

# Rwanda Payment System Strategy

*Towards a cashless Rwanda | 2018-2024*



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Ministry of ICT and Innovation (MINICT)  
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## List of Abbreviations

ACH	Automated Clearing House
AFR	Access to Finance Rwanda
AMIR	Association of Microfinance Institutions in Rwanda
AML	Anti-Money Laundering
ARPU	Average Revenue Per User
ATM	Automated Teller Machines
ATS	Automated Transfer System
B2B	Business to Business
B2G	Business to Government
BIS	Bank for International Settlement
BNR	National Bank of Rwanda
CAGR	Cumulative Aggregate Growth Rate
CBN	Central Bank of Nigeria
CFT	Combating the Finance of Terrorism
CICO	Cash In, Cash Out
CPMI	Committee on Payments and Market Infrastructures
CPSIPS	Core Principles for Systematically Important Payment Systems
CSD	Central Securities Depository
DFS	Digital Financial Services
DLT	Distributed Ledger Technology
EAC	East African Community
EAPS	East Africa Payment System
EFT	Electronic Funds Transfer
EMV	Europay, MasterCard, Visa
FII	Financial Inclusion Insights
Fintech	Financial Technology
FSDP	Financial Sector Development Program
GDP	Gross Domestic Product
GNI	Gross National Income
GoR	Government of Rwanda
GPFI	Global Partnership for Financial Inclusion
G2P	Government to Person
ICT	Information and Communication Technology
KPI	Key Performance Indicator
MFI	Microfinance Institutions
MFS	Mobile Financial Services
MM	Mobile Money
MNO	Mobile Network Operator
MoU	Memorandum of Understanding
NFC	Near Field Communication

NNSS	National Net Settlement System
NPS	National Payment System
NPSC	National Payment System Council
OTC	Over the Counter
P2G	Person to Government
P2P	Person to Person
PFMI	Principles for Financial Market Infrastructure
PFMI	Principles for Financial Market Infrastructure
POS	Point of Sale
PSO	Payment Service Organization
PSP	Payment Service Provider
RDB	Rwanda Development Bank
RIPPS	Rwanda Integrated Payment Processing System
RNPS	Rwanda National Payment System
RPS	Rwanda Payment System
RRA	Rwanda Revenue Authority
RTGS	Real Time Gross Settlement
RURA	Rwanda Utilities Regulatory Authority

## Executive Summary

The Rwanda National Payment System (RNPS) Strategy 2018 – 2024 reaffirms the commitment of the National Bank of Rwanda (BNR) and the Ministry of Finance and Economic Planning's (MINECOFIN) commitment to encourage the use of electronic payments by all residents of Rwanda, to achieve a cashless society. The vision of the RNPS, its five strategic pillars and accompanying implementation metrics act as a strong guide towards accomplishing a cashless economy, and a financially included population.

**Vision:** To build a cashless Rwanda through a world-class payment system that is secure, reliable, efficient, scalable, innovative, and promotes financial inclusion.

### Evolution and achievements of Rwanda's national payment system:

The *Rwanda Payment System Strategie* serves as a guide for the Rwanda payment industry, including regulators, public and private sector players to promote the continued development and modernization of the Rwanda Payment System (RPS).

The objectives and goals of the Strategy are in line with and crucial to meeting the economic targets indicated in various national strategic plans, including *Rwanda Vision 2020/2050*; *Economic Development and Poverty Reduction Strategy II 2013 - 2018 (EDPRS II)*; and *Financial Sector Development Program II (FSDP II) 2012*. Specifically, the strategy will guide the Government of Rwanda and industry stakeholders to lead and contribute to the following:

1. Accelerate the rate of economic growth and empower Rwandans towards meeting the country's vision of attaining middle-income status;
2. Facilitate a cashless economy by promoting e-payments;
3. Drive financial inclusion to meet the country's commitment of 100% of adults in the formal financial system by 2020;
4. Create an interoperable payment landscape with an enabling environment for product and service innovation, which provides affordable payment services to Rwandans;
5. Develop a payment system that is safe, reliable, and efficient for all participants in the ecosystem.

Following the development of the *Rwanda National Payment System Strategy (2008)*, Rwanda's payment landscape has experienced significant improvement over the past several years. The design and implementation of the Rwanda Integrated Payment Processing Systems (RIPPS) in 2011, which drove the automation of payment transfers and provision of real time settlement of payment transactions, was one of the several achievements of the Rwandan payment system over the past decade. Additionally, between 2008 and 2016, uptake of retail electronic payments (e-payments) increased dramatically to constitute over 20% of the country's GDP. Participants in the payment system expanded from nine banks to 20 different players, including banks, mobile network operators, and microfinance banks. Visa and MasterCard established their presence in the country, joining RSwitch as one of the country's two main switches; and the number of

Automated Teller Machines (ATMs) and Point of Sale (POS) throughout the country expanded significantly.

To maintain the momentum towards further development, the National Payment System visioning and strategy exercise was commissioned, building on the strategy established in 2008. This document, titled **Rwanda Payment System Strategy** is the result of this exercise. The vision of the national payment system (highlighted above) is to build a cashless Rwanda through a world class payment system. The **five key strategies** outlined in section IV of this document detail out how various parts of this vision can be attained by 2024.

### High-level Snapshot of the 5 key strategies and their components.

I. Enhance the oversight, legal and institutional framework of the national payment system			
Sub-Strategies	Key Action Steps	Key Agencies responsible	Time-Frame
<b>1.A Review existing legal framework and enhance human capacity of regulators (BNR, NIDA, CMA, RURA)</b>	Review legal and regulatory framework to ensure it adequately reflects current and potential future needs of the payment system. The review will investigate how to effectively support and regulate innovative and emerging technologies. A feasibility study into the issuance of fiat cryptocurrency will also be conducted.	BNR	Medium Term (up to 2020)
	Monitor implementation of the and assess the impact of regulatory framework (including regulatory sandboxes) for innovative products accelerating time to market.	BNR, MINECOFIN, RURA	Short to Medium Term (up to 2020)
	Development of a <b>comprehensive cyber security framework</b> that provides for a secure, reliable and resilient payment system.	RISA, BNR, RURA, MINICT	Short Term (by 2019)
	Consumer protection laws in financial services are in place and Quality of Service (QoS) and Quality of Experience (QoE) are built into consumer protection laws.	BNR, RURA	Medium Term (2020)
	Establish a data protection law	NISR, MINECOFIN, MINIJUST	2020



<b>1.B Enhance the payment institutional framework through cooperation among domestic and international regulators</b>	Ensure close collaboration and alignment of National regulators and clear separation responsibilities.	BNR, RURA,CMA	Short to medium Term (up to 2020)
	Engage with EAC partner states to ensure alignment around regional integration and cross-border payments.	BNR, and other EAC partner states.	Continuous.

<b>II. Facilitate the transformation of Rwanda into a cashless economy</b>			
Sub-Strategies	Key Action Steps	Key Agencies responsible	Time-Frame
<b>2.A. Increase footprint of electronic transaction infrastructure</b>	Number of digital payment acceptance points increases at least 15 times from 21.6 per 100,000 adults to 324	BNR MINECOFIN Private Sector (Banks, Non-banks & merchants)	Long Term (by 2024)
	80% of adult population that have digital payment methods (MFS or Cards)	Banks,MNOs,MI NICT,RDB,Paym ent industry, RRA,PSF	Long Term (by 2024)
	Value of electronic payment to GDP is at 80%G	BNR, MINECOFIN, MINICT, RDB, payment industry, RRA, PSF	Long Term (by 2024)
	Review taxation policies regarding e-payment transactions to encourage the usage.	MINECOFIN, RRA, BNR, RDB, MINICT and payment industry	Short to Medium Term (up to 2020)
<b>2.B Leverage government payments to promote growth and innovation within retail payment infrastructure</b>	Develop a cashless policy for government transactions ensuring that 100% of all payments made <b>by the</b> government (G2P, G2B, G2G) are digitized.	BNR, MINECOFIN	Short Term (up to 2018)
	Digitize backend processes and payments for all payments to and from government; 100% of all payment use-cases	RISA, MINECOFIN, RRA, BNR	Long Term (2024)

	100% of all payments to the government are made digitally (P2G, B2G)	RISA, MINECOFIN, RDB, RRA, BNR	Long Term (2024)
<b>2. C Increase awareness and education of e-payments among Rwandans and encourage innovative business models that offer a strong value proposition for merchants and consumers to use digital payments.</b>	Develop a financial literacy strategy regarding e-payments	BNR, MINECOFIN, associated ministries and private sector	Short Term (up to 2018)
	Incentivize merchants and consumers to adopt digital payments (lower MDRs, tax-credits or rebates).	MINECOFIN, BNR, RDB, payment industry	Medium to Long Term (up to 2024)
	Encourage low cost business models and solutions that accelerate payment adoption.	BNR, MINECOFIN, RDB, payment industry	Medium to Long Term (up to 2024)

<b>III. Foster and enabling environment for innovation in the payment system</b>			
Sub-Strategies	Key Action Steps	Key Agencies responsible	Time-Frame
<b>3.A Enhance collaboration between stakeholders while promoting competition</b>	<b>Interoperability:</b> Examine the current state of interoperability and evaluate business models that can sustainably accelerate the flow of funds across all payment instruments. This should result in interoperability across all payment issuers, irrespective of payment instrument (bank to bank, bank to wallet, wallet to bank, MFI to bank and wallet and reverse).	BNR, MINECOFIN, NPSC, RURA Payment industry	Medium to Long Term (up to 2024)
	<b>Open Application Programming Interfaces (APIs):</b> Drive competition, innovation and collaboration between banks, non-banks and other third parties through policies and business models that allow for open,	BNR, MINECOFIN, NPSC, RURA Payment industry	Medium to Long Term (up to 2024)

	secure and reliable exchange of information.		
	<b>Study on number / data portability:</b> Commission and finalize a study on the implications of number portability on consumers' financial transactions and histories.	RURA, BNR, MINECOFIN	Medium Term (by 2019)
<b>3.B. Utilize regular research and surveys to measure and inform stakeholders on development of payment system</b>	Periodic (every 3 years) statistically relevant demand side surveys to assess the level of adoption of e-payments, reliability and security of payment systems and opportunity areas.	BNR	Continuous
	Assess the potential impact of new technologies such as DLT, the Internet of Things (IoT), etc....	BNR, RURA, CMA	Medium 2020
<b>3.C. Support Fintech companies promote innovations that allow for better access, adoption and usage of financial services and products.</b>	Establishment of a fintech incubator/accelerator programs that nurture industry-wide fintech solutions	MINECOFIN, BNR, MINICOM, MINICT, RDB, PSF, payment industry	Continuous
	Establish seed and scale capital (through angel investors, Venture capital and private equity) for Fintech companies to develop proof of concept and market test easily.	MINECOFIN, MINICOM, MINICT, RDB, Financial Institutions	
	Attract and develop talent in Financial Technology domains	MINICT, MINICOM, RDB, PSF	

<b>IV. Enhance access and inclusion of institutions within the national payment system</b>			
Sub-Strategies	Key Action Steps	Key Agencies responsible	Time-Frame
<b>4.A Enhance access to and inclusion within the national payment system</b>	Facilitate the participation of 100% of E-money issuers, and 100% of MFIs and SACCOs participate in the NPS by 2024.	BNR	Long Term (up to 2024)
<b>4.B. Adapt the pricing structures of various payment</b>	Transparent and fair pricing across payment instruments and channels. Prices are made available to the public.	BNR, NPSC	Short Term (by 2018)

<b>instruments to enhance affordability, fair pricing, and transparency in the market</b>			
<b>4.C. Provide payments products and services that are affordable and meet consumers' needs</b>	Develop compelling DFS products (savings, insurance, credit and other payment use-cases) that increase customer stickiness with digital financial services.	BNR, Payment Industry	Long Term (up to 2024)
	Increase the smartphone penetration in the country to 70%	RURA, MINICT, BNR, Banks and MNOs	Long Term (up to 2024)

<b>V. Enhance the efficiency of payment systems</b>			
Sub-Strategies	Key Action Steps	Key Agencies responsible	Time-Frame
<b>5.A. Ensure reliability and robustness of e-payment infrastructure</b>	Develop a directive establishing standards for technological infrastructure and security of e-payments (ATM, POS, MFS)	RURA, BNR, payment industry	Short Term (by 2018)
	Improve internet (3G/4G) accessibility in terms of data coverage, quality and affordability	RURA, MINICT, RISA, ISPs	Short Term (by 2019)
	Establish a cyber resilience program based on the National Cyber Security Strategic Plan	RISA, MINICT, BNR, RURA, payment industry	Short Term (by 2019)
	Carry out business process re-engineering exercises to streamline and automate government-backend activities to enable integration and interoperability between public sector systems.	MINICT, MIFOTRA and RISA	Short Term (by 2021)
<b>5.B. Promote efficiency in RIPPS internal processes for clearing and settlement</b>	Real time clearing for small value payments. RIPPS to upgrade to 24/7 days operations	Clearing system operator, BNR, payment industry	Short Term (by 2018)

## 1.0 Introduction

### 1.1 Key Objectives of the National Payment System Framework and Strategy

The key objectives of the national payment system framework and strategy are as follows:

1. **Economic Growth:** To use the payment system to accelerate the rate of economic growth and empower Rwandans in achieving the country's vision of a middle-income country by 2020 and high income by 2050.
2. **Cashless Economy:** To facilitate a cashless economy by promoting e-payments.
3. **Financial Inclusion:** To drive financial inclusion to include 100% adults in the formal financial system by 2020.
4. **Enabling Environment for Innovation:** To create a payment landscape with an enabling environment for product and service innovation, which provides affordable payment services to Rwandans.
5. **Robust Payment System:** To develop a payment system that is safe, reliable, and efficient for all participants in the ecosystem.

### 1.2 Global and Regional Developments in Payment Systems

#### 1.2.1 Global payments outlook

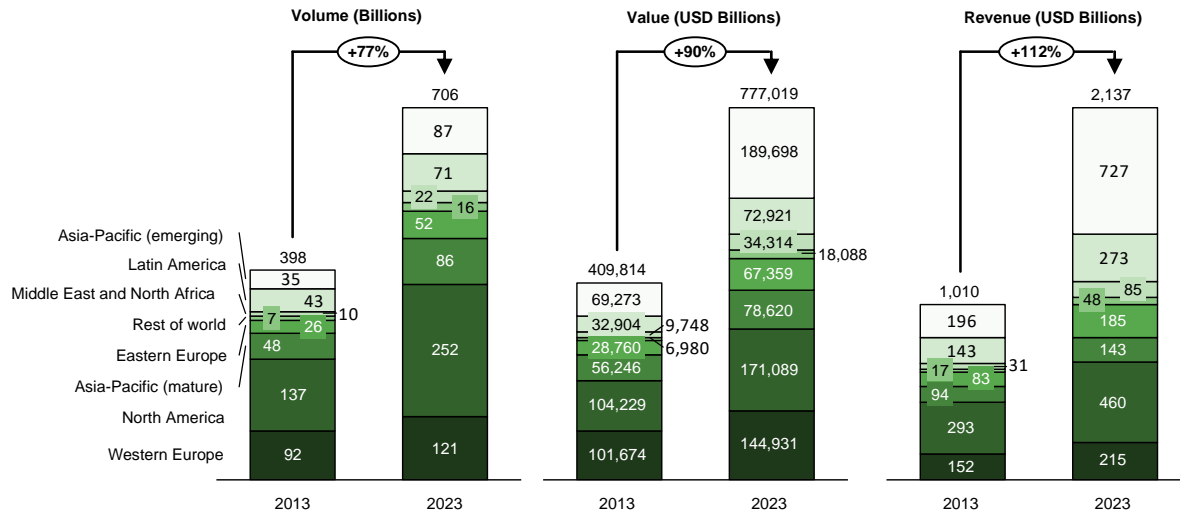
Globally, payments systems are a pervasive point of discussion, not only among traditional financial institutions, but also among MNOs, Payment Service Providers (PSPs), government institutions, and development agencies. The proliferation of non-financial institutions in the payment landscape requires regulators to stay abreast of various developments in this sector to ensure that the national payment system supports innovation in payment products and services without compromising the safety, effectiveness, and efficiency of the payments ecosystem.

Innovations in the payments industry are driving competition among traditional players and encouraging new entrants into the industry. Global payments are expected to continue to grow significantly between 2013 and 2023, mainly driven by retail (low-value) payments in volume and revenues, and by wholesale (large-value payments) in value.<sup>1</sup> North America, Western Europe, and Asia-Pacific (emerging) will represent the biggest markets in 2023, while the rest of the world, which includes Sub-Saharan Africa, will grow by 141% in volume, 161% in value, and 187% in revenue.

#### Figure 1: Global Payments Outlook by 2023

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<sup>1</sup>Boston Consulting Group. Global Payments 2014 - Capturing the Next Level of Value. Report. Boston: Boston Consulting Group, 2014. Document.



Source: Data extracted from BCG Global Payments Outlook

These figures highlight the large scale of the opportunities for providers to deploy innovative payment solutions to meet the demands of end users. A clear example is the recent boom in mobile wallet (mWallet) payments – a payment method less than a decade old, but which has established itself as a critical component of most national payment ecosystems.

### 1.2.1.A New players and technologies are entering the ecosystem

Payments is a popular arena for innovation. Some of the world’s largest digital companies (Apple, Google, Amazon, Facebook, PayPal), as well as hundreds of smaller financial technology (Fintech) companies are introducing innovative payment products and services. Examples include digital wallets, in-app payments, and app-based virtual banks.

### 1.2.1.B Disruptive technologies may impact the payment ecosystem

Innovative and disruptive technologies are emerging that offer alternatives to traditional payment infrastructures and solutions. Several industry players are exploring the possibility of using technologies such as blockchain in place of traditional methods of payment, information storage, settlement, etc.

### 1.2.1.C The world is moving to faster payments with more information

Many payment systems around the globe are undergoing fundamental changes to reflect the new realities of digital commerce, especially when it comes to the speed at which payment requests are processed. Convenience, security, universal access, financial inclusion of previously unbanked populations, adoption of international standards, enhanced remittance capacity for Business-to-Business (B2B) transactions and low cost are other important characteristics of emerging interbank payment systems.

### 1.2.1.D Universal financial inclusion

This document defines financial inclusion as indicated by the G-20’s Global Partnership for Financial Inclusion (GPII). GPII defines financial inclusion along three dimensions – (a) access to financial services, (b) usage of financial services, and (c) the quality of the products and service delivery. The document also lists the indicators that constitute each of the above dimensions.

Payments and payment services are an integral part of the overall package of financial services. Formal payment services also produce important data trails, that can not only facilitate access to follow on financial products services, but, in many cases, can be critical to the efficient provision of those services. The global goal is to ensure adults world over have access to transaction accounts to store money, send and receive payments as the basic building block to manage by 2020.

#### **1.2.1.E Enabling regulatory approach**

Regulators are shifting focus to meet the demands of the changing global payments landscape and protect consumers. Governments are stimulating adoption of noncash payment instruments, removing barriers to competitions for both banks and other players, and enhancing security requirements for both mobile and online payments.

#### **1.2.1.F Global standards are emerging, improving local competitiveness**

Much of the value of modernization is delivered by creating the capability for payment-related information to travel with the payment. The inclusion of payment information reduces the need for labor intensive processes such as reconciliation, and supports automated processing. ISO 20022 is a multi-part international messaging framework that supports including standardized payment-related information along with payment instructions. ISO 20022 has emerged as the global payments messaging standard, and is considered an essential component of any payments infrastructure modernization. The widespread adoption of ISO 20022 will also support international interoperability of payments systems.

### **1.2.2 Regional Landscape**

Africa's payment landscape has undergone significant changes over the past decade, especially with the proliferation of non-financial institutions such as MNOs, Payment Service Operators (PSO) or Payment Service Providers (PSP), and retailers into the payment industry. In addition, focus on branchless banking initiatives such as mobile banking, transaction and acceptance terminals, and internet access is now predominant in many African countries. MFS and agent banking, in particular, have become established payment channels through which customers in the African continent conduct remittance and payment transactions. Per GSMA's State of the Industry Report ([SOTIR](#)), there were over 227 million registered mobile money accounts in 2016, and over 80% of the region has deployed mobile money services.<sup>2</sup> Other important trends in the payment landscape include the convergence of e-commerce and mobile payments through the uptake of smart phones and mobile applications; the adoption of e-payment by government organizations to capture revenue (e.g. taxes and utilities) and disburse payments (e.g. pension and social benefits); and the growing cross-border, low-value e-payment market, such as remittances, international bill payment, e-commerce, and trade services. These trends further underscore the critical need for central banks to take a proactive approach to facilitate a payments landscape that is safe, reliable, efficient, and affordable for end users.

As said earlier, governments around the world are prioritizing efforts to move from a cash-based to a cashless economy as one of the key means to drive financial inclusion. 19 countries in Sub-Saharan Africa signed the Maya Declaration, a commitment to the economic and social potential of the 2.5 billion people un-banked through financial inclusion. Access to payment services

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<sup>2</sup>GSMA, State of the Industry Report, Decade Edition 2006 - 2016

remains fundamental to achieving the Maya Declaration targets, particularly given the potential that affordable and effective channels (such as agent banking and MFS) have for bringing un(der)served segments into the formal financial economy.

The next section gives a description of the Rwanda National Payment System and the current initiatives by stakeholders within the payment ecosystem.



## 2.0 Rwanda Payment System

### 2.1 Overview of the Rwanda Payment System

Rwanda's payment landscape is comprised of multiple constituents, which can be classified into three groups: networks, providers, and platforms.

#### 2.1.1 Networks

##### 2.1.1.A Regional Platform Networks

Rwanda's banking system is connected to the East African Community (EAC) through the East African Payment System (EAPS)<sup>3</sup> for cross-border, bank-to-bank, wholesale transactions. For retail transactions, Rwanda's national payment system is connected to regional and global payment platforms through Rswitch, MasterCard and Visa to allow transactions to occur outside of Rwanda's borders. Cross border mobile transfers are emerging through bi-connections between MNOs or via aggregators at the regional level.

##### 2.1.1.B Local Payment Platforms and Networks

The BNR has taken a primary role in developing the payment industry by facilitating payment services between banks through the RIPPS. The RIPPS consists of the Automated Transfer System (ATS), through which RTGS and ACH are offered, as well as CSD, which is designed to provide depository services to the financial markets. The RIPPS serves as a national hub to support interoperable payments.

#### Real Time Gross Settlement (RTGS)

As a component of the automated transfer system, the BNR launched the RTGS system in 2011. The RTGS system, which enables real-time settlement of large-value payments and provides for accurate reflection of transactions, is critical to efficiency of Rwanda's payment system. The BNR's RTGS system is connected via EAPS to the RTGS of other countries of the EAC (specifically, Kenya, Tanzania, and Uganda). All card based payment services are settled in central bank money through RTGS.

#### Automated Clearing House (ACH)

ACH is the second component of the ATS, which deals with payments by cheque and multiple credit transfer.

#### Electronic Cheques

The BNR along with banks is currently embarking on a modernization of cheque processing system by implementing the cheque Imaging System. Magnetic ink character recognition (MICR) standards banks have already been established and participants and started using the standardized cheques. The BNR however, is actively looking at phasing out cheques for

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<sup>3</sup> EAPS is a regional payment system, which allows banks to transfer or receive funds through their respective Central Bank's Real Time Gross Settlement System (RTGS) with other countries' RTGS through EAPS. Kenya, Uganda, Tanzania, Rwanda and Burundi are all member of EAPS, however Burundi is not yet operational.

government transaction following the establishment of internet banking for government transactions.

### Card Payment System

Historically, all banks in Rwanda issued ATM cards that were branded by RSwitch as “SMARTCash Card.” The cards, issued by RSwitch member banks, can be used on both ATMs and POS terminals of RSwitch member banks. After the arrival of Visa and MasterCard in Rwanda, many banks also became Visa and MasterCard issuers.

#### RSwitch

RSwitch (previously known as SIMTEL) currently serves as a Switch for local cards which constitute 48% of the market share. RSwitch members include both issuers and acquirers of debit cards. Additionally, RSwitch provides card management and ATM and POS operations for 5 banks.

#### Visa

Present in Rwanda since 2008, Visa is an international payment scheme working with Rwanda banks. Ten commercial banks and one microfinance bank are Visa members and can acquire ATMs; among those three banks are POS acquirers and three are e-commerce acquirers; six of 11 Visa members can issue debit, credit, and prepaid products (cards or mVISA) to their clients. Visa has 41% of the market share.

Visa has offered membership to its Visa Network (VisaNet) to multiple banks within the payment ecosystem. Visa member banks issue Visa-branded debit and credit cards and accept Visa cards on their ATM and POS networks. Local transactions (where both issuer and acquirer banks are domestic) are cleared locally in Rwanda Francs (RWF) using the National Net Settlement System (NNSS) and are settled through RTGS.

#### MasterCard

MasterCard has also entered the market since 2015 and serves three banks (has around 10% of the Rwandan card market share). MasterCard payment gateway is being used by Rwanda Online to facilitate payment of government services through the [Irembo platform](#).

## 2.1.2. Financial Service Providers, Intermediaries and Government Agencies

### **Mobile Network Operators (MNOs) and third party wallet providers**

There are three MNOs in the market – Airtel Rwanda, MTN Rwanda, Tigo Rwanda- all of whom offer electronic wallets and digital financial services. All electronic money (e-float) is balanced out by equivalent cash in escrow accounts at local banks.

As of end December 2016, mobile network operators offered different services such as: cash-in, cash-out, airtime purchase, electricity, water and fuel purchase, merchant payment, pull/push transactions between bank and mobile network operators, saving, transfers (P2P, B2P, P2G, cross border, international remittances) and school fees payment. Using mobile payment, one can make cross border transfers in following Countries: Kenya, Uganda, Tanzania, Zambia, DRC,

Niger, Congo Brazzaville, Ghana, and Malawi. It is also possible to receive money from partner Countries of World Remit, Western Union and Small World. The total number of registered mobile accounts increased by 27% from 7,663,199 as at end-Dec 2015 to 9,735,694 at end-December 2016. In terms of MNO agent infrastructure, there were 577 agents per 100,000 adults or 34,620 agents in the country end of June 2016<sup>4</sup>.

Several banks and MNOs have also developed bilateral partnership initiatives to offer (MFS). Given the limited flow of funds across payment instruments issued by banks, MNOs and some PSPs, banks have formed partnerships with MNOs that allow for push-pull services between a bank account and a mobile-wallet (mWallet) account. Customers can pull money from their bank accounts to their mobile wallets and vice-versa. However, these crisscrossing bilateral relationships create inefficiencies within the payment system, and discussions are on-going to enhance RSwitch's capability to offer "any to any" transfer services.

### **Commercial Banks**

The banking sector in Rwanda is comprised of 11 commercial banks and five microfinance banks that offer core financial services to their clients, including savings, credit, cards, and alternative delivery channels. As of December 2016, there were 400 ATMs, 1,885 POS machines, 746,458 debit cards, and 3,668 credit cards deployed by Rwanda's banks.<sup>5</sup> Three banks are providing agent banking services with the total of 4,411 agents around the country. Note: agent exclusivity (MNO or bank) is prohibited and all agents are non-exclusive.

### **Microfinance Institutions (MFIs) and Savings and Credit Cooperative Societies (SACCOs)**

Rwanda has 61 MFIs, which serve a client base of 2.5 million customers. Additionally, there are 416 SACCOs, present in all districts in the country. These SACCOs serve 2.2 million people, offering deposits and loans.

As of December 2016, only one of the MFIs offered e-payments, such as mobile banking and debit/ATM cards. Although there are on-going initiatives by MFIs and SACCOs to partner with banks and PSPs to offer e-payments, the limited technology infrastructure and organizational capacity of the MFIs and SACCOs impedes their ability to fully participate in the payment system. It is in that regards the Government and Association of Microfinance Institutions in Rwanda (AMIR) have initiated projects to automate both SACCOs and MFIs through shared platform.

### **Payment gateway service providers and payment aggregators**

The increasing growth of electronic payments, especially online payments, riding the growth of ecommerce and m-commerce transactions, has brought to the fore the increasing role and importance of entities that facilitate such online payments such as payment gateway providers and payment aggregators<sup>6</sup>. The central bank in Rwanda is working on guidelines that will clearly define and detail specific aspects of the functioning of these intermediaries, particularly payment aggregators. In Rwanda, aggregators enable utility, transport, m-commerce, person-to-government and other types of payments across multiple financial service providers.

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<sup>4</sup>BNR Annual Supervision reports

<sup>5</sup> BNR Statistics, 2016

<sup>6</sup>India Payment Systems Vision 2016

## Government Agencies

	P	B	G
Person (P)	P2P	P2B	P2G
Business (B)	B2P	B2B	B2G
Government (G)	G2P	G2B	G2G

The Government of Rwanda (GoR) has taken an active role in driving the uptake of e-payments by launching initiatives to digitize government payments, which are currently largely cash and

paper-based. As shown in the payment grid above (highlighted in green), there are two types of payments (P2G, B2G) **made to the** government and three that are made by the government (G2P, G2B, G2G). The GoR has successfully digitized nearly all G2B and G2G payments. However, the largest volume of payments in any market, are P2G payments (CGAP<sup>7</sup>) and while the GoR is working towards digitizing these types payments<sup>8</sup>, there is a lot that still needs to be accomplished in digitizing the backend process of various government departments to ensure a truly end-to-end remote experience which includes payments.

For P2G payments, such as taxes, the Rwanda Revenue Authority (RRA) has introduced an online system, and six banks are offering tax payments using electronic channels. The Government of Rwanda, through the Rwanda Online Platform, has also made significant progress in establishing an integrated public service platform that offers B2G and P2G services in the country. The Rwanda Online platform is accessible to consumers via the internet and accepts both card and mobile payments.

## 2.2 Interoperability

The Rwandan payments system currently has limited levels of interoperability for retail payment transactions. Table 3 describes the extent to which interoperability exists in the market.

**Table 1: Levels of Interoperability between various payment channels**

Bank to Bank Accounts	Electronic POS	ATMs	Mobile
<ul style="list-style-type: none"> <li>Real-time, inter-bank transfers initiated by bank customers to another bank's customers are not operational;</li> </ul>	<ul style="list-style-type: none"> <li>Visa, MasterCard and RSwitch<sup>9</sup> provide interoperability between their member institutions; most POS acquirers acquire both brands</li> </ul>	<ul style="list-style-type: none"> <li>Both Visa and RSwitch provide interoperability between their member institutions</li> <li>Banks acquire Visa, MasterCard</li> </ul>	<ul style="list-style-type: none"> <li>Between telcos, mWallet to mWallet transfer is non-existent; discussions among telcos to interoperate are underway</li> </ul>

<sup>7</sup>Lessons from digitizing Global P2G payments: <http://www.cgap.org/blog/series/digitizing-person-government-payments-global-landscape-2016Lesson>

<sup>8</sup>P2G payments typically fall under the classification of statutory payments (like taxes and fines), service payments (for passport, driver licenses, school fees, tolls and more) and co-payments (like insurance).

<sup>9</sup>As of 2016, five banks issue RSwitch cards, while seven banks accept RSwitch banks on their ATMs. Six banks issue Visa, while 8 banks accept Visa cards on their ATMs. Three banks issue MasterCards while 5 banks accept them. Three banks acquire merchants, allowing acceptance of cards via POS; three of these banks enable acceptance of Visa, while two of the three bank enable acceptance of MasterCard.

<ul style="list-style-type: none"> <li>• High-value transfers are possible through RTGS</li> </ul>		<ul style="list-style-type: none"> <li>and RSwitch, therefore ATM interoperability is almost 100%</li> </ul>	<ul style="list-style-type: none"> <li>• Between telcos and banks, mWallet-to-bank and bank-to-mWallet transfers are currently operational through bilateral relationships between some banks and telcos</li> </ul>
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There is a drive for further interoperability within the RPS and efforts to promote full-scale interoperability within the various retail channels (ATM, POS, agent, mobile, and internet) and across payment instruments are ongoing. Current arrangements are bilateral between providers, which are not always optimal. However, an efficient payment system that allows for the seamless flow of funds between various payment instruments – in a manner that is affordable and intuitive to the end user, while making business sense to participating private sector entities - is needed. The central bank is working towards balancing out the needs of the consumer and the business realities of financial service providers in facilitating interoperability arrangements between issuers.

### 2.3 Performance of the Rwanda National Payment System

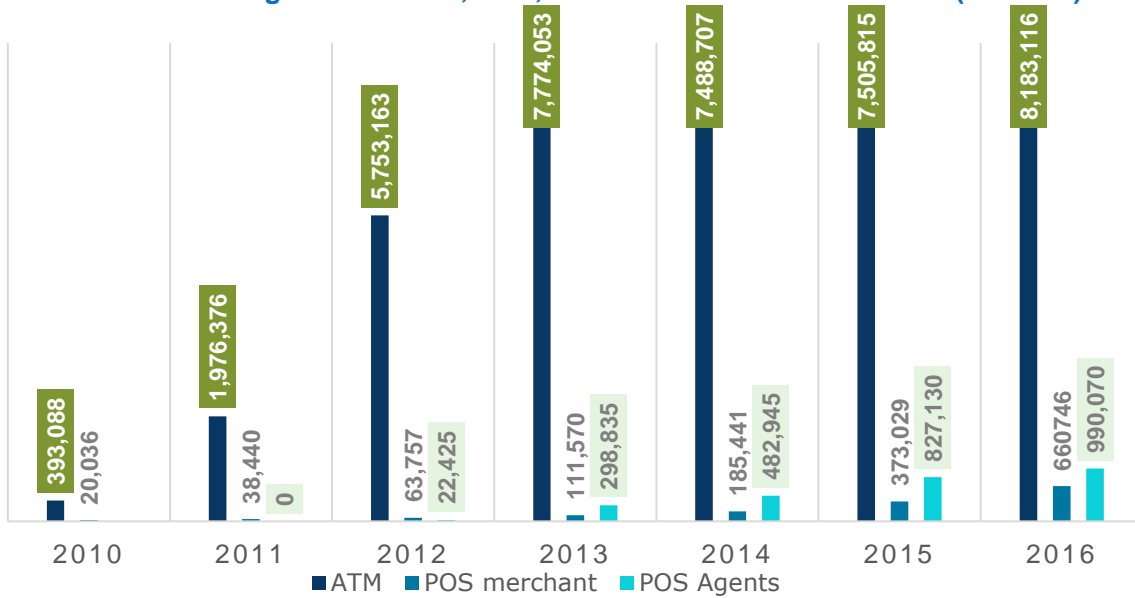
E-payments systems in Rwanda grew rapidly between 2012 and 2016 (see Figure 6), with most growth (in terms of subscribers and value) attributable to mobile payments. Debit and credit cards issuance recorded the slowest growth (CAGR of 29%), compared with mobile banking subscribers (CAGR of 49%) and mobile payments subscribers (CAGR of 99%).

Below tables and graphs show the current state of payment acceptance and disbursement infrastructure in the country, as well as the growth of e-payments across various channels (source: BNR).

**Table 2: Data on card based payment**

<b>Infrastructure</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>
<i>No. of ATMs</i>	84	167	292	333	354	380	400
<i>No. of POS terminals</i>	99	227	566	946	1,152	1,718	1,885
<i>No. of POS terminals for bank agents</i>	-	-	-	491	1,009	1,422	1,026
<i>No. of debit cards</i>	41,377	115,200	389,269	487,498	638,869	657,904	746,458
<i>No. of credit cards</i>	172	516	418	845	2,540	3,485	3,668

**Figure 2: Year-on-Year growth of ATM, POS, and POS transaction volumes (Jan-Dec)**



**Figure 3: Growth in value of ATM and all POS transactions (June to May)**  
(Values are in RWF billions)

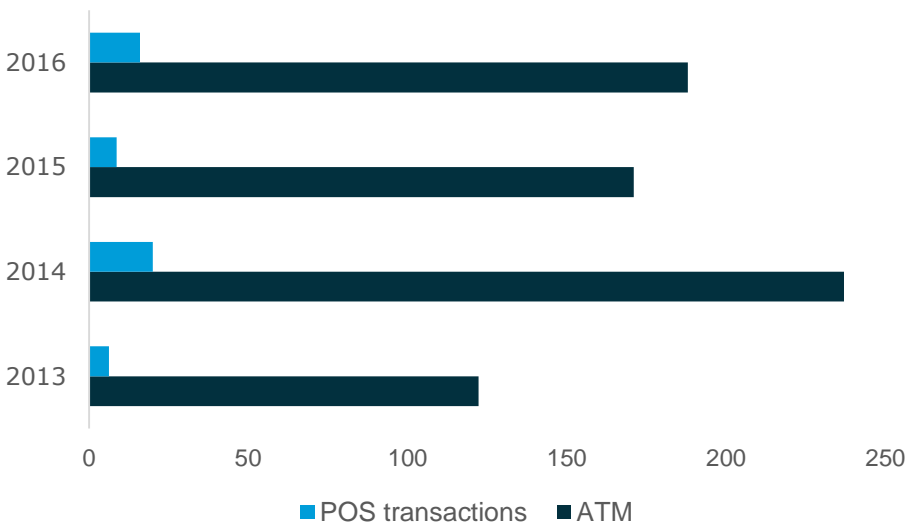


Figure 4: Growth in subscribers (non-unique) across mobile payments, m-banking and i-banking<sup>10</sup> (Jan – Dec)

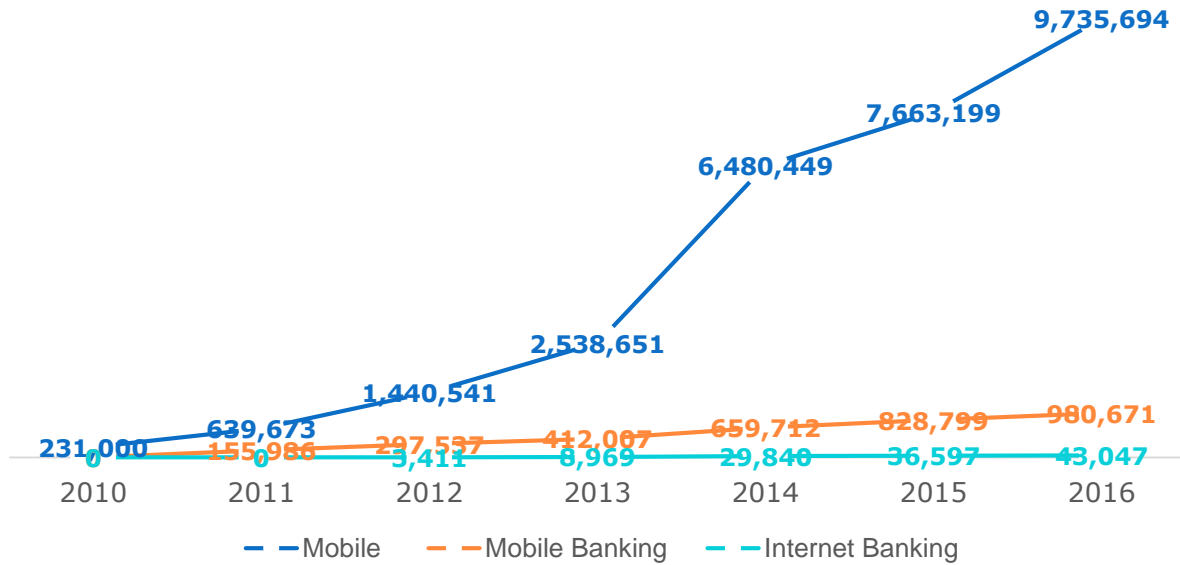
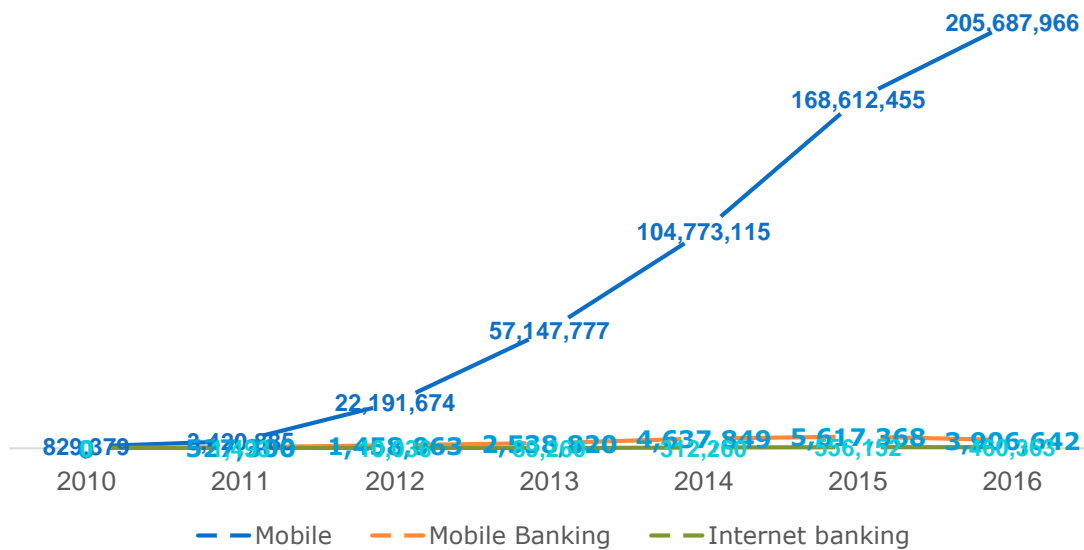
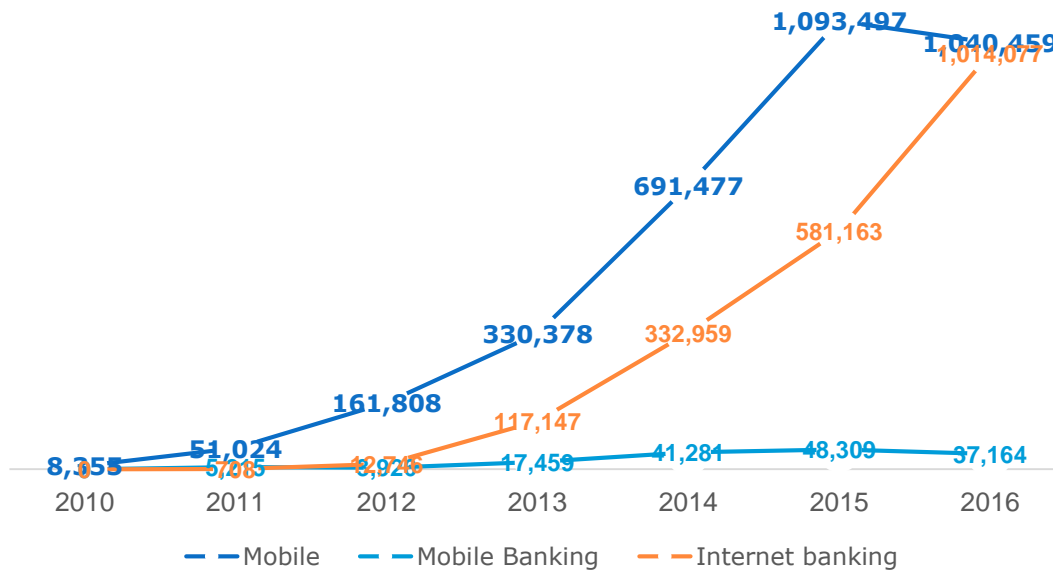


Figure 5: Comparison of volumes across mobile payments, m-banking and i-banking (Jan-Dec)



<sup>10</sup> Internet banking

**Figure 6: Comparison of values across mobile payments, m-banking and i-banking (Jan-Dec)**



In Rwanda, MFS represent the major driver of the volume of retail electronic transactions, as consumers show preference for mobile payments over other channels. Finscope Rwanda 2016 revealed that the main channel used for DFS is mobile money with 95% of DFS users preferring that channel over digital banking services at 21%.

Formal financial inclusion in Rwanda stood at 68% in 2016 while informal financial inclusion stood at 21% (Finscope). Formal financial institutions issue digital payment instruments (like debit cards or mobile wallets), while informal institutions typically don't. When compared of the percentage adults who are formally included, only 46% seem to be making use of the digital service, which is low. Of the DFS users - 65% use them for remittances, 64% use DFS for payments (mostly airtime), 44% are saving digitally, and only 11% for accessing credit<sup>11</sup>.

<sup>11</sup>FinScope 2016, Rwanda, Digital Financial Services in Rwanda



**Table 3:% of Adults with Active Registered MM Accounts per MNO, December 2016**

Accounts	Tigo	MTN	Airtel	Total
Total Registered (Incl. Functional and Non-Functional accounts)	3,921,069	3,673,472	777,152	8,371,693
Functional accounts (Active PINs)	2,824,339	2,761,529	444,095	6,029,963
Active accounts for last 90 days	1,348,288	1,372,408	266,000	2,986,696
Rate of Active in last 90 days of those with functional PINs	47.7%	49.7%	59.9%	49.5% <sup>12</sup>

Source: BNR

## 2.4 Payment acceptance infrastructure in the EAC and other economies

Comparative analysis of ATM transactions between Rwanda and other EAC countries (Kenya, Uganda, and Tanzania) reveals that Kenya has the highest penetration of ATMs per adult (10.1 ATMs: 100,000 adults).

Analysis of the value of POS transactions across the EAC region shows that its uptake is generally low. In Kenya, where POS penetration is highest (approximately 94 POS: 100,000 adults), However, compared to countries with the highest percentage of cashless, POS penetration is very low.

**Table 4: Number of POS 100,000 adult population<sup>13</sup>**

	Rwanda	Kenya	Uganda	Tanzania	Mauritius	Malawi	India	Brazil	Sweden
POS	26.98	94.	11.21	12.57	647	15	69	3750	2241
ATM	5.7	10.16	4.55	6.04	45.55	6	19.71	114	40.53

**Table 5: Number of POS per “000” of debit cards<sup>14</sup>**

	Rwanda	Kenya	Brazil	India	China	Australia
POS / '000 debit card	2.5	2.03	14.8	2	12.5	33.2

**Table 6: Percentage of cashless transaction in developed and emerging countries<sup>15</sup>**

<sup>12</sup> The Number is close the FinScope Survey.

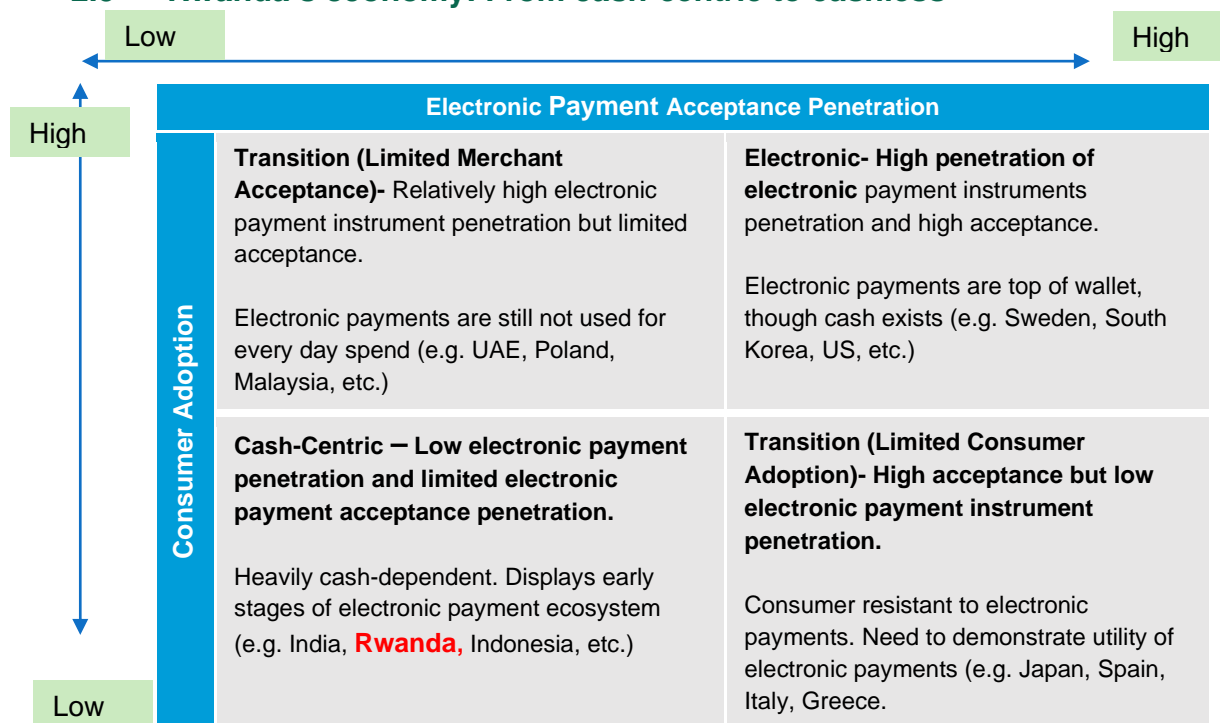
<sup>13</sup> Source: Bank of Tanzania; Central Bank of Kenya Bank of Uganda; National Bank of Rwanda

<sup>14</sup>Source: BCG Global Payment 2020 July 2016, CBK and BNR Websites

<sup>15</sup>Source: BCG Global Payment 2020 July 2016

	Australia	France	USA	Germany	UK	Brazil	China	Turkey	Russia	India
Cash-less txn	91%	78%	76%	76%	75%	56%	53%	40%	31%	22%

## 2.5 Rwanda's economy: From cash-centric to cashless



Data from Rwanda's national payment system and comparisons with other countries within the EAC and external to the region demonstrate that Rwanda is still heavily reliant on cash. There are many reasons for limited electronic uptake by consumers, government and merchants. Chapter 3 details out some of the key challenges while Chapter 4 lays out the strategies that aim to leapfrog Rwanda into a cash-lite economy in the next 5 years.

### 3.0 Challenges in the current Rwandan Payment System

A robust and reliable payment ecosystem is fundamental to achieving the strategic goals for Rwanda's social and economic development, as set forth in various national plans including *Rwanda Vision 2020/2050*; *Economic Development and Poverty Reduction Strategy II 2013 - 2018 (EDPRS II)*; and *Financial Sector Development Program II (FSDP II) 2012, Smart Rwanda masterplan*. However, there are several challenges within the Rwandan payment ecosystem that hinder the achievement of these strategic goals. These challenges include:

1. **Non-contemporary regulatory framework** for the payment system: Current laws and regulations especially those related to the retail payment were established in 2010 and are not reflective of the current realities of the Rwandan financial market. The development of innovative payment solutions, new channels, products and/or business schemes have modified the structure of the market and the delivery of payment services; thus, requiring relevant and proportionate regulatory framework.
2. **Limited interoperability** between providers, specifically in MFS systems which have the highest volumes of payments. Limited interoperability between card and mobile payment systems restrains the operational and economic efficiency of the national payment system, as well as end consumer affordability. Additionally, seamless interoperability between all bank and wallet accounts, which is critical to facilitating electronic payments, is not in existence.
3. **Cash-dominated economy**: A cash dominated economy exacts an invisible but very real cost on governments, businesses and households. Cost of cash for countries that are dominant users of cash can easily exceed 1% of GDP<sup>16</sup> and perpetuates a shadow economy. Like Rwanda, many developing countries are cash-dominant. Cash is expensive but users and merchants are not aware of it. The shift from cash to digital will require at the very least a combination of 3 things – (a) Significant portion of the population own and use a digital store of value, (b) a high density digital payment acceptance infrastructure exists, and (c) there are incentives for customers and merchants to shift to digital payment methods.
4. **Gaps in network infrastructure**: Currently, there are a number of gaps in network infrastructure, which include: unstable back-end and front-end infrastructure of providers; low penetration of smart phones which limit the usage of innovative channels; limited mobile and electricity coverage especially in rural areas, which reduces the number of places where customers can utilize POS and ATMs; and frequent network failures and problems that arise during the use of e-payments, which reduces customer confidence in digital payment channels.
5. **Payment digitization cannot occur without backend digitization**: The first step towards payment digitization is digitizing the backend. This includes (but is not limited to) digitizing manual processes, integrating with various financial service providers, developing an intuitive customer interface and experience, building reconciliation and

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<sup>16</sup> McKinsey on Payments: Forging a path to payment digitization, page 4

acknowledgment systems. Accepting or disbursing digital payments is nearly always the end piece of this puzzle. Various government agencies are working towards digitizing their processes to enable digital payment acceptance and disbursement, beginning with the revenue authority that is championing e-payments for tax collections. Similarly, other government agencies responsible for collection of fines, levies, social benefit contributions for pension, and more are working towards shifting from paper based to digital processes. However, this process is resource intensive and the transition from paper to digital is not always seamless.

Illustrative Example of the previous birth registration process in Rwanda			
	Process	Time	Direct costs (fees and transport)
Application / verification	<ul style="list-style-type: none"> <li>• Visits to three different offices</li> </ul>	<ul style="list-style-type: none"> <li>• 45 min – 180 min (15 min – 1 hour / office)</li> </ul>	<ul style="list-style-type: none"> <li>• 0 – 600+ RWF in transport costs</li> </ul>
Payment	<ul style="list-style-type: none"> <li>• Fee payment</li> <li>• Stamp collection</li> <li>• Notification</li> </ul>	<ul style="list-style-type: none"> <li>• 15-60 min</li> <li>• 15-60 min</li> <li>• 2 weeks</li> </ul>	<ul style="list-style-type: none"> <li>• 500 RWF service fee</li> <li>• 0 – 200+ RWF in transport costs</li> </ul>
Receipt of service	<ul style="list-style-type: none"> <li>• Document collection</li> </ul>	<ul style="list-style-type: none"> <li>• 15-60 min</li> </ul>	<ul style="list-style-type: none"> <li>• 0-200+ RWF in transport costs</li> </ul>

**Estimated time cost: 1.5 to 6 hours | Estimated direct cost: 500 to 1500 RWF**

*The above image provides a time and direct cost estimate that a Rwandan citizen used to or still incur(s) to obtain a birth certificate (depending on the location) prior to IREMO services. The purpose of the example is to put a spotlight on the issue raised above – payment digitization is only part of the digitization process. In the case of birth registration example above, if a guardian is required to physically be present to process documentation, the incentive to make a remote payment hardly exists. Convenience is a key edge that remote payments bring. However, if the end-to-end transaction process is not digital, that edge is lost and so is the reason to make the payment digitally<sup>17</sup>.*

- 6. Low consumer access to electronic transaction and payment services:** As mentioned in point 3 above, moving from cash to digital, at a basic level requires a combination of 3 things –(a) significant portion of the population own and use a digital store of value, (b) existence of a high density digital payment acceptance infrastructure, and (c) incentives for customers and merchants to shift to digital payment methods. Currently, only 12% of the population has debit cards while 38% have mobile money accounts (note: these two sets overlap i.e. nearly the entire banked population has a mobile money account). The payment acceptance infrastructure on the other hand is at 27 POS machines for every 100,00 individuals, while for cash-lite countries like Sweden the payment acceptance penetration is nearly 100 times that at 2241 POS machines for every 100,000 individuals.

<sup>17</sup> Source: CGAP, Karandaz, Global Landscape Study on Digitizing P2G payments

**High Tax** levies on payment acceptance infrastructure can act as a disincentive to adopting and accepting digital payments. Incentives that lead to adoption and usage of digital payments both for merchants and customers are necessary to ensure the shift from cash to digital.

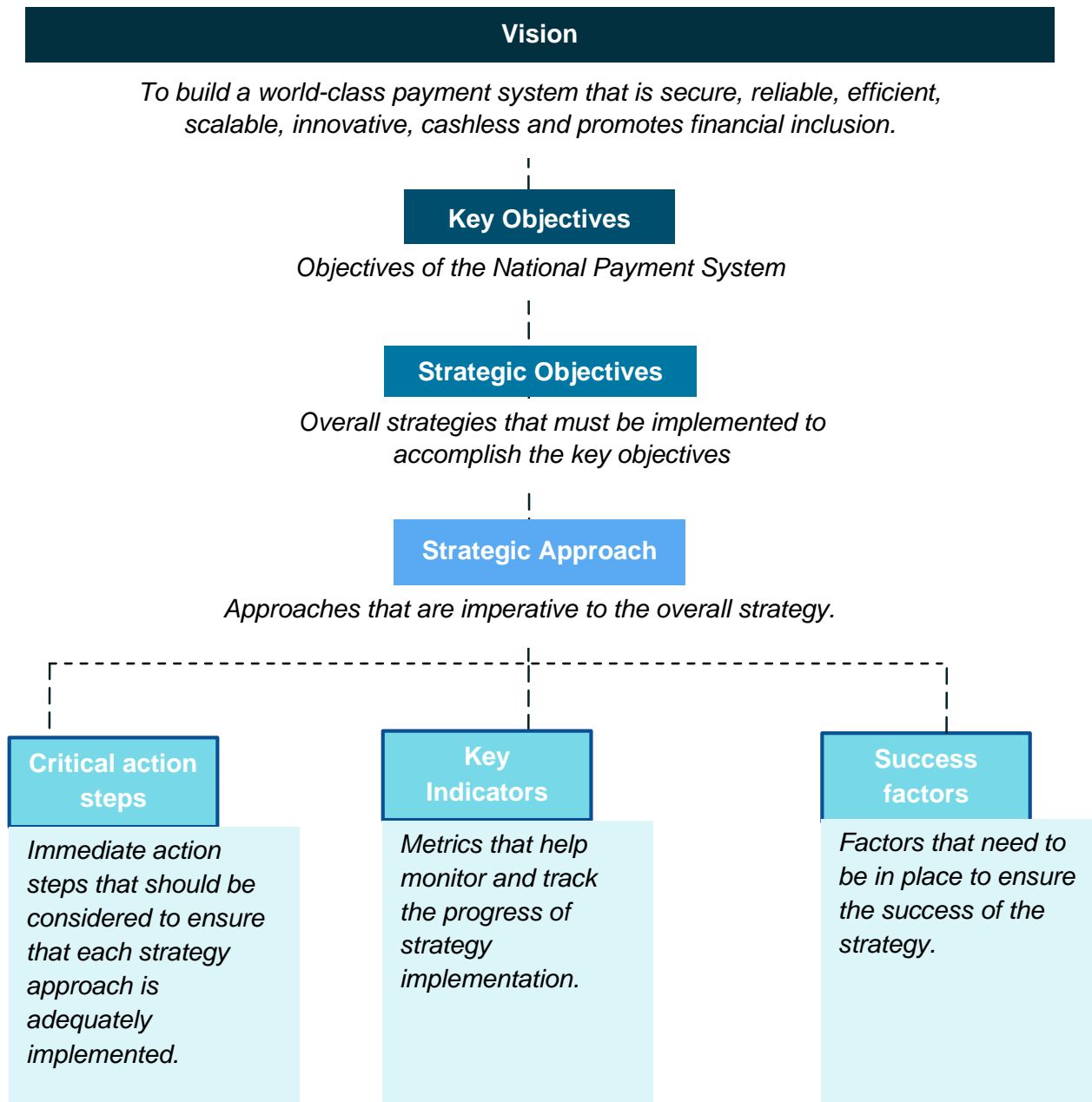
**Note -Non-traditional acceptance points:** It is important to note that the payment space is constantly evolving and this includes payment acceptance technology. Near Field Communication (NFC), QR code and internet based applications (apps), etc. have the potential to upend traditional and costly payment acceptance infrastructure.

7. **A large informal economy:** In the recently concluded demand side Finscope 2016 survey, 51% of adults reported that they earned their income from farming, and another 37% reported that they earned money from casual labor. Except for formal sector salaried workers (around 6% of adults), most adults earn their income in cash. If money is not earned electronically, it is counter-intuitive for people to go register and cash into a digital wallet or bank account especially when cash is universally accepted. Moreover, cash is perceived to be free while banks accounts, mobile wallets and other digital store of value have account or transaction fees. Earning money electronically, having an incentive to use electronic value and a robust spend economy with enough electronic value acceptance points are critical to Rwanda's vision. A large informal economy can slow the uptake of retail e-payments – which is currently at 22.6% of GDP to the desired goal of over 30% of GDP by 2025.
8. **Low levels of financial literacy:** There is a direct relationship between education levels, financial behavior and literacy. Adult literacy rate in Rwanda was at 68% in 2012 (National Institute of Statistics Rwanda). While significant progress has been made in pushing literacy levels upwards, with nearly 30% of the population illiterate, universal adoption and usage of digital financial products is going to be a challenge in the short term.

## 4.0 Rwanda Payment System Strategy

This strategy document is guided by the analysis of the Rwanda context, global experiences as well as the World Bank publication on developing a comprehensive national retail payment strategy. This section of the document is structured as depicted in the graphic below.

**Figure 7: Structure of the National Payment System Strategy**



## 4.1 National Payment System Strategy

### Vision

To build a cashless Rwanda through a world-class payment system that is secure, reliable, efficient, scalable, innovative, and promotes financial inclusion.

## 4.2 Objectives of the Rwandan National Payment System

The strategic objectives to achieve the above stated vision are as follows:

**1. To use the payment system to contribute to the achievement of the country’s vision of becoming a middle-income country by 2020 and high income country by 2050**

Currently, Rwanda is a low-income country with Gross National Income (GNI) per capita of USD 720 in 2017 (World Bank Estimate). Per Rwanda’s Economic Development and Poverty Reduction Strategy II, the country must achieve a GNI per capita of USD 1,200 by 2020 and USD 12,000 by 2050. The country’s payment system can contribute to empowering and increasing the economic status of Rwandans.

**2. To facilitate a cashless economy by promoting e-payments**

Rwanda’s retail electronic transactions currently account for 30.0% of GDP. Rwanda is predominantly a cash economy, partly due to the challenges highlighted in section 3.0. These include a huge informal economy that earns in cash, low ratio of electronic payment acceptance points (27 POS machines for every 100,000 adults), and a lack of incentives for merchants and customers to move from cash to digital.

The payment system vision and strategy intends to guide the transformation of Rwanda into a cashless economy, with cashless retail transactions contributing to over 30% of GDP by 2024.

**3. To create an enabling environment for product and service innovation, which provides affordable, effective and relevant payment services to Rwandans**

Existing gaps in the regulatory environment may hinder innovation in the payment system. The payment system vision and strategy will guide the modernization of the oversight and regulatory function of the central bank to create an enabling environment that supports innovation. Innovation in the payment system creates a healthy and competitive environment, which provides benefits to both providers and customers.

**4. To drive financial inclusion to meet the country’s commitment of 100% adults financially included by 2020**

The findings from Finscope 2016 revealed that about 68% of adults in Rwanda are formally included (around 4 million individuals). This static includes banked and non-banked formally included individuals. A key objective of the payment system is to move this statistic upwards to achieve 100% financial inclusion by 2020. This document **defines financial inclusion as indicated by the G-20’s Global Partnership for Financial Inclusion (GPII)**. GPII defines financial inclusion along three dimensions – (a) access to

financial services, (b) usage of financial services, and (c) the quality of the products and service delivery. For more details, please refer to the annex.

#### **5. To develop a payment system that is safe, reliable, and efficient for all participants in the ecosystem**

World-class payment systems must be safe, reliable, and efficient for all participants. These attributes of the payment system build consumer confidence in the system, which leads to increased patronage and overall development of the payment ecosystem.

### **4.3 The five strategies of the RNPS framework**

The five strategies below have been developed to help the RNPS framework achieve its objectives.

#### Key strategies driving the payment system framework

1. Enhance the existing oversight, legal and institutional framework of the national payment system
2. Facilitate the transformation of Rwanda into a cashless economy
3. Foster an enabling environment for innovation in the payment system
4. Promote access and inclusion in the payment system
5. Enhance the efficiency of the payment system

#### **4.3.1 Strategy 1: Enhance the existing oversight, legal, institutional framework and capacity of the national payment system**

The legal and institutional framework of the payment system guides the management of payment risks by the regulator, promoting the safety and efficiency of the payment system. The legal and institutional framework also empowers the central bank with the ability to monitor existing and planned systems and to adjust as necessary. To enhance the current legal and institutional framework, the BNR will continue to enhance the human resources capacity of BNR staff and other key industry stakeholders in the national payment system; review the payment legal framework to adapt it to current market development; ensure continued collaboration within the industry through the National Payment Council (NPC); and enhance collaboration among other national and regional regulators. The enhancement of the legal and institutional framework will help to address the need to develop a more comprehensive regulatory framework that provides an enabling regulatory environment for existing and new providers in the national payment system. The strategy is broken down into two sub-strategies, as follows:



<b>Strategy 1</b>	<b>1.A Enhance the oversight, legal framework and capacity of the payment systems department</b>	<b>1.B Enhance the payment institutional framework</b>
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**Table 7: Details of Strategy 1.A**

Strategy	1.A Enhance the oversight and legal framework of the payment system department	
<b>Strategic approach</b>	1.A.i Enhance human resources capacity of relevant regulators(BNR, RURA, CMA) and NIDA staff and other key industry stakeholders in the national payment system	1. A.ii Review existing legal framework
<b>Critical Steps</b>	<ul style="list-style-type: none"> <li>• Empower regulators’ staff with required knowledge to ensure adequate payment system oversight;</li> <li>• Review on a regular basis the ‘training needs’ in payment-related areas to identify gaps and areas for improvement;</li> <li>• Conduct an industry survey on key areas of the payment systems on which providers require further knowledge and training;</li> <li>• Participate in relevant international payment courses;</li> <li>• Regulators staff to be abreast of key developments in-country and globally.</li> </ul>	<ul style="list-style-type: none"> <li>• Evaluate the payment system based on the standards and practices for low-value payment systems provided by the World Bank’s principles for national retail payment systems;</li> <li>• Articulate differentiated approaches to regulating PSP versus e-money issuers;</li> <li>• Ensure effective consumer protection and AML/CFT laws through enforceable legal framework;</li> <li>• Review laws or regulations to support e-commerce and new entrants in the industry;</li> <li>• Coordinate with industry stakeholders to develop minimum technology and data security standards.</li> </ul>

## Strategic Approach

### **1.A.i. Enhance human resources capacity in payment system**

Regulators must keep up with the rapid pace of innovation and the risks that are introduced into the payment system with new business models, channels, payment instruments, and providers. This requires continually enhancing capacity of the relevant departments of the central bank and other relevant regulators and agencies including but not limited to the ID authority, RURA, CMA and other stakeholders in the industry to stay abreast of new innovations and business models. This will also help regulators understand and effectively guide stakeholders on their existing and future business and operations and risks, thus ensuring effective oversight.

**Action steps:**

- i. Empower regulators' staff with required knowledge to ensure adequate payment system oversight. Specifically, training shall focus on the following area:
  - Oversight framework for retail payment system;
  - Digital Financial Services – particularly around supervision and consumer protection;
  - Cyber resilience and fraud mitigation in the financial sector;
- ii. Review regularly training needs in payment-related areas to identify gaps and areas for improvement;
- iii. Conduct industry training survey on key areas of the payment system on which providers require greater knowledge and/or training. Training on payment systems will include the topics:
  - BIS Principles for Financial Market Infrastructures;
  - Digital financial Standards;
  - Cyber Resilience and fraud mitigation in the financial sector;
  - Digital Financial services – customer centricity, and data storage protection;
  - Establish forum related to fraud, security and standards.

<b>Indicators</b>	<ol style="list-style-type: none"> <li>1. Number of trainings delivered in the following domains, that is industry identified as a knowledge gap:           <ol style="list-style-type: none"> <li>a. BIS Principles for Financial Market Infrastructures;</li> <li>b. Oversight framework for retail payment system;</li> <li>c. Digital Financial services;</li> <li>d. Cyber Resilience and fraud mitigation in the financial sector;</li> <li>e. Digital financial Standards vs PCI_DSS standards and ISO 12812/2018 for MFS Standards, Series of ISO 27000;</li> </ol> </li> <li>2. Number of stakeholders' forums on frauds, security and standards organized.</li> <li>3. Number of stakeholders that participated in the above training.</li> </ol>
<b>Outcome</b>	Improved capacity and capability of the BNR, RURA, NIDA, CMA and other key industry stakeholders in terms of understanding, application, and observance of standards – leading to better supervision and effective policy formulation that help in achieving the RNPS vision.

**1.A.ii. Review the payment system legal framework to ensure it is sound, and promotes certainty in the payment industry**

**The BNR has statutory responsibility to promote a sound financial system through traditional prudential supervision of financial institutions and the oversight of payment systems.** BNR draws its mandate in payment systems from two key statutes, namely the BNR Law (n. 55/2007 of 30/11/2007) and the National Payment Systems (NPS) Law (n. 03/2010 of 26/02/2010). Article 6 of the BNR Law empowers the central bank to supervise and regulate payment systems. In addition, the NPS Law being the main legislation governing payment systems in Rwanda authorizes the central bank to establish, own, operate and participate in the ownership or operation of settlement, clearing and securities settlement systems. The legal framework has explicit provisions for BNR's mandate as catalyst, operator and overseer of the

payments systems in Rwanda. The National Payment Systems Law is supported by provisions in other laws as well as various regulations, policies and rules, etc. issued by the BNR from time to time.

BNR has signed MOUs with other regulators (CMA and RURA) to ensure better oversight of financial market Infrastructures and payment services. Dynamic new channels, products and/or business schemes have also modified the structure of the market and the provision of payment services necessitating the review of the current legal framework. Retail payments is important for the provision of payment services to the economy, most of them are of wide importance, and hence their failure can widely inconvenience the population at large. Besides that, the current regulatory framework does not allow relaxed requirement during a pilot phase to enable FinTech companies to test innovative products leaving them with limited room for development. The following action steps will be taken to enhance the oversight and regulatory framework:

*Action steps:*

- i. Develop of a specific oversight framework for retail payments;
- ii. Draft laws and regulations that address consumer protection through enforceable legal structures covering all retail electronic payments infrastructure and payments, including:
  - Regulatory requirements for full and clear disclosure of fees, fair treatment, and effective recourse mechanisms. This should include disclosure of pricing prior to transaction completion and should be followed up by notifications post successful transactions, irrespective of payment instrument and method used.
  - Standards for Quality of Service (QoS) and Quality of Experience (QoE).
  - Drafting or enhancing laws that provide consumers with privacy and data protection rights and recourse.
- iii. Amendment of AML / CFT laws (where applicable);
- iv. Develop a comprehensive **cyber security** framework that provides for a secure, reliable and resilient payment system;
- v. Establish activity-based oversight framework;
- vi. Amend the payment system regulation to include payment gateways and aggregators;
- vii. Develop a flexible regulatory framework (regulatory sandboxes) for innovative product during the testing phase;
- viii. Review relevant laws to support disruptive technologies like **distributed ledger, issuance of fiat cryptocurrency**, and more;
- ix. Monitoring of Over the Top (OTP) players: Monitor the OTP players in the market, review products and services being offered, ensure compliance of consumer protection laws and other applicable laws, make policy amendments if necessary. These OTP players could be companies offering financial services through over the top apps like credit, micro-insurance or issuing (third party) payment instruments.
- x. Set standards and requirements proportionate to the risks they might trigger and the impact on the national payment system in case of a disruption. Example: Open APIs, or mitigating against the vulnerabilities of USSD channels and more.

<b>Indicators</b>	<ol style="list-style-type: none"> <li>1. The oversight framework for retail payments is in place;</li> <li>2. Amendment of the payment system law</li> <li>3. Enhanced guidelines for providers on consumer protection;</li> <li>4. Revised AML / CFT laws;</li> <li>5. Comprehensive cybersecurity framework is in place;</li> </ol>
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	<ul style="list-style-type: none"> <li>6. Research on the potential of issuing fiat cryptocurrency has been conducted and evaluated;</li> <li>7. Regulation on payment gateways and aggregators;</li> <li>8. Minimum technology standards and data security standards, competition rules, risk management framework, and anti-money laundering regulations.</li> </ul>
<b>Outcome</b>	<ul style="list-style-type: none"> <li>• Enhanced regulatory capacity that BNR and other regulators keep pace with and can react to a rapidly changing environment;</li> <li>• Flexible regulation in place;</li> <li>• Strengthened legal framework and reduced legal uncertainty;</li> <li>• Regulatory enablement of payment products;</li> <li>• Promotion of innovation;</li> <li>• Improved level playing field between banks and non-banks in the payments industry.</li> </ul>

**Table 8: Details of Strategy 1.B**

Strategy	1.B Enhancing the payment institutional framework	
<b>Strategic approach</b>	1.B.i Enhance domestic cooperation among stakeholders in the payment system to drive industry development.	1.B.ii Enhance collaboration between national and regional regulators.
<b>Critical Steps</b>	<ul style="list-style-type: none"> <li>• Establish operational and legal committees to support NPSC;</li> <li>• Conduct regular meetings among industry stakeholders to discuss needs and challenges of the market.</li> </ul>	<ul style="list-style-type: none"> <li>• Strengthen collaboration with other national regulators to ensure alignment of the goals and objectives of the payment ecosystem;</li> <li>• Engage with other central banks in the region to align objectives for facilitating regional integration and cross-border transactions.</li> </ul>

**1.B.i Enhance domestic cooperation among stakeholders to drive industry development**

Cooperation between stakeholders including regulators, service providers and users for the development of payment system is very important. This requires close relationship between regulators and participants in the payment ecosystem, including commercial banks, MNOs, and PSPs, and open dialogue to identify priorities for payment system development. In this context, the NPSC’s existing and continued cooperation between stakeholders in the payment industry is critical.

*Action steps:*

- i. The NPC to spearhead payment system development based on stakeholders’ inputs and Rwanda’s overall economic development objectives; create industry working groups that coordinate and cooperate to develop local standards, guidelines and policy changes;

inform stakeholders about on-going developments and challenges to drive innovation in payments; and implement change.

<b>Indicators</b>	<ul style="list-style-type: none"> <li>• Frequency / regularity of NPSC convening's;</li> <li>• Frequency / regularity of meetings between the regulators, the government and stakeholders to address payment systems issues;</li> <li>• Active subcommittee to support the NPSC are in place.</li> </ul>
<b>Outcome</b>	<ul style="list-style-type: none"> <li>• Well-functioning NPSC</li> <li>• Strong relationships between stakeholders.</li> </ul>

### 1.B.ii Enhance collaboration between national and regional regulators

Collaboration between national regulators in the region will facilitate the performance of the payment landscape. Institutions including RURA and CMA are critical to align the objectives towards development of the payment system and realization of the national vision. Additionally, to facilitate the flow of payments, around cross-border trade, collaboration with other regional regulators, particularly the EAC is important.

Action Steps:

- i. Review the MOU between BNR, and RURA to strengthen the oversight of MNOs, technology standards, Know-Your-Customer (KYC) requirements, data security issues, competition, consumer financial protection, cross-border mobile remittances, and anti-money laundering and combating the financing of terrorism (AML/CFT).
- ii. Initiate MOUs with other regulators to ensure proper coordination of the oversight of cross-border transactions.

<b>Indicators</b>	<ul style="list-style-type: none"> <li>• Reviewed MOUs with National regulators (BNR, CMA and RURA);</li> <li>• MOUs with other regional regulators particularly in countries with established cross-border payments.</li> </ul>
<b>Outcome</b>	<ul style="list-style-type: none"> <li>• Improved national collaboration of payment systems.</li> <li>• Improved regional collaboration and integration of the payment ecosystem.</li> </ul>

### Critical success factors for strategy 1

1. Cooperation between national and regional regulatory stakeholders;
2. Adequate funding for training and capacity building initiatives to enhance knowledge and skills of BNR, other regulatory staff and industry stakeholders;
3. Commitment of industry stakeholders to be active members of the NPC.

### 4.3.2 Strategy 2: Facilitate the transformation of Rwanda into a cashless economy

Transitioning Rwanda towards a cashless economy **requires digitizing the backend payment processing and reconciliation infrastructure**, increasing the footprint of transaction infrastructure; leveraging government payment streams to facilitate growth in electronic payment volumes, innovation in the retail payment space; leveraging government and private sector initiatives to increase awareness and education of e-payments; and providing payments products and services that meet consumers' needs.

In addition to the above, it is important to note however, that elements like customer experience, user-interface, convenience and costs (to both customer and merchant) are critical elements to usage and can accelerate or impede the growth of digital payments.

The adoption of e-payments by citizens can help:

- Build a transaction history to enable improved access to a suite of customized financial products, thus deepening financial inclusion;
- Reduce the risks and costs of carrying cash;
- Reduce the costs of managing cash in the economy;
- Reduce tax avoidance;
- Deepen financial inclusion;
- Reduce the impact of counterfeit money.

**Table 9: Details of strategy 2**

Strategy	2. Transforming Rwanda to a cashless economy		
Strategic approach	2. A Increase footprint of electronic transaction infrastructure	2.B Leverage government payments to promote growth and innovation in retail payment infrastructure	2.C Increase awareness and education of e-payments among Rwandans and encourage innovative business models that offer a strong value proposition for merchants and consumers to use digital payments.

Critical Steps	<ul style="list-style-type: none"> <li>• Increase digital payment acceptance density by several multiples;</li> <li>• Incentivize uptake of electronic payments;</li> <li>• Review taxation policy on payment acceptance points and transactions to reduce barriers to growth of digital payments;</li> <li>• incentivize e-payment-adoption by merchants.</li> </ul>	<ul style="list-style-type: none"> <li>• Develop a cashless policy for government transactions, which includes digitizing the backend process of government services;</li> <li>• Ensure all payments by the government are made digitally;</li> <li>• Connect the national payments platform to Rwanda Online to support digitization of government collections (P2G and B2G);</li> </ul>	<ul style="list-style-type: none"> <li>• Develop financial literacy strategy regarding e-pay;</li> <li>• Facilitate various government and private sector institutions to support and run campaigns on e-payments;</li> <li>• Encourage low cost solutions and new business models that can accelerate payment adoption:</li> <li>• Test and adopt incentives that encourage merchant and consumer adoption of payments.</li> <li>• Assess public confidence through period demand side surveys.</li> </ul>
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**2.A Increase footprint of electronic payments infrastructure**

To further build the electronic transaction infrastructure in the country, policies and guidelines will be developed to stimulate investment and expansion of payment and acceptance touch points. Majority of e-transaction touch points are currently located in Kigali, the objective will be to ensure further penetration of these touch points into other provinces by encouraging private sector investments in e-payment channels. Consolidated effort by the government, and payment industry, in implementing the National Payment System Strategy can significantly raise demand for retail electronic transactions, justifying private sector investment in the market.

*Action steps:*

- i. In coordination with the industry players, devise a policy framework for a payment acceptance ecosystem for electronic products and services that allows private sector entities to play a significant role in expanding the payments infrastructure.
- ii. **Incentives and New Technologies:**
  - a. Promote acceptability and incentivize usage of e-payments by merchants and consumers;
  - b. Offer tax-credits / VAT rebates based on the volumes / value of electronic transactions conducted by merchants and consumers.
  - c. Consider reducing applicable duties and taxes on smartphones and other types of electronic payment acceptance hardware. Smartphones can act as payment initiation and acceptance points eliminating the need for costly capex roll-outs by the private sector.
- iii. Allow non-banks such as e-money issuers and other PSP to access the retail transaction switching providers;

- iv. Encourage the private sector to leverage on new technology to introduce more affordable, efficient and interoperable payment options such as proximity payment technology (QR Code<sup>18</sup>, NFC<sup>19</sup> devices, etc.).

<b>Indicators</b>	<ol style="list-style-type: none"> <li>1. Number of electronic transaction touch points (POS, agents, NFC, QR code, and others) in the country as follows:             <ol style="list-style-type: none"> <li>a. Increase electronic payment acceptance points. This could be physical, POS, mobile POS or virtual POS and others) from 21.6 per 100,000<sup>20</sup> adults to 324 per 100,000 adults by year 2024 (15 times increase).</li> <li>b. Increase agent penetration from 608 agents per 100,000 adults to 3,040 agents per 100,000 adults (5 times increase across the 7 years).</li> </ol> </li> <li>2. Increase value and volume of non-cash retail transactions conducted on the above-mentioned touch points from the current level of 20% of GDP to 80% of GDP by 2024.</li> <li>3. 100% of banks and MFIs/SACCOs accounts provide mobile banking services by 2020.</li> <li>4. Instant payment for MFS and Internet banking established by 2020;</li> <li>5. M/POS and QR codes are introduced, standardized and interoperable.</li> </ol>
<b>Outcome</b>	<ul style="list-style-type: none"> <li>• Extensive touch points for electronic payment transactions.</li> <li>• Reduced demand for cash and commercial banks' demand for central bank money.</li> <li>• Improved monetary policy.</li> </ul>

## 2.B Leverage government payments to promote growth in retail payment infrastructure

Payments to and from governments are large volume transactions within any economy. These payments are categorized as G2G (payments from one government agency to another), G2P (conditional cash transfers, social benefits, pension/social security, income tax refunds, payroll and incentives), G2B (corporate tax refunds, procurement of goods/services), P2G (taxes, tolls, fines, government fees, and social security / pension contributions), and B2G (registration fee, taxes). The use of non-cash electronic payment instruments for government payments significantly improves cost savings at all levels of the national economy.<sup>21</sup> The effective use of G2P payments can also expand financial inclusion for unbanked segments by serving as the gateway to other financial services.

### Action steps:

- i. Issue a cashless directive to mandate all government transactions to be paid electronically including the acceptability of electronic proof of payment;

<sup>18</sup> QR codes are machine-readable codes displayed from apps on a user's phone that a POS can read to authenticate transactions with user information stored in the cloud. Merchants scan the code to start the transaction.

<sup>19</sup> Near-field communication (NFC) is a wireless communication technology used to exchange data between a device and POS terminal. To make a payment, consumers place their NFC-equipped smartphone a few centimeters from the POS terminal with a NFC-tag reader.

<sup>20</sup>This is the current POS to person density ratio as NFC, QR code and other new technologies are barely existent, at the time of the writing of this document.

<sup>21</sup>Cirasind, Massimo, et al. General guidelines for the development of government payment programs. Working Paper. Washington, D.C.: World Bank, 2012. Document.



- ii. Digitize backend of payments to and from the government for all types of use-cases i.e. digitization of payment processes that precede G2G, G2B, G2P, P2G, B2G payments.
- iii. Leverage the Rwanda Online initiative to extend digitization to other government services.
- iv. Provide all G2P beneficiaries with remote access to their accounts by equipping Umurenge SACCOs with required infrastructure;

<b>Indicators</b>	<ul style="list-style-type: none"> <li>• Guidelines on government payments is in place.</li> <li>• Backend digitization of various payments to and from the government have been digitized to enable end-to-end remote payment process and transactions.</li> <li>• All payments to and from the government are conducted electronically.</li> <li>• National payments platform is connected to Rwanda Online.</li> <li>•</li> </ul>
<b>Outcome</b>	<ul style="list-style-type: none"> <li>• Strengthening of retail payments infrastructure.</li> <li>• Significant cost reduction in administrative costs for payments to and from the government.</li> <li>• Substantial cost savings for cash management by the central bank.</li> </ul>

## **2.C Increase awareness and education of e-payments among Rwandans, encourage innovative business models that offer a strong value proposition for merchants and consumers to use digital payments.**

Financial awareness and education is a key activity that must be carried out in parallel to ensure Rwandans have access to simple and easy-to-understand information on the various electronic payment systems, products, and channels, including options for conducting transactions in a safe and secure manner. The awareness and understanding of payments and the ease with which they can be used is essential to move towards a cashless society.

Apart from education, poor adoption and usage of electronic payments could also be the result of a lack of compelling value proposition or barriers to participation. An Example of a barrier would be high Merchant Discount Rates (MDRs). A more necessary and urgent component however is building a strong value proposition for merchant and consumer adoption of digital payments. This could mean supplier financing and cash-flow financing offerings based on digital payment acceptance, customer relationship management tools for merchants and more. It could also mean consumer incentives like tax rebates on digital spending.

### *Action steps for consumer education and business models:*

- i. Collaborate with private sector players to deliver consumer education and financial literacy programs on electronic payments for consumers and merchants;
- ii. Improve public confidence through an adequate consumer protection framework including a proper consumer complaints handling;
- iii. Organize annual financial literacy programs / events (in communities, schools, colleges) on payments channels and instruments;
- iv. **Incentivize merchants and consumers:** Incentivize payments to be made electronically - possible scenarios include rebates, loyalty and value-added services, and lottery benefits;

- Explore lowering MDRs based on payment instruments, transaction amounts or other models.
  - Tax-credits based on volumes of digital payments accepted by merchants.
  - Explore value added services that truly create a stickiness with digital payments.
  - Lottery opportunity for customers based on digital receipts of payments made.
- v. **Encourage low cost solutions and new business models that can accelerate payment adoption:**
- This could include non-capital expenditure heavy models like standardized interoperable QR code acceptance or audio QR codes or business models that offer merchant working capital loans based on digital history or evidence of accounts receivables.
- vi. Carry out periodic demand side surveys (e.g. Finscope conducted every three years) and conduct supply side analysis on data provided by the private sector to assess the level of confidence in e-payments.

<b>Indicators</b>	<p><u>Customer Education</u></p> <ul style="list-style-type: none"> <li>● Financial literacy strategy on e-payments is in place.</li> <li>● Joint public awareness campaign on e-payments is carried out every year.</li> <li>● Number of advertisement and marketing campaigns run by providers.</li> </ul> <p><u>Incentives, new business models</u></p> <ul style="list-style-type: none"> <li>● Pilots around new incentives for merchants and customers have been tested and inform policy.</li> <li>● New business models are piloted by the private sector and low cost digital solutions that provide a compelling value proposition to merchants are being adopted.</li> <li>● The number of merchants using e-payment increases from a 1000 in 2018 to 10,000 in 2020.</li> <li>● Periodic demand side surveys and supply side data analytics are conducted to understand the challenges and opportunities around adoption of e-payments.</li> </ul>
<b>Outcome</b>	<ul style="list-style-type: none"> <li>● Educated and financially-aware Rwandans.</li> <li>● Increased adoption of e-payments.</li> </ul>

### Critical success factors for strategy 2

1. Government of Rwanda's commitment to drive electronic retail payment system uptake and usage.
2. Buy-in of all government ministries, departments, and agencies on electronic payment and disbursement.
3. Commitment of private sector stakeholders to invest in retail electronic payments infrastructure and channels.
4. Commitment of government and private sector stakeholders to invest in financial literacy and education initiatives for retail electronic payments.

### 4.3.3 Strategy 3: Foster an enabling environment for innovation in the payment system

Creating an enabling environment for innovation in the payments ecosystem will promote the adoption of e-payments. Guided by the *Rwanda National Payment System Framework and Strategy (2008)*, the work done on creating the legal framework for payment systems and PSPs has resulted in tremendous growth of electronic transactions in past years. This growth is highlighted by the significant adoption of basic mobile financial services, which provide Rwandans with access to store of value accounts for payments. Nevertheless, there is a need for a second generation of products (such as micro savings, microloans, micro insurance and more), which contribute to a financially inclusive economy. Additionally, although adoption of mobile wallets for payments has increased, additional efforts to promote usage are still required. The dynamic advances in information and communication technology have ushered in a raft of new products in the field of payment systems.

In order to foster innovation and attract more investment, it is necessary to highlight successes, publish reliable data to support the business case for potential opportunities, and encourage partnerships between the private and public sectors.

**Table 10: Details of Strategy 3**

Strategy	3.Foster an enabling environment for innovation in the payment system		
Strategic approach	3.A Enhance collaboration between stakeholders while promoting competition.	3.B Utilize regular research and surveys to measure and inform stakeholders on the development of payment system.	3.D Support Fintech companies promote innovations that allow for better access, adoption and usage of financial services and products.
Critical Steps	<p><b>Interoperability:</b> Examine the current state of interoperability and evaluate business models that can sustainably accelerate the flow of funds across all payment instruments.</p> <p><b>Open Application Programming Interfaces (APIs):</b> Drive competition, innovation and collaboration between banks, non-banks and other third parties through policies and business models</p>	<p>Conduct regular research/surveys for new product development, market segmentation and customer outreach</p> <ul style="list-style-type: none"> <li>• Build a repository database of industry data through EDWH.</li> <li>• Compile, analyze, and publish the de-segregated statistics along with the state of payment systems.</li> </ul>	<ul style="list-style-type: none"> <li>• Fintech accelerator / incubator established to support innovation.</li> <li>• Support Fintech start-ups through an Innovation Fund.</li> <li>• Facilitate Fintechs to develop proof of concept and market test solutions.</li> <li>• Provide technical assistance to local Fintechs.</li> </ul>

	<p>that allow for open, secure and reliable exchange of information.</p> <p><b>Data / Mobile Number portability:</b> Drive competition, innovation by encouraging mobile number portability after careful considerations of the implications on quality of services and experience of the end customer.</p>		
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**3.A Enhance collaboration between stakeholders to promote network effects, while encouraging competition**

The BNR will facilitate cooperation and collaboration among the industry stakeholders to discuss and provide solutions to the challenges in the national payment system. The purpose of the industry-wide convening will be to evaluate, advance and monitor the state of interoperability, product and services offerings, trends, and developments in the payment ecosystem, and their implications for the continued development of national payment system.

*Action steps:*

- i. Examine the current state of interoperability and evaluate business models that can sustainably accelerate the flow of funds across all payment instruments;
- ii. Collaborate with industry and applicable regulators to build industry capacity, encourage dialogue that encourage competitive practices that spark innovation e.g. Open APIs
- iii. Explore the potential of number and data portability and its impact on the consumer’s digital financial history;

<p><b>Indicators</b></p>	<ul style="list-style-type: none"> <li>• No. of providers are offering Interoperable payment solutions.</li> <li>• No. of interoperable use-cases in the market.</li> <li>• No. of financial institutions and non-financial institutions securely opening APIs to the market for development of innovative products and solutions.</li> <li>• Harmonization of APIs among financial service providers enabling products and services to scale.</li> <li>• Feasibility study that evaluates the implications of number portability on the financial history of consumers and suggests a way forward.</li> </ul>
<p><b>Outcome</b></p>	<ul style="list-style-type: none"> <li>• Increased offering of relevant products and service in the market. This may include but not be limited to savings, credit, insurance, investment, retail payments, and remittances products.</li> </ul>

### 3.B Utilize regular research and surveys to measure and inform stakeholders on the development of payment system

The dynamic nature of the payment system landscape requires it to be frequently assessed to ensure that payment services and products meet consumers' wants/needs; new risks are not introduced into the system; and providers' activities are compliant with regulatory rules and conditions. Periodic nation-wide research and surveys will be conducted to assess the level of developments of the payment system and potential areas for growth and innovation to drive informed decision making by stakeholders of the payment systems.

#### Action steps:

- i. Conduct regular research/ surveys to understand challenges and new opportunities in the market that informs better product development and service offerings, market segmentation and customer outreach.
- ii. Coordinate with industry stakeholders and development partners who are willing to invest in providers that want to test and scale innovative solutions.
- iii. Utilize findings of the research on the level of development of payment ecosystem to guide stakeholders on their operations in the national payment system.

<b>Indicators</b>	<ul style="list-style-type: none"> <li>• Periodic (every 3 years) statistically relevant demand side surveys to assess the level of adoption of e-payments, reliability and security of payment systems and areas of growth and innovation.</li> <li>• No. of providers are offering Interoperable payment solutions.</li> </ul>
<b>Outcome</b>	<ul style="list-style-type: none"> <li>• Introduction of innovative products and services</li> <li>• Increased adoption of retail electronic payments</li> <li>• Improved reliability and security of the payment system</li> </ul>

### 3.C Support Fintech companies to promote innovations that allow for better access, adoption and usage of financial services and products.

Cooperation between public and private sector will facilitate partnership that will develop the payment industry, notably DFS. With the advent of new technologies with immense potential to transform the way financial market participants operate, conduct transactions; transfer, store and maintain ownership records of digitized assets and perform reconciliation and settlement.

#### Action steps:

- i. Facilitate collaboration between private and public sectors to develop innovative retail payment solutions that are driven by DFS;
- ii. Establish a Fintech accelerator / incubator;
- iii. Support start-ups through the establishment of an Innovation Fund;
- iv. Facilitate Fintechs to develop proof of concept and market test (sandbox);
- v. Provide technical assistance to local Fintechs;

- vi. Work with the industry to assess the potential of disruptive technologies (e.g. distributed ledgers) and explore how they can be used to digitize payments, make them more secure and promote financial inclusion.

<b>Indicators</b>	<ul style="list-style-type: none"> <li>• An innovation fund is established.</li> <li>• Fintech accelerator is established.</li> <li>• A pipeline of Fintechs have been identified.</li> <li>• Number of proof of concepts initiated.</li> </ul>
<b>Outcome</b>	<ul style="list-style-type: none"> <li>• Innovative payment products and services, that increase competition and accelerate the adoption of digital payments.</li> </ul>

### Critical success factors for strategy 3

1. Cooperation between industry stakeholders and regular dialogue on payment systems infrastructure development and expansion.
2. Industry cooperation and adherence to regulators’ rules on data and statistics reporting.
3. Adequate funding for periodic research and surveys.

#### 4.3.4 Strategy 4: Enhance access to and inclusion in the national payment system

Majority of Rwanda’s population resides in rural areas and is currently served by SACCOs, as well as other institutions such as Accumulated Savings and Credit Associations, Rotating Savings and Credit Associations, and Village Savings and Lending Associations. Although MFS providers are actively spreading their agent network in the same areas, the services provided via agent networks are only a subset of financial services (cash-in, cash-out, bill payments, and transfers). On the other hand, SACCOs offer a wider range of financial services, such as access to savings accounts, and credit, which have the potential to significantly improve the socio-economic status of their members/customers, specifically women and youth. Currently, most of the SACCOs are lagging in basic ICT infrastructure. Enhancing financial inclusion will require upgrading last-mile financial access infrastructure – particularly MFIs and SACCOs.

In addition to basic digital payment service, there is a need to offer value-added services that meet the day-to-day payment needs of consumers. Non-bank financial institutions such as insurance companies should be encouraged to offer products such as micro-insurance that can further financial inclusion.

Furthermore, there is a need to create an enabling environment for the uptake of e-payments. Establishing pricing structure to ensure affordability of these services for the mass market is a key element. The government does not intend to set prices of e-payments products or services, or the price of payment systems or channels. However, the e-payment ecosystem in Rwanda is still in the development phase and therefore requires an industry-led approach to develop parameters for access to and pricing for e-payment systems, channels, products, and services.

**Table 11: Details of Strategy 4**

Strategy	4. Enhance access to and inclusion in the payment system		
Strategic approach	4.A. Facilitate wider access to payment systems and ensure access is provided on an objective, risk-based, and open basis	4.B. Adapt a pricing structure for various payment instruments that enhance affordability, fair pricing, and transparency in the market	4.C. Provide payments products and services that are affordable and meet consumers' needs
Critical Steps	<ul style="list-style-type: none"> <li>• Ensure a fair and non-discriminatory access to payment infrastructure (for example USSD access)</li> <li>• Facilitate MFI, and SACCOs and E-money issuer to participate in National Payment and Settlement system;</li> <li>• Allow e-money issuers to access retail transaction switches</li> </ul>	<ul style="list-style-type: none"> <li>• Carry out a study to review the pricing structures of various payment instruments and channels</li> <li>• Develop database of prices for payment services</li> <li>• Establish a platform that allows easy comparability of prices</li> </ul>	<ul style="list-style-type: none"> <li>• Boost DFS through the development of value-added services</li> <li>• Develop DFS to access financial services such as savings, loan disbursements, and other payment services'</li> <li>• Increase the penetration of individually owned, affordable smart phones in country</li> </ul>

#### **4.A. Facilitate wider access to payment systems and ensure payment system operators provide access on an objective, risk-based, and open basis**

The participation of MFIs and SACCOs in the national payment system is critical for financial inclusion goals, as they connect the rural/underbanked segment to the urban banked population. Computerization of Umurenge SACCOs through a shared IT platform will complete the prerequisites for their participation in the payment system. Nevertheless, access to the payment system will be based on an objective, risk-based, and open basis. E-money issuers play a role in modernization of payment system and should participate fully in it by accessing the switch as interoperability is very key in cashless society creation.

##### **Action Items:**

- i. Ensure fair and non-discriminatory access to payment infrastructure (for example, USSD access);
- ii. Facilitate MFI, and SACCOs and E-money issuer to participate in National Payment and Settlement system;

<b>Indicators</b>	<ul style="list-style-type: none"><li>• Number of non-Bank MFI and SACCOs with access to the National Clearing and Settlement systems.</li><li>• Access to retail transaction switches by e-money issuers.</li></ul>
<b>Outcome</b>	<ul style="list-style-type: none"><li>• Payment systems will be accessible to all the institutions (banks, PSPs, non-bank MFIs, and SACCOs), thus promoting the financial inclusion goals of Rwanda.</li></ul>

#### **4.B. Adapt the pricing structure for various payment instruments to enhance affordability, fair-pricing, and transparency in the market**

In consultation with the industry, regulators will review and adapt the existing and future pricing of e-payments to the customers and access to payment system and channels for businesses and providers to determine if pricing and costs are relevant to the market realities and the stage of the National Payment System development. As the payment ecosystem develops and reaches a certain level of maturity, the pricing structures will be reviewed on regular basis.

##### *Action steps:*

- i. Carry out a study to review the pricing structures of various payment instruments and channels;
- ii. Develop database of prices for payment services;
- iii. Establish an electronic platform that facilitate price transaction across the industry.



<b>Indicators</b>	<ul style="list-style-type: none"> <li>• Commission study on pricing of various payment instruments and channels.</li> <li>• Database of prices for payment services</li> <li>• Platform for price comparison is in place</li> </ul>
<b>Outcome</b>	<ul style="list-style-type: none"> <li>• Affordable payment products and services available to end users</li> <li>• Public is informed about the pricing.</li> </ul>

#### 4.C. Provide payments products and services that are affordable and meet consumers' needs

There is a need for a diverse range of payment products and services to serve the different segments of the Rwandan population. For example, 73% of Rwanda's population is employed in the agriculture sector and there is an opportunity for providers to develop sector-specific products that could result in increased penetration and uptake of e-payments. In addition to the basic payment services offered on DFS platforms, there is a need to offer value-added services that meet the day-to-day payment needs of consumers.

Action steps:

- Boost DFS through the development of value-added services and compelling digital financial service products and payment use-cases;
- Increase the number of individually owned smartphones in the country.

<b>Indicators</b>	<ul style="list-style-type: none"> <li>• Individually owned feature and smart phones in the country</li> <li>• High quality internet coverage across the entire country.</li> <li>• Number of VAS to payment services.</li> </ul>
<b>Outcome</b>	<ul style="list-style-type: none"> <li>• Affordable payment products and services available to end users.</li> <li>• Number of VAS or products that are tailored to various customer segments.</li> </ul>

#### Critical success factors for strategy 4

1. Transparent, inclusive, fair and consultative approach to inclusion and participation, which takes the interest of all stakeholders into account.
2. Nearly universal high quality internet and electricity penetration – it is key to increase the utility and stickiness of smartphone adoption.
3. Close collaboration between the Government, development partner and the private sector.

#### 4.3.5 Strategy 5: Enhance the efficiency of payment systems

Rwanda has achieved several key milestones since the *Rwanda National Payment System Framework and Strategy (2008)* was developed. The modernization of the payment system was undertaken with the objective of speeding-up the clearing process of interbank payments and facilitating movement from cash-based to non-cash based payments.

For retail payments, Rswitch, MasterCard and Visa offer services through which interoperability is achieved between most of the deployed ATM and retail POS. However, with the introduction of MFS through PSPs, there is a need to further enhance and promote integrated and interoperable payment systems towards the achievement of a cashless economy. Hence, the following strategic

approaches will be taken to enhance existing payment systems: ensure reliability and robustness of the e-payment infrastructure; promote a standardized, interoperable, and integrated payment system; promote efficiency of RIPPS' processes and clearing and settlement system; and improve operational efficiency in the payment ecosystem.

**Table 12: Details of Strategy 5**

<b>Strategy</b>	<b>5 Enhance existing payment systems</b>	
<b>Strategic approach</b>	5.A Ensure reliability and robustness of the e-payment infrastructure	5.B Promote efficiency in national payment and settlement system for clearing and settlement
<b>Critical Steps</b>	<ul style="list-style-type: none"> <li>• Develop a directive establishing standards for technological infrastructure and security of e-payments (cards and MFS)</li> <li>• Define and monitor standards for communication and network infrastructure to ensure minimum standards of service</li> <li>• Enhance national data coverage to support e-/m-commerce</li> <li>• Audit routinely the systems and processes for e-payments by payment services providers</li> <li>• Enhance IT and operational controls regarding payment systems, information security risk management</li> </ul>	<ul style="list-style-type: none"> <li>• Establish a real time clearing for low value to support the instant payment through MFS and internet banking</li> <li>• Improve the RIPPS efficiency by migrate from ISO 15002 to ISO 20022</li> <li>• Continuously improve upon BNR's operation and oversight of RIPPS in line with the Principles of PFMI</li> <li>• Ensure that all interoperable transactions between banks and/or PSPs are settled via RTGS</li> <li>• Implement cheque capping guideline to move high-value transactions to RTGS</li> <li>• Conduct a bi-annual review of all RIPPS components to ensure that the system and its processes (will) meet existing and future expected volumes</li> </ul>

## 5.A. Ensure the reliability and robustness of electronic payment infrastructure

The acceptance of e-payments is directly proportional to the trust of consumers in electronic modes of payments. A reliable and robust payment infrastructure ensures that consumers feel the same level of access to their money as they have with cash. Unavailability of payment services due to weak infrastructure (networks and systems) erodes the trust of consumers in the reliability of e-payments. Since e-payments rely on technology infrastructure, it is important to set minimum standards and guidelines for technology used by payment system providers and participants across the electronic payment value chain.

The BNR will continue to enhance its oversight function to monitor the availability and performance of electronic transaction touch points.

### Action steps:

- i. Ensure data coverage is enhanced at the national level to support e/m-commerce;
- ii. Define minimum common standards for IT and technology infrastructure requirements for institutions seeking to offer e-payments. The requirements will not be prescriptive in terms of technology selection, but will at least set minimum standards that impact the overall usage of e-payments. For example, standards would address:
  - Use of redundant links when connecting to retail payment systems
  - Presence of a primary and disaster sites
  - Availability of a comprehensive Business Continuity Plan (BCP)
  - Conducting and reporting on a disaster recovery drill at least once a year to check preparedness in case of disasters
- iii. Define and monitor standards for communication and network infrastructure to ensure minimum standards of service;
- iv. Routinely audit the systems and processes of electronic payment services providers;
- v. Define minimum common standards of security for electronic payments, including for card based payment (CPI-DSS) and MFS (ISO 12812);
- vi. As e-payments grow and different institutions offer such services, the BNR will develop guidelines for information security, electronic banking risk management, and fraud monitoring;
- vii. Establish a cyber resilience program to improve and test resilience to cyber-attack in the financial sector. The program will be based on the **National Cyber Security Strategic Plan**.
- viii. Adoption of ISO 12812 for MFS standards

<b>Indicators</b>	<ul style="list-style-type: none"> <li>• Defined standards for communication and network infrastructure</li> <li>• Improved 3G/4G data coverage at the national level</li> <li>• Establishment of a cyber resilience program based on the national cyber security strategic plan.</li> <li>• Two security audits a year by internal audits of payment services providers</li> <li>• Bi-annual security audit by all payment services providers by external auditors</li> </ul>
<b>Outcome</b>	<ul style="list-style-type: none"> <li>• Well-functioning and reliable payment systems.</li> </ul>

## 5.B. Promote efficiency of the National Payment and Settlement system.

The role of RIPPS is central in creating a robust and reliable national payment system. RIPPS, through its different components, facilitates not only large-value transactions, but also has an important role in the clearing and settlement of transactions between participants of retail payment systems. With the exponential growth of mobile-based transactions and future adoption of interoperable transactions for DFS, it is important to ensure that the RIPPS is ready to efficiently and effectively handle the additional volume for clearing and settlement of these transactions. The BNR will continue to maintain and invest in the RIPPS to ensure on-going compliance and effective risk management.

ISO 20022 is becoming a global message standard and will support global interoperability.

### Action steps:

1. Establish a real time clearing (straight through processing) for low value to support the instant payment through MFS and internet banking;
2. Open access PSPs to Rwandan Payments Systems to enable them to be competitive and innovative without compromising the resilience and security of the payments infrastructure; Enhance data through the adoption of ISO 20022 to give customers more and better information about their payment;
3. Continuously improve efficiency of payment and security systems through regular assessment against the Principles of FMI<sup>22</sup>;
4. Conduct a bi-annual review of all components of RIPPS to ensure that the system and its processes are ready to meet existing and future expected volumes

<b>Indicators</b>	<ul style="list-style-type: none"> <li>• The Real Time Clearing for low value is established</li> <li>• MFIS, SACCOs and EMIs are connected to National Payment System</li> <li>• Bi-annual assessment report of RIPPS and Payment systems</li> <li>• ISO 20022 is adopted and implemented by 2020</li> </ul>
<b>Outcome</b>	<ul style="list-style-type: none"> <li>• Improved customer convenience.</li> </ul>

### Critical success factors for strategy 4

1. Commitment and will of payment system providers to interoperate
2. Adherence of providers to BNR standards and regulations

<sup>22</sup>Bank of International Settlements. Principles for financial market infrastructures. Report. New York: Committee on Payment and Settlement Systems, 2012. Document.

## Annex I: Implementation plan / performance indicators

Attached Excel document with details.

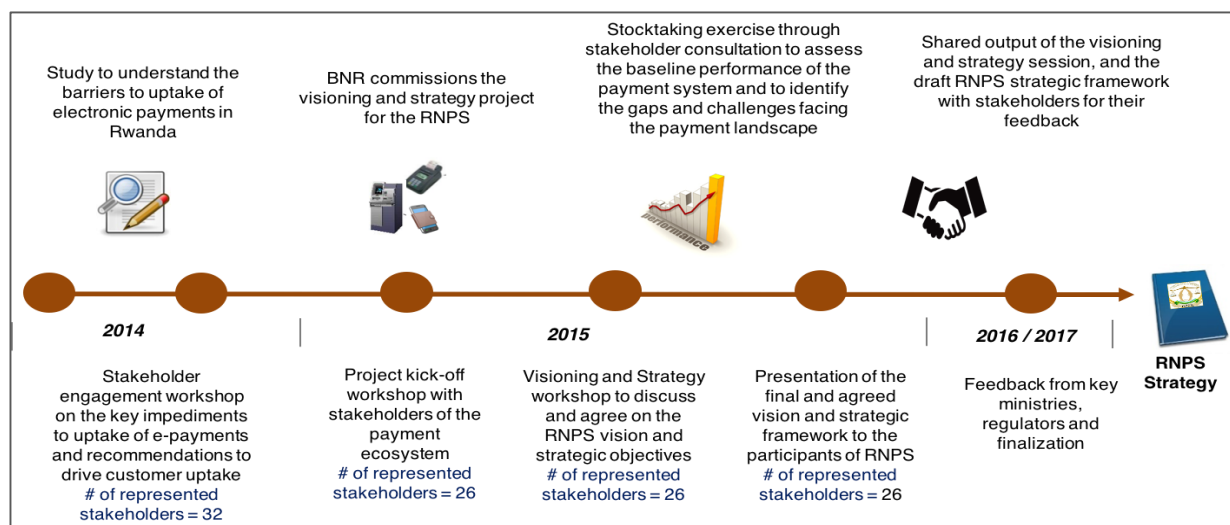
## Annex II: Consultative Process for the RNPS

The *Rwanda Payment System Strategy*

serves as a guide for the Rwanda Payment Industry, including regulators, public and private sector players to promote the continued development and modernization of the Rwanda Payment System (RPS). The objectives and goals of the Strategy are in line with and crucial to meeting the economic targets indicated in various national strategic plans, including *Rwanda Vision 2020/2050*; *Economic Development and Poverty Reduction Strategy II 2013 - 2018 (EDPRS II)*; and *Financial Sector Development Program II (FSDP II) 2012*. Specifically, the framework and strategy will guide the Government of Rwanda and industry stakeholders to lead and contribute to the following:

6. Accelerate the rate of economic growth and empower Rwandans towards meeting the country's vision of attaining middle-income status.
7. Drive financial inclusion to meet the country's commitment of 100% of adults in the formal financial system by 2020;
8. Facilitate a cashless economy by promoting e-payments;
9. Create an interoperable payment landscape with an enabling environment for product and service innovation, which provides affordable payment services to Rwandans;
10. Develop a payment system that is safe, reliable, and efficient for all participants in the ecosystem.

The development of the *National Payment System* followed the World Bank's guidelines for the establishment of a comprehensive strategy for national retail payments, as well as the guiding principles and best practices provided by the *Bank for International Settlements (BIS) Committee on Payments and Market Infrastructure (CPMI)*. The strategy development process also included a comparative analysis between Rwanda's payment system and those of its counterparts in East Africa and other international markets. A consultation program was completed to engage a wide variety of stakeholders, including financial institutions, mobile network operators (MNOs), regulators, and public institutions to validate the strategic direction.



The consultation process provided insights into the challenges and gaps in Rwanda's current payment system, which are summarized as follows:

1. A regulatory framework that does not entirely meet the needs of the emerging payment system landscape: current laws and regulations especially those related to the retail payment were established in the 2010. The development of innovative payment solutions, new channels, products and/or business schemes, in the meantime has modified the structure of the market and the provision of payment services;
2. Limited interoperability between providers, specifically in POS and mobile financial services (MFS) systems, which restrains the operational and economic efficiency of the national payment system;
3. Cash-dominated economy;
4. Gaps in network infrastructure;
5. Low uptake of electronic government payments especially Person-to-Government (P2G) by respective government bodies;
6. Low consumer access to financial services including electronic transactions and payments.

After assessing the current state of the National Payment System and synthesizing the information and insights collected from the industry, the payment system stakeholders set-forth the vision for the Rwanda Payment System (RPS), as well as a clear strategic framework to reflect the dynamic payments landscape and to respond to the evolving needs of the payments industry.

### **Annex III: Achievements of RNPS to-date**

In 2008, the National Bank of Rwanda (BNR) established a vision and strategy for the Rwanda National Payment System (RNPS). The vision and strategy guided the implementation of the Rwanda Integrated Payment Processing System (RIPPS), the various components of which were implemented in 2011. The RIPPS is comprised of the Automated Transfer System (ATS), which includes the Real Time Gross Settlement System (RTGS) and Automated Clearing House (ACH). The RIPPS also includes the Central Securities Depository (CSD), which is designed to provide efficient depository services to various players in the financial market. Additional details on the components of the RIPPS are included below in Section 2.0. Overview of the Rwanda National Payment System.

Since the establishment of the strategy and the implementation of the RIPPS, the Rwandan payments landscape has progressed substantially (see Table 13). Specifically, retail electronic payments (e-payments) have been significantly impacted by advancements in the RPS, recording a 1027% increase in transaction value from RWF 12.36 billion in 2011 to RWF 1396 billion in 2016<sup>23</sup>. Developments in the RNPS have also benefited from various national initiatives and macroeconomic conditions, including the transformation of the Information and Communication Technology (ICT) landscape, modernization of the BNR's legal and regulatory framework, and rapid economic growth in the country.

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<sup>23</sup>National Bank of Rwanda, MPFS February 2016. .

**Table 13: Highlights of the Rwandan Retail Payment Landscape 2008-2016**

2008	2018
<p>There were various regulations that impacted the payment system, but there was no specific legislation regulating the payment system itself. Existing legislations included: <i>the BNRLaw; Banking Law; Cheque Decree of 1951; Promissory Note and “Bill of Exchange” law; Anti Money Laundering Law; 1989 Clearing House Rules and Regulations that provide for the clearing and settlement of cheques, credit transfers, and other types of payment instruments based on paper documents.</i><sup>24</sup></p>	<p>The legal framework for the Rwandan national payment system is fairly comprehensive with the following laws and policies in place: <i>2009 Law governing Negotiable Instruments; 2009 Prime Minister’s Order Establishing the National Payment System Council; 2010 Payment System Law; 2015 Regulation on the Licensing Criteria of Operating Payment and Securities Settlement System; 2010 Regulation on Oversight of Payment Systems and the Activities of PSPs; 2010 Regulation on Electronic Fund Transfers and Electronic Money; 2010 Law relating to Electronic Messages, Electronic Signatures and Electronic Transactions; 2015 BNR Regulation governing Payment System Providers; 2013 Regulation on cheque Truncation, which enables electronic cheque presentment, truncation, and imaging; the 2016 regulation governing electronic money and the 2018 regulation governing agents and regulation governing operations of CSD</i></p>
<p>Participants in the payment system included seven commercial banks, one development bank, and one housing bank</p>	<p>Participants (both direct and indirect) in the payment system include 11 commercial banks, five microfinance banks, Rwanda Development Bank, three mobile network operators (MNOs), six remittance companies and 3 system operators</p>
<p>Cash was the predominant payment instrument</p>	<p>Cash is still the predominant payment instrument, but uptake of e-payments has grown rapidly and now constitutes 22.6% of the country’s GDP from 3% in 2011.</p>
<p>All interbank payment systems (clearing and settlement) were semi-manually processed in paper form and the settlement of clearing house balances were posted in the National Bank of Rwanda (BNR) accounting system</p>	<p>The Rwanda Integrated Payment Processing System (RIPPS) includes the Automated Transfer System (ATS) and Central Securities Depositories (CSD); the ATS is comprised of the RTGS and ACH</p>
<p>SIMTEL Switch (now RSwitch) offered card-based services through Automated Teller Machines (ATMs)</p>	<p>Visa, MasterCard and RSwitch offer card-based services through both ATMs and point of sale (POS) for their member banks;</p>

<sup>24</sup>BNR National Payment System Framework and Strategy 2008

2008	2018
There were 23 ATM machines in the country; penetration was 1ATM per 400,000 inhabitants	There are over 400 ATMs, representing 7 ATMs per 100,000 adults
There were 120 POS devices, of which only 20 were active; penetration was 1 POS per 75,000 inhabitants	There are 1,885 POS devices, representing 31 POS per 100,000 adults

Further development of the RNPS will be important to meet the targets indicated in various national strategic plans, including: *Rwanda Vision 2020/2050*; *Economic Development and Poverty Reduction Strategy II 2013 - 2018 (EDPRS II)*; and *Financial Sector Development Program II (FSDP II) 2012*. The payment system is crucial to achieving the Government of Rwanda’s strategic objectives, which are to progress from a low-income country to a middle-income country, and to increase from adult population in the formal financial services (Finscope 2016) system from 68%<sup>25</sup>to 100% by 2020.<sup>26</sup> Another important objective is to promote a cashless economy by reducing the use of cash payments in both public and private sectors, and to increase e-payments in the retail segment of the economy.

A robust, resilient national payment system is critical to achieving the above-mentioned objectives and the Government is committed to advancing a payment system that fosters growth in the economy at large. The payment system drives growth in the economy by speeding-up the clearing process of interbank payments, facilitating the growth of e-payments, providing the environment for innovative payment solutions, and ensuring that payment products and services are affordable, safe, and effective for the end user.

To maintain the momentum towards the further development of the RPS, a visioning and strategy exercise was commissioned to develop the *National Payment System Framework and Strategy*, which builds on the achievements of the *Rwanda National Payment System Framework and Strategy (2008)*. The decision to update the national payment system strategy was also based on the findings of research conducted in September 2014 to investigate the key challenges limiting the uptake of e-payments in the country.<sup>27</sup> A key finding from the research was the need for the Government to enhance and develop its existing strategy to facilitate the development of a robust and forward-looking national payment system given the changes in the Rwandan payment landscape since the first strategy plan was developed in 2008.

In defining the *National Payment System Strategy*, the strategy development process followed six guidelines for creating a comprehensive strategy for national retail payments.<sup>28</sup>

<sup>25</sup> Finscope 2016

<sup>26</sup> AFI Global Policy Forum. Commitment made by the National Bank of Rwanda. Maya Declaration. Riviera Maya: AFI, 2011. <<http://www.afi-global.org/library/publications/maya-declaration-commitment-made-national-bank-rwanda>>.

<sup>27</sup> Access to Finance Rwanda (AFR). Electronic Payment: Research on Electronic Payment Usage in Rwanda. Brief. Kigali: AFR, 2014. <<http://www.afr.rw/index.php/publications/E-payments%20summary%2020%2001%2015.pdf/detail>>.

<sup>28</sup> World Bank. Developing a Comprehensive National Retail Payments Strategy. Washington D.C.: World Bank, 2012. [http://siteresources.worldbank.org/FINANCIALSECTOR/Resources/282044-1323805522895/Developing\\_a\\_comprehensive\\_national\\_retail\\_payments\\_strategy\\_consultative\\_report\(8-8\).pdf](http://siteresources.worldbank.org/FINANCIALSECTOR/Resources/282044-1323805522895/Developing_a_comprehensive_national_retail_payments_strategy_consultative_report(8-8).pdf)



These guidelines were adapted from the Committee on Payments and Market Infrastructures (CPMI)-World Bank General Principles for International Remittance Services based on various studies and research conducted by the World Bank's Payment Systems Development Group (PSDG), CPMI, and other international and domestic organizations. The six guidelines are shown in the text box below.

## **World Bank's Guidelines for Developing a Comprehensive National Payment System Strategy**

1. The market for retail payments should be transparent, have adequate protection of payers and payees' interests, and be cost-effective.
2. Retail payments require reliable underlying financial, communications and other types of infrastructure. These infrastructures include an inter-bank electronic funds transfer system, an inter-bank card payment platform, credit reporting platforms, data sharing platforms, large value inter-bank gross settlement systems, availability of robust communications infrastructure, and also a national identification infrastructure.
3. Retail payments should be supported by a sound, predictable, non-discriminatory, and proportionate legal and regulatory framework. The legal framework for a national payment system should set forth the rights and obligations of the parties in the system (including the regulator, participants, payment providers, and customers); the transfer procedures and resolution of disputes regarding payment instruments and payment services; and the resolution of disputes with respect to such instruments, services, provider arrangements and governance procedures for transferring and settling obligations with finality.
4. Competitive market conditions should be fostered in the retail payments industry, with an appropriate balance between cooperation and competition. Central banks must ensure that policy objectives with regard to competition in the market for retail payments are clearly communicated and transparent to stakeholders. The oversight function of the regulator should include the monitoring of various aspects related to anti-competitive behavior; Central Banks should facilitate institutional mechanisms to promote cooperation and information sharing.
5. Retail payments should be supported by appropriate governance and risk management practices. Collaboration between stakeholders and the Central Bank is paramount to effective governance and risk management practices. All service providers should be subject to mechanisms of accountability and independent oversight, including independent audits, to ensure they are pursuing such long-term interests. Management of services providers should establish internal controls to mitigate the risks it decides to accept.
6. Public authorities should exercise effective oversight over the retail payments market and consider direct interventions where appropriate. Although the overall oversight function of the payment landscape should be led by the Central Bank, collaboration between the Central Bank and other key public authorities is critical to an effective oversight function of the retail payment landscape.

## Annex V: Pillars of a Robust National Payment System

The development process for the *National Payment System Framework and Strategy* was based on six key pillars, which represent the foundation for a robust national payment system. The consideration for these pillars was based on ensuring that the national payment system strategy is consistent with the Bank for International Settlement (BIS) – CPMI Principles for Financial Market Infrastructure (PFMI) and the World Bank’s guidelines for Developing a Comprehensive National Retail Payments Strategy.

The six pillars include:

### 1. Human resource capacity of the payment industry

The capacity of all stakeholders in the payment industry including financial service providers, financial intermediaries and regulators is critical for ensuring safety and efficiency of payment services and systems. The capacity of regulator is key to ensure the proper execution of oversight function in line with best practice. It is crucial as well that the stakeholders understand and plan for existing and new products/services and technologies and understand and anticipate potential risks; and adjust or develop the payment products accordingly.

### 2. Framework for oversight and regulation

A robust framework for oversight and regulation ensures that the objectives of safety and efficiency are promoted in the payment system. The framework provides rules and laws that reflect best practices in clearing and settlement arrangements; promotes innovative business models, product, and services; and encourages the emergence of new providers in the payment system.

### 3. Communication and knowledge sharing within the payment ecosystem

Effective communication on payment system developments enhances the understanding of the participants of the major developments both in the local and international payment landscape. Communication facilitates knowledge transfer and therefore promotes healthy competition within the payment industry.

### 4. Growth of e-payments

Growth of e-payments presents a significant opportunity to reduce costs, improve processing speeds, and expand payment-related services. Proliferation of e-payments in the economy is beneficial to the ecosystem because it facilitates efficient financial management systems for central banks and financial institutions, improves transparency in fund management by public and private organizations, and increases labor productivity rates, which would have otherwise been lost to managing cash- and paper-based transactions.

### 5. Efficient payment systems and processes

Payment system efficiency promotes innovation, interoperability (local, regional and global), and competition. Common standards also improve processing speeds and reduce transaction costs.

**6. E-payment infrastructure and technology**

The infrastructure of the payment system, which comprises front-end and back-end infrastructure, payment and settlement rules, dispute resolution processes, computer systems, computer networks, computer processing capacity, and an integrated financial network (communications network or mechanism facilitating financial transactions and information transfer) is a critical component of the system. Payment infrastructure and technology can introduce significant risks into the payment system if not properly monitored.

## Annex VI: G-20 Financial Inclusion Indicators

<b>Category</b>	<b>Indicator</b>	<b>Source and coverage</b>	<b>Dimension</b>	<b>Aspect</b>
<b>1</b> Formally banked adults	% of adults with an account at a formal financial institution	WB Global Findex (current, 148 countries)	Usage	Individuals
	Number of depositors per 1,000 adults OR number of deposit accounts per 1,000 adults	IMF Financial Access Surveys (current, 187 countries)		
<b>2</b> Adults with credit at regulated institutions	% of adults with at least one loan outstanding from a regulated financial institution	WB Global Findex (current, 148 countries)	Usage	Individuals
	Number of borrowers per 1,000 adults OR number of outstanding loans per 1,000 adults	IMF Financial Access Surveys (current, 187 countries)		
<b>3</b> Adults with insurance	Number of insurance policy holders per 1000 adults. Segregated by life and non-life insurance	IMF Financial Access Surveys (current, 187 countries)	Usage	Individuals
<b>4</b> Cashless transactions	Number of retail cashless transactions per capita. <i>Cashless transactions are defined as the number of payments by cheque, credit transfers, direct debits, and payment with credit and debit cards.</i>	WB Global Payments Systems Survey (forthcoming, 139 countries)	Usage	Individuals
<b>5</b> Mobile transactional use	% of adults that use their mobile device to make a payment	WB Global Findex (current, 148 countries)	Usage	Individuals
<b>6</b> High frequency of account use	% of adults with high frequency use of formal account. <i>High frequency is defined as having taken money out of a personal account(s) 3 or more times in a typical month. This includes cash withdrawals, electronic payments or purchases, checks, or any other type of payment debit, either by account owner or third parties.</i>	WB Global Findex (current, 148 countries)	Usage	Individuals
<b>7</b> Saving propensity	Saved at a financial institution in the past year. <i>Institutions include banks, credit unions, cooperatives and microfinance institutions.</i>	WB Global Findex (current, 148 countries)	Usage	Individuals
<b>8</b> Remittances	% of adults receiving domestic and international remittances	Gallup World Poll	Usage	Individuals
<b>9</b> Formally banked enterprises	% of SMEs with an account at a formal financial institution	WB Enterprise Surveys (current, 119 countries)	Usage	Enterprises
	Number of SMEs with deposit accounts/number of deposit accounts OR number of SME depositors/number of depositors	IMF Financial Access Surveys (current, 187 countries)		
<b>10</b> Enterprises with outstanding loan or line of credit at regulated institutions	% of SMEs with outstanding loan or line of credit	WB Enterprise Surveys (current, 119 countries)	Usage	Enterprises
	Number of SMEs with outstanding loans/number of outstanding loans OR number of outstanding loans to SMEs/number of outstanding loans	IMF Financial Access Surveys (current, 187 countries)		

### Annex III: G-20 Financial Inclusion Indicators (contd..)

Category	Indicator	Source and coverage	Dimension	Aspect
11	Number of branches per 100,000 adults	IMF Financial Access Surveys (current, 187 countries)	Access	Physical points of service
12	Points of Service Number of ATMs per 100,000 adults OR number of ATMs per 1000 sq. km.	IMF Financial Access Surveys (current, 187 countries)	Access	Physical points of service
13	Number of POS terminals per 100,000 inhabitants.	WB Global Payments Systems Survey (current, 139 countries)	Access	Physical points of service
14	E-money accounts Number of e-money accounts for mobile payments	WB Global Payments Systems Survey (forthcoming, 139 countries)	Access	Mobile points of service
15	Interoperability of Points of Service Combined index of: Interoperability of ATMs and <i>Takes the value 1 if MOST or ALL ATM networks are interconnected and 0 if they are NOT interconnected.</i> Interoperability of POS terminals <i>Takes the value 1 if MOST or ALL POS terminals are interconnected and 0 if they are NOT interconnected.</i>	WB Global Payments Systems Survey (current, 139 countries)	Access	Interoperability of points of services

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