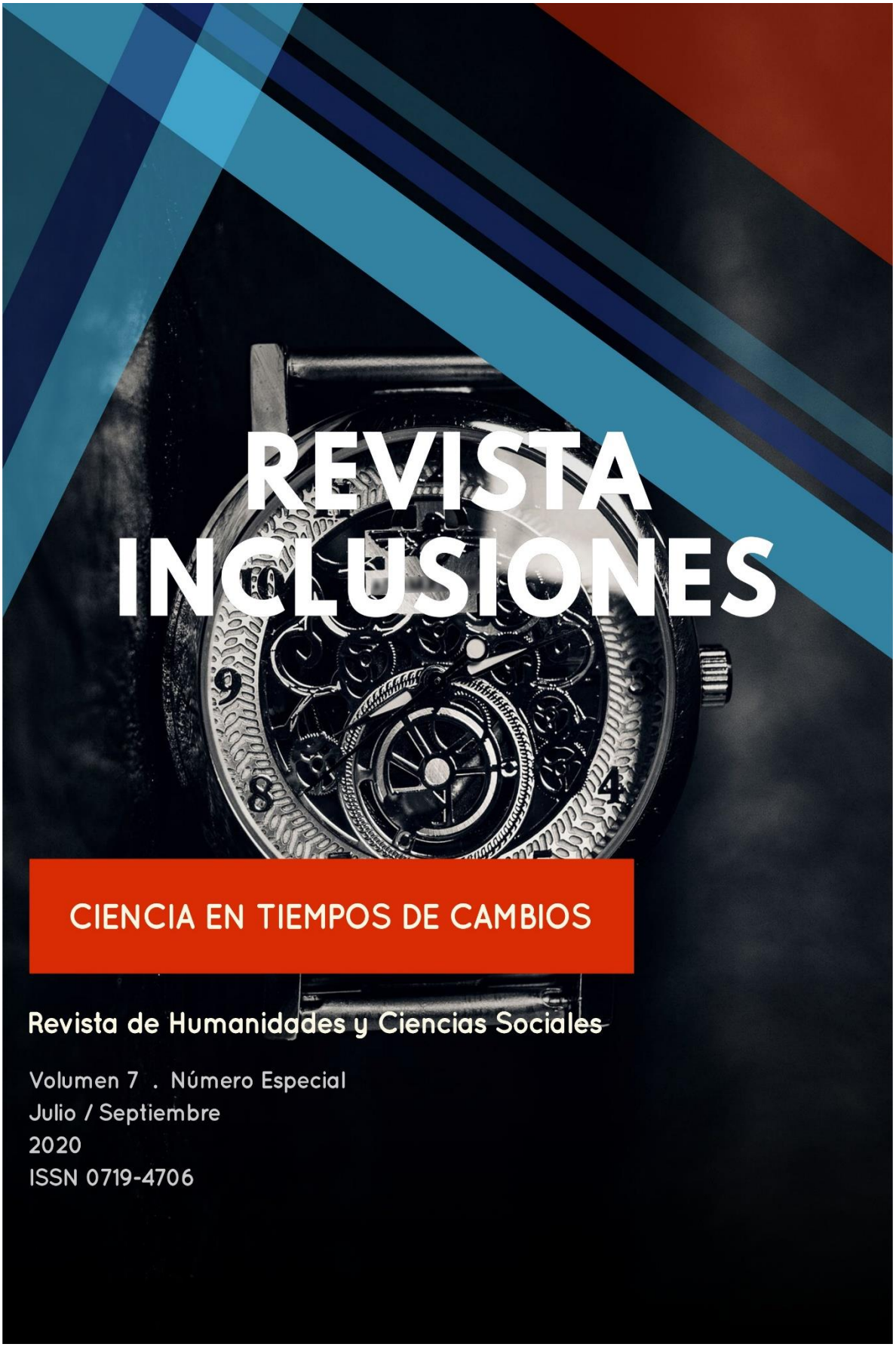

# REVISTA INCLUSIONES

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# DEVELOPMENT OF THE INNOVATIVE BANKING MARKET IN RUSSIA AND DEVELOPED COUNTRIES

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## Abstract

This article addresses the development of information technology that makes major contribution in efficiency enhancement of most business processes and, because of this, is the most important benchmark of competitive advantage of financial companies in the market. Introduction. Development of non-financial services in the banking market brings Russia to a new level of the range of customer services offered. Objective. Financial institutions that provide cloud services undergo major changes under the influence of information technology. Cloud services ensure savings thanks to equipment standardization, virtualization, new features of software application sharing and payment of the new form of resource utilization by customers, which will be the main driver of the global IT market for the next ten years. Materials and methods. Methods of research and data base analysis, synthesis of data collected into theoretical conclusions and practical guidelines have been used. Methodologically and theoretically, the study is based on scientific works of home and foreign scientists in the theory and practice of economic and financial provision.

## Keywords

IT service – Financial services – Third platform – Information technology – Digital service

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## Introduction

Development of non-financial services in the banking market brings Russia to a new level of the range of customer services offered. Presently, the total global IT market exceeds USD 2 trn. Hardware has the biggest market share in terms of costs. Enormous growth in the information volume triggers demand for servers and database transfer and storage systems. Global spread of data and cloud solution centers secures strong demand for an extensive range of network equipment. The PC market is consistently shrinking, while the mobile devices market keeps on growing steadily[1]. The demand for IT services features growing diversity and complexity of IT systems in use that require high installation, integration, study and maintenance costs. IT outsourcing (partial or full outsourcing of IT infrastructure support, maintenance and upgrade to the companies that focus on such activities) is one of the promising market trends. This system may be shown as an interrelated control program that comprises strategic, project, transactional, operational services as well as service quality and control functions (fig. 1)[2].


Figure 1
IT outsourcing scheme and its components

[1] A. Tavasiyev, Banking. Management and technologies (Moscow: Unity Dana, 2015), 56–64.
[2] V. Danilin y O. Barmanova, “Bank cards market in Samara region: challenges and prospects”, Money and credit num 12 (2004): 18–21.

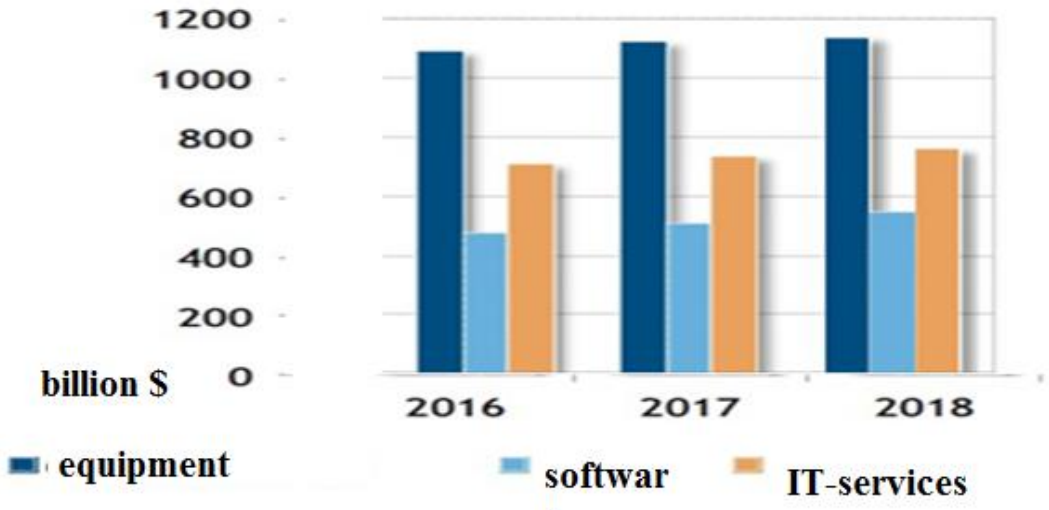


Figure 2
The ratio of costs for the development of software systems, equipment and IT services in the financial sector

The most active segment of the global IT market is SW, the annual growth of which exceeds 6% in the recent years. Various categories of applications for shared administration account for more than a half of the total segment's volume. In particular, solutions for intranet social media and shared file access: each year, they accrue 20%. We should also mention the development of the category of solutions for information and analytical database management with an annual growth of 8%.[3].Corporate managerial resources and customer relations as well as protection against cyber attacks enjoy stable high demand. This ratio may be exemplified by the development of software systems, equipment and IT services (fig. 2).

In a diverse range of strategic lines of IT development, special focus is on cloud technology, large data analytics, integration of mobile devices and social media technology in the corporate environment. The scope of this IDC (International Data Corporation) technology and processes is embraced by a standardized definition of the "third platform", the development of which in the next few years will bring about transformation of business models in most industries[4].

Development stages of IT line of IDC may be presented as three platforms. The first platform was based on mainframes and terminals that powered thousands of applications and users. The second platform is based on conventional personal computers, Internet, client/server architecture and hundreds of thousands of applications. The third platform features mushrooming mobile devices that are always online combined with the wide use of social media and well-developed cloud infrastructure used to solve integrated analytical tasks and mass use of contactless technology. Applications, content and services based on the third platform technology are available to millions of users. Clout platforms, big data, mobile and social technology ensure cross development. Evidently, users of mushrooming mobile devices produce an increasing amount of content, which is more convenient to be

[3] O. L. Kireyeva, Bank card: the past, present, and future (civil and legal aspects). Retrieved from http://urlid.ru/alzk
[4] V. Kondrashov, "Development trends of banking innovations in modern Russia", Russian business activities num 8 (2012): 101–105.

kept in clouds. An increasing number of mobile devices promotes user activity in social media. The content accumulated there becomes an important source for the analysis and retrieval of valuable information using big data application technology. Development of IT market based on the three platforms with components of each platform level is shown in fig. 3.

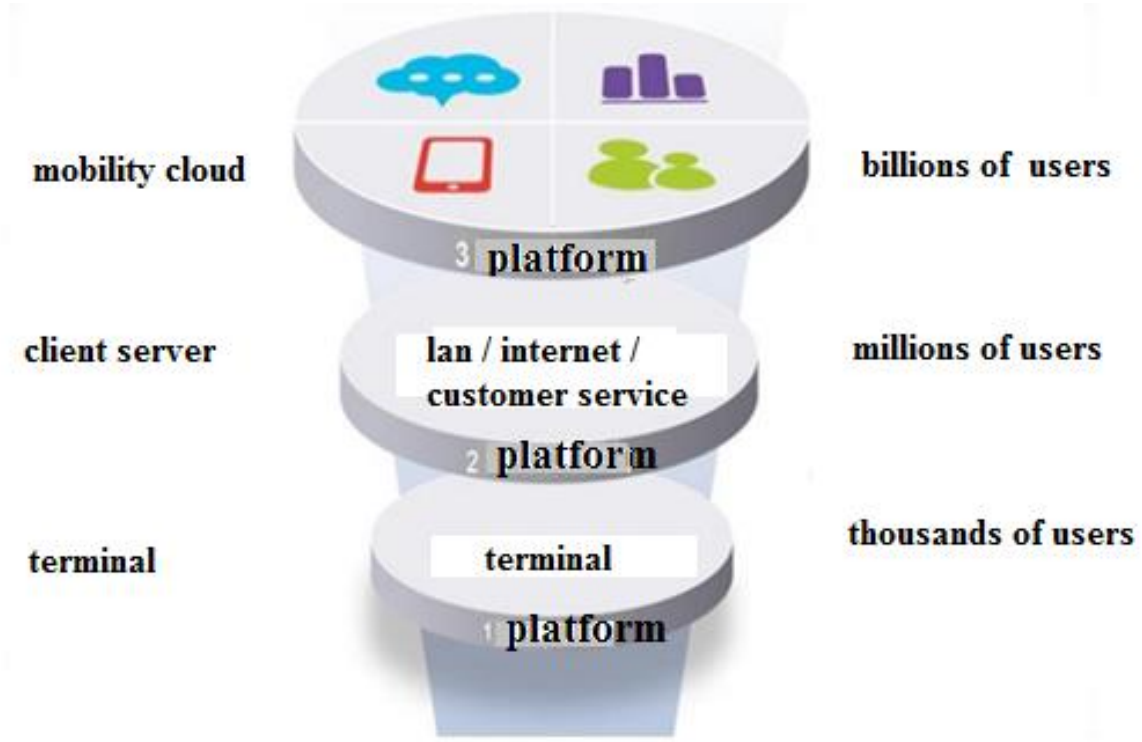


Figure 3
The platforms for the development of IT services

The third platform is the method of using mobile carrier applications to access corporate data, social media information, online analytical calculations of this access and building further actions based on information analysis. We should mention that applications may be kept on various types of carriers, both private and public. Again, the latter platform is based on four indicators: overall database, mobile devices, cloud services and social technology. These indicators are understood to mean new-generation technology and architecture for economic result generation from a large amount of data by way of its instantaneous capture, processing and analysis. Overall database technology has three distinctive features: rate, variability and volume. Volume means that a vast number of information is analyzed in dozens of terabytes. Rate means real-time capture and processing. Variability implies that data is retrieved from various sources and in various forms[5].

The third platform is based on cloud solutions as they imply remote contactless access to information resources using mobile devices. Cloud services ensure savings thanks to equipment standardization, virtualization, new features of software application sharing and payment of the new form of resource utilization by customers. According to IDC research, in 2016, the global budget of public cloud products and services was USD 100 mln

[5] A. Kosoy, “Modern money’, Money and credit num 6 (2002): 42–52.

and further forecast for the next 3 years implies a 5-fold and higher increase in costs. Today, 16 out of 100 largest corporate SW developers derive most of their profit from cloud model earnings. The third platform is the technology revolution in IT consumption and demand resulting in the generation of new types of business models and schemes. Development and spread of mobile devices and mobile access is another pillar of the third platform. Galloping annual rate of growth in sales of mobile devices encourages organizations to actively implement the "bring-your-own-device" (BYOD) concept by deploying custom solutions for the secure and efficient integration of personal mobile devices in the corporate IT environment[6]. Mobile applications become an interface between devices and users. Most business applications of today have a mobile version or provide mobile application development environment. Development of applications for private consumers affect the growth of mobile applications market pattern indicators. Social media act as standard tools of customer acquisition and provision of products and services[7].

Data as of Q1 2017 shows that 80% of Fortune 500 companies have active online communities of their consumers. These communities have become the main element of marketing strategies and customer acquisition activities. Companies collect valuable user information from social media – for example, user opinion on brands, feedback on product improvement, drawbacks – for more efficient planning of future development. IDC mentions four indicators that foster fast development of solutions based on the third platform:

1. Availability. Public access expansion adds to third platform technology strengthening and development. Real-time access is ensured 24 hours a day, 7 days a week.
2. Cost. The third platform features flexible pricing models based on actual demand.
3. Sales channels. With third platform development, applications are increasingly accessed using cloud technology or special corporate stores where mobile application versions are posted.
4. Self-service. In the third platform system, capital expenditures on IT solutions are included in operational (lease) payments, which decreases costs and speeds up integration[8].

## Results

Specialists conclude expressly that the development of third platform-based IT solutions will be the main driver of the global IT market in the next ten years and, according to the IDC estimates, will secure more than 75% of the future growth. The modern IT infrastructure is exposed to a number of constraints: floor space, high energy consumption, individual connection and installation, provision with highly qualified employees. A new IT development has to fit the current infrastructure, which requires the settlement of additional integration tasks only. Convergent infrastructure solutions – comprehensive, automated in terms of cost estimating, tunable and energy-saving "all-in-one" systems – are based on the latest IT hardware and offer alternate solutions. Today, the market offers an open series of

[6] S. Krakhmalev, Modern banking practices of international payments (Moscow: GrossMedia, ROSBUKH, 2007).
[7] O. Kurishev, "Bank cards as an important element of banking retail business", Banking retail num 1 (2007): 18–22.
[8] B. Cohen, "Electronic Money: New Day or False Dawn?", Review of International Political Economy Vol: 8 iss. 2 (2001).

convergent infrastructure systems that combine: computing devices, data storage systems, network equipment, SW for virtualization and infrastructure management based on a pre-configured platform by the same provider. A number of companies, such as HP, IBM, EMC and Oracle offer such solutions that allow users to choose the configuration, which best meets their demands and which is the most cost-efficient. Classical center is a combination of servers, storage systems, network equipment of different providers that have generated IT infrastructure for many years. This diverse environment is a result of automation of specific business processes using the best solutions[9].

As a rule, centralized control of the entire infrastructure in such centers is a challenge as each element has an individual control system. A bottleneck in the operation of these computing centers is troubleshooting. The convergent infrastructure concept offers computing centers a “all-in-one” solution for the entire infrastructure. Acquisition of an infrastructure hardware set from one provider solves a host of integration and compatibility issues and enables control over infrastructure management as software tools have been custom designed for this particular hardware and the same provider takes care of maintenance[10]. Currently, integration of convergent infrastructure systems is progressing from experimental operation to wider use. This is promoted by considerable benefits in terms of decreased downtime, cost savings, higher IT staff performance and more efficient use of IT resources as a whole. According to IDC analysis, the entire market of network equipment, servers and external data storage systems will increase in the next 5 years with an average annual rate of 0.1%, while deliveries of convergent systems of network equipment, servers and external DSS will grow by 19.6%.

Information technology makes major contribution in efficiency enhancement of most business processes and, because of this, is the most important benchmark of competitive advantage of financial companies in the market. IT project growth indicators are currently initiated by business users. According to IDC research conducted in the last 3 years, in 2015, 63% of polled business managers independently took care of local IT projects and 41% financed them without innovative technology involvement[11].

The scope of IT projects is increasing thus developing newest competences in financial companies. Today, knowledge of the structure, business processes and goals of financial companies is not enough; one has to be experienced in the development and analysis of corporate strategy and business planning development[12]. Each year, the Bank Administration Institute holds meetings to study development trends of financial innovative banking are attended by bankers, representatives of credit companies, analysts and FinTech experts all over the world. Nine lines of IT development in financial innovations have been singled out:

[9] N. Kulikov y A. Sizov, “Development of the bank card circulation system in modern Russia”, Scientific journal of National Research University of Information Technologies, Mechanics and Optics num 4 (2014): 288-293.

[10] N. Kulikov y A. Sizov. “Plastic cards market in Russia”, Pressing issues of the development of economy, finance, accounting, and audit in the region (2014): 140-144.

[11] N. Kulikov y A. Sizov, “Analysis of the schemes of law violations related to the plastic cards use”, Scientific journal of National Research University of Information Technologies, Mechanics and Optics num 2 (2015): 61-69.

[12] N. Kulikov y Yu. Kudryavtseva, “Banks are moving to Internet”, Finance and credit num 29 (2016): 2-11.

1. Banking platformization. Credit and financial institutions merged with FinTech companies will act as centers spreading a wide choice of solutions and financial products and services, which will enable their use of banking advantages of the size, trust relations, skills and compliance experience. Banks and financial institutions will attract customers on each step of their purchase route as 2/3 of customers make decisions based on the experience of previous acquisitions only.
2. Decision-making based on data analysis. Acquisition and application of customers' previous experience may become the main distinctive feature for a company that builds new relations and consolidates existing connections. The research conducted by GApGeminy has shown that over 60% of US financial institutions see statistics as the basis for a considerable competitive advantage and 90% are sure that success of initiatives is directly related to the results that will determine market success. Let us draw the following conclusion: having a database and access for its analysis and processing is not enough for consumers; real-time references are required. It should be noted that marketing services became this internal consumer in mid-2016.
3. Optichannel. Multichannel (customer connection via multiple different channels) and omnichannel (concurrent customer connection via all channels) is followed by optichannel – use of a channel, which is most profitable to the customer and which is tailored to its preferences and needs. This is explained as follows: instead of offering different alternate solutions, BIG Data analysis will offer a company the channel that will ensure the best user experience for the customer. This system will result in the transformation of all banking products and services; if needed, customers will be able to get an overdraft directly at a store or even control their savings and expenses using optichannel solutions.
4. Increase in digital payments and creation of digital economy. The research conducted by Accenture North America Consumer Digital Payments Survey has shown that the number of customers aware of possibilities of mobile devices for transactions are 40% bigger than the number of customers that actually use such services. Over the last 2 years, the number of using customers has accrued 18% and the number of informed customers – only 10%. According to experts, it may be partially due to customer uncertainty of a wide choice of e-wallets and applications offered. The number of digital transactions will keep on growing and so far, it is not a threat to banking products.
5. Focus on innovations. Innovations are a proven key to differentiation and competitive power. However, the question is whether banks will be able to reproduce the best of practical solutions of FinTech startups using their customer base leadership and thus challenging the changing services market.
6. Study of leading-edge technology. Block chains, automated investment advisors (robo-advisors), artificial intelligence, biometric authentication and Internet of things – all this is mentioned in a report by BAI. Analysts predict that all the above technologies will be implemented in the market's financial system during this year.
7. Appearance of new bank types. The terms "neobank" or "applicant bank" are actively used to describe the banking organizations that start from scratch and do not rely on a back office of other banks. The fathers of this activity are UK neobanks; 2016 saw the appearance of neobanks in Germany, Malta and Denmark. According to forecasts for 2017, such banks will appear all over the world.
8. Search for new talents. Acquisition and retention of the best talents in the digital area to support banks' internal cultural changes is a top priority for 2016. According to Accenture, more than 62% of digital companies see lack of staff skills, acquisition and retention of the best employees as the main challenges of digital transformation.
9. Responses to regulation changes. According to new European regulations, banks have to provide third parties with access to open application program interfaces (API).

To banks, this is both a risk and an opportunity. This issue has not been resolved yet, but API experts deem it necessary as legacy systems are a serious obstacle to the integration of new products, which hinders banks' technology development.

Each day, IT innovations bring us closer to the times when we will no longer need to visit bank offices to get banking services. According to PLUSworld.ru, Gemalto, currently, 92% of all the companies in the European Union support contactless technology in one form or another with contactless payment cards prevailing – 68% of companies, correspondingly, mobile payments – 39% and payment using wearable devices – 31% (fig. 4).

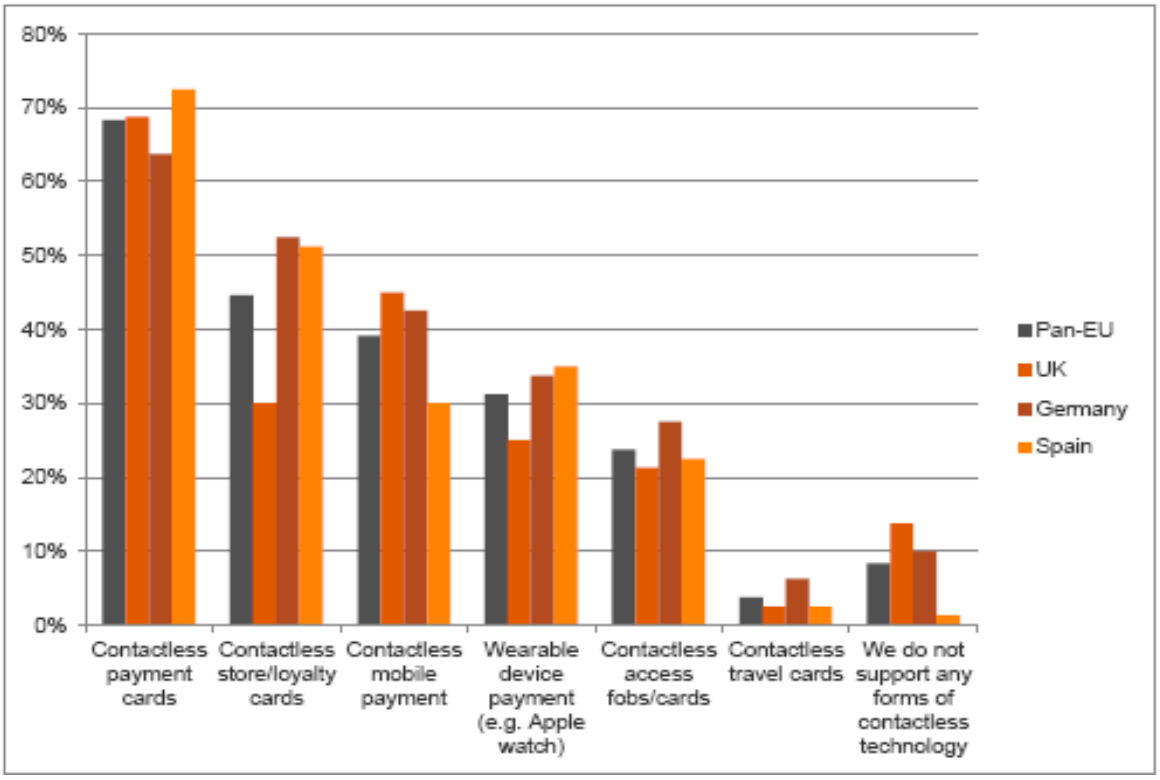


Figure 4
The level of penetration of contactless payments (European Union)

It follows from figure 1.4 that the level of penetration of contactless cards in Germany, UK and Spain is virtually the same, but only 25% of British companies use wearable devices, while in Germany, this number is 34% and in Spain – 35%. Besides, it appears from the chart that Spanish companies are less prepared for contactless mobile payments (used by 30% of companies) compared to 43% in Germany and 45% in the UK[13].

Material rate develops relative to online transactions. Financial companies that seek further development switch to remote service channels. The development trend is simple: the more financially profitable it is to a bank, the handier and simpler it is to a customer. In 2016, from 600 lending agencies remaining in Russia, only very few did not implement online services and remote service channels. However, it should be noted that 100% transition to the remote system still causes doubts in the Russian population. The author has attempted

[13] Yu. Kudryavtseva, "Banks are moving to Internet", Issues of modern science and practical work num 10 (2016): 10-21.

at seeing into the situation by way of analysis and identified a number of reasons that result in slower transition to the new banking SW platform[14].

Full transition to remote customer service in the Russian banking sector is a risky undertaking for classical full-service banks with a great deal of regional clients. Last years, Russia's largest financial companies have surely actively implemented and developed these directions by investing considerable funds into remote service channels. As a result, we currently see quite a large volume of Internet and mobile banking transactions. Still, people have not given up on office bank visits. Why so? Most likely, these are different customer categories, in particular, these are the customers aged over 40. This particular group is very doubtful about the transformation and use of the new system of banking services provided. Curiously enough, the Russian and Western experience shows that increased penetration of the Internet and remote banking technology is accompanied with a growing number of bank branches. In other words, these two different service channels – offline and online – evolve in parallel and supplement each other instead of interfering. Having analyzed customer demand statistics of financial institutions, one can conclude that more than a third of Russian clients use online services – Internet and mobile bank. Moscow and Moscow region residents account for 29% of bank online service users, 21% of them live in Moscow. Regional users account for 71% with only 8% living in St. Petersburg[15].

## Discussion

Let us draw the following conclusion: prevalence of regional online service users among bank customers is due to a number of reasons. Firstly, there are a lot more regional customers than in Moscow and St. Petersburg. Secondly, country-wide increase in financial literacy has influenced their activity as related to online services. Thirdly, big distance to offices affects the need to have access to remote services – in regions, bank offices are mostly located in city centers and a big share of the population live far away. Men tend to use Internet bank more – 56%; the same is the case with mobile bank – 61%. Age statistics of online service users reveals the following data for Internet bank: 37% are aged 25…36, 30% – over 45, 29% – 36…45 and 4% – under 26; mobile bank indicators are as follows: 53% are aged 25…36, 24% – 36…45, 13% – over 45 and 10% – under 26. In terms of income level, banking online service customers belong to the following groups: 25…50 th. rubles is the income of 43% of Internet bank users and 43% of mobile bank users; under 25 th. rubles is the income of 24% of Internet bank users and 20% of mobile bank users; 50…75 th. rubles is the income of 20% of Internet bank users and 21% of mobile bank users; over 75 th. rubles is the income of 13% Internet bank users and 16% of mobile bank users[16].

Notwithstanding this, Russian banks keep up with the times and develop remote customer service channels. One may conclude that while in Moscow, one third of customers use Internet bank, most regional customers of the banking sector still prefer to get transaction documents and hope that in case of technical errors, these documents may be presented to a lending agency to prove it wrong. Perhaps this is the mean reason behind

[14] B. J. Cohen, Electronic Money: New Day or False Dawn? Review of International Political Economy, Vol: 8, iss. 2 (2001): 197–225. doi: http://dx.doi.org/10.1080/09692290010033376

[15] O. Issing, New Technologies in Payments: A Challenge to Monetary Policy. European Central Bank. 2000. Retrieved from https://www.ecb.europa.eu/press/key/date/2000/html/ sp000628.en.html

[16] P. Franco, Understanding Bitcoin: Cryptography, Engineering and Economics (New York: John Wiley & Sons, 2014).

conservative attitude to remote service channels. Despite many factors that slow down the development of RBS in Russia, in the next 3-5 years, all lending agencies will switch to remote service[17]. Each year, the largest analytical agency Markswebb Rank & Report studies the development of bank online services and products; its statistics shows an increasing number of mass customers that prefer remote service. To speed up the development of the Russian remote market, a number of transformation are needed that are critical to banking networks. Top 5 transformations are as follows[18]:

1. Development of remote communication channels and decrease in the number of offices. Technology and electronic financial services are booming. Human life is getting increasingly "virtualized" and a number of customers in branches does not suffice for the economic justification of keeping an extensive chain of offices.
2. Increased efficiency of front office systems and processes, reduced queuing time, customer flow separation, simplification of transactions, optimized performance of branch staff, technology development to ensure customer comfort.
3. Decrease in a number of communications to resolve one matter. Possibility to resolve all the customer's matters over one office visit or one communication. Consolidation of functions into "one-shop stop", providing the customer with pre-defined proposals adapted to the customer's behavioral pattern.
4. Improvement of customer dialogue quality. Promotion of a confident atmosphere, providing customers with timely and in-deep advice in financial matters and transactions. Advanced training of customer managers both in B2B and B2C.
5. Increased usability of the digital environment in the office space. Comfortable electronic environment spaces to make short service operations at a bank office. Increase in the material rate of self-service areas.

The main functions of standard offices of lending agencies has to be the development of remote customer service channels, new customer acquisition, financial consulting and resolution of complicated financial matters. The more work is done, the faster lending agencies will switch to the new innovative service platform. The use of the third platform cloud technology by Russian companies lags behind global indices. Cloud solution costs in the total SW market profile do not exceed a few percent. So far, large Russian credit companies are not willing to give up on internal corporate solutions. The most likely is the forecast of hybrid cloud use when cloud services will be used by particular departments of a company. This model is already used today and has further development prospects. Small and medium businesses will more actively migrate to the cloud SW delivery model for the reasons of IT costs reduction and flexibility of resources consumed.

In the times of economic uncertainty, this will be the main indicator of company's solvency. As a result, the growth rate of cloud services will outpace that of traditional IT services. With all the benefits of cloud technology such as possibility to take IT infrastructure on lease, use it on request and confirm payment based on its consumption, many Russian entities are still apprehensive about switching to this technology. This is mostly due to the lack of the general outsourcing culture and security issues. One can say that public cloud-based services are mostly used by medium and small businesses. The corporate security issue is resolved by taking a step towards reliable protection of information assets as

[17] A. Kilyachov y L. Chaldaeva. "Bifurcational Model of Economic Cycles", Economic Papers and Notes num 13–4 (2013): 13–20.
[18] A. Kovalev, "The Issue of Economic Justice of Bail-In Use in Rehabilitation of "Weak" Banks", Innovation science num 3–1 (2016): 127–128.

organizations may use licensed software[19]. Large Russian organizations opt for a different development pathway and mostly build individual clouds. At the current stage of IT development in Russia, cloud technology is mainly used to support business non-critical applications and test programs[20].

Considering trends and influence of the third platform on the development of Russian financial companies, one may say that, on the one hand, IT service providers as high-tech companies are getting to include new third platform technology to enable its implementation and testing for the customer. Many system devices in Russia convert their IT infrastructure into a cloud and develop mobile technology. We should note that many providers are getting to support users not only by phone and e-mail, but also via social media. This technology is used to streamline operation, for example, for remote troubleshooting of the customer's hardware. On the other hand, IT service providers actively develop services of training and implementation of solutions powered by the third platform technology. Cloud hosting services enjoy high demand of customers. New types of services are created; they are called "cloud broker". Cloud broker is an intermediary between cloud providers and cloud consumers; it integrates cloud services from various manufacturers, controls usage and security of a set of cloud solutions. This service is getting increasingly popular among IT providers and they are engaged in the active development of specialist training centers in this sphere[21].

The new digital era requires the implementation of new banking development trends, without which development of a bank as a digital client-focused company will not be possible. The author offers 10 features of a digital client-focused company:

1) individual approach: today, with API technology, one may connect any services to the bank payment infrastructure or integrate new capabilities into one's own platform. This strengthens relations with current customers and attracts new ones;

2) 24/7 operation: all banks increasingly offer their customers anytime access to the services of financial companies. Such programs as WeChat, Facebook Messenger, Google Hangouts, Whatsapp, etc. are actively developing and gaining popularity;

3) focus on small and medium businesses: small businesses that worked with banks exposed them to a high risk; today, thanks to consolidation with FinTech startups, banks get access to new businessmen scoring, which may bring this huge pool of prospects back to life;

4) voice transactions: this new playing form of interaction in online banking applications allows to inform the customer on contingencies and other account activities as voice messages;

5) wearable payment devices: choose any item you like as a means of payment. You will be able to choose any item, for example, a bracelet, pendant or branded pen that will pay for your purchases with one touch;

6) brand new consulting: today, banks remind you of your friends' birthdays; soon, they will be able to recommend a gift after the review of your friend's preferences based on

[19] P. Melaschenko y N. Reynolds, "Template for Recapitalising Too-Big-to-Fail Banks", BIS Quarterly Rev num 6 (2013): 25–39.

[20] Practical Applications of Blockchain in Settlements and Securities Finance. Finadium. December. 2016. Retrieved from http://finadium.com/finadium-reportdesc/practical-applications-of-blockchain-insettlements-and-securities-finance

[21] Nakamoto Satoshi, Bitcoin: A Peer-to-Peer Electronic Cash System. 2008. Retrieved from https://bitcoin.org/bitcoin.pdf

his/her account and your budget. In addition, the analytical platform will show the place to buy the gift at the best price. Using the information about our expenses, banks will really be able to give good advice. We will no longer have to spend time choosing gifts for our friends;

7) banking of things: this new financial direction is similar to the Internet of things. E-wallets connected to a customer account will be built in cars, fridges, lamps, etc. Cars will pay for parking or gasoline without human interference, smart lamps will pay for electricity consumed and fridges will pay for ordered food and all will be connected to the customer account;

8) robotization of financial services: investment robo-advisors are one of many directions. UBS already offers its wealthy customers services of their wealth real-time evaluation using Watson supercomputer by IBM;

9) active social interaction: representatives of the banking industry have to be aware of their customers' needs, which has brought forth the trend of outsourcing banking ideas to customers that are able to design and describe the banking products they need on their own. Italian bank Widiba is one of the examples of this approach;

10) data monetization: these days, banks are perfectly aware that they have a host of data about their customers: their habits, expense items, interests, etc. Until recently, this information was not used, but the situation is changing[22]. Analysis of the entire customer information may be used to develop more personalized products and partnerships with third-party players that may acquire customers narrowly targeted at their products or services. In line with global trends, IT equipment will play the leading role in the Russian market pattern.

The need to store personal data of Russian citizens will also bring about a need to set up information data centers and thus secure the demand for various types of server and network equipment and data storage systems. A standard computer will have to be replaced with an improved laptop or MacBook and the development of various mobile devices will foster the manufacture of low-budget models by Asian manufacturers. As for SW, solutions for security and control of heterogeneous infrastructure, including workstations, mobile devices, virtual and cloud environments will be in demand. Various types of information handling solutions, including information databases, analytical applications, reporting systems will still enjoy high demand. Demand for enterprise resource management and account handling solutions will be secured by custom industry solutions and cloud model of delivery provided to the market. Increasing complexity of information systems and lack of employees with the competences required for their efficient integration and support in most companies will secure the increasing demand in the IT service market. IT outsourcing, integrated infrastructure safety and security will also actively develop[23].

Statistics of leading countries in terms of IT expenses puts Russia on the 13$^{th}$ place in the world, much in advance of such developed countries as the Netherlands, Sweden and Switzerland. Leading countries in terms of IT expenses – US, China, Japan, UK and Germany – account for 60% of the total world market. China has ranked world's second in terms of IT expenses and has become the fastest growing market with more than 8% accrued each year. Unsteady rate of growth over a year is observed in developing countries such as Brazil, India and Asia-Pacific states. In these countries, the rate of growth of IT expenses significantly outpaces the annual GDP growth rate, which is indicative of the use

[22] J. Sommer, "Why Bail-In? And How!", FRBNY Economic Policy Review Vol: 20 num 2 (2014): 207–228.

[23] A. S. Terenina y L. L. Tonysheva, Innovation technologies in banking. Retrieved from http://www.rae.ru/forum2012/21/654

of information technology to enhance competitive power of these countries in the rating of world countries.

With its 13th place, Russia has complicated relations with Western countries that produce large influence on the development of IT processes. The ways to decrease Russia's dependence on Western IT systems, expand development of own open-source solutions, consolidate IT infrastructure, especially in public and military sectors, have to be found. Despite the current situation, the main international high-tech companies deploy large-scale projects in Russia. Active joint efforts are currently made with new providers such as Kaseya, OpenText and RedHat. Information cloud storage, deduplication solutions, virtualization of SW and data storage systems fostered the demand of companies in 2016. In the coming years, innovative technology will allow companies to make their information storage systems more efficient, responsive and compact in size. Development of virtualization, implementation of cloud technology and increased diversity of projects are expected to encourage companies to invest funds into data storage SW[24].

## Materials and Methods

These matters were addressed by the following Russian scientists: S.N. Silvestrov, M.A. Eskindarov, N.M. Abdikeev, P.S. Seleznev, N.L. Udaltsova, A.V. Pavlov, N.N. Dumnaya, A.V. Muravieva who studied the problems of innovative technology development in the Russia of today, methods of innovative activity management, assessment of innovative activity metrics of both businesses and communities, intellectual channel management and innovative economy.

## Conclusions

Presently, there are two main lines of research and development for software providers both in Russia and abroad. The first line is SW as a service. With the lapse of time, all the applications that enjoy customer demand will require no license and will be publicly accessed in the Internet. The second line is authorizing application access via mobile devices. Software versions are launched from mobile operational systems, such as ISO or Android. Russian users have long been attracted by an open-source system as it allows to avoid potential dependence on foreign providers. The main issue associated with this direction is the lack of skilful highly qualified specialists required for the design, integration, support and operation of an open-source operational mobile system. This line has to arouse public interest in the nearest future as the use of open-source SW in the areas of strategic importance will cause a major restart that will bring public institutions to the new level of management.

When considering the interest of the state and large companies that govern most of the SW market in Russia, SW providers do not ignore small and medium businesses. Presently, large companies are completing automation of their business processes, while small entities are only starting to show their active interest, which will secure enough work to providers related to the release and implementation of new types of cloud solutions and sets of business processes. The SW consumption model will drastically change after the shift to the common automated system for the entire market of Russian financial companies. Instead of license purchase, a new lease service will appear – application subscription. This service will comprise various options that will be added to the customer's application on

[24] N. Tanyushcheva, "Money and credit" num 9 (2009): 29–33.

his/her request. The most beneficial aspect is that payment will be based on the time of actual use of traffic spent[25].

The program of using cloud technology in Russia lags behind global indices. Cloud program costs in the total SW market profile do not exceed a few percent.

In Russia, financial companies lead the IT service and product market; their share exceeds 20%. In 2016, banks and other financial companies of Russia invested more than USD 1.7 bln in IT services. The total investment over the last 3 years is USD 4.4 bln. By actively developing their activities, banks, financial and insurance companies raise the country's overall development rating. Introduction of modular access in the key banking service systems using the cloud environment will become the main criterion to analyze customer's needs in real time in order to provide the customer with a channel of proposals and services.

The government has accepted the program of IT industry development until 2025, which fosters the development of partnership relations between IT service providers and public institutions, namely: large-scale projects related to the delivery of hardware, system and network consolidation, consulting and cloud networks. These partnership relations of IT providers with financial companies, public institutions and banks will foster country's advance in the innovative technology market and promote digital economy.

This article will be of interest to specialists in economy and management, businesses and communities, public and municipal authorities, managers of innovative projects of non-financial banking services, teachers, postgraduates and students of higher educational institutions.

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