

Problems and Perspectives of Development and Regulation of Electronic Forms of Money in Russia

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Abstract

While the society is developing, necessity in increase of speed of information transfer is constantly growing, significance of information in all areas of mankind's life acquires real traits. Information carriers during different historical periods were made by Slavic people, clay plate and papyrus - by Egyptian people, skins by nomadic folks; while some of them will be more durable, another ones will be less. Information can be determined for allocation on electronic mediums. For satisfaction of need in constant receipt of info, a human creates diverse technical devices which expand ones' physiological borders of perception. In that context, we see a necessity to look at mechanisms of electronic money market regulation nowadays, to research how to provide for confidentiality electronic payments, control of electronic money circulation; what has already been done, and what must be done.

Keywords: innovations, innovative route of development, informational technologies, electronic money

1. Introduction: Development of Russian Electronic Money Market

What is around us, what we feel everyday, feel not only on material level, but even on the level of consciousness. Changes, changes and changes. They are everywhere and every day (or sometimes, every minute) we can observe a swift appearance, evolution, and after an improvement of various technologies.

Today, many countries, including Russia, take all possible steps in order to turn to innovative line of progress, or, globally, to formation of society, where knowledge would be priority. Many states have begun to develop a national innovation projects, which arsenal has systems of the sixth technological mode: nanotechnology, bioengineering, informative technologies of security systems. But does anyone have any assurance that all of these discoveries will not be used for destructive purposes, but namely for the benefit of mankind? This rhetorical question does not have to be answered.

A special place in the modern world is given for information resources. High speed data transfer creates preconditions for the expansion of the field of activity for a huge number of services that enable these processes. Information market has a tendency to develop, filling itself by new users and information sources. The establishment of information communication systems extends the information space and contributes to the exchange of information both within one country and at the international level.

The prerequisites for the further implementation of information products are not just the current state of the economy and global integration, but rather the innovative attitude of the society itself.

Every day we hear the word "innovations", it has different meanings, but if we would summarize them, from an economic and legal perspective, innovation can be thought of as a factor influencing the value, costs and benefits from the use of fundamentally new approaches to the interaction between the participants of the financial and legal operations. And new models of economic growth often have horizontal and vertical innovations. The first is associated with the increased variety of goods, while the vertical innovations are connected with the invention of radically new or better products and technologies, displacing the old ones.

In the long-term economic development for countries, the most important are vertical innovations, i.e. the improvement of existing or the full invention.

In this article, we will focus on the innovative aspect of financial transactions, such as e-money, - the product of high-speed information transfer.

What is taken to rank among this category? Rather, it is a financial liability, that was issued electronically, which takes the form of a digital record; they are on the information carrier, and most importantly, entirely controlled by the user. It is worth to clarify that a financial relationship exists at this case, and that the amount of issued electronic money will be leveled to the amount of received money from users and the obligations are accepted by third-party organizations in the form of payment. So the concept of "electronic money" is used mainly to identify innovative technologies, because their circulation takes place not somewhere and somehow, but only thanks to the interaction of the Internet, terminals, ATMs, payment cards, e-wallets and other types of payment instruments.

The Russian law "About national payment system"(Federal act of June) contains its own definition of electronic money, which are defined as funds that previously were provided by one person (the person providing the money) to another person, taking into account the size of provided funds without opening bank account (obligated person), for the enforcement of monetary obligations of the provider of funds to third parties and in respect of the person who has the right to send orders exclusively with the use of electronic means of payment. Electronic money term does not include money received by organizations carrying out professional activities on the securities market, clearing activity and (or) management of investment funds, mutual investment funds and private pension funds and registering the information on the amount of funds provided without opening a bank account in accordance with the legislation regulating the activities of these organizations (P. 18, Art. 3).

Is it possible to argue that the development of electronic payments and, in particular, electronic money helps to reduce costs for the organization of cash circulation, accelerate the pace of economic growth, the development of new sectors of the economy and e-Commerce?

The number of transactions in the countries of the world for the period 2010-2014 has increased at average rate of 4-5% per year (Figure 1) (World Payments Report 2013).

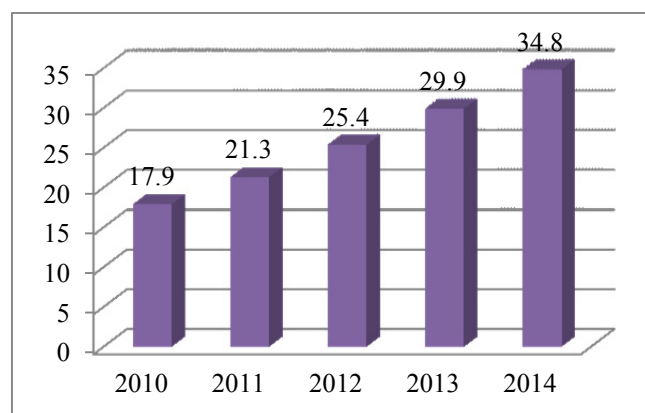


Figure 1. The number of transactions in the countries of the world (Number of transactions with the use of e-Money (billion \$))

The level of development of the system of cashless payments is different in different countries due to the nature of their national economies. Thus, in Sweden the share of cashless payments is 97%, in Europe, USA and China - 91-93%, in Russia - up to 75%, suggesting a more widespread use of electronic payments in developed countries. Today electronic money function in more than 200 countries.

According to statistics of the international rating agencies (Moody's Investors Service) for the period 2008-2012 is the use of electronic payments has brought \$983 billion to GDP of 56 countries of the world. This contribution to the world's GDP was the creation of a total of 1.9 million jobs. Over the last few years the growth in global e-Commerce market has averaged 20%.

The main participants of the settlement by electronic money are: the payer (has the obligation of payment), the recipient (is entitled to receive payment), the issuer (usually a bank). A simplified diagram of the calculation of the electronic money is presented in Figure 2.

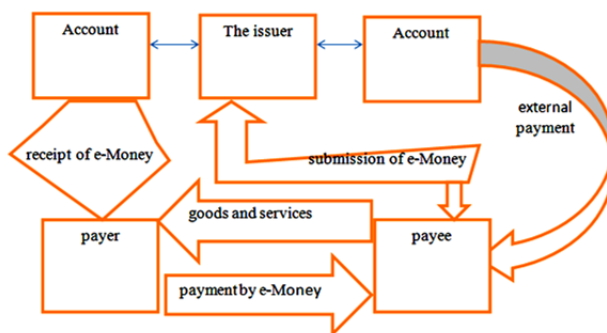


Figure 2. Scheme of the calculation of the electronic money

After analyzing the international experience of using electronic money, it should be noted for their rapid development. The global volume of electronic payments for 2011 increased by 8.8% to \$ 307 billion transactions. (World Payments Report 2013) By the end of 2012 the figure rose to 333 billion transactions. In the European Union the general issue of e-money amounted to 4.7 billion euros as at 2013 (European Central Bank, 2014).

According to a report on international payments, "The World Payments Report 2013" from Capgemini and RBS, the number of international non-cash payment transactions grew by 8.8% to \$ 307 billion transactions in 2011. By the end of 2012 the figure rose to 333 billion transactions (Figure 3). (World Payments Report, 2013) According to forecasts, mobile and electronic payments will grow by 58,5% and 18.1%, respectively, for 2014 (World Payments Report, 2013).

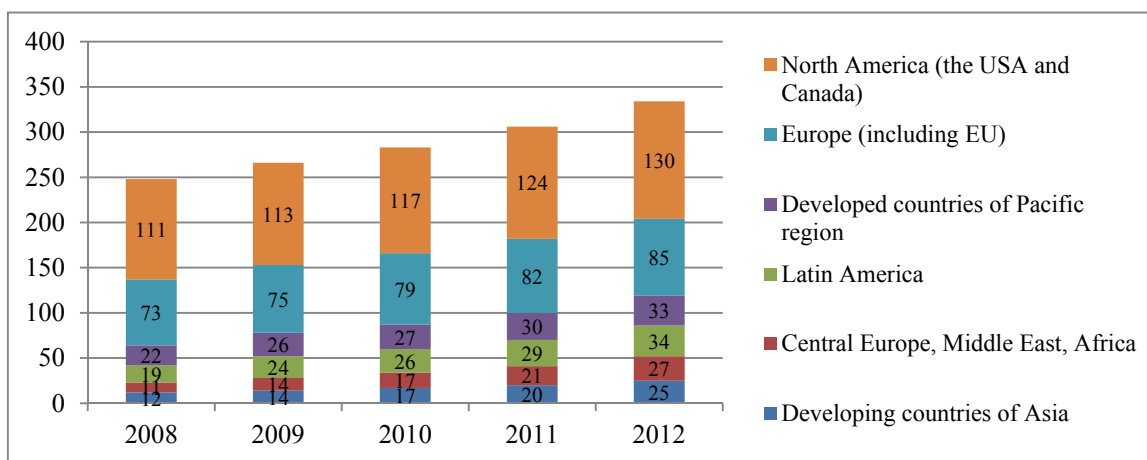


Figure 3. Number of non-cash payments in the world (billion\$), by region, 2008-2012

Electronic money are becoming more and more popular among Russians day by day. Russian market of electronic money in 2011 demonstrated high growth rates. According to the assessment of the Association "E-money", the number of Russians who used "electronic wallets", amounted to about 34 million people, and the total turnover of the industry exceeded 125 billion, for comparison, in 2009, these figures amounted to 20 million people and 40 billion, respectively. The growth relates not only to the absolute number of purses, but also to their activity.

Russian e-Commerce market is experiencing a phase of rapid growth, showing an average annual growth rate of 29%. The volume of e-Commerce market reached nearly 1.9 trillion RUB. In the future, experts expect a steady growth of the market at the level of 10-15% annually. Russian e-Commerce market will grow by 2017 to 3.7 trillion RUB. At the same time, comparison with other countries shows that the Russian e-Commerce market has considerable potential for further growth.

The ratio of the e-Commerce market to the total volume of trade in Russia is around 2%, while in developed markets, this figure is closer to 5%, and recognized leaders are the UK and the USA - more than 10%. In the structure of non-physical goods and services is expected that the greatest growth will grow sub-segment "digital content", the least - "cellular".

Also for the last 6 years there has been a steady increase in the share of payments made via the Internet. The growth amounted to 36.7%, and January-September 2013 the rate was 57.9% in the eneral structure of payments.

People prefer to pay with e-money for the services of mobile operators - 36%, online games, services, social networks and entertainment network - 38% of all transactions. However, the leader by the volume of payments are financial instruments (loan payments, transfers), they accounted for 57%. The share of operations with cash in the total amount of payments in Russia in the year on average reduced by about 5%. (Sokolov, 2010)

The major obstacle to more rapid development of electronic payment systems in our country is still a distrust of many users to electronic money. However, the increased use of such money is inevitable for the simple reason that, despite the number of, even sometimes significant, shortcomings, they have such undeniable advantages, such as convenience, high speed to perform financial transactions, ease of use, providing full control over the payments and their high security, anonymity, the possibility of transfer to third parties. In addition, electronic payment systems significantly expand opportunities for small organizations, whose spending on cash transactions is much higher compared to digital, including their storage and transport.

The use of the Internet now allows sellers to secure access to markets with lower costs of marketing and advertising. Savings, which the transition to electronic money provides, looks very tempting for banks, because the cost of any electronic transaction is several times lower than usual.

The future of money in Russia is switch from mass cash payments in the state the currency to e-currency through the use of new technical means - first of all, contactless payment systems.

It should be noted that the level of development of the system of cashless payments is different in different countries due to the nature of their national economies. Thus, in Sweden the share of cashless payments is 97% (Research by red word on non-cash, 2013), in Europe, USA and China - 91-93%, in Russia - up to 75% , suggesting a more widespread use of electronic payments in developed countries.

Paper money is the world's first coined Sweden. After almost 4 centuries Sweden first and abandons them. As can be seen from figure 4 the share of cash in the economy of this country is only 3 % , against 7 % in the U.S. and 9 % in the European Union. In Russia the figure is 25 % . Experts believe that in the near future banknotes will be refused by other countries (Sibileva, 2013).

In most Swedish cities you cannot even pay the bus fare by coin: tickets can be purchased via SMS. Some offices of the Bank, earning on electronic transactions, completely stopped handling cash. Even in the Swedish churches the device appears to read information from cards, allowing parishioners to donate electronically. The main plus for the country - less robberies of banks: in 2008 in Sweden, there were more than 100 robberies of banks, in 2012 - a total of 16. But there are also disadvantages in this situation - the number of Internet crimes increased from 3.3 thousand to 20 thousand.

This shows the opposite trend: the rate of increase of non-cash payments in emerging markets in 2012 amounted to 18.7%, in developed ones - 6.2%. Electronic payments in 2012 contributed 0.8% of GDP growth in developing countries and 0.3% in developed countries (Bugrov, 2012).

The main legal document regulating the handling and use of electronic money in Europe, the Directive 2009/110/EC of the European Parliament and of the Council of the EU on 16.09.2009 "About the organization, activities and prudential supervision of electronic money institutions (Directive 2009/110/EC of the European Parliament and of the Council of the EU).

According to the document, the electronic money is defined as "the monetary value, which is represented by a claim on the Issuer which is stored on an electronic device, issued on receipt of funds by the Issuer in the amount of not less made in advance is the amount of money accepted as means of payment other institutions than the Issuer" (Directive 2009/110/EC of the European Parliament). In the Preamble of the Directive States that electronic money can be considered as a surrogate for coins and banknotes, which is stored on an electronic device such as a smart card or in the computer's memory.

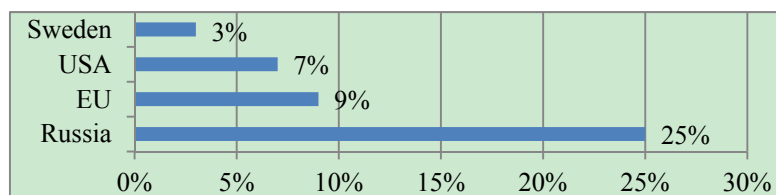


Figure 4. The share of cash in the economy

Today electronic money function in more than 200 countries. Analyzing the dynamics of market development of electronic money in the Eurozone, it should be noted relatively high growth rates (Figure 5). Thus, the total number of issued electronic money for 2006-2012 increased more than 6 times. (European Central Bank) if we estimate the number of issued electronic money in the Euro area according to their types, the majority (65%) is realized on the basis of electronic memorable devices (mainly smart card) and 35% on the Internet.

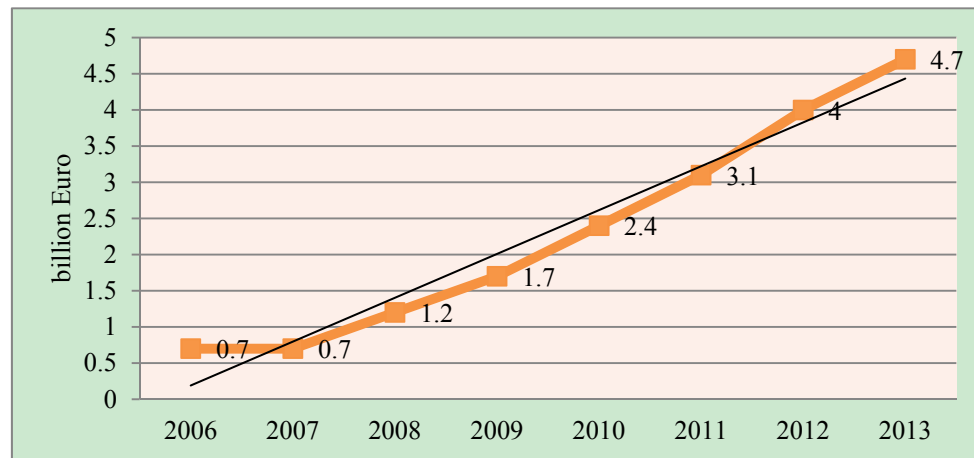


Figure 5. The total issue of electronic money in the Euro area (2006 -2013)

The level of penetration of electronic money into the economy of the EU it should be noted by the level of use in the Netherlands, where the share in the total number of transactions is 9,76%, Italy - 12,6%, Sweden 3,5%, France - 3,44%, Belgium totaling 3.04 %. In countries such as the Czech Republic, Poland, Romania, Bulgaria, the share of transactions with electronic money in the total volume of the Eurozone countries is less than 1% (European Central Bank).

Over the last decade in different countries (including in test mode) more than 200 projects of electronic payment systems were carried out. By the end of 2012, according to the European Central Bank, the EU acted 129 e-money systems. The most famous projects of electronic money on the card carriers in Europe are such as Proton, Chipknip, Geldkarte and Moneo. Among the world's most popular payment systems which issue electronic money using Internet technologies we can provide Yandex.Dengi, RuPay, Qiwi, PayPal, E-gold, WebMoney, LIQPAY, Limonex and FlashCheque.

In particular, the PayPal system now operates successfully in more than 190 countries with a total number of users about 165 million.

It can be argued that e-money – up-to-date, advanced and convenient payment tool which exerts its influence on the development of the economy as a whole.

World experience shows that in countries where there are strict norms of emission of electronic money by the banks, the national system of electronic money is missing, and on the market issuers from other countries come where the rules are more democratic. In addition, the system of electronic money is not the bank's core business and requires additional costs for integration of this system into the information system of the bank. The decisive factor in the success of e-money - the possibility of free use for all kinds of calculations with all the economic agents who wish to participate in the system. Otherwise, the turnover of electronic money in the system is minimal, the system efficiency decreases, and, therefore, offsets the potential benefits of using electronic money.

Thus we can conclude that the development of electronic payments and, in particular, electronic money helps to reduce costs for the organization of cash circulation, accelerate the pace of economic growth, the development of new sectors of the economy and e-Commerce. But there are also disadvantages of the introduction of e-money in circulation - the growth of Internet crime and fraud.

2. Methodology: The Risks of Introduction and Use of Electronic Money in Russia

Electronic money (ED) today is one of the most effective means of treatment, it can result in reduction of costs and time incurred by banks, firms and households. Accordingly, they are an attractive means of payment compared to other payment instruments. And at this point security of issue e-Money becomes relevant, the risks associated with globalization movement of goods, works, services, people and capital on the Internet.

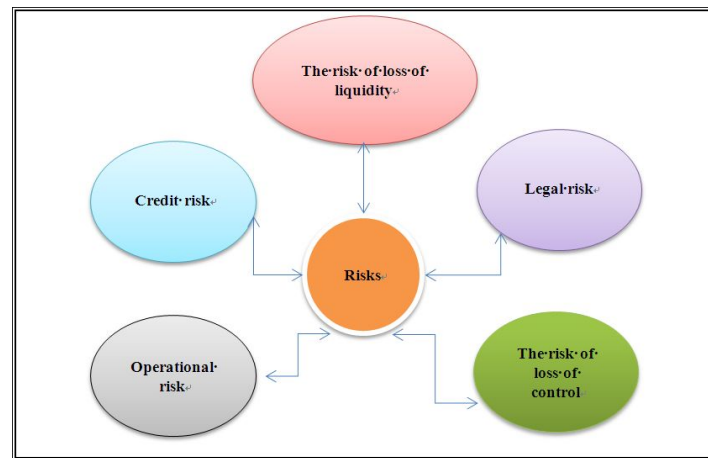


Figure 6. Risks of electronic money

The Central banks of most countries are very wary of the development of electronic money, fear of uncontrolled emissions and other possible abuses. Although e-cash can provide numerous benefits, there are many controversial issues regarding the introduction of electronic money. There are fundamentally unsolved problems of collecting taxes, ensuring the issue, the lack of standards for the issue and circulation of electronic neatnik money, concerns about the use of electronic payment systems for money laundering.

Risks of electronic money can be divided into five types (Figure 6) (Ponomarenko, 2010).

1. **The risk of loss of liquidity**, i.e. the non-fulfillment by the Issuer of its obligations resulting from the inadequacy of the size of its assets. The reasons for this risk are associated with risky assets held for redemption of electronic money, or uncontrolled emissions;
2. **Credit risk**, i.e. the risk of losses due to non-fulfillment of their obligations by third parties - banks-participants, settlement banks and other. Causes improper or untimely payment for services of the Issuer, a breach in the credit schemes;
3. **Legal risk** as a result of actions or events of a legal nature. The possible discrepancy between the rules of e-Money applicable law, in case of a violation by the Issuer or clients, as well as changes in legislation;
4. **Operational risk** is the risk of losses as a result of shortcomings in the organization of the system or abuse of persons with access to the system. This can be caused by poor implementation of the system, malicious actions of employees of the Issuer or third parties;
5. **The risk of loss of control** due to loss of management control over one of the risks listed above.

In addition to these major risks, we must mention the risk of inflation arising from the uncontrolled emission of electronic money. And according to a report prepared by the experts of the Bank for International Settlements, you can also select reputational risk, interest rate risk and market risk.

Reputational risk is the risk of losses, including the loss of current and/or potential clients, because of the negative public opinion about the system of electronic money.

It should be noted that this risk may arise as a result of actions (or inactions) of the participant of the electronic money system, and as a result of the actions of third parties. The breach of security of electronic money, as a consequence of external attacks from hackers, may undermine the credibility of the system.

In this case, reputation risk is caused by the actions of a third party. If clients are not able to make transactions with electronic money due to technical problems with communication networks, that may also undermine the credibility of the system of electronic money, in this case, the fault lies with the organisers of the system.

Interest rate risk is the risk of losses due to unfavourable to the Issuer of electronic money changes in interest rates. As a result of adverse changes in interest rates the value of the assets of the Issuer may be reduced relative to liabilities money issued in circulation.

Market risk represents the probability of financial losses and off-balance sheet operations as a result of changes in market prices, including foreign exchange rates.

According to the Basel Committee on banking supervision, the most dangerous is operational risk is "the risk of direct and indirect losses caused by inadequate internal processes or omissions with human errors or system

failures, or associated with external factors". Thus, operational risk is divided into: the risk caused by human actions and force majeure. Successful solution of the problems of operational risk requires continuous collection, processing and analysis of information.

Another classification of risks in today's electronic money allocates the risks of providing an immediate direct impact on the consumer electronic money (Figure 7).

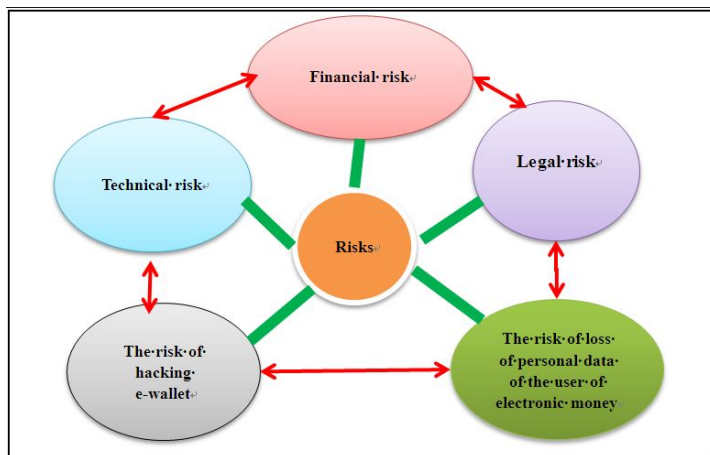


Figure 7. Risks that have a direct impact on consumer electronic money

Financial risk (a default by the Issuer of its obligations).

Legal risk.

The risk of loss of personal data of the user of electronic money (e-money are not registered, and therefore, can be stolen).

The risk of hacking e-wallet.

Technical risk (the risk of loss of data, e-money and other things because of a hardware failure of the Issuer).

Another risk associated with electronic money, is the risk of illegal use for the legalization of income obtained by criminal means. Electronic money can freely cross borders as they exist within the Internet, for which, as we know, there are no boundaries.

The technology of electronic money is constantly improving, increasing user confidence in this type of money. Therefore, it is necessary to reduce these risks through legislative regulation from the state and imposing reasonable restrictions, as well as the supervision and regulation of activities of the Issuer control of the banking authorities.

3. Results: Trends in the Use of Electronic Money in Russia

Electronic money every day becoming more and more popular among Russians. Market size of electronic payments in Russia in 2011 amounted to \$ 125 billion rubles, which is almost twice the figure for 2010 (70 billion) (Figure8) (Association "Electronic money").

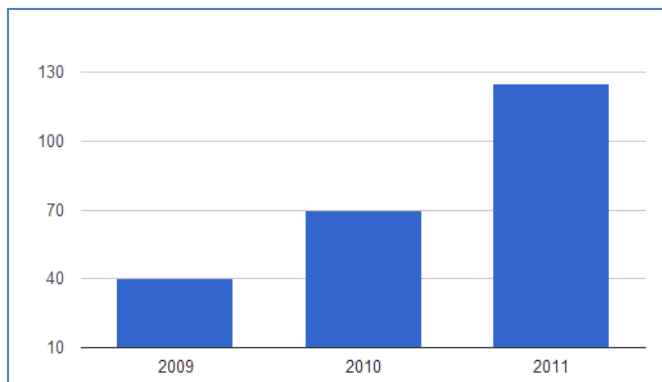


Figure 8. Volume of refill of e-wallets, billion rubles

Electronic payment systems provide an opportunity to simplify and streamline your financial operations (transactions) between buyer and seller. In addition, they contribute to the rapid development of e-Commerce, as they allow you to make transactions almost instantly.

Russian e-Commerce market is experiencing a phase of rapid growth, showing an average annual growth rate of 29% in 2008 - 2012. In 2012, the evaluation consultants J'son & Partners Consulting estimations, the e-Commerce market reached nearly 1.9 trillion. RUB. In the future, the specialists expect stable growth of the market at the level of 10-15% annually. Russian e-Commerce market will grow by 2017 to 3.7 trillion. RUB (Figure 9).

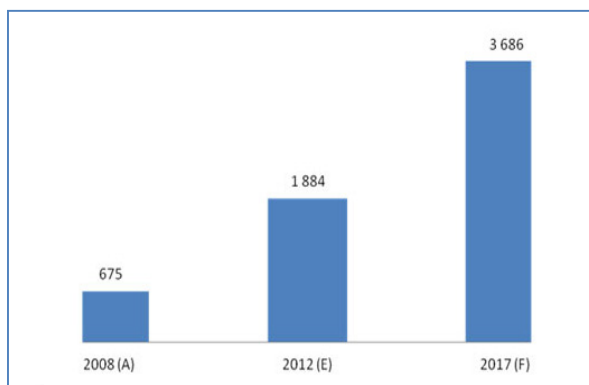


Figure 9. Russian e-Commerce market, billion rubles (J'son and Partners the e-Commerce)

Besides, the comparison with other countries shows that the Russian e-Commerce market has considerable potential for further growth. The ratio of the e-Commerce market to the total volume of trade in Russia is around 2%, while in developed markets, this figure is closer to 5%, and recognized leaders in the UK and the USA - more than 10%.

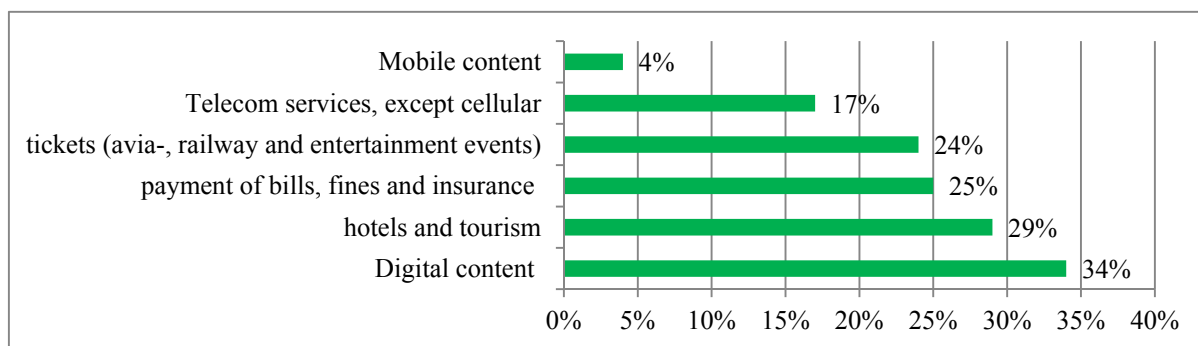


Figure 10. The average growth rate of market segments of non-physical goods e-Commerce market in Russia in 2008-2017, (J'son and Partners the e-Commerce)

In 2012, analysts J'son Partners Consulting has estimated the volume of the sector of non-physical goods and services on the e-Commerce market of the Russian Federation in the amount of 1.2 trillion RUB. The forecast for 2017 is 2.2 trillion RUB.

In the structure of non-physical goods and services is expected that the greatest growth will be in sub-segment "digital content", and the lowest - "cellular communication" (Figure 10).

In Russia payments by bank cards are common (credit and debit cards) electronic cash and SMS payments.

The study, conducted by Analytic Research Group, found that the number of payments made with credit cards, has been growing steadily. So in January-September 2013 the share of payments made 55,89% of the total payments that is 6,65% higher than values for the year 2012. Then share was 49,24%. For the last 6 years it had increased more than 2 times.

For the last 6 years there has been a steady increase in the share of payments made via the Internet. The growth amounted to 36.7%, and January-September 2013 the rate was 57.9% in the general structure of payments.

However, the increase in payment using a mobile phone is missing. The share of these payments varies from 0.3 to 1.2% (Study by The Analytic Research Group).

According to experts, in terms of the use of electronic money a big city is so far ahead of the regions. This is due to the general level of Internet penetration, however, there is the dynamics of the gap between Moscow, St. Petersburg and the regions. Most frequently pay remotely for the tickets, event tickets, network marketing, coupon services, utility payments, online games, social networks, professional Internet services. However, in small retail cash still continues to dominate - almost everywhere in small towns, slightly less than in the cities. The share of operations with cash in the total amount of payments in Russia in the year on average reduced by about 5%.

According to the Association of "Electronic Money", in 2009 there were 20 million active users of electronic payment systems. The number of registered e-wallets in 2010 continued to grow, almost exponentially, and by the end of 2010 amounted to 30 million people. However, in 2011, the growth in the number of registered e-wallets in Russia has decreased markedly and for the year amounted to 34 million people (Figure 11) (Association "Electronic money").

This is due to the requirement that every service e-money status of a credit institution in connection with the adoption in 2011 of the Federal law "On national payment system" that had an effect on the user agreements and the outflow part of the users who did not wish to undergo the verification of personal data and identification. According to the 2012 volume of the domestic market of electronic payment systems has exceeded 125 billion rubles.

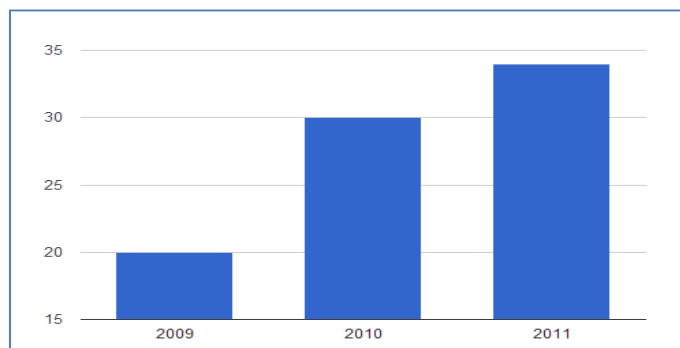


Figure 11. The number of active e-wallets, million

Users, as before, prefer to pay with e-money for the services of mobile operators - 36%, online games, services, social networks and entertainment network - 38% of all transactions. However, the leader by the volume of payments are financial instruments (loan payments, transfers), they accounted for 57% (Figure 12) (Figure 13) (Association "Electronic money").

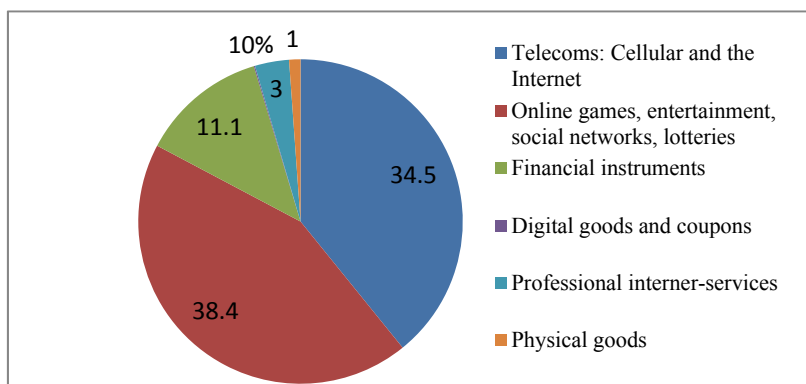


Figure 12. The main purpose of the payments, in quantitative terms

This pattern is not specific to Russia only. In the CIS, the Middle East, Asia technology of electronic money significantly enhances public access to the payment, the financial and microfinance services. All this causes a rapid growth of interest in this sector.

For the state electronic money solve several tasks:

- providing universal financial inclusion;
- reduction of cash in the money supply by transforming it into a more manageable and controlled form;
- encourage local operators, preventing the leakage of commissions and information on payments abroad.

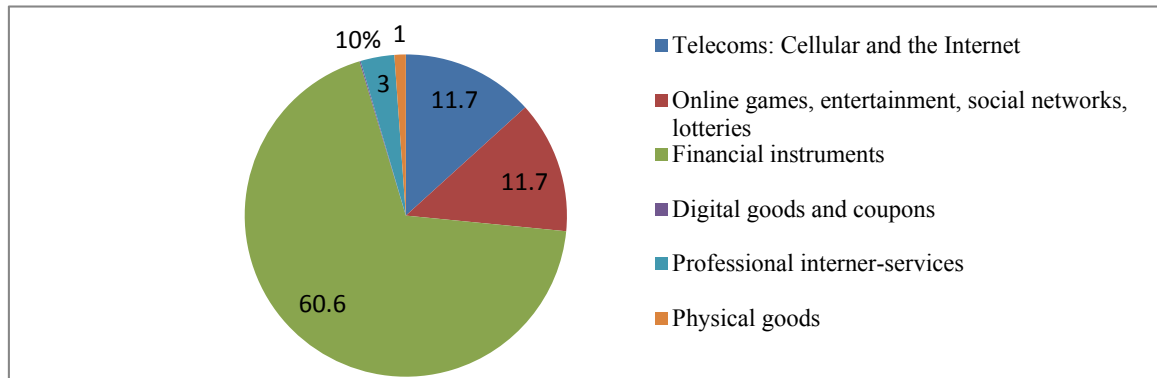


Figure 13. The main purpose of payments, the volume ratios

The main factors that have formed the basis for significant growth of electronic payments market include:

- the rapid development of IT technologies, accelerated integration projects and launching new products, providing a convenient and intuitive applications and conclusion CRM (Customer Relationship Management) to a higher level;
- the services, of course, have become more reliable, significantly increased the level of security of electronic payments, money transfers, e-wallets;
- service providers are actively increased its product line and attract new clients;
- an important factor is the growth of Internet use (Internet penetration);
- the growing popularity of smartphones and applications associated with the services from the scope of electronic Commerce: purses, etc.

Today, virtually all players in the market of electronic payments in Russia and abroad, actively experimenting with offline niches. A cup of coffee and a ride in a taxi or on the subway - it's all you can pay with electronic money. The state also does not remain aloof, connecting operators of electronic money for payment of utility bills, taxes, fines. Finally, there are new models of interaction: over the past year, thanks to electronic money the topic of crowdfunding emerged and actively developed (raising money for community initiatives). Electronic money instrument of e-Commerce become the means of payment for ordinary life.

An important disadvantage and a major obstacle to the further development of electronic payment systems and services is still mistrust of the majority of Internet users to e-money.

4. Discussion: Prospects of Application of Electronic Money in Russia

Global financial system is developing very actively - and that seems unshakable, maybe in a few decades to be an archaism. There is a need to say that even half a century ago, most currencies were tightly pegged to the dollar, and this currency was provided the gold standard.

If no radical changes should not happen with currencies, here are ways to pay for goods and services will evolve quickly. Another two or three decades ago, it was hard to imagine what can go into any store with an empty wallet and leave with shopping, paying for them with your credit card.

In the XXI century bank cards can go out. The future of money is in the mass transition to cashless payments in normal state currencies or e-currency through the use of new technical means - first of all, contactless payment systems.

NFC (Near Field Communication) is a technology of wireless frequency communication with small radius (up to 10 cm), enabling contactless data exchange between devices located at small distances: for example, between the reading terminal and a cellular phone or a plastic smart card.

In the development and implementation of NFC today involve the leading players in the global market for high-tech products: Google, Intel, Samsung, Nokia, Visa, MasterCard, Citigroup, Barclaycard and others. (Fiscal 2011 Annual Report. Starbucks Corporation)

As "media" for NFC chip is often a mobile phone device as a mass, as an individual, and most importantly inseparable from its owner. The latest trend in the field of NFC was the parallel development of services based on smart cards and mobile devices (Figure 14).



Figure 14. NFC technology-based smart cards and mobile phones

Both options enable you to build a universal NFC ecosystem, where a smart card or cell phone with an integrated NFC chip into a multi-purpose device, acting as:

- the means of payment (virtual wallet);
- the identification of the owner;
- the key;
- the bonus card;
- the travel card.

NFC chip can contain large amounts of data, optionally encrypting them.

NFC technology has enormous potential applications in a variety of industries from retail to medicine and education (Figure 15):

- the non-cash payments;
- the municipal transport;
- the loyalty program;
- the system of time tracking and monitoring performance;
- the system identification and access control;
- the interactive info-stands and smart posters;
- the social services.

Analyzing NFC capabilities, we can confidently predict its potential relevance in the field of security and access control.



Figure 15. The use of NFC technology in various fields.

Contactless infrastructure and contactless payments are already fairly well developed in system of public transport, rather quickly appear and in other industries. Operators, mobile device manufacturers, banking and other payment systems are increasingly seeking to use contactless payments.

Maybe today the widespread use of NFC seems futuristic, but in the very near future, this technology will be fixed in our lives - just as Wi-Fi, Bluetooth, USB.

At the moment, such a technology introduced by the Mastercard PayPass (2003) and Visa PayWave (2004). (California Financial Code. Division)

MasterCard PayPass and **Visa PayWave** is a payment card with a new technology that allows customer to pay for purchases with a single touch! It is quick and easy. Simply touch the card to the terminal. As for shopping for the amount of 1,000 rubles don't even need to enter a PIN or sign a receipt.

These two systems differ only in the range, one operates at a distance of 10 cm, the other at a distance of 4. Principle of operation is the same.

MasterCard PayPass and Visa PayWave are convenient for both buyers and sellers. They save time



Figure 16. Saving time

- 33% (or 7 seconds) compared to the standard payment cards;
- 52% (15 seconds) in comparison with cash payments (J'son and Partners the e-Commerce);

The process of purchase with MasterCard PayPass and Visa PayWave is presented in Figure 17.



Figure 17. The process of using innovative technologies, MasterCard/Visa PayWave



Figure 18. Geography of MasterCard PayPass in the world

1. Enter the amount to be paid at the cash register / terminal. Press "TOTAL";
2. Ask the customer: "Do you have a card, MasterCard/Visa PayWave?";
3. If buyer card is MasterCard/Visa PayWave, ask him to touch the card to the terminal;
4. Beeps and lights up LEDs - paid! Complete the transaction in the usual way.
5. Ask the customer to enter a PIN or sign a receipt to confirm the operation, if the operation is over \$ 1000.

PayPass cards and devices are available in 56 countries (as of 2013), contactless PayPass take about 1.2 million merchant locations worldwide (Figure 18).

As at 2013 MasterCard PayPass cards were made in 29 countries (Figure 19).



Figure 19. Geography accepting MasterCard PayPass in the world

Today, the technology Visa PayWave is distributed in more than 30 countries around the world.

HOLDERS of cards with contactless technology, glad to see many shops and cafes/restaurants (Figure 20).



Figure 20. Reception cards with contactless technology

Contactless technology is now beyond habitual patterns and can now be embedded in phones, watches FOB from the car, etc. and open up new areas of application such as metro, parking meters, bus.

With the development of e-Commerce through the world wide web began to appear and innovations such as virtual cards. First it came up with Yandex and immediately similar service appeared in Webmoney and QIWI. (Inui So, Abaeva, Powarkov, & Plotnikov, 2011)

Virtual credit card is only for online payments. Neither to take her cash or pay in a regular store or supermarket is possible, as the material basis, which can be presented even to hold in your hands, does no exist.

Virtual card provides additional guarantees of security, without compromising the availability of the entire amount of the money stored in the normal map.

When paying for their purchases in the online shop, we sometimes have to enter a number and a special code that gives access to it. At this point we can become a victim of phishing special fraud by hacking cards when shopping online. If in the wrong hands, these data will reveal the fraudsters access to your funds. They can on your behalf make purchases in other stores than you will not even suspect.

Additional security virtual card is that the duration is specified, relatively short period of time, and also limit the amount that can be no more than a certain amount entered by you. Both disposable and reusable virtual credit cards are produced. The purpose of the manufacture of disposable cards - pay for a specific thing or services, such as mobile communication or making certain purchases. You pay by it, and it becomes invalid, that is completely useless.

Reusable card is designed to pay for goods and services on the Internet for a certain period, but from the loss of funds you will save the limit on spending. The limit can be set as to the amount of a single purchase, and the amount of purchases carried out in one day. Thus, even if you will become a victim of Internet fraud, then the loss will be insignificant.

You can make a virtual card via Internet banking or mobile phone, connecting it to my main credit card or e-wallet.

5. Conclusion: Problems of Introduction of Electronic Money

Although e-cash can provide the advantage of speed and ease of use, greater security, lower transaction fees, new business opportunities with the transfer of economic activity in the Internet, there are many controversial issues regarding the introduction of electronic money. Currently the problem of collecting taxes is not fundamentally solved, the issue ensuring, the lack of standards for the issue and circulation of electronic fiat money, concerns about the use of electronic payment systems for money laundering.

For turnover of electronic money fairly sophisticated technology is used. And commercial banks are not always willing and able to develop new products.

The main reasons for the reluctance of banks to develop projects related to electronic money, are:

- the need to finance development, the fruits of which can be used by competitors;
- difficulties cooperation with other banks in order to share the costs of innovative development;
- absorption of already existing new banking products;
- lack of qualified specialists.

On the background of the problems with the implementation of the project "electronic money" commercial banks in the market, there are a lot of small projects, the main problems which at the moment are:

- extremely small size of the actual market "e-money";
- priority focus of the legislation in the field of payment systems in the banking industry;
- a large number of competing and poorly oriented in their consumer technologies and the lack of standards;
- the unwillingness of regulators to put on the market payment systems companies that are not banks.

So, the amendment to the draft law "On national payment system", introduced in early February 2010 by the Association of Russian banks and securing an article about the exclusive right of banks to issue e-money, shows that the view of electronic money as a claim against the Issuer has become fundamental. (Inui So, Abaeva, Powarkov, & Plotnikov, 2011)

Therefore, the obligation on electronic documents a credit institution can only carry. It follows that the market regulator will be the Bank of Russia, which will be able to make claims on banks - issuers of money and to the agents, which will be presented on the market of payment systems. However, it is to be feared that the focus on banks would increase the cost of transactions with electronic money almost doubled, and that the imposition of Russian issuers limits larger than in the rest of the world, can lead to the displacement of Russian players foreign payment systems.

It is obvious that the problems of the new market "e-money" can be solved in a long evolutionary path either through large infrastructure projects initiated by the States (for example, Russian national payment system cards).

In conclusion, we note that the Russian market of electronic payments is making its first steps into account world experience in building the legal framework of electronic money.

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