



# **INTEROPERABILITY POLICY**

**June 2014**

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## Executive summary

In the past three years, Rwanda has made solid progress towards the greater availability and usage of electronic payments shown by the increasing number of services, providers and financial touch points in the country. Providing much greater access to electronic payments among the wider population is a key pillar supporting the objectives of Vision 2020 and the EDPRS2. The interoperability of payment instruments for common use cases within defined payment streams is a key means to this end since it may lead to simplifying business transactions, promoting greater efficiency, effectiveness, convenience and availability of instruments to businesses and individuals in Rwanda. Without greater interoperability, it will likely be more expensive and difficult for individuals and businesses to use electronic financial services in ways which lead to the reduction of the use of cash and paper-based instruments over time.

The National Bank of Rwanda (BNR) wishes to promote high levels of effective and efficient interoperability in all significant payment streams. However, in this policy document, BNR has recognized both the complexity of and the differences among different payment streams and systems. Therefore, BNR's policy approach towards interoperability will be:

1. to apply the general principles set out in this policy, making adjustments to existing laws and regulation as needed; and
2. to promote interoperability on a differentiated basis across payment streams, depending on the priority assigned and the need for intervention to achieve defined objectives. BNR's stance may range from simply encouraging participants to interconnect and interoperate to guiding them in how to achieve it; and only where necessary, mandating the underlying requirements of interoperability in the form of directives.

In all payment streams, BNR will actively measure indicators of the extent of efficient and effective interoperability within the streams defined on a regular basis, and will review its stance and this policy on a regular basis.

This is a policy issued by the National Bank of Rwanda in June 2014

## Acronyms

ACH	Automated Clearing House
ATM	Automated Teller Machine
CICO	Cash In/Cash Out (usually referring to agent used for this purpose)
EMI	E-Money Issuer
EFT	Electronic Funds Transfer
MFB	Microfinance bank
BNR	National Bank of Rwanda
POS	Point of sale device
PED	Personal Electronic Device
RTC	Real time clearing
RTGS	Real time gross settlement system

Definitions of terms which are underlined here and throughout this document can be found in Annex to this Policy.

## **1. National policy context**

### **1.1 National development priorities**

Vision 2020 sets the objective that Rwanda will become a middle income country by 2020. Pillars of the national strategy include infrastructure development and private sector growth supported by an inclusive financial sector. Implementing this vision, the Second Economic Development and Poverty Reduction Strategy (EDPRS2) released in 2013 includes a thematic focus on economic transformation. In order to achieve the high targeted growth rate, priority strategies include to raise the long term savings and to transform the financial sector for increased access by increasing the domestic interconnectivity of the Rwandan economy through investments in hard and soft infrastructure. The National ICT Strategy and Plan (NICI) 2015 also places a strong emphasis on ICT infrastructure development and on promoting e-government.

The National Bank of Rwanda (BNR) is responsible for the supervision and oversight of the financial sector and of the payment system in support of national priorities as set out in Vision 2020 and the EDPRS2 strategy. As emphasized in EDPRS, the BNR signed the international Maya Declaration in 2011, committing to increase the proportion of Rwandan adults with access to formal financial services from 21% to 80% by 2017.<sup>1</sup> This ambitious goal requires an efficient and effective financial sector in which the widespread usage of electronic financial services reduces costs and enables the sustainable provision of financial services on a widespread basis. In addition, BNR has committed in its new five year development strategy to support the increase of electronic payments in Rwanda with the result that the need for and usage of cash will decline over time.

### **1.2 Development of electronic payments in Rwanda**

Various building blocks have now been put in place to support the faster growth of electronic payments, including:

- The extension of coverage and capacity of communications networks, including the completion of a National Backbone Fiber optic network with a view to acquire affordable and reliable connectivity.
- Rwanda Integrated Payments Processing System (RIPPS) operated by BNR is now fully functional offering core payment system services including the Real Time Gross Settlement System (RTGS).
- Law N° 18/2010 of 12/05/2010 which defines the legal status of electronic messages and electronic signatures.
- Passage of the Payment System Law No. 03/2010 with associated regulations which cover payment service providers, payment systems.
- The Rwandan Revenue Authority has introduced the ability to file and pay taxes online by internet and mobile.
- Two payment switches are now operating in Rwanda, allowing local banks to issue and acquire both local cards and international payment cards.
- Twelve banks are now issuing payment cards.

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<sup>1</sup> <http://www.afi-global.org//library/publications/maya-declaration-commitment-made-national-bank-rwanda>

- Three mobile money providers are now licensed under the Payment Service Provider Regulation.

The tables below show the trend in the increasing use of electronic payment instruments. In particular, EFT batch credit transactions have grown fast to 2011 and mobile payments even faster in the past two years. Mobile payments have grown dramatically in the past two years. There are now more than 2.5 million subscribers and mobile payments now make up by far the majority of electronic payments by volume in Rwanda. While the statistics below differentiate mobile payments (from and to non-bank accounts using mobiles), mobile banking (from and to bank accounts using mobiles) and internet banking (from and to bank accounts using internet), technology convergence makes these distinctions increasingly less important going forward. All of these are all in a similar category of payment use cases for real time electronic payments, regardless of channel (mobile or internet using any personal electronic devices (PEDs)). Today, few of these payments are made between participants; that is, there is no real time clearing of transactions on a multi-party basis.

By contrast to the growth of these types of electronic payments, the usage of cheques, a paper-based instrument, has not increased in the past few years but has shown a sideways trend. The current usage of several more recently available payment instruments such as direct debits and point of sale purchases remain at a very low level however.

**Table 1A: Trends in the usage of main payment instruments: Rwanda**

Numbers of instruments	2009	2010	2011
Credit transfers*	842,103	651,195	1,792,697
Direct debits	986	1,834	242
Purchase at point of sale	-	-	38,440
Total electronic payments	843,089	653,029	1,831,379
Cheques	1,259,720	1,519,277	1,351,340
Total non-bank payments	2,102,809	2,172,306	3,182,719
Cash withdrawals at ATMs**	241,638	393,088	1,933,811

\*: Note: includes 'on us' transfers and stop orders as reported by banks

\*\* : Not counted as payments because these are cash withdrawals from own accounts, but included to show the trend.

Source: BNR Annual Report 2013

**Table 1B: Usage of payment instruments continued**

	Year to December 2012	Year to December 2013
Total transactions reported	22,191,674	57,147,777
Mobile payments (non-bank)	1,458,063	2,538,820
Mobile banking	10,036	89,260
Internet banking	23,659,773	59,775,857

Source: BNR

At the same time, points of financial infrastructure including ATMs, point of sale devices (POS) and merchants have grown rapidly, the latter two from a very low level in the past two years.

**Table 1C: Financial infrastructure in Rwanda**

	<b>30 June 2012</b>	<b>30 June 2013</b>
Debit cards in issue	320,565	440,875
ATMs deployed	232	385
POS devices at merchants	385	791
Agents		1,602

Source: BNR

Instrument usage per capita in Rwanda remains low, relative to middle and high income countries shown in Table 2A below, although not necessarily out of line with low income countries: to reach middle income levels similar to Brazil, the average Rwandan must transact electronically seventeen times more per annum than current levels. The World Bank's Global Findex dataset<sup>2</sup> provides another way to measure this: in 2011, 0.3% of adults in Rwanda reported using some form of electronic payment, compared with 1.9% of adults across low income and 5.3% across middle income countries respectively. In Sweden, by contrast, Findex reports that the percentage of adults using electronic payments is around 80%.

**Table 2A: Comparing instrument usage in Rwanda**

<b>Numbers of instruments used per capita per annum</b>	<b>Rwanda</b>	<b>India</b>	<b>Brazil</b>	<b>Sweden</b>	<b>CPSS</b>
Status	Low income	Lower middle	Upper Middle	High	Average
Credit transfers	0.2	0.5	46	90	13
Direct debits	0.0	0.1	22	31	16
Card purchase at point of sale	0.0	5.3	44	230	42
E-money payments	4.9*	0.1	0	Na	2
Total electronic*	5.1	6	89	312	70
Cheques	0.1	1.1	7	0	7
Total payments (non-interbank)	5.2	7	120	351	73

Note: mobile payments have been categorized here as e-money payments to maintain comparability.

Similarly, to achieve middle income levels of financial touch points per capita shown in Table 2B below, Rwanda will require multiple times the number of ATMs and point of sale devices. Since the deployment of ATMs and even point of sale devices can be expensive, it is

<sup>2</sup> Accessed via <http://datatopics.worldbank.org/financialinclusion/>

essential that Rwanda encourage the deployment of more Cash In / Cash Out (CICO) agents to handle deposits and withdrawals. Rwanda is already approaching the per capita levels of agents as India although to reach the levels of Brazil, which are among the highest recorded and where CICO agents are widely used for financial transactions, Rwanda would need eight times more CICO agents than in 2013.

## 2B. Payment related touch points per million people

	Rwanda	India	Brazil	Sweden	CPSS
ATMs	32	94	890	359	415
POSSs	98	695	37,506	22,413	8,180
Agents	133	182***	1041**	Na	Na

Sources:

Rwanda: calculated from latest available BNR data divided by estimate of population in 2013

Others: CPSS Data for 2012, published December 2013 available via <http://www.bis.org/publ/cpss116.htm>, except for agents. The CPSS column shows the average for CPSS member countries which are mainly high income but also include certain middle income countries such as China, India, Brazil, Mexico and South Africa.

\*\* : Brazil agents: Calculated from Table 3, CGAP & BFA (2012) *Pathways to Inclusive Interoperability in Pakistan*. Other CPSS countries do not report on agents deployments consistently.

\*\*\* : India agents: Calculated from RBI data for bank correspondents as at March 2013 and population at end of 2012.

There is no estimate available today of the extent of cash usage in Rwanda with which to calculate the overall share of electronic transactions in payments. However, using benchmarks from countries with similar levels of income and payment system development, the share of cash and paper transactions in Rwanda today may be as high as 99% by volume.<sup>3</sup> This percentage is likely considerably lower by value since most cash transactions are low value whereas higher value transactions are more likely to be electronic. However, this estimate shows that while there has been substantial progress in recent years to increase electronic payments substantially as a share of all payments, there is still a long way to go. Effective and efficient Interoperability of payment systems plays an important role as a means of promoting this objective.

### 1.3 Current law and regulation on interoperability

Under the Payment System Law, the BNR has the power to issue general or specific guidelines as policy as well as regulations and directives to give effect to the guidelines.

The BNR has already issued a regulation concerning interoperability: Regulation N°06/2012 governing Payment Service Providers (“PSP regulations”, issued under BNR Act and the

<sup>3</sup> Recent country diagnostics conducted in a sample of three low and lower middle income countries for the Better than Cash Alliance have estimated that between 0.7% and 1.7% of payments by volume is electronic in those countries.

Payment System Law by the BNR). In this regulation, interoperability was defined in line with international definitions such as that of the international payment standard setting body CPSS:

*“Interoperability means a set of arrangements, procedures and standards that allow participants in different payment schemes to conduct and settle payments across systems while continuing to operate also in their own respective systems.”*

Article 21 of these regulations then requires that *“Financial institutions and Mobile Network Operators shall be interconnected to offer services to virtually all banked and unbanked customers in order to achieve interoperability and to substantially increase the financial services outreach to the unbanked communities.”* Article 26 then added a timeframe for the implementation of this clause to require that the connection take place within one year of effect of the regulation.

This regulation has demonstrated the clear intent of the BNR to use its powers to promote interoperability and its willingness to issue regulations to give effect to this when this is deemed necessary. The interoperability clause was intended to focus on emerging mobile payment providers and schemes and had the clearly expressed intent of promoting financial inclusion. However, implementation of this regulation has lagged while the complexity and diversity of the Rwandan payment market has grown. BNR recognizes that the question of how to promote interoperability in payment systems is a complex one which may be considered in the general case but must rather be defined and addressed in respect of particular payment types. BNR has therefore decided to review its policy approach towards interoperability so that it can achieve the objectives set out in this policy.

## **2. Policy purpose & rationale**

2.1 This policy document sets out the BNR’s general guidelines for promoting greater interoperability in the Rwandan payment system over the five year period from 2014 to 2019.

2.2 BNR does not seek interoperability for its own sake, but rather for how it can contribute to achieving its goals of:

- *Creating a cashlite society* in Rwanda which will be indicated by increasing volumes of electronic payments in per capita terms and as a share of all payments which over time will displace cash usage;
- *Greater financial inclusion*, shown by the extent to which people who previously had no access to the formal financial system are now using electronic payment instruments in a way which promotes usage of other financial services such as savings and credit, as well as making purchases
- *Promoting and preserving the efficiency and safety* of the national payment system, shown by its ability to function smoothly and without denial of service or unreasonable loss of money by users of the payment system.

In addition to promoting interoperability, BNR has a range of other strategies and policies in place to promote these goals.

2.3 *Rationale for promoting interoperability.* Interoperability affects all the parties in electronic payment transactions. Interoperability contributes towards the goals listed above through the following direct channels<sup>4</sup>:

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<sup>4</sup> Extracted from Table 2, BFA-CGAP (2012) *INTEROPERABILITY AND THE PATHWAYS TOWARDS*

- *Improving productive efficiency*, by reducing the need for duplicate devices (such as POS or ATM) or for multiple relationships to be negotiated with merchants and site owners, interoperability can reduce the overall unit operating cost per electronic transaction and increase the utilization of devices. If this efficiency is translated into cheaper end user pricing of services, this is likely to increase the usage of the system.
- *Increasing the value proposition for customers to use electronic payments* through enhanced functionality: when the number of instances in which users can potentially transact increases, the transaction platform and instruments grow more useful to customers through positive externalities. These positive externalities are also known as network effects.
- *Increasing customer convenience* by increasing the number of places at which customers can transact, the transaction costs of customers to access suitable infrastructure are reduced.
- *Improving dynamic efficiencies* by allowing financial institutions to specialize in issuing or acquiring, specialized business models may develop, with economies of scale and scope which may compete in new ways and for new customer groups in ways which expand the markets.

These direct channels result in greater willingness and ability of consumers and merchants to use of electronic payments, consequently reducing the need to use cash. By reducing the costs per transaction to financial providers, interoperability also improves the business case for taking on low value transactions and customers as well as potentially reducing the charges for electronic transactions, making greater financial inclusion possible.

2.4 This policy will be monitored by BNR in terms of how it has contributed towards the achievement of the goals stated above.

### 3. Specific policy statements

#### 3.1 Long term vision for greater interoperability

In general, BNR desires that all major electronic payment systems should achieve a high level of interoperability within defined categories of payment activity.

However, BNR recognizes that:

- (i) Interoperability may evolve of its own accord as payment markets mature but there are often big differences in the incentives of participants in different payment instruments to interoperate of their own accord and also in the risks faced by users across different payment systems;
- (ii) different payment systems are at different stages of market development;
- (iii) as a result, there are differences in the speed and priority with which interoperability may be achieved; and also
- (iv) without greater granularity in definition, it is impossible to measure and monitor progress over time accurately towards the desired end state.

Therefore the BNR accepts the need to provide further granularity about specific payment use cases to give effect to this policy. As further defined in Annex A, a payment use case defines a payment type according to its main characteristics which relate to how it is applied. Payment use cases are clustered into payment streams which have similar characteristics and therefore are usually addressed under a common framework of Automated Clearing House (ACH) rules. It is however possible that with one stream, there could be more than one payment scheme, each with their own sets of rules, hence there could be multiple ACHs within one functional payment stream.

In addition, interoperability can be achieved at different levels, defined in the Annex. It is possible that payment systems or instruments are interoperable but at a price or in a manner which means that they are not used or trusted. Effective interoperability means that the interoperability is achieved in a way which achieves wider goals. The progress towards achievement of effective and efficient interoperability can be measured using a variety of indicators including:

- Total volume of payment transactions per user able to use the instrument;
- The value of electronic transactions to GDP;
- The proportion of adults using electronic transactions (as captured in FINDEX);
- The number of different payment instruments and use cases used;
- The proportion of inter-participant (not on us) to total transactions;
- The proportion of transactions which result in a query, dispute or reversal;
- Public perception of the usefulness of and ability to trust that the electronic instruments in fact perform as claimed (measured by surveys);
- The trend in absolute real cost to the payer and payee for using the instrument and as a proportion of average transaction size.

#### 3.2 Guiding principles for interoperability

Although BNR will therefore consider each identified payment use case separately and may adopt a different course of action within its powers, BNR believes that there are cross-cutting principles which should apply across payment use cases. These are set out in this section.

- 3.2.1. *All clearing between two or more participants in a payment system must be settled via the Real Time Gross Settlement System (RTGS) operated by BNR.*

*Rationale:* This principle provides the bedrock of certainty for the safe operation of payment systems; and follows good international practice. It enhanced the ability of BNR to monitor and manage possible systemic risks resulting from the failure of payment system participants. This is already the practice of most of Rwanda's retail payments systems.

- 3.2.2. *Settlement may only be undertaken by designated settlement banks. Settlement banks must be of appropriate stature to be able to sponsor a non-bank E-Money Issuer.*

*Rationale:* Direct participation in the RTGS brings risk into the core payment system in the country. It is therefore prudent to limit direct access to those entities which are both under the direct supervision of the BNR and which have sufficient substance, measured by their size and quality of liquidity and overall risk management, to participate. Widening participation in the RTGS to smaller institutions (especially non-banks) may introduce systemic risks into the core payment system.

*Implications:* BNR will define in regulations the qualifications for settlement banks. This means for example that entities which are not settlement banks, such as microfinance banks or e-money issuers, may still participate in clearing according to the rules of the different ACH arrangements for which they are eligible, but will need to use the sponsored services of a designated settlement bank to settle. A settlement bank may not sponsor in more than one participant per ACH unless the Central Bank authorizes otherwise. This is to avoid concentration risk, as well as to ensure all settlement is via the RTGS, if two members of a payment stream settle via one settlement bank, then settlement is effectively taking place in that bank's books (commercial money), not in the books of the Central Bank)

- 3.2.3. *Settlement: Settlement within payment systems will be irrevocable and will take place before a participant is declared to have failed and removed from a payment ACH.*

*Rationale:* This is required to give certainty to the functioning of a payment system and to manage systemic risk to try and ensure that the failure of one participant will not lead to the failure of others through the payments system.

*Implications:* The Payment System Law already provides certainty regarding settlement. However, the irrevocability of settlement does not affect the ability of a payer to query or dispute a payment in terms of the rules for a particular payment system and of any present or future laws setting out the rights of the consumer.

- 3.2.4. *Different clearing models: The clearing model for each ACH needs to be justified based on its own objectives in context of its broader payment stream.*

*Rationale:* a variety of different models of clearing are in evidence in Rwanda. For example, Rwanda has evolved from having one ATM payment system (R-Switch) which connects participants on a hub and spoke system to a central entity for clearing (the clearing operator) to having two domestic systems (now with Visa), although the

two schemes are not currently themselves interconnected. In other systems, such as EFT, there is a single operator operated by BNR.

*Implications:* The economics and incentives of each model need to be understood and considered before deciding on the optimal model for any given payment system. An optimal model may emerge over time through the actions of participants. However, if following assessment, BNR has reason to believe that a model is inappropriate for a given scheme or system, it may intervene to require changes in the rules of that system or scheme in order that a more suitable model be adopted.

- 3.2.5. *Multilateral ACH agreements defined:* All payment use cases with a common risk profile will be managed under a multilateral ACH agreement defining aspects such as which entities may participate, the relevant payment use cases, ACH rules and risk management principles.

*Rationale:* ACH agreements define and allocate the risks attached to the circumstances of different payment streams. It is therefore vital that such agreements exist and that they are clear and legally robust to survive challenge which may undermine the functioning of a payment stream.

*Implications:* BNR will review ACH agreements drafted for identified streams (or schemes where two schemes operate in one stream) to ensure that they address the necessary issues and provide the basis of the operation of the ACH. If in the opinion of BNR a particular agreement is inadequate, BNR will require that participants amend the agreement.

- 3.2.6. *Interchange principles:* Economic agreements which define the principles and amounts for charging between participants including interchange arrangements must be fair, equitable and multilateral where the case for such fees is justifiable.

*Rationale:* BNR accepts that for the growth and sustainability of certain interoperable payment streams, it is necessary that interchange<sup>5</sup> fees are paid by one participant to another; and that it is usually more efficient to set interchange on a multi-lateral, rather than a bilateral basis which requires multiple negotiations. This is necessary to compensate participants for real costs of a participant which are not fully recouped in the execution of the payment transaction itself and to build both sides of a two sided market. However, interchange is not a self-evident principle for all payment streams. Rather the need for interchange needs to be established by payment use case in each payment stream. In recent years, the manner in which interchange is set has been subject to increasing scrutiny and review in various jurisdictions to ensure that it is set in a fair, transparent manner where it has been found necessary.

*Implications:* In respect of each payment stream, BNR will review the case for interchange and principles and process for setting the level of interchange to ensure that it is fair, transparent and in the interests of the development of the payment system as a whole. If participants in a stream cannot agree on interchange where it is deemed necessary, or if the interchange approach or amounts are deemed

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<sup>5</sup> Including so called reverse interchange, sometimes called 'carriage fees', where the payment takes place in the opposite to the usual direction.

inappropriate, BNR reserves the ability to arbitrate, akin to the powers of telecommunications regulators to set call termination charges across networks in defined circumstances.

- 3.2.7. *Price discrimination by instrument:* Merchants charging different prices to customers based on the payment instrument used will be prohibited unless the regulator authorises otherwise.

*Rationale:* A key factor in consumer acceptance of electronic transactions is that consumers do not feel penalized for the use of particular instruments—for example, being asked by a merchant to pay extra to use a card for a transaction (known as surcharging). This principle promotes greater certainty and acceptance in an early stage market especially by disallowing the merchant from favoring one instrument (such as cash) over another. This is in line with other national goals such as promoting tax compliance since sometimes instruments like cash are favored (and therefore other instruments penalized) because they do not leave an audit trail for tax authorities.

*Implications:* BNR will require that scheme rules require that participants' contracts with merchants bind the merchants to the application of this principle. BNR will monitor compliance over time; and if necessary, promote other laws which are binding on merchants to give effect to this principle.

- 3.2.8. *Introduction of external users to ACHs:* A user who can accept or initiate payment transactions for defined payment uses falling under an ACH should be introduced by only one clearing participant. This would also apply at a payment stream level if a clearing party belongs to more than one scheme or ACH.

*Rationale:* Only one clearing participant such as a bank or EMI should be responsible for the risks of a party such as a merchant which is enabled to enter transactions—for example through use of a debit card at the merchant's point of sale device. This principle supports tiered risk management within an ACH, enabling better oversight. Note that this principle does reduce the freedom of the merchant or user to have multiple devices for transactions within the same payment stream, since this is part of the intent of BNR in order to promote greater efficiency and reach.

*Implications:* ACH agreements will need to provide that participants will not allow their merchant clients which accept transactions to have multiple agreements within the same ACH. However, a second participant may have a relationship with an already acquired user within an ACH only for the purpose of providing business continuity to that user. This does mean that each merchant would have only one acquirer for a particular payment stream but they would be able to choose and switch among acquirers based on competitive service and pricing.

- 3.2.9. *Technical standards:* Global standards should be used for payment instruments, devices, streams and interconnection between them, where these are available.

*Rationale:* Using global standards ensures that the Rwandan payment system can interface with the outside world. It is also likely to reduce costs of payment instruments, devices and technology over time as the benefits of global economies of

scale are accessed in these areas, compared with proprietary systems which serve a smaller market.

*Implications:* The BNR acknowledges that an essential basis for promoting interoperability is the use of appropriate standards, where these exist. Established payment streams such as card or EFT already have such standards and there is seldom reason to deviate from them, hence any payment system which does not use such standards will require special justification and approval by BNR. In other areas such as mobile payments, standards are still emerging. In general, the approach of the BNR, as stated in PSP Regulations Article 21, is to encourage the adoption of internationally compliant standards where these exist through ACH agreements which bind participants to apply these standards; and where they do not exist or are considered inappropriate for Rwanda's needs, to encourage participants to define standards. In the event that standards are not defined or the standards used in a payments stream are not adequate in the opinion of BNR, then BNR reserves the right to formulate and/or mandate such standards as it may promote.

3.2.10. *Consumer protection:* BNR will review the adequacy of measures to address disputes and build consumer confidence around the use of electronic instruments in defined payment streams.

*Rationale:* The BNR also acknowledges that building consumer trust is essential if interoperable payment systems are to be widely used and adopted. This requires that a consistent approach is followed to consumer protection across all defined payment streams. The BNR has already through Regulation 7/2010 relating to electronic fund transfers set out the minimum standards with respect to disclosure and customer liability and responsibility which shall apply to all electronic transfers as defined.

*Implications:* However, the BNR encourages participants in defined payment streams not only to adhere to these requirements in the law, but also to seek to build further measures and mechanisms which reduce risk and build consumer confidence in all electronic payment streams.

## 4. Policy Implementation Strategy

### 4.1 Prioritization of streams and associated use cases

BNR will decide on priority payment streams (and even use cases within a stream) based on a combination of factors including:

- The policy relevance of the stream, that is, how a particular stream connects to the overall goals stated earlier (greater financial inclusion and e-payment system efficiency while managing sectorial risks);
- The current state of market development of the stream, including the incentives of commercial participants and the likelihood that the stream will reach large scale;
- The difficulty of achieving higher levels of interoperability including the costs for BNR as well as for participants.

The tables below set out the rationale explaining how the BNR has arrived at its initial prioritization in terms of this policy.

**Table 3: Rationale for policy relevance**

	<b>Payment stream</b>	<b>Applications</b>	<b>Relevance</b>	<b>Policy Relevance</b>
1	EFT credit batch	Bulk payments—salaries, transfers-- and lower value batch payments between businesses	This is the work-horse engine of electronic payments and is important for large categories of payments (G2B, G2P, B2P, B2B).	High
2	Cheque	Large value payments	While cheque truncation/retention projects such as planned by BNR can enable cheque payments, which are still important for inter-business payments to become more efficient and cheaper for banks to operate, cheques are likely to dwindle as they are replaced by more efficient, faster clearing and cheaper electronic payment instruments. In some ‘cash lite’ societies such Sweden, cheques are no longer used.	Low
3	ATM • cash withdrawal	Access to cash (converting electronic balances to cash)	In the long run, the need for cash for transactions should decline. However, for consumers, especially formerly unbanked ones, to trust electronic payments, there is a need for easy access to cash.	Medium
4	Debit card purchase at POS	Purchase (physical and online)	At merchants large enough to support the business case for acquirers to deploy point of sale devices, the use of debit cards is an important stream which in per capita terms is the dominant electronic payment type by volumes in many developing countries today. However, with a preponderance of small and informal businesses in Rwanda, it is likely that the business case for deployment will not reach the majority of businesses hence not assigning this case top priority.	Medium
5	Agent cash handling • cash withdrawal • cash deposit	Access to cash <i>and</i> ability to exchange cash for electronic value (deposit)	In order to have electronic value with which to spend or save, there must be easy and effective ways to deposit cash into stores of value. Since it is not viable to proliferate bank branches for this purpose, a widespread network of interoperable agents represents the main way to achieve this, hence the assignment of high priority to the deposit (cash in)	High High

			use case. It is also clear that newly banked people tend to trust human interface over machines like ATMs especially when handing over cash. The cash withdrawal use case has relevance for reasons similar to ATM cash withdrawals above, but is already more widespread hence the higher relevance.	
6	EFT debit (direct)	Regular bill payments such as insurance premia, utility bills collected by the provider	Direct debits can offer a convenient way for consumers to pay and for businesses to collect payments on a regular basis. They are widely used in cash lite societies. However, because of the debit pull nature of this instrument, it is more expensive than credit push and more subject to risks which require careful oversight to build trust and avoid exploitation. In the long term, this stream may become important, but for the period of this policy, the priority is assessed to be low.	Low-medium
7	Real time low value clearing (RTC) for credit push transactions	Transfers, purchase initiated using mobile or any device	This transaction type is essential for consumers to be able to replace cash and cheques and pay anyone with an eligible account, bringing convenience and certainty to the categories of transactions with the largest volumes (P2B, P2P, even B2B). The pricing arrangements (both the level and who pays) will have a big impact on usage but since this does not require specialized equipment such as POS to be deployed, it can potentially become very cheap.	High

**Table 4: Rationale for assessment of level of market development**

	<b>Payment stream</b>	<b>Rationale</b>	<b>Level of market development &amp; maturity</b>
1	EFT credit batch	This stream is relatively well established for banks and is growing in usage. Issues to consider for development include wider participation and monitoring cost of payers.	Evolving
2	Cheque	This stream is relatively well established in niches and BNR is looking to promote check truncation/retention	Evolving
3	ATM <ul style="list-style-type: none"> <li>cash withdrawal</li> </ul>	This stream has been available and volumes are increasing. However, the two available domestic	Evolving

		schemes are not yet interoperable.	
4	Debit card purchase at POS	This stream is very new, and barely used as shown earlier. Not only is it necessary to educate consumers to use the increasing number of debit cards in existence, but it is also necessary to persuade merchants of the case. A key concern here is the proliferation of multiple POS devices at individual merchants which can be inefficient and can also reduce the outward and downward reach of this stream.	Early stage
5	Agent cash handling <ul style="list-style-type: none"> <li>• cash withdrawal</li> <li>• cash deposit</li> </ul>	While the numbers of agents are now increasing fast, agents have only been deployed on large scale in the past two years. The different schemes are not interoperable, other than through the agent having multiple relationships with mobile payment operators so that they can address clients	Early stage
6	EFT debit (direct debit)	The functionality for this scheme exists but it is barely used at all.	Very early stage
7	Real time low value clearing (RTC) for credit push transactions	The functionality for consumers or businesses to make real time transfers exists only 'on us' today via mobile payments or mobile banking or internet banking. All of those are viable channels for real time transfers across participants in future. However, for effective interoperability to exist, the cost to payers must become as low as possible, and the addressability of payees must be considered through use of ID numbers and/or mobile phone numbers as a standard payment address.	Non existent

Table 5 below summarizes the view of the BNR with respect to the policy relevance and current level of market development in each of the identified streams, leading to the prioritization.

**Table 5: Policy prioritization**

	<b>Payment stream</b>	<b>Policy Relevance</b>	<b>Level of market development</b>
1	RTC low value	High	Non existent
2	Agent cash handling	High	Early
3	Debit card purchase at POS	Medium	Early
4	ATM cash	Medium	Evolving
5	EFT batch	High	Evolving
6	Cheque	Low	Evolving
7	Direct debit	Low-medium	Early

In all of the payment streams above, and in any others which may be identified in future, BNR intends to measure and monitor progress towards greater usage and interoperability. In some of the streams, there is already substantial progress (EFT credit) or projects underway (cheque) which will promote effective and efficient interoperability over time. Some streams such as direct debit are not considered priorities for this policy. In other streams such as ATM, progress towards effective and efficient interoperability faces obstacles which may require that BNR take action. BNR's actions may vary based on the needs in each stream, but actions could include but not be limited to: to monitor progress, to convene and coordinate discussion among participants in a stream; to produce roadmaps for a stream which set targets and steps to achieve them; and/or to mandate requirements as part of licensing the payment system in question.

In particular, BNR intends to give focus in 2014 to defining a roadmap to greater interoperability for the two high relevance but early stage streams shown above—RTC credit push and agents cash handling. This process is set out in the next section.

#### **4.2 Monitoring of payment streams using defined indicators**

*Annual measurement of progress:* BNR will collect data from participants which enable the progress towards effective and efficient interoperability to be measured for each payment stream on a regular basis. BNR will publish this information at least on an annual basis, differentiating by ACH (but not individual participant). BNR will publish an annual report which reviews progress made using the indicators defined.

*Additional measurement activities:* in addition to collecting data from participants to monitor, BNR will undertake further research, in conjunction with existing surveys as far as possible, to understand the user perspective of usage of payment instruments; and to produce a baseline estimate of the proportion of electronic payments in the economy by 2015.

*Review of policy and its application:* BNR will review this policy every two years as to whether it is achieving the goals for which it was set. In addition, on an least annual basis, BNR in conjunction with the National Payment System Council will assess progress across all defined payment streams towards greater interoperability and form an opinion as to whether agreed targets are likely to be met or not. In cases where BNR believes that the targets are not likely to be met or where there is a need to revise targets, BNR will then consult with participants as to what can be done to set new targets or improve performance towards existing targets.

#### **4.3 Regulations or directives to give effect to the policy**

This document sets out a policy approach by which BNR will give effect to greater interoperability over time by defining and setting targets for each prioritized payment stream. In the event that BNR determines that a participant, or ACH or stream is failing to meet agreed targets, then BNR reserves the right to issue new regulations or directives or use the sanctions and powers available to it under existing regulations to require changes in rules, processes, structures or personnel to give effect to this policy.

In addition, the introduction of this policy will lead to BNR introducing the following changes in regulations or directives:

4.3.1 *Designated settlement banks.* BNR will introduce separate guidance to give clarity and effect to the principle set out, that only designated settlement banks may participate directly in the RTGS and settle on behalf of participants in ACHs.

4.3.2 *PSP Regulations interoperability requirement (articles 21 and 26):* BNR will suspend the enforcement of the current timeframe for implementation of general interoperability; and will instead approach the issue through directives covering specific streams.

4.3.3 *ACH agreements:* BNR will require that all defined payment streams have binding ACH agreements, clearing rules among participants and clearing operator agreements (and with clearing operators where this is applicable and participants and/BNR have decided to use this approach to clearing). These ACH agreements and clearing rules give legal and procedural effect to interoperability among the participants. In terms of its powers over payment systems set out in the Regulations on Oversight of Payment Systems of 2010, BNR retains the powers to review and approve all such agreements to ensure that they achieve the intended purpose. BNR will review all existing agreements covering each stream for their adequacy as ACH agreements and will if needed require that agreements be modified.

## 5. Conclusions

In the past three years, Rwanda has made good progress towards the greater availability and usage of electronic payments shown by the increasing number of services, providers and financial touch points in the country and ultimately, the reduction in the usage of cash. Providing much greater access to electronic payments among the wider population is a key pillar supporting the objectives of Vision 2020 and the EDPRS2. The interoperability of payment instruments for common use cases within defined payment streams is a key means to this end since it promotes greater efficiency, effectiveness, convenience and availability of instruments to businesses and individuals in Rwanda. Without greater interoperability, it will likely be more expensive and difficult for individuals and businesses to use electronically delivered financial services in ways which lead to the reduction of the use of cash and paper-based instruments over time.

BNR wishes to promote high levels of effective and efficient interoperability in all significant retail payment streams. However, in this policy document, BNR has recognized both the complexity of and the differences among different payment streams, schemes and systems. Therefore, BNR's policy approach towards interoperability as set out in this policy will be:

1. to promote and apply the general principles set out in this policy, making adjustments to existing laws and regulation as needed; and
2. to promote interoperability on a differentiated basis across payment schemes and use cases, depending on the priority assigned and the need for intervention to achieve defined objectives. BNR stance may range from simply encouraging participants to

interoperate to guiding them in how to achieve it; and only where necessary, mandating the underlying requirements of interoperability in the form of directives.

In all payment ACHs, BNR will actively measure indicators of the extent of interoperability within the streams defined on a regular basis, and will review its stance and this policy on a regular basis.

## Annex: Definitions

### 1. Existing definitions in law and regulations

**Interoperability** means a set of arrangements, procedures and standards that allow participants in different payment schemes to conduct and settle payments across systems while continuing to operate also in their own respective systems. [PSP Regulation]

**Non-bank e-money issuer** means an entity licensed in terms of the provisions in the PSP regulations to issue e-money. [PSP Regulations] Banks are considered automatically licensed to issue e-money.

**Participant:** means an entity that has a role in the payment system or one of the parties to an arrangement that establishes a system. There may be an entity that has a direct role with rights in the payment system and another with indirect rights that is able to settle only through the accounts of a direct Participant. [based on PS Law]

**Payment service provider (PSP):** means any entity providing services enabling cash deposits and withdrawals, execution of Payment Transactions, issuing and/or acquisition of Payment Instruments, Money Remittances and any other services functional to the transfer of money. The term does not include solely who provides online services or by telecommunication services or network access. [PS Law & PSP Regulations]

**Payment systems:** a formal arrangement or a framework which is binding between three or more participants with common rules and standardized arrangements for processing, clearing and settlement of payment obligations or payment messages. [PS Law]

**Real Time Gross Settlement System (RTGS)** means the system operated by BNR as part of Rwanda Integrated Payments Processing System (RIPPS) which enables clearing and settlement to happen between participants through transfers between accounts held at BNR.

**Settlement** means the act of discharging obligations by transferring funds, securities or financial instruments between two or more parties. [PS Law]

### 2. Definitions of terms used in this policy not elsewhere defined in law or regulation

**ACH:** means an arrangement between two or more participants governing the clearing or netting of payment instructions between those participants

**Cash-in and Cash-out (CICO):** means the conversion of cash to an electronic deposit or the conversion of an electronic deposit, usually performed by an agent

**Clearing** means the exchange of payment instructions between participants in a clearing system.

[Note Payment System Law provides a closely related and consistent definition of a ‘clearing system’ as a system responsible for transmitting, reconciling and in some cases confirming financial instrument transfer instructions prior to settlement]

**Irrevocability** means the inability of a participant who has cleared and settled a payment instruction to another participant to withdraw or reverse that instruction. [Note: Payment System Law gives effect to this definition]

**Not on us** means a transaction in which the payer and payee are at different financial institutions or EMIs.

**On us** means a transaction in which the payer and payee are at the financial institutions or EMI

**Parties in electronic payment transaction:** depending on the use case, the following terms are often used to describe roles of different parties in an electronic payment:

- **Issuer:** “in a stored value or similar prepaid electronic money system, the entity which receives payment in exchange for value distributed in the system and which is obligated to pay or redeem transactions or balances presented to it.” [CPSS Glossary]
- **Acquirer:** “the entity or entities that hold(s) deposit accounts for card acceptors (merchants) and to which the card acceptor transmits the data relating to the transaction. The acquirer is responsible for the collection of transaction information and settlement with the acceptors.” [CPSS Glossary]
- **Consumer:** may be the payer or payee in a transaction and this term is generally used to denote an individual rather than a business, typically referred to as a merchant.
- **Clearing processor:** the entity responsible for receiving and passing on clearing transactions from and to participants in a clearing system (see above).
- **Merchant** means an individual or business who receives payment for goods or services
- **Central bank:** note that the central bank may have no direct role in any particular electronic payment, except where the transaction is cleared and settled through payment systems operated by the central bank. However, Payment System Law provides that BNR oversees the national payment system as a whole, hence the guidelines, regulations, rules and directives issued by the BNR shape the functioning of the system.

**Payment use cases:** As the basic building block of defining and assessing interoperability, BNR will define a series of payment use cases. A use case is defined by its function so that its role can be seen from the user, and not a scheme or provider perspective. The key dimensions of a use case are shown in the table below which illustrates each using the well-known example of ATM cash withdrawals.

*Example: a use case*

Payment use case	ATM cash withdrawals
(a) stores of value to which this applies	Any bank account issued by a Rwandan bank or microfinance entity with a linked payment card
(b) Instrument category	Payment or access card
Transaction types	Cash withdrawal
(c) Channels to be included	ATMs
Theory of change i.e. how this links to national priorities	As part of promoting inclusion, there is a need for consumers to be able to access ATMs in places where the business case/s support/s it. Given the high device cost, efficiency suggests that it is better that ATMs be interoperable for withdrawals at very least.

**Payment streams:** While a use case is the most granular unit, it is often useful for efficiency and risk management to cluster use cases into a payment stream. A stream is therefore a combination of use cases which are sufficiently similar in risk profiles that they can usually be addressed through one set of ACH agreements; and equally in terms of this policy, one roadmap per stream. An example is shown below, adding other use cases around ATM to the one above to form a stream. Note that it is possible to have multiple ACH agreements or schemes within a stream.

*Example: a payment stream*

Payment stream	ATM transactions	
Payment use cases included in this stream	ATM cash withdrawals	ATM balance enquiry
(a) Stores of value from/to which payment can be made	Any bank account issued by a Rwanda bank or microfinance entity with a linked payment card	Any bank account issued by a Rwanda bank or microfinance entity with a linked payment card
(b) Instrument category	Payment or access card	Payment or access card
Transaction types	Cash withdrawal	Balance enquiry
(c) Channels of usage	ATM	ATM

**Levels of interoperability:** For each payment stream, the levels of interoperability achieved or to be achieved need to be defined. The table below sets out the five levels which BNR will define and apply for each. While the structure remains similar for all streams, there are likely to be different measures for different streams particularly at the effective level which goes to the heart of measuring whether interoperability is promoting the objectives set out: for example, what ‘affordable’ means for not on us ATM withdrawals will likely not be the same as for person to person electronic transfers.

*Example: setting out the definitions of levels for a stream*

Level of interoperability definitions	Questions to apply to test the level:
<b>Level 1. Theoretical</b> Standards which apply	To be able to exchange messages for this stream, is there a need for a common standard and if so, does it apply? If not, go to next level
<b>Level 2. Functional</b> Specifications of interfaces	Are the communications interfaces in place among participants which enable message exchange (whether bilateral or multilateral via a clearing operator)?
<b>Level 3. Operational</b> Operational requirements of interface	How well do the communication interfaces work in practice? This could be benchmarked in terms of overall uptime of all interfaces (as measured by the operator for example)

<b>Level 4. Commercial:</b> Existence of commercial agreements among participants	This level assesses whether there are clear commercial agreements among participants which define commercial risks and obligations, including any revenue sharing through interchange if this applies.
<b>Level 5. Effective:</b> Does it serve the purpose intended?	This level requires the most consideration since it seeks to ask “how will we know when this stream is really working well?” Indicators must be defined based on purpose, for example looking at:
	(i) <b>Affordability to the consumer of not on us:</b> measured by consumer cost of end-to -end not-on-us transaction as absolute or relative amount
	(ii) <b>Actual usage of not on us relative to on us:</b> measured by % of not on us as total transactions
	(iii) <b>Indicators of trends or issues which might affect consumer trust:</b> measured by % of disputes of defined type to total transactions in this stream

**Payment schemes:** technical and commercial arrangement set up to serve one or more brands of payment instruments which provides the organisational, legal and operational framework necessary for the functioning of the services marketed by those brands.

**Personal Electronic Device (PED):** means a device operated by the payer from which the payer issues instructions to their Payment Service Provider over a communications network. PEDs include personal computers, tablets, mobile phones (smart, feature and simple).

**Real time clearing:** the clearing of payment instruments such that the payee is notified within a very short space of time (less than 1 minute) from the authorization of the payment to the receipt of funds.