>Medium</td>
<td>Low</td>
<td>Central Banks, Ministries of ICT in Member States, Private Sector, DFIs (e.g., UNCDF, World Bank), ITU, CENFRI</td>
<td>-</td>
</tr>
</tbody>
</table>

*Timeline: under 1 year, 1-3 years, 3-5 years; ** Priority Level: Low, Medium, High; *** Resources (Low: <1 million USD; Medium: from 1 million to less than 5 million; High: more than 5 million). Source: Authors’ compilation
4.2. INSTITUTIONAL FRAMEWORK

This section presents the proposed governance structure and technical framework for decision-making processes that will bring together public and private stakeholders in the monitoring and oversight of the blueprint implementation.

The SAS has established a Working Group at the outset of this Blueprint Development. The Working Group comprises representatives from government agencies, international organisations, as well as banks and other financial service providers (the list of the contributors to the blueprint including working group members is provided in Annex 1). The Working Group Members have immense knowledge and experience in the payment and financial services sector and have contributed significant inputs to the development of this Blueprint.

Built on the existing Working Group structure, and taken into consideration the proposed actions in section 4.1, it is proposed that SAS maintain a relevant structure for the oversight of the implementation of the Blueprint Action Roadmap (i.e., the 'e-Payments Working Group'). Cooperation from the Central Banks and the banking industry should be emphasised and enhanced as they play the role of regulators and incumbent actors, respectively, in the cross-border payment systems. Widespread participation and/or support from these actors to the Working Group and Action Roadmap will be critical to the successful implementation of the Blueprint. In terms of structural organization, the Working Group can be divided into smaller teams relevant to the core pillars to advise the SAS and other relevant stakeholders in the implementation of the Roadmap actions.

The implementation of this Blueprint Roadmap will be coordinated by the SAS e-Payments Working Group (ePWG). In order to ensure balanced participation from all key stakeholders, the ePWG will be led by one Chairperson and two Co-Chairpersons representing the public sector, the private sector, and other international organisations. The ePWG chairmanship will be done on an annual rotational basis. The membership of the ePWG, as recommended above, should aim to be representative of the public and private sector of the SAA member countries and related industries.

The main responsibilities of the ePWG will be to initiate, monitor, and review the implementation of the Blueprint Roadmap; mobilise resources for its implementation; as well as to promote the wide adoption of the Blueprint recommendations and principles. The ePWG should cover the technical work arising from the Blueprint, take stock of the implementation of relevant activities and programmes, and be the link among stakeholders. To make the ePWG fully functional, sufficient technical human and financial resources should be allocated.

Cross-border e-payment is a critical element of financial services and e-commerce, and therefore cross-border e-payment should be part of the ongoing AfCFTA negotiations on trade in services and e-commerce. However, the AfCFTA does not currently have an established committee or technical working group in charge of dealing with payment-related matters. In this context, it is proposed that the prospective Sub-Committee
on Financial Service (under Committee on Trade in Services) should play the key role in ensuring the coordination and implementation of the payment-related aspects in the AfCFTA Phase II negotiations (including for Trade in Service specific schedule of commitments and Digital Trade protocol). These should include, but not limited to, proposing approaches and modalities for payment services-related negotiations, undertaking situational analysis of payment across the continent, providing technical assistance and recommendations to support the AfCFTA negotiations. Considering its work on payment and digital trade, the SAS should be supporting the e-payment-related aspects of the AfCFTA negotiations.

4.3. M&E SYSTEM

M&E frameworks play a critical role in supporting the implementation of public policies and strategies, as well as to measure the progress of regional integration processes. An M&E system has two main objectives: compliance monitoring and outcome monitoring.

**Compliance Monitoring** can be defined as the continuous process of gathering and analysing information on the implementation of a regional economic integration (REI) process or strategy, usually covering the legal obligations of individual member states, harmonisation of laws and regulations, and measures agreed upon from relevant binding protocols.

**Outcome Monitoring** refers to the collection and analysis of information on changes resulting from implementation. Outcome monitoring shows a rather more systematic observation of key indicators, including both qualitative and quantitative, effects of compliance, changes and challenges faced, and so on.

Such objectives are not exclusive, but rather complementary: a complete and comprehensive M&E framework needs to include both compliance and outcome monitoring indicators that measure the inputs, impacts, outcomes, and outputs at regional and national levels.

*Figure 19. M&E Frameworks’ objectives*

Source: Author’s adaptation from (Morra-Imas, 2009)

Building an M&E Plan should follow a three-phase approach. The M&E implementation plan can be divided into three main phases: Conception, Engineering, and Implementation:

- **The Conception Phase** will aim to elaborate the Theory of Change and the design thinking, elaborate the table of indicators for monitoring purposes, agree on
the format of collection methods of data, assign responsibilities for collection, monitor and analyse the frequency of steps and approval processes, and agree on the principles of public dissemination of results and the format for reporting purposes.

- **The Engineering Phase** will consist of engineering and building the actual M&E tool. This phase will represent the implementation of the technical aspects, such as the baseline data collection task, which might entail surveys or tracing studies, dealing with missing data, normalisation of data, weighting, and aggregation, etc.

- **The Implementation Phase** will consist of using the indicators developed. Thus, the different steps highlighted here are cyclical in nature, having to be repeated every certain period of time in order to keep the tool alive.

*Figure 20. M&E Implementation Plan*

As mentioned above, the ePWG will be the key institution undertaking the monitoring and evaluation (M&E) of the Blueprint Roadmap. The strategy should also be periodically reviewed and updated, ensuring that the implementation remains focused on delivering its strategic objectives and expected desired results.
A suggestive high-level Result Framework for the Blueprint Roadmap M&E is provided below.

**Table 2. Suggestive High-Level Result Framework**

**IMPACT**

The e-Payment Blueprint will contribute to an interoperable, safe, affordable, and responsible African cross-border e-payments ecosystem to increase trade across the continent, gearing toward the African Digital Transformation

<table>
<thead>
<tr>
<th>Outcome</th>
<th>Indicator</th>
<th>Source of information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Outcome 1: Policy &amp; regulatory framework</td>
<td>Number of legal instruments on Consumer Protection enacted</td>
<td>Legal compendia/Official Gazettes by Ministries of Justice/Offices of Attorney-General UNCTAD Cyberlaw trackers</td>
</tr>
<tr>
<td></td>
<td>Establishment/existence of national authority for consumer protection</td>
<td>National Competition Agency or other agency in charge</td>
</tr>
<tr>
<td></td>
<td>Number of legal instruments on Data Privacy and Data Protection enacted</td>
<td>Legal compendia/Official Gazettes by Ministries of Justice/Offices of Attorney-General UNCTAD Cyberlaw trackers</td>
</tr>
<tr>
<td></td>
<td>Establishment/existence of national authority for data protection</td>
<td>Ministry in charge of Personal Data Protection</td>
</tr>
<tr>
<td></td>
<td>The number of countries allowing pass-porting licenses</td>
<td>Reports from Line Ministries Official Gazette</td>
</tr>
<tr>
<td>Outcome 2: Infrastructure &amp; Interoperability</td>
<td>All regional payment systems are interconnected to support the seamless flow of payments</td>
<td>Report from AACB and Central Banks (where available)</td>
</tr>
<tr>
<td></td>
<td>Adoption of global standards on payments - The number of national payment systems adopting ISO 20022 standards</td>
<td>ISO 20222 page</td>
</tr>
<tr>
<td></td>
<td>All regional payment systems are interconnected to support the seamless flow of payments</td>
<td>Report from AACB and Central Banks (where available)</td>
</tr>
<tr>
<td>Outcome 3: Business Ecosystem &amp; Strategic Partnerships</td>
<td>Number of partnership agreements between PSPs</td>
<td>Central Banks’ reports (where available)</td>
</tr>
<tr>
<td></td>
<td>The number of new PSPs for cross-border e-payment services annually</td>
<td>Reports from Line Ministries</td>
</tr>
<tr>
<td></td>
<td>The number of new cross-border e-payment services provided annually</td>
<td>Reports from Line Ministries</td>
</tr>
<tr>
<td>Outcome</td>
<td>Indicator</td>
<td>Source of information</td>
</tr>
<tr>
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</tr>
<tr>
<td>Outcome 4: An inclusive digital payment eco-system</td>
<td>Gender Equity - The proportion of female/male having access to mobile payment and other digital financial services</td>
<td>IMF Financial Access Survey, World Bank Global Financial Inclusion (Global Findex) Database</td>
</tr>
<tr>
<td></td>
<td>Digital Literacy – The number of professionals with digital skills training</td>
<td>Ministries in charge of Education/Technical and Vocational Education and Training</td>
</tr>
<tr>
<td></td>
<td>Financial Inclusion - percentage of people having access to financial services (including digital financial services)</td>
<td>IMF Financial Access Survey, World Bank Global Financial Inclusion (Global Findex) Database</td>
</tr>
</tbody>
</table>

### 4.4. RISK ANALYSIS AND MITIGATION

**Table 3. Risk Analysis and Mitigation**

<table>
<thead>
<tr>
<th>Risk type</th>
<th>Description</th>
<th>Risk</th>
<th>Impact</th>
<th>Mitigation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low buy-in or political will</td>
<td>Low level of engagement from central banks, responsible governmental agencies, and other stakeholders to support the implementation of the Blueprint actions</td>
<td>High</td>
<td>High</td>
<td>Ensure a strong and dedicated team to proactively approach the central banks, responsible governmental agencies, and other stakeholders where relevant, to push for the action, cooperation, and garner the commitment from stakeholders through effective communication and work plans.</td>
</tr>
<tr>
<td>Poor coordination and collaboration</td>
<td>Most initiatives and actions in the Blueprint require very strong coordination among public and private sectors across countries</td>
<td>High</td>
<td>High</td>
<td>Effective communication across all stakeholders, with SAS taking a proactive approach in coordination</td>
</tr>
<tr>
<td>Legal and Regulatory</td>
<td>Delays in enacting and implementation of various legal and regulatory reforms</td>
<td>High</td>
<td>High</td>
<td>Legal reforms normally take time. In this context, it is proposed that the progress be pushed forward at the continental level via facilitating the acceleration of the AfCFTA negotiations on E-Commerce and Schedules of Specific Commitments on Trade in Services (including Financial Services and Digital Financial Services) to urge domestic internationalisation of the AfCFTA commitments</td>
</tr>
<tr>
<td>Risk type</td>
<td>Description</td>
<td>Risk</td>
<td>Impact</td>
<td>Mitigation</td>
</tr>
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<tr>
<td>Low level of industry adoption</td>
<td>Likelihood of industry not embracing changes in areas that increase competition or disrupt existing business models</td>
<td>High</td>
<td>High</td>
<td>Close collaboration and robust engagement with the industry, with strong support from the public sector to offer overall guidance</td>
</tr>
<tr>
<td>Institutional capacity</td>
<td>Limited capacities across all concerned institutions slow down the rate of execution of strategic initiatives and activities</td>
<td>Medium</td>
<td>High</td>
<td>Focused efforts to attract talents and capacity building for relevant skills</td>
</tr>
<tr>
<td>Technology complexity</td>
<td>Key stakeholders not being able to keep pace, manage and/or adopt rapid technology changes</td>
<td>Medium</td>
<td>Medium</td>
<td>Extend capacity building and R&amp;D programmes to support relevant stakeholders to keep pace with emerging technologies</td>
</tr>
<tr>
<td>Overlap of initiatives</td>
<td>Lack of linkages between the ongoing initiatives and programmes leading to potential overlapping efforts</td>
<td>Medium</td>
<td>Low</td>
<td>Conduct and update mapping of related initiatives. Maintain frequent and effective communication with stakeholders to keep them updated on the implementation and to obtain potential support (financially and operationally)</td>
</tr>
</tbody>
</table>

### 4.5. COMMUNICATION PLAN

The engagement from key stakeholders in both the public and private sectors toward the implementation of the Blueprint Roadmap is crucial. It is, therefore, necessary to have a proactive Communication Strategy to enhance the knowledge and understanding of both the Blueprint and the Blueprint Roadmap, to further garner the interest and support of all stakeholders – particularly the central banks and line ministries – as well as to closely engage partner entities from the private sector and donor community in the implementation.

Different communication messages should be tailored according to specific circumstances. However, overall, the communication pieces should emphasise the outcomes and impact of the Blueprint. The main communication messages should be done regularly, for example, every three to six months to reflect the changes and impacts brought about by the implementation of the Blueprint Roadmap. Other big messages can also be anchored on the achievement of milestones, such as workshops, publications, etc. Individual messages/stories can be posted when available (for example, the launch of new products or services, success stories, etc.)
In terms of the target audience, the immediate target audience should be the line ministries (including the central bank) and private sector actors to garner their interest and support for the implementation of the Blueprint. It should also trigger interest from the development partners (resident and non-resident) who will be active supporters in the implementation of the Blueprint. The communication will also target the general public, including, amongst others, the chambers of commerce, associations, SMEs, etc.

**Table 4. Suggestive Communications Plan for Blueprint Roadmap Implementation**

<table>
<thead>
<tr>
<th>Channel</th>
<th>Description</th>
<th>Target Audience</th>
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</thead>
<tbody>
<tr>
<td>Website</td>
<td>Sub-site to be hosted under the SAA website to show the implementation progress, therefore enhancing the knowledge and understanding of the Blueprint and its Roadmap, as well as cultivate the interest and support of all stakeholders for effective implementation.</td>
<td>Line Ministries, Development Partners, and Private Sector</td>
</tr>
<tr>
<td>Social Media (LinkedIn, Facebook, Twitter, etc.)</td>
<td>Through SAS’ account, and in coordination with the relevant partners to share the Blueprint-related messages, focusing on individual stories, implementation status, case studies, etc.</td>
<td>Development Partners, Private Sector</td>
</tr>
<tr>
<td>Newspapers</td>
<td>Prepare a short article or interview of influential individuals on the quarterly/semi-annual results of the Blueprint, focusing on achievements and impacts.</td>
<td>Line Ministries, Development Partners, and Private Sector</td>
</tr>
<tr>
<td>Partners’ platforms</td>
<td>Disseminate the findings from M&amp;E reports onto donor platforms where possible.</td>
<td>Line Ministries, Development Partners, and Private Sector</td>
</tr>
</tbody>
</table>
5. REFERENCES


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6. ANNEXES

6.1. CONTRIBUTORS TO THE BLUEPRINT

Core Team

- Richard Okyere-Fosu, Director-General, National Information Technology Agency, Ghana
- Solomon Richardson, Head of Technology, National Information Technology Agency, Ghana
- Ralph Oyini, Head of Division, Digital Transformation, Innovation & Services, Smart Africa Secretariat
- Didier Nkurikiyimfura, Chief Technology and Innovation Office, Smart Africa Secretariat
- Emmanuel Khisa, Project Manager of Digital ID & E-Payment, Smart Africa Secretariat
- Paul Baker, Team leader for the E-Payment Blueprint, GFA Consulting Group
- Mike Mudd, Senior Payment Systems Expert for the E-Payment Blueprint, GFA Consulting Group
- Tira Greene, Senior Legal/Regulatory Expert for the E-Payment Blueprint, GFA Consulting Group
- Judyth Engels, Senior African Payment System Regulation Expert for the E-Payment Blueprint, GFA Consulting Group
- Rune Rossius, Project Manager for the E-Payment Blueprint, GFA Consulting Group

Working Group Members (by organization, in alphabetical order)

- **Afrexim Bank**
  - Emeka Onyia, Innovation and Digital Products
- **Afrexim Bank, PAPSS**
  - John Bosco Sebabi, Deputy Head, PAPSS
- **African Development Bank**
  - Sheila Okiro, Chief Investment Officer, Financial Intermediation and Inclusion
- **Asante Finance Mauritius**
  - Chidi Okpala, Founder Asante Finance
- **Bank of Ghana**
  - Hon. Ernest Kwamina Yedu Addison, Governor
- **Bank of Ghana**
  - Archie Hesse, CEO, GIPPS a subsidiary BOG
- **Bank of Ghana**
  - Kwame Oppong, FinTech Advisor
- **Bank National du Rwanda**
  - John Rwangombwa, Governor
- **Bank National du Rwanda**
  - John Karamuka, Director of National Payments
- **Better Than Cash Alliance**
  - Nshuti Lucy Mbabazi, Africa Advocacy & Partnerships
<table>
<thead>
<tr>
<th>Organization</th>
<th>Names and Positions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Safaricom, M-PESA</td>
<td>Olivia Etyang, Product Manager M-PESA Global</td>
</tr>
<tr>
<td>UN Capital Development Fund</td>
<td>Sabine Mensah, Regional Digital Hub Lead West and Central Africa, Global digital Infrastructure Lead</td>
</tr>
<tr>
<td>UNCITRAL</td>
<td>Luca Castellani, Legal Officer and Secretary of Working Group on e-Commerce</td>
</tr>
<tr>
<td>United Nations Economic Commission for Africa (UNE-CA)</td>
<td>Tunde Fafunwa, Lead Advisor Digital Centre of Excellence</td>
</tr>
<tr>
<td>United Nations Economic Commission for Africa (UNE-CA)</td>
<td>Eliam Kadewele, Technical Advisor and Mo Ibrahim Leadership Fellow</td>
</tr>
<tr>
<td>United Nations Economic Commission for Africa (UNE-CA)</td>
<td>Moctar Seck, Economic Affairs</td>
</tr>
<tr>
<td>World Bank - IFC</td>
<td>Aniko Szigetvari, Global Head, TMT Group</td>
</tr>
<tr>
<td>World Bank</td>
<td>Alice Zanza, Senior Payment Systems Specialist</td>
</tr>
<tr>
<td>World Bank</td>
<td>Boutheina Guermazi, Director for Digital Development</td>
</tr>
<tr>
<td>World Economic Forum</td>
<td>Christian Duda, Lead Digital Identity</td>
</tr>
</tbody>
</table>
6.2. REGIONAL PAYMENT AND SETTLEMENT SYSTEMS IN AFRICA

Below outlines some regional payment and settlement systems and their contributions to cross-border e-payments in Africa.

East African Community

The East African Payment and Settlement System (EAPS) is a cross-border interbank funds transfer mechanism used for payments and settlements within the East African Community (EAC) countries of Kenya, Rwanda, Tanzania, and Uganda. In terms of architecture, the system operates on a real-time gross settlement basis by utilizing the linkage between the various Partner States’ existing Real Time Gross Settlement (RTGS) systems using SWIFT messaging network for safe and secure delivery of payment and settlement messages to the central banks of a participating country. It is a multi-currency system that uses currencies of the partner states. Transactions are carried out in the EAC local currencies and settlement is through reciprocal bilateral accounts with each central bank. Transactions on the system are charged at the same rate as local transactions in respective partner states RTGS. Exchange rate risks are borne by the customer and the commercial banks (EAC, 2020).

Between 2019-2020, banks sent 3,020 transactions worth USD 496 million over the EAPS network. The Kenya shilling was the leading trading currency with total values of USD 342 million (69.1 percent). Low uptake by other EAC member states is attributed to the reluctance to trade in each other’s currencies due to the fact that the country with a trade surplus will hold large deposits of the others’ currencies as there is no demand for such currencies from countries that do not export to others, low volumes of intra-regional trade within EAC and stiff competition from banks with established correspondent bank relationships in the region (Anyanzwa, 2019). As a large-value payment system, the EAPS is anticipated to garner more activity with the uptake of the AfCFTA, but it does not hold immediate promise for low-value SME digital trade flows.

Additionally, there is ongoing work under the AfDB-funded EAC-Payment and Settlement System Integration Project (EAC-PSSIP) to upgrade the RTGS systems of regional central banks. The EAC-PSSIP involves an automated transfer system (ATS) that incorporates both the RTGS and an automated clearing house (ACH) that supports the clearing and settlement of both high-value and retail payments. The project has also supported the establishment, update, and harmonisation of the National Payment
System (NPS) legislation and regulations to ensure smooth operations of an integrated regional payments system across the EAC countries (AfDB, 2019; Anyanzwa, 2019).

**Southern African Development Community**

The Southern African Development Community Real-Time Gross Settlement System (SADC-RTGS) (formerly SIRESS) is an automated interbank settlement system operated by the South African Reserve Bank, as appointed by the SADC participating member central banks. It has 16 member countries, participants comprising central banks and financial institutions, i.e., banks and non-banks in the SADC region that are authorised by their respective central bank to participate. It settles payment obligations between participating banks on either a real-time or delayed basis in South African Rand (ZAR) (Resbank, n.d.). There are considerations to include additional currencies on the system in the near future. As a high and low-value regional payment scheme, with a unified currency and soon to be integrated into retail payment channels such as mobile money and card, it is suitable for processing digital trade cross-border e-payments amongst users within the African Continent.

The SADC Banking Association has also recently developed a payment scheme known as the **Transactions Cleared on an immediate Basis (TCIB)** that aims to create a mechanism for Low-Value Credit Transfers Cleared on an immediate basis. This scheme allows cross-border low-value credit transfers to be cleared through an appointed Regional Clearing and Settlement Operator (RSCO), which perform the clearing leg of these transactions. This payment stream includes Banks and non-banks authorized by their regulators to ensure the widest reach possible to end clients. Currently, it is in a pre-regulatory approved controlled environment and has seen an increased involvement by banks and non-banks with more than 64 participants at various stages of on-boarding. The scheme provides alternative options to connect to the regional clearing and settlement operator. Participants have the option to connect directly through Application Programme Interfaces (APIs), via Hubs/Payment Processing Service Providers (PPSP), or ACHs (see Figure 22) (PaymentsAfrika, 2020).
Common Market for Eastern and Southern Africa's (COMESA)

The Common Market for Eastern and Southern Africa's (COMESA) Regional Payment and Settlement System (REPSS) is a multilateral netting system that was established by the COMESA Clearing House (CCH) to facilitate cross-border payment and settlement between Central Banks in the COMESA region. The REPSS is a Real-Time Gross Settlement System with an open, published interface based on SWIFT standards. This feature is designed to make it as easy as possible for new countries to join.

The system settles payments denominated in US dollars and euros. There is no value limit in REPSS; it clears and settles both high- and low-value payments. Central banks are the only direct participants in REPSS. This limited membership model has both pros and cons. On the one hand, keeping direct participants limited to central banks to simplify the need for a robust regulatory framework. This means that the system rules did not have to include controls and procedures that would otherwise be needed if commercial banks were allowed to directly participate. On the other hand, the lack of commercial bank’s direct involvement in the system resulted in the reluctance by commercial banks to recommend the system to their customers due to their vested interest in the correspondent banking relationships that the REPSS system is intended to reduce (Lipis & Adams, 2016).
In terms of process, the importer’s payment to the exporter is channeled through the central bank of the exporter using the REPSS platform (BoM & CCH, 2012). For exchange rates, REPSS maintains a list of national currency rates and calculates cross-currency rates to be updated by central banks. REPSS issues alerts if the value of the transaction in local currency doesn’t correspond to a value in Settlement currency (USD or EUR) according to cross-currency rates defined (CMA, n.d.).

Currently, only nine\textsuperscript{30} out of 21 COMESA member countries participate in REPSS (COMESA, 2020). Low participation is attributed to countries with multiple regional bloc memberships and low awareness amongst potential users. This system has the potential to benefit payments and settlement with increased trade volumes as anticipated from AfCFTA.

West African Economic and Monetary Union (UEMOA)

\textsuperscript{30} Those are Democratic Republic of Congo, Egypt, Kenya, Malawi, Mauritius, Rwanda, Eswatini, Uganda and Zambia. Central Banks of Burundi, Djibouti, Sudan and Zimbabwe are in advanced stages of preparations for live operations. According to (COMESA, 2020)
UEMOA has three major systems reforms at the regional level:

- A real time gross settlement system (RTGS) for large value payments called the STAR-UEMOA (Système de Transfert Automatisé et de Règlement de l'UEMOA).
- An interbank electronic clearing system called SICA-UEMOA (Le Système Interbancaire de Compensation Automatisé dans l’UEMOA).
- An interbank card/ mobile-based payment system managed by GIM-UEMOA (Groupement Interbancaire Monétique de l’Union Economique et Monétaire Ouest Africaine).

The real-time gross settlement system (STAR-UEMOA) and the interbank electronic clearing system (SICA-UEMOA) are directly managed by the Central Bank of West African States (BCEAO). GIM-UEMOA is in charge of the interbank card/ mobile-based payment system.

The STAR-UEMOA is a central system to handle systemically important transactions (especially large amounts), to which the direct participants are connected via the SWIFT or private networks of the BCEAO. Eligible participants in the system are the BCEAO, banks and financial institutions, the Central Depositary/Settlement Bank of the Regional Stock Exchange (BRVM), the UEMOA Interbank Monetary Group (GIM-UEMOA), and the Bank West African Development (BOAD). Participations can be (i) direct - where the participant is connected to the system from a platform installed on his premises and himself manages the issuance of his orders in the system and the monitoring of his position; or (ii) indirect - where the participant accesses the system via a service bureau installed in the premises of the Main Agency of the BCEAO (BCEAO, 2018b).

Common rules for the operation of the national branches of BCEAO were implemented simultaneously with the UEMOA payment system. The central node of the system is located at the BCEAO headquarters in Dakar. There are RTS/X automated workplaces in all of the Central Bank’s main branches of the UEMOA countries. These automated workplaces allow the monitoring of activity of any payment system participant from any given country. Direct participants of the system use SWIFT connectivity, whereas BCEAO branches use private networks. Indirect participants are connected through the service bureau of the BCEAO national branches. Therefore, STAR-UEMOA interacts with the national and regional clearing systems, external currency exchange systems, securities settlement systems, as well as provides integration with the securities exchange. In addition to that, it provides information exchange with the general ledger and software applications that are installed at the national branches. Moreover, participants have the possibility to track their payment orders through the Internet. The system has been adapted to local standards (CMA, n.d.).

The Automated Interbank Clearing System in UEMOA (SICA-UEMOA) is an automated tool for the exchange and settlement of mass payment transactions, i.e., small amounts, in the form of transfers, checks, or commercial paper, between participating establishments at national and regional levels. SICA-UEMOA consists of nine compensation systems, a national system for each of the WAMU member states, and a regional compensation system. The participants in SICA-UEMOA are the banks,
the BCEAO, the Post Office, and the Treasury. Only cashless payment instruments in force in UEMOA member states (currently checks, bills of exchange, promissory notes, transfer orders, and debit advice), denominated in FCFA, are allowed as compensation. A maximum amount of CFAF 50 million is set for transfers presented to SICA-UEMOA. Beyond this amount, the participant is required to use STAR-UEMOA. There is no ceiling for checks or bills (BCEAO, 2018a).

The Interbank Monetary Union of the West African Economic and Monetary Union (GIM-UEMOA) is a regional organization established in 2003 by the Central Bank of West African States (BCEAO) and the Banking Community. It is an interbank platform for card payments connecting more than 128 banks and 5 million cards to ensure clearing and settlement systems in local currencies for its member countries: Senegal, Guinea-Bissau, Mali, Burkina Faso, Niger, Cote d'Ivoire, Togo, and Benin (GIM-UEMOA, 2021).

Central Africa

Interbank Electronic Banking Group of Central Africa (GIMAC) was introduced in 2015 by BEAC as a regional switch/ACH to enable bank transfers within the Economic and Monetary Community of Central Africa (CEMAC) via their RTGS. The countries include Cameroon, the Republic of Congo, Chad, Central African Republic, Equatorial Guinea, and Gabon. In July 2020, an integrated electronic payment service known as GIMACPAY was introduced. The platform aggregates all payment methods (mobile, cards, and electronic transfers) and allows for interoperability of mobile money and banking services in member countries.
6.3. SHORTCOMINGS OF A RIGID DATA LOCATION REGIME

These shortcomings of a rigid data location regime are discussed below.

1. Undermining Trade and Economic Growth

Data localisation undermines trade and economic growth as it reduces connections to digital trade and creates adverse impacts on economic growth and development.

As posited by the OECD, digitization is linked to enhanced trade openness by presenting opportunities for e-commerce and the provisions of e-government services which facilitate enhanced trade in services and goods respectively (OECD, 2019).

Advocates of data localisation proffer the need to impose heavy digital borders to reduce the flow of data in and out of the country. However, countries that engage in such practices typically score low on the digital trade index and vice versa. The higher the rate of digital trade restrictiveness, the lower the ranking of a nation in respect of its ease of doing business; this has been found true both in respect of the OECD Digital Services Trade Restrictiveness Index Simulator and the Digital Trade Restrictiveness Index (DTRI) of the European Centre for International Political Economy (ECIPE). The United States (U.S.) and the United Kingdom (UK) are noted to be jurisdictions where there is greater openness to digital trade, while nations such as China, Russia, India, Vietnam, and Indonesia, which have introduced data localisation policies, do not score high in respect of digital trade (IIF, 2020).

It should however be noted that localisation requirements may technically permit cross-border transfers with attached conditionality – i.e., this may occur insofar as the data is stored, processed, or backed up in the original jurisdiction. There are significant costs associated with data management in this respect, which can result in the disruption of cross-border business models (World Bank, 2021a). Given the administratively burdensome nature of these measures, paired with the high associated costs, the practice of data localisation is concentrated and applied to specific sensitive data such as health and financial data. For example, Australia prohibits the overseas transfer of health data in some circumstances, while Korea adopts the same measure in respect of financial data. In China, there are mandatory localisation requirements in respect of “critical information
As such, these requirements are applied to financial information, personal data, data in respect of health and medical data, mapping services, online publishing, and telecommunications (World Bank, 2021a).

Accordingly, the findings of the assessments of the jurisdictions afore-mentioned in respect of data localisation indicate that data localisation presents a disadvantage to jurisdictions that pursue such data residency via adversely impacting the ease of doing business and may further reduce their full economic potential (IIF, 2020).

2. Undermining fraud prevention and cybersecurity best practices

The Institute of International Finance (IIF) posits that data localisation undermines efforts to weaken fraud prevention and cybersecurity defence (IIF, 2020). The growing sophistication and complexities associated with technological advancement have necessitated the continuous evolution of cyber defence solutions. In their discussion on this matter, the IIF highlights that public cloud service providers (CSP) and cloud-based cybersecurity firms have contributed to the delivery of useful cybersecurity solutions where there are immense positive externalities to be reaped. It is suggested that the best practice offered by cloud computing is to have failover redundancy storage inside and outside geographical or time zones that allow data to be instantly moved between centres in situations of cyber breaches and attacks. In this regard, data localisation requirements would undermine these solutions, as storing all data in one geographical region undermines data security and further exposes the data to physical threats and targeted cyberattacks (IIF, 2020).

In an effort to address issues on security vulnerabilities in applications and provide a consistent way to address systemic vulnerabilities in digital financial services, the ITU DFS Security Lab was set up in November 2020 under the Financial Inclusion Global Initiative. The Security Lab provides a DFS Security Assurance Framework to DFS regulators on how to manage security risks in digital finance, develops tools for security threat intelligence sharing, performs security tests and audits on DFS applications, and can assist regulators in conducting cyber-preparedness tests on the digital finance infrastructure and applications to ensure the digital payments infrastructure is resilient and can handle cybersecurity incidents.

3. Inhibiting the advantages of Cloud Computing

Data localisation undermines the cost-effectiveness of cloud-based computing and reduces access to cloud-based software, technology, and future cloud-first technologies such as quantum computing. As noted above, digital transformation relies on the efficiency of public cloud computing and the free flow of data. Cloud computing technology provides businesses with access to services by the scare talents of cyber experts, data architects, solution engineers, and Artificial Intelligence (AI) Machine Learning developers across the public cloud. These benefits are however eroded due to localisation requirements and fragmentation of systems that fail to establish economies of scale.
4. Stifled innovation and competition

Data localisation may stifle innovation, as noted by the Institute of International Finance. With limited financial resources, SMEs benefit immensely from the public cloud services, given the negligible costs associated with its use. Start-ups, therefore, rely heavily on these systems. This cost efficiency allows these enterprises to utilize and allocate monies otherwise, in manners that promote research, development, and innovation.

In contrast, the use of data localisation undermines the cost efficiencies of cloud computing as duplication of infrastructure and fragmented compliance standards are therefore required. These are expensive ventures that necessitate a notable financial outlay for small businesses. There are also associated costs concerning anti-fraud monitoring and the implementation of other compliance measures. These large outlays, coupled with the constrained access to the resources offered by the public cloud, adversely impact the financial sustainability and longevity of these enterprises. The burden associated with mandatory localisation requirements is more extensive for small and developing economies and enterprises given the high cost of investment in infrastructure (World Bank, 2021a). In larger economies with significant domestic markets, localisation policies may be adopted to protect domestic infant industries from globally dominant competitors; this however has implications in respect of competition policy.

The usefulness of participation and integration in global value chains and the importance of improving access to global data flows were particularly highlighted at the peak of the COVID-19 pandemic. One of the principal lessons learnt was the importance of integrating into digital markets; data localisation measures however erode the benefits of digital market integration (IIF, 2020).
6.4. BASIC SUPPORTING INFRASTRUCTURE TO E-PAYMENTS

Electricity and Telecommunications

The power supply infrastructure

Access to a reliable supply of electricity is a major constraint to growth in many countries in Africa. This also affects access to communications (including the Internet) which is a major challenge for e-commerce and e-payments. While access to electricity is not a focus of this e-payments blueprint, it is, however, worth pointing out some relevant developments and good examples in this area.

The lack of access to power supply more severely affects people at the edge - i.e., the individual customers – for whom the challenge for a reliable supply is most acute. As of 2019, only 43 percent of Africans have access to electricity, half of the global access rate of 87 percent (Brookings Institute, 2019).

Figure 25. Access to electricity compared to mobile phone penetration in 2017 in Africa

Source: The Economist
A report in the Economist in 2017 commented that two-fifths of people in sub-Saharan Africa had mobile phones. In most African countries, less than half the population has access to electricity. In a third of those countries, less than a quarter does.

This is not predicted to improve in the near future, in fact, quite the opposite for Sub-Saharan Africa. For the first time in 2020, access to electricity will decrease due to the COVID-19 pandemic. According to the International Energy Agency (IEA), the pandemic has made the number of those lacking access to electricity in Africa rising to more than 590 million people in 2020, an increase of 13 million people, or 2 percent percent compared to 2019 (IEA, 2020).

For individual consumers, the stable power supply allows them to recharge devices and ensure continued access to electronic payment services. With regards to the financial service providers, access to a reliable and more affordable power supply will provide huge benefits in cutting down operational costs and reducing risks of power outages, system outages, and possible losses of data.

With the price of solar panels and solar energy production continue to go down, microgeneration at community and village halls, schools, and homes are becoming more viable. In 1975, solar cost just over USD 100 a watt (Energy Sage, 2021). Today, a solar panel at the factory can cost as little as USD 0.08 a watt (Alibaba, 2021a). Including the required controllers and transformers, an indicative cost of a small solar home system in Kenya is around USD 135, under a subsidised UNICEF project (energy4impact, 2019). For small end-user devices, such as mobile phones or small tablets, micro portable solar chargers are available from under USD 3 (in volume) from the factory (Alibaba, 2021b). These could be made available through the phone retailers providing a subsidized micro charging device. It may also be offered by the MNO’s as part of an incentive package. Pay-as-you-go software solutions developed in Africa, such as M-KOPA ‘tie’ the micro charging device to a particular network; this will embrace prepaid subscriptions that are the majority in Africa (M Kopa, 2021).

**The challenges with respect to electricity supply infrastructure for e-payments revolve primarily around access to electricity, especially in rural areas, and the reliability of supply nationally.**

The suggested opportunities and solutions include the following:

- Encourage microgeneration for small end-user devices by zero tariffs on imports.
- Encourage Community Solar farms by zero tariffs on imports.
- Encourage the uptake of Pay-as-you-go (PAYG) micropayments solutions for solar.
- Maintain national investment and encourage PPP in infrastructure development. For example, creating the legislative frameworks for widespread use of solar farms on government-owned land or building rooftops with a scheme of control that provides a reasonably guaranteed ROE.
✖ Make the Programme for Infrastructure Development in Africa (PIDA) part of the national strategy of each country for the development of infrastructure in ICT.
✖ Classifying the cellular infrastructure as critical to prioritise national grid connectivity.

While addressing power infrastructure is important to create an enabling e-payments landscape for Africa, it goes beyond the scope of the blueprint, and as such is suggested to be addressed through other efforts.

The telecommunications infrastructure

A telecommunications infrastructure is a critical component to enable an e-payments system to operate. They supply the connectivity between the parties that wish to make payments. Africa has been a pioneer in mobile money, through the MNO’s so the infrastructure is there and working for simple transactions (Smart Africa, 2020).

A consortium of China Mobile, MTN GlobalConnect, Orange, STC, Telecom Egypt, Vodafone, Facebook, and WIOCC, have announced they will partner to build a subsea cable to improve connectivity between 23 countries in Africa, the Middle East, and Europe (Chanthadavong, 2020).

The 37,000 kilometre long cable, called ‘2Africa’, will have a design capacity of up to 180 Tbps and is expected to provide nearly three times the combined total capacity of all the subsea cables currently serving Africa. The builders have said it will be the first subsea cable system to connect East and West Africa across a single system.

The cable encircling the whole continent is planned to enter service in 2023-4. These developments will greatly assist in improving digital communication and therefore E-payments in Africa (ITGS News, 2017).

Mobile subscriptions in sub-Saharan Africa have grown from 1.72 per 100 people in 2000, to 80.42 per 100 people in 2018 (World Bank, 2021b). Penetration in individual countries varies from a low of 20 percent in Eritrea to over 100 percent in 14 countries (see annexes). The majority of the population of Africa lacks fixed-line Internet connections, so primary access is through mobile broadband using smartphones. A significant milestone was reached in November 2020 when 3G and 4G connections exceeded 2G connections for the first time, which enable internet access (Gorfine, 2021; GSMA, 2020f). However, there are issues with the 13 landlocked African countries which makes them reliant on at least one other country to access undersea fibre, thus adding to costs for those least able to afford it.

The affordability gap is also narrowing in Sub-Saharan Africa; the average cost of a device decreased from 57 percent of monthly income in 2015 to 30 percent in 2019 (GSMA, 2020d). Part of the reason for this was the launch of 3G/4G semi-smart phones at the USD 20 price point in several African Countries in 2019 (BiztechAfrica, 2019). The cost of connectivity is also decreasing, with a number of countries in Africa now below
the 2 percent affordability target set by the Broadband Commission for Sustainable Development\textsuperscript{31} although there are still gaps to close, the trend is positive (ITU, 2021b).

All 3G/4G users may access the internet using a smartphone or tablet, and therefore can access richer content and e-payments solutions. The GSMA forecasts that by 2025 nearly all of the estimated 600+ million subscribers will be on 3G/4G standard networks with some having access to 5G in the bigger cities. That is over half the adult population in Africa.

**Mobile Data Performance Indicators**

In July 2019, all but two African countries in the Speed test Global Index fell into the Speed Laggers category, having mobile and fixed broadband speeds that were below global averages. The exceptions were South Africa and Guinea, which both had fast enough mobile speeds to place them in the mobile-focused quadrant (GSMA, 2019a).

**Costs of telecommunications services in Africa**

Prior to the 1990s phone companies were captive monopolies; often used as cash cows for general revenue. The process of liberalisation that commenced in the mid-1990s and moved on by the WTO and GATT’s in the late 1990s led to the limited privatisation of fixed-line incumbents in countries such as Uganda, Tanzania, Nigeria, Sudan, South Africa, and Kenya emerging by 2004/5. In turn, they were among the first to see improvements in their telecommunications due to the considerable investment that has been made, primarily in cellular infrastructure.

More governments have since been moving more towards the role of regulator than owner/operator in many African countries, although more control may be maintained in some compared to others in, particular for fixed-line services. By 2019 the majority of African countries had at least two operators, with many now competitive markets having between 3 and 5 or more. An e-Payment system beyond just mobile money needs affordable access to the Internet. The following is the average for Broadband Pricing in Africa.

\textsuperscript{31} See details at https://www.broadbandcommission.org
### Table 5. Fixed-line Broadband Costs high to low

<table>
<thead>
<tr>
<th>Rank</th>
<th>Country</th>
<th>Region</th>
<th>GDP (USD)</th>
<th>Fixed-line Expenses (USD)</th>
<th>Average Broadband Cost (USD)</th>
<th>Conversion rate (USD)</th>
<th>Average Cost of a fixed-line package (USD)</th>
<th>Most expensive service cost (USD)</th>
<th>Cheapest broadband cost (USD)</th>
<th>Cheapest cost of fixed-line package (USD)</th>
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### Table 6. Mobile Data Costs high to low

<table>
<thead>
<tr>
<th>Rank</th>
<th>Country</th>
<th>Region</th>
<th>Fixed-line Expenses (USD)</th>
<th>Average Broadband Cost (USD)</th>
<th>Conversion rate (USD)</th>
<th>Average Cost of a fixed-line package (USD)</th>
<th>Most expensive service cost (USD)</th>
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<td>999.99</td>
<td>799.99</td>
<td>30/12/2019</td>
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</table>

Source: (Cable, 2021a)
The countries with the most providers are Somalia (9) DR Congo (7) Ghana (6), Nigeria (6) Tanzania (6) Uganda (6). Somalia has the lowest pricing for the basket of data services tracked by the ITU, with Ghana and Tanzania also among the lowest priced.

During the current COVID-19 pandemic several countries have intervened to open up competition through their regulators to make additional spectrum available as mobile data has peaked due to working and access to online education. For example, in Ghana, more 4G spectrum was made available, initially from March to August, then extended to February 2021, at no cost (IIC, 2020).

**From an e-payments perspective, the biggest impact by far on usage has been in the rapid expansion of mobile networks** (Pew Research Foundation, 2015). At the end of 2019, 477 million people in sub-Saharan Africa subscribed to mobile services, accounting for 45 percent of the population, with 272 million accessing the Internet and 44 percent via smartphones, according to the GSMA 2020 report (GSMA, 2020e). Internet exchange points (IXPs) also improve connectivity and lower costs (Kende, 2020).

**The affordability gap is also narrowing in Sub-Saharan Africa**, as evidenced by the average cost of a device decreased from 57 percent of monthly income in 2015 to 30 percent in 2019 (Wyrzykowski, 2020). Africa's largest E-Commerce group, Jumia reported brisk sales of low price smart phones in their 2019 mobile commerce report (Kolawole, 2018).

All 3G/4G users may access the internet using a smartphone or tablet, and therefore can access richer content and e-payments solutions. The GSMA forecasts that by 2025 nearly all of the estimated 600+ million subscribers will be on 3G/4G standard networks with some having access to 5G in the bigger cities. That is over half the adult population in Africa.

A recent development is the Mobile Virtual Network Operators (MVNO’s) licensing non-telcos to lease spectrum from mobile network operators and roll out communications services. Kenya (Ngugi, 2021) for example has six; Kenya Airways, Tangaza Money, Zioncell, Web Tribe, and Equity Bank.
Box 19: Developments in Africa’s Telecoms Infrastructure

A consortium of China Mobile, MTN GlobalConnect, Orange, STC, Telecom Egypt, Vodafone, Facebook, and WIOCC, have announced they will partner to build a subsea cable to improve connectivity between 23 countries in Africa, the Middle East, and Europe (Chanthadavong, 2020).

The 37,000 kilometers long cable, called ‘2Africa’, will have a design capacity of up to 180 Tbps and is expected to provide nearly three times the combined total capacity of all the subsea cables currently serving Africa. The builders have said it will be the first subsea cable system to connect East and West Africa across a single system.

The cable encircling the whole continent is planned to enter service in 2023-4. These developments will greatly assist in improving digital communication and therefore e-payments in Africa (ITGS News, 2017).

In summary, Africa has clearly adopted a mobile-first reality for e-commerce. This means that the physical infrastructure is in place or is being built out to support e-payments and a majority of African citizens have access to that infrastructure. Please refer to the Annexes for specific details of levels of access and affordability, by country.

The challenges with respect to the telecommunication infrastructure for e-payments revolve around cost and access. Specifically, this concerns:

- Relatively high cost of access devices, in particular tablets and smartphones, due to high import taxes in some countries.
- Telecoms fibre access issues for the land-locked countries making the build-out of optical fibre in particular across borders is expensive.
- Low telecom competition in some countries with only one or two MNO’s, some state-owned.

The suggested opportunities and solutions include the following:

- Join the WTO Information Technology Agreement (ITA) that will gradually reduce customs tariffs on IT products close to Zero. Egypt, Mauritius, Morocco, and Seychelles have joined and submitted schedules (WTO, 2021).
- Focus on reducing retail costs of smart featured 3G/4G phones (usually priced at above USD 100) to under USD 59.
- Liberalise telecoms in the AfCFTA Phase one negotiations for Trade in Services, Market Access to create a more competitive market for communications services.
- Make the “Policy and Regulation Initiative for Digital Africa” (PRIDA) part of the national policy of each country as the bedrock of digitalization to enable the basic infrastructure for e-payments in Africa (Africa-EU, 2017).
- Foster internal competition with at least three and preferably four telecommunication providers in each country. Encourage the licensing of Mobile Virtual Network Operators (MVNOs) using shared infrastructure, such as towers and intra-country fibre cables, to lower costs.

Smart Alliance Africa has already produced a broadband strategy and as such this e-payments blueprint will not address telecommunications infrastructure interventions but remains aware that this backbone to an e-payments system as part of the mobile-first adoption by consumers in Africa, so is significant and requires addressing through other strategies or blueprints.
6.5. BANK SYSTEMS ARCHITECTURE AND TECHNOLOGY COMPONENTS

The technology available underpinning the operations of large banks in Africa is similar to that used in banks in other parts of the world. A Financial Services Provider such as a bank has more than 30 hardware and software systems and components to enable not just the business functions, but also for regulatory compliance and audit. Banks are connected by secure dedicated lines supplied by the national telecom providers that are then linked with international networks using agreed communications standards (see the section on Standards). Banks engaging in cross-border business also need to be able to securely communicate and exchange financial data.

An e-payments system is similar conceptually in architecture to a bank’s online system as well as a Telco/MNO’s billing system; both use large data centres based on similar ITU/ISO technical standards. PSPs similarly use the same architecture. To illustrate this, below is an overview of components for data processing requirements for an online-financial system (Protiviti, 2019).

Figure 26. Selected apps used by banks

![Diagram showing selected apps used by banks](source: Protiviti (2019))
Bank Systems & Financial Institution Technologies (also Mobile Network Providers billing operations)

Account Analysis
Anti-Money Laundering (AML)
Back Office
Banking Applications
Board Communications
Business Intelligence
Call Centers
Check Clearing & Settlement
Compliance
Consulting/Services
Core Processing/Data Processing
Customer Relationship Management (CRM)
Data Warehouse
Databases/Database Management
Digital Banking
Document Management
E-Business Infrastructure
Electronic Bill Presentment/Payment (EBPP)
Email / Instant Message
Enterprise Application Integration (EAI)/Middleware
Enterprise Architecture Management
Financial Management
Financial Planning
Hardware
Integrated Banking Solutions
Loan Origination
Payment/Processing Mechanisms
Portfolio Analytics
Portfolio Management Systems
Pricing Optimization
Repossession Inventory Management
Risk Management
Secure File Transfer
6.6. CLOUD COMPUTING: A PRIMER

Definitions

Cloud Computing. The widely accepted definition of Cloud computing is an ICT sourcing and delivery model for enabling convenient, on-demand network access to a shared pool of configurable computing resources (e.g., networks, servers, storage, applications, and services) that can be rapidly provisioned and released with minimal management effort or service provider interaction. [It is NOT a new technology, but a service delivery model.] This cloud model promotes availability and is composed of five essential characteristics.

On-demand self-service – A consumer can unilaterally provision computing capabilities, such as server time and network storage, as needed automatically without requiring human interaction with each service’s provider.

Broad network access – Capabilities are available over the network and accessed through standard mechanisms that promote use by heterogeneous thin or thick client platforms (e.g., mobile phones, laptops, and PDAs).

Resource pooling – The provider’s computing resources are pooled to serve multiple consumers using a multi-tenant model, with different physical and virtual resources dynamically assigned and reassigned according to consumer demand. There is a sense of location independence in that the customer generally has no control or knowledge over the exact location of the provided resources but may be able to specify location at a higher level of abstraction (e.g., country, state, or data centre). Examples of resources include storage, processing, memory, network bandwidth, and virtual machines.

Rapid elasticity – Capabilities can be rapidly and elastically provisioned, in some cases automatically, to quickly scale and rapidly released to quickly scale in. To the consumer, the capabilities available for provisioning often appear to be unlimited and can be purchased in any quantity at any time.

Measured Service – Cloud systems automatically control and optimize resource use by leveraging a metering capability at some level of abstraction appropriate to the type of service (for example, storage, processing, bandwidth, and active user accounts). Resource usage can be monitored, controlled, and reported providing transparency for both the provider and consumer of the utilized service.

Types of Cloud Computing.

There are four basic cloud delivery models which may be employed as one model or a combination of different models for applications and services (NIST).

Private or internal cloud. Cloud services are provided solely for a single organization and managed by the organization or a third party. These services may exist on or off-site. A typical example is that of a fully owned virtualized data centre. This model has a high capital investment and may not scale.
Community cloud. Cloud services are shared by several organizations supporting a specific community that has shared concerns (e.g., mission, security requirements, policy, and compliance considerations). These services may be managed by the organizations or a third party and may exist off-site.

A special case of Community Cloud is the Government or G-Cloud. This type of cloud is provided by one or more agencies (service provider role), for use by all, or most, government agencies (user role). This model has a high capital investment, and the capacity has to be estimated to cope with peak demands, e.g., tax filing periods.

Public cloud. Cloud services owned by a commercial organization selling cloud services, this is the typical 'asset light' Cloud model with no upfront capital investment and provides the greatest agility to cope with variable peak demand loads, e.g., tax filing periods.

Hybrid cloud. An integrated cloud services arrangement that includes a cloud model as above but combined with other services e.g., data stored in a private cloud or agency database is manipulated by a programme running in the public cloud. This is typically used where data is of varying classifications as to sensitivity or data needs to be close to the user, usually described as Edge computing.

**Cloud Service Capability.**

*Software as a Service (SaaS).* The capability provided to the consumer is to use the provider’s applications running on a Cloud infrastructure. The applications are accessible from various client devices through either a thin client interface, such as a web browser (e.g., web-based email), or a programme interface (e.g., an API). The consumer does not own, manage or control the underlying cloud infrastructure including network, servers, operating systems, storage, or even individual application capabilities, with the possible exception of limited user-specific application configuration settings.

*Platform as a Service (PaaS).* The capability provided to the consumer is to deploy onto the cloud infrastructure consumer-created or acquired applications created using programming languages, libraries, services, and tools supported by the provider. The consumer does not own, manage or control the underlying cloud infrastructure including network, servers, operating systems, or storage, but has control over the deployed applications and possibly configuration settings for the application-hosting environment.

*Infrastructure as a Service (IaaS).* The capability provided to the consumer is to provision processing, storage, networks, and other fundamental computing resources where the consumer can deploy and run arbitrary software, which can include operating systems and applications. The consumer does not own, manage or control the underlying cloud infrastructure but has control over operating systems, storage, and deployed applications; and possibly limited control of select networking components (e.g., host firewalls).
6.7. DISTRIBUTED LEDGER TECHNOLOGIES: BLOCKCHAIN, A PRIMER

The Blockchain (formerly block-chain) is a digital platform that records and verifies transactions in a public and secure manner. This is achieved by utilising distributed ledger technology (DLT), a mathematical cryptographic function to connect participants and to provide an authoritative record of their data and transactions.

The International Standards Organisation (ISO) is currently working on a series of Blockchain and DLT standards under ISO/TC 307 chaired by Standards Australia (ISO, 2016). The first, ISO/TR 23455:2019 provides an overview of smart contracts in BC/DLT systems; describing what smart contracts are and how they work, with ten additional standards being developed over the period 2020/21.

The definition by NIST (NISTIR 8202) may be an additional reference point summarised as follows; Blockchains are tamper-evident and tamper-resistant digital ledgers implemented in a distributed fashion (i.e., without a central repository) and usually without a central authority (i.e., a bank, company, or government) (NIST, 2018).

At their basic level, they enable a community of users to record transactions in a shared ledger within that community, such that under normal operation of the Blockchain network no transaction can be changed once published.

Key Attributes and uses of the Blockchain

A Blockchain is the structure of data that represents a ledger entry, or a record of a transaction. Each transaction is digitally signed to ensure its authenticity and that no one tampers with it, so the ledger itself and the existing transactions within it are assumed to be of high integrity.

The key attributes of the Blockchain are: (i) Integrity; (ii) Security, and (iii) Privacy

Privacy is ensured by the mathematical encryption that is imposed at the time of the creation for use in decentralized digital ledgers which operate under an assumption that everything is publicly observable at a certain level.

These may enable;

- Trust
- Legal certainty
- Auditability
- Smart contracts
- Supply chain management
- Record management (land ownership, mortgages, banking, stocks, bonds, etc.)
- Voting
- Land registries
Perhaps Blockchain’s most immediate potential lies in identity verification.

The OECD estimated that a fifth of the world’s population is still without a legal or officially recognised identity, the majority are in developing countries (Whitehouse, 2019). Land titles in many emerging economies are fraught with multiple claims.

India and Brazil are running pilots to see if the Blockchain can provide more certainty of land ownership. In return, this would mean land may then be used as collateral for loans, as there is legal certainty of ownership (Coingeek, 2017).

From banking, insurance, and other industries, distributed shared ledgers have the potential to make interactions more efficient, less expensive, and safer.

**Central banks and Blockchain**

Some central banks are looking at issuing digital currencies in place of physical money. Cash is now on the decline in many economies; large denomination banknotes are being removed from circulation as being a societal risk in that they enable fraudsters, tax evaders, criminals (including online extortionists), and terrorists to more easily hide their crimes.

The Financial Stability Board first addressed the issue in mid-2017 including peer-to-peer (P2P) platforms, Blockchain, Algo trading, InsurTech, RegTech, SupTech, and others (Andresen, 2017). FinTech, which the FSB defines as technology-enabled innovation in financial services, in particular, Blockchain/DLT as transforming financial services, has rapidly adopted the technology in commercial offerings. JP Morgan Chase has recently expanded its Interbank Information Network (IIN) – now Liink (J.P. Morgan, n.d.). Having launched as a pilot in 2017. International launch partners included Australia's ANZ bank and the Royal Bank of Canada.

The Liink is the firm’s first scalable, peer-to-peer network powered by DLT/Blockchain technology. Utilising a permissioned-variant of the Ethereum Blockchain, it currently allows its over 220 banking members to quickly address payments that contain errors or get held up for compliance reasons – problems that can take weeks to solve with multiple banks being involved across the payments chain. Currently, Blockchain is also being used in trade finance in Singapore. Project Ubin is a collaborative project with the industry to explore the use of Distributed Ledger Technology (DLT) for clearing and settlement of payments and securities and is being tested by 29 other financial organisations (MAS, 2021).

A common driver within the 29 organisations, all are members of the **Global Financial Innovation Network** (GFIN) which was formally launched in January 2019 by an international group of financial regulators and related organisations, including the UK’s FCA (FCA, 2019). This built on the FCA’s early 2018 proposal to create a global sandbox to test new technology, in particular Blockchain, for cross-border financial transactions.
The GFIN has observers from the World Bank and IMF. In Africa, The South African Reserve Bank, The Central Bank of Eswatini, and the Capital Markets Authority from Kenya are also members. On 1 February 2019, the GFIN invited applications from firms wishing to test innovative financial products, services, or business models across more than one jurisdiction for a cross-border testing pilot arrangement.


The stated objective of the report was to examine Central Banks public policy objectives in a digital world as central banks are actively researching the pros and cons of offering a digital currency to the public. These are described as a “general purpose” central bank digital currency (CBDC).

The principles emphasise that: (i) a Central Bank should not compromise monetary or financial stability by issuing a CBDC; (ii) a CBDC would need to coexist with and complement existing forms of money; and (iii) a CBDC should promote innovation and efficiency. CBDC removes the anonymity of cash thus increasing AML and ATF oversight.

China is not a member of the GFIN but is the first central bank to proceed to a pilot of its digital currency - the Digital Yuan - in the southern city of Shenzhen, adjacent to Hong Kong between October 12 and 18th, 2020 (Dans, 2021).

Official statistics state that of the two million people who applied to participate in the trial, a total of 47,573 were chosen to receive 200 digital yuan (USD 30). Later users made a total of 62,788 transactions. 8.8 million yuan out of the 10 million allotted over a period of one week for retail, hospitality, transportation, utility payments, and payments for government services.

Further trials are planned in other cities in 2021. This bypasses intermediaries in particular the mobile wallet giants Alipay and WeChat pay in China.

ISO Technical Committee 307 is charged with working on the standardisation of blockchain technologies and distributed ledger technologies.

32 See more at https://www.thegfin.com/members#MembersMain
6.8. GLOBAL TECHNICAL STANDARDS

Globally there are two international organisations that compile the register of standards for technology and communications; The International Standards Organisation (ISO) and the International Telecommunications Union (ITU), in turn, these interface with many other organisations, such as the Internet Engineering Task Force (IETF) that sets standards for the Internet. All African countries enable data exchange over the World Wide Web, and national standards authorities, all of whom are members, observers or are affiliated with the ISO/ITU. These encompass standards for telecommunications, security, business continuity, and IT governance.

**International Standards Organisation (ISO)**
- ISO 17442:2019 - Financial services — Legal entity identifier (LEI)
- ISO/IEC 19086-1:2016 seeks to establish a set of common cloud SLA building blocks (concepts, terms, definitions, contexts) that can be used to create Cloud Service Level Agreements (CSLA's).
- ISO 20022 is an ISO standard for electronic data interchange between financial institutions.
- ISO/IEC 27000. The series for IT operations for ICT security protection.
- ISO/IEC 27001:2013 specifies a management system for information security. This standard forms a basis for most certification programmes.
- ISO/IEC 27017:2014. The international standard developed to provide appropriate technical and organizational measures to protect personal data.
- ISO/IEC 27018:2014. The international standard developed to provide appropriate technical and organizational measures to protect personal data.
- ISO/IEC 27018:2014. The international standard developed to provide appropriate technical and organizational measures to protect personal data.
- ISO/IEC 27018:2014. The international standard developed to provide appropriate technical and organizational measures to protect personal data.
- ISO/IEC 29115: Entity authentication assurance framework
- ISO/IEC 37001. Anti-bribery management systems.
- ISO/IEC 38500:2017 The series for the governance of IT for the organization.
- ISO Technical Committee 307 is charged with working on the standardisation of blockchain technologies and distributed ledger technologies.
- ISO/TR 23455:2019 - Overview of and interactions between smart contracts in blockchain and distributed ledger technology systems.
- ISO/TR 23244:2020 - Blockchain and distributed ledger technologies — Privacy and personally identifiable information protection considerations.
- ISO 22739:2020 - Blockchain and distributed ledger technologies — Vocabulary
- ITU-T X.1254: Entity Assurance Framework
- ITU X.1277: Universal Authentication Framework
6.9. OPEN FINANCE API STANDARDS

Open Financial Exchange (OFX)\(^\text{33}\): OFX is a leading bank standard for financial data access, traditionally relying on user's login credentials to access financial data. OFX is deployed at over 7,000 financial institutions and is used by providers such as CheckFree, Intuit, and Microsoft to support financial data exchange. The OFX Consortium released OFX Version 2.2 for comment in July 2016. OFX Version 2.2 supports OAuth tokenized authentication, supporting API access to financial data.

Durable Data API (DDA)\(^\text{34}\): An industry working group from the Financial Services Sharing and Information Sharing and Analysis Center (FS-ISAC) released DDA in May 2015. This working group comprised several financial institutions as well as a small number of financial data third parties. DDA was intended to improve data exchange relative to OFX. Fidelity Investments and other large financial services firms have adopted the DDA standard for data sharing.

NACHA API Standardization Industry Group\(^\text{35}\) (ASIG): The AISG is working to standardize the use of APIs in the U.S. financial services industry by creating an “API Playbook” or standards framework. The group has identified 16 APIs that it will develop to support the payments industry advancement in the areas of Fraud and Risk Reduction, Data Sharing, and Payment Access. Group participants include banks, credit unions, solution providers, and central bankers.

UK Open Banking Standard\(^\text{36}\): Open Banking has created 8 APIs for consumer and business current accounts, SME loans, commercial cards, ATM locations, and branch locations. Open Banking does not provide direct access to live API endpoints. Rather, these are implemented and supported by each API provider. The API Dashboard lists all available API endpoints and shows which API version is supported by each provider.

The Berlin Group NextGenPSD2\(^\text{37}\): The Berlin Group is working on a detailed ‘Access to Account Framework’ with data model (at conceptual, logical, and physical data levels) and associated messaging, based on the EBA Regulatory Technical Standards (RTS).

\(^{33}\) See more at http://www.ofx.net/index.html
\(^{34}\) See more at http://lists.openid.net/pipermail/openid-specs-fapi/attachments/20160609/df29d295/attachment-0001.pdf
\(^{35}\) See more at https://www.nacha.org/content/api-standardization-industry-group
\(^{36}\) See more at https://www.openbanking.org.uk/open-data-apis/
\(^{37}\) See more at https://www.berlin-group.org/faqnextgenpsd2
Convenient Access to Payment Services (CAPS)\textsuperscript{38}: The CAPS market initiative is a large multi-stakeholder coalition that proposes solutions to the technical, business, and operational issues faced by potential PSD2 stakeholders across Europe. Banks, TPPs, FinTechs, service providers, corporates, and other financial industry stakeholders are working together here to develop a framework. That said participants are primarily solutions providers.

OpenID Foundation Financial API (FAPI) Working Group\textsuperscript{39} The FAPI WG aims to provide JSON data schemas, security, and privacy recommendations and protocols to: 1) enable applications to utilize the data stored in the financial account, 2) enable applications to interact with the financial account, and 3) enable users to control the security and privacy settings. Both commercial and investment banking accounts as well as insurance, and credit card accounts are to be considered. A working draft of FAPI’s Open Data specifications is available online.\textsuperscript{40}

The MNO industry has published a set of harmonised mobile money APIs to raise industry capabilities.\textsuperscript{41}

\textsuperscript{38} See more at https://www.caps-services.com
\textsuperscript{39} See more at http://openid.net/wg/fapi/
\textsuperscript{40} See more at https://bitbucket.org/openid/fapi/src/master/Financial_API_WD_003.md?at=master&fileviewer=file-view-default
\textsuperscript{41} See more at https://www.gsma.com/mobilefordevelopment/resources/gsma-mobile-money-apis/
6.10. USE CASE EXAMPLE: E-PAYMENTS FOR CROSS BORDER DIGITAL TRADE LANDSCAPE IN AFRICA

Overview

Opportunities for Intra African digital trade (including e-commerce) are on the increase, spurred by the COVID 19 pandemic as well as the establishment of the AfCFTA which created a market of 1.2 billion people with a $3-trillion combined GDP and expected to more than double by 2050.

Cross border e-payments are an integral driver of digital trade - mitigating security risks and costs of handling cash and enabling growth and expansion to new markets. Africa is distinctly a mobile-first market, with 157 live deployments out of 310 globally (51 percent) and 159 million active accounts (53 percent of global) (GSMA, 2021). Other payment options include Debit and credit cards, online banking, and payment on delivery mostly via cash.

However, domestic and regional Payment systems in Africa are fragmented and interoperability efforts are largely clustered. Access to core payment infrastructure is limited to banks. Cross Border transfer fees and FX are the highest globally with various causal factors including lack of local currency trading options leading to over-reliance on correspondence banking and high costs of compliance among others.

A number of initiatives aimed at addressing these barriers are ongoing at regional and cross-regional levels, however, most are at the early stages of development. Therefore, Smart Africa Alliance positions e-Payments at the centre of increasing digital trade across the continent and is working towards connecting financial service providers and customers in one inclusive and open continental cross-border e-payments ecosystem network in Africa.

Objective of the Use Case model

The conceptual use case model aims to unlock opportunities and learnings from an applied cross-sectoral test case and measure results to guide future deployments.

It is intended to test out the opportunity of a cross-border platform across the 3 focus countries: Ghana, Kenya, and Rwanda; allowing citizens to purchase goods and services from an e-commerce platform in order to generate learnings and identify obstacles for a period of 9-12 months. Based on test outcomes, there will be potential to scale to Egypt, Ivory Coast, and Uganda.

Proposed key participants include:

- E-commerce service providers with a broad presence in Africa
- MTNs, MNOs
- Cross border payment aggregators
- Central Banks and/or Financial Regulators in the selected pilot countries
- Other regional institutions

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<th>Goal</th>
<th>Tasks</th>
<th>Timeline</th>
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<td>Set up a project team and role definition</td>
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<td>Definition of use case parameters-eligible goods and services categories</td>
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<td>Outline workflow including Payment process organization and costing</td>
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<td>Development of rules of engagement</td>
<td>Technical integration and testing</td>
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<td>Workshops with participating providers</td>
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<td>MoU sign-offs</td>
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<td>Use case testing</td>
<td>Internal (WG) communication</td>
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<td>E-Commerce Payment Platform phased rollout</td>
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<td>Performance monitoring, review, and action</td>
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<td>Final Results Measurement and dissemination of learnings</td>
<td>Evaluate results against success indicators and decision for scaling and next steps</td>
<td>Months 9-12</td>
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<tr>
<td></td>
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<td>Compile and disseminate learnings within defined criteria. Project closure</td>
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**Key Success indicators**

**Technical**
- E-commerce platform enables interoperable mobile payments across the 3 focus countries
- Use of local currencies for merchant settlement enabled by the collaboration from RGTS providers, PAPPS, AACB
Payment platform availability vs system downtimes
Payment platform security

**Business**

- Total number of completed e-commerce sales (Volume and Value)
- Analysis of payment platform usage trends
- User experience - conversion rate, checkout, and cart abandonment rates
- Customer support and satisfaction - Issue resolution within agreed service level agreements (SLA)

**Communications and Marketing**

In addition to data insights generated from the participating platforms, success indicators will also be evaluated through:

- Structured customer and merchant feedback mini-surveys and reviews
- Qualitative feedback from participating service providers and organizations.