



Path to a Cashless Society

Project on Monetary Sovereignty

Payment / Clearing Systems – Preliminary Paper

Dr. János Kóka

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1 Introduction

Cash has been around for thousands of years and has enabled the exchange of goods and services within and between nations. The problem is, it is rather expensive, can be counterfeited, and is easy to use for illegal purposes. Countries all over the world are moving away from cash, with governments often encouraging the transition through legislative measures. The most common example of cashless payment methods is bank cards – but recent decades have seen revolutionary new solutions also gaining a foothold in payments. So while the international transaction infrastructure is usually seen as dominated by the West, due to new technologies, this does not mean a necessary dependency at all.

This preliminary paper was written as a response to HSE Skolkovo’s invitation to the Project on Monetary Sovereignty. Focusing on the topic of Payment / Clearing Systems, it takes a brief look at the Russian landscape and attempts to identify key areas of interest and possible directions of development.

This study is based on publicly available data and is concerned with identifying general areas of interest rather than giving an in-depth statistical and economic analysis. We begin by looking at the current situation / framework in Russia and then go on to identify lines along which significant innovation could be introduced to the benefit of the country and its people.

2 Russia at a glance

2.1 Card payments

Over the past couple of years, Russia has demonstrated remarkable growth in terms of the adoption of non-cash payment methods. **Payment card penetration reached 21% in 2014** up from only 5% in 2009.¹ As in most parts of the world, the market is dominated by two large international card networks, with Visa enjoying an estimated 60% share of the market and MasterCard following with 35%.²

Other developments have also been favorable to the transition towards cashless, such as the government's introduction of Universal Electronic Cards in 2013 (see below) and NFC payments by various leading Mobile Network Operators (MNOs) in Moscow and St. Petersburg.³

2.2 Old ways linger on

Despite all this, Russia still has a long way to go and great burdens to overcome. Society is predominantly cash-reliant, as almost half of the population is unbanked⁴ and plastic cards are still seen by many as simply a means to withdraw cash from ATMs (although that notion seems to be changing).⁵

Another burden to the transition is the lack of ubiquity: many businesses have opted not to accept non-cash payments. Thankfully, the federal and local governments of Russia have repeatedly shown support for new payment methods, with legislative action and other measures taken to promote cashless payments.⁶ Financial institutions have also jumped on the bandwagon, coming up with ways to incentivize cards usage in the consumer sector.⁷

Overall, one may remark that while old habits linger on, change is definitely underway, and with active support from state actors, the transition can be made significantly less painful.

2.3 E-commerce, e-money

Although the e-commerce sector in Russia is still relatively small (with a 2% share of the retail market in 2013), it has been showing stellar growth over the past couple of years and is expected to reach 4.5% in 2015.⁸ Unfortunately, this growth has come hand in hand with a burgeoning cybercrime market, with a staggering \$2.3 billion share in global cybercrime volume, nearly half of which originates from online fraud.⁹

In light of this, it comes as no surprise that Russians are strongly reluctant to adopt emerging payment technologies. A number of e-wallets have been enjoying some popularity, namely WebMoney, Yandex.Money and QIWI Wallet (co-branded by Visa), which together accounted for 5% of online transactions. PayPal only entered the market in late 2013 and, unlike in several other countries, does not enjoy a dominant position. By all

¹ Euromonitor [2015]

² RT [2015]

³ Report Buyer [2014]

⁴ Cleverbridge [2014]: "Approximately 48 percent of Russian consumers do not have bank accounts," says Blume."

⁵ Euromonitor [2015]: "Initially, financial cards were used mainly to withdraw salary from ATMs, but in 2014 the value share of card payments increased to 21% compared to only 5% in 2009."

⁶ Euromonitor [2015]: "In 2014, local authorities created new legislation forcing all retailers with annual turnover over RUB60 million to accept financial cards. [...] Many banks started to test mPOS solutions connected to smartphones, which could become an interesting product for smaller retailers."

⁷ Euromonitor [2015]: "Apart from payroll plans, banks actively use loyalty programmes connected to cards to attract new consumers and keep the interest of existing ones."

⁸ Ecommerce News [2015]

⁹ Group-IB [2012]

evidence, cash remains by large the preferred payment method even for online purchases, representing 69% of online transactions for the same period.¹⁰

The largest e-retailers in Russia are Ulmart.ru, Ozon and KupiVIP. Foreign companies must face heavy burdens when trying to enter the market, with low thresholds for customs and a new legal requirement to store Russian customers' data on servers physically located in the country.¹¹

2.4 National Payment Card System

Russia has launched its own [National Payment Card System](#) in early 2015 in an attempt to alleviate its dependence on Western financial infrastructure, namely the SWIFT clearing system, in the face of worsening relations with the West. Both Visa and MasterCard have started processing transactions through the new system.¹² The NPCS is expected to start producing its own cards in December 2015 and, at least initially, under a "co-badging" program.¹³

The setup of the NPCS is a particularly interesting development, seeing the immense success that a similar initiative, China UnionPay has achieved.¹⁴ Setting uniform requirements for all financial institutions for implementing card transactions can also greatly simplify the complex landscape and facilitate the adoption of new technologies – the NPCS will act as a single payment gateway to which all financial institutions must connect.

2.5 Universal Electronic Card

Perhaps the most significant and most promising of the government's measures was the introduction of the **Universal Electronic Card** (UEC), launched in 2013, which aims to replace all sorts of ID and other cards with a single chip-based card. The UEC allows for the order, payment and receipt of government services, and is also suitable for other use cases, e.g. access to public transport, ATM services, NFC payments, etc.

3 Potential for innovative services

Given the stellar growth of bank card penetration, as well as the technologies discussed in the previous chapter, most of the pieces seem to be in place for taking Russian society into the 21st century of payments, all without having to depend on Western infrastructure. But these pieces still need to be brought together, and below we discuss the general lines along which this can be done.

3.1 An all-round domestic payment ecosystem

An all-round ecosystem integrating all sorts of offline and online payment use cases can be established, based on the below model:

Each UEC can be linked to an individual account held at the Central Bank of Russia, which for the purpose of financial transactions would act as the issuer. The NPCS can serve as the payment & settlement system to which all acquirers connect. This way, the UEC becomes a payment instrument that can be used for ATM, EFTPOS and digital transactions.

¹⁰ Ecommerce News [2015]

¹¹ Oshkalo [2014]

¹² Lossan [2015]

¹³ Sputnik [2015]

¹⁴ Let's Talk Payments [2015]

The NPCS would serve as a framework in this new ecosystem, providing a universal interface for financial institutions and other payment service providers to implement a high degree of interoperability between the various payment methods and services. One advantage of this model is that it allows individual pieces of new technologies to be deployed on the market in a much easier and more predictable way, which on the long term reduces the cost of innovation, as well as market fragmentation due to incompatible solutions. In fact, similar systems have been implemented in numerous countries across the globe. One example is Borica in Bulgaria, which provides a common framework for domestic transactions in BGN, as well as a “window” to the SEPA for euro-based transactions.

3.2 Building security into the core

In the past couple of years, there have been a large number of unfortunate examples in the US where prominent merchants were hacked and hundreds of thousands of payment card were breached. These cases all point toward the need to implement strict security measures. Especially given the burgeoning cybercrime market in Russia and the need to improve consumer trust towards new payment technologies, a tokenization service should be implemented. Tokenization replaces sensitive card data with a surrogate “dummy code”, which, if intercepted, cannot be used by criminals.

There exist several solutions for tokenization, perhaps the best known example being EMV (Europay, MasterCard, Visa) network tokenization, which is used by Apple Pay. Cellum has developed a proprietary tokenization service for its own products, which additionally implements a data fragmentation algorithm to circumvent the use of a single database and therefore preclude the risk of a successful hacker attack.

3.3 The world is going mobile

Mobile money, i.e. access to financial services via mobile devices, has become a mainstream topic recently, with several high-profile tech companies (Google, Apple and Samsung, to name just a few) having their go at it. However, the concept is in no way new, and has been around for decades.

There are several radically different approaches on the market, each with their own advantages and drawbacks. In the case of Russia, the model suggested in chapter 3.1 allows an advanced mobile wallet technology to be introduced.

Such a ‘Russia Wallet’ would serve as a mobile interface to the services available for the UEC, ranging from identification and healthcare to financial transactions. A huge advantage of mobile wallets is that they can work with numerous facilitating technologies and in countless use cases. Examples include:

- peer-to-peer transfers;
- prepaid card top-up;
- utility bill payment;
- in-store checkout using QR codes or Bluetooth LE beacons;
- online checkout without entering any card data;
- on-the-go purchases (using QR codes) ;
- cardless cash withdrawal at ATMs;
- virtual prepaid card issuance;
- mPOS solutions;
- merchant application for initiating transactions;
- ticketing;
- ID presentation.

Note that such mobile wallets could work with any payment instrument processed through the NPCS, not just the UEC. As discussed in chapter 2.4, the new cards soon to be launched by NPCS can just as well be used for this purpose.

3.4 Driving market adoption

Obviously, the above would mean tremendous changes for businesses, and in order to facilitate the transmission and promote the market's adoption of non-standard EFTPOS transactions, a low-commission scheme with fast and easy contracting and integration should be realized (with pre-packaged integration kits for e-commerce and in-app payments, freely downloadable QR codes for in-store and on-the-go payments, and mPOS services for better mobility).

Our experience is that integration is made a lot easier and faster with dedicated aggregators / payment facilitators playing an intermediary role between merchants and financial institutions. This way, even the smallest merchants can have access to payment aggregation and settlement services without the need to operate POS terminals (using a mobile app and/or QR codes).

In rural/unbanked areas, the mobile wallet can be used for facilitating digital transactions by using a mobile digital agency model (see Annex 1).

Finally, users of mobile wallets are not limited to consumers: they can also be used in business-to-business situations, e.g. for bulk payments between wholesalers and merchants. The solution provides greater transparency at low transaction costs.

3.5 Going beyond Russia

Like every modern country in the world, Russia is connected to the world economy and trades with other countries. While we understand self-sufficiency is the desired outcome of this project, the ability to be self-sustaining does not necessarily mean isolation from the outside. Not having to depend on Western infrastructure should not mean not being able to interact with it.

So long as Russia is not cut off of these, users benefit from having options such as:

- MasterPass
- China UnionPay Secure
- Visa v.me
- Visa Checkout

On the other hand, the "Russia Wallet" can be extended to other countries that Russia maintains closer ties with. Domestic transactions alone will likely not make a new card brand issued by NPCCS successful, but could be promoted to other countries, similarly to how China is promoting the UnionPay brand. Areas of interest here include:

- replicating the "Russia Wallet" in countries using NPCCS cards, either in the form of a private-label or a co-branded wallet;
- ensuring the interoperability of "Russia Wallet" with NPCCS cards issued in partner countries.

Finally, another opportunity to explore is launching global e-commerce / m-commerce marketplaces for B2B and B2C users – similarly to Alibaba in China. Foreign merchants could then accept NPCCS cards, and the proceeds could be used for funding purchases over this platform. This may lead to a global Russian goods and services market.

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