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Digital Technologies in Lending Small and Medium-Size **Enterprises in Russia**

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Abstract:

Purpose: The article is devoted to the assessment of changes in the forms and methods of lending Russian Small and Medium-sized Enterprises (SMEs). The purpose is to outline the role of digital technologies in the system of lending SMEs in Russia.

Design/Methodology/Approach: To achieve this goal it is necessary: first, to outline the main changes in the banking industry considering digital technologies, second, to list the main banking products, how digital technologies influence the most (banks as ecosystems) and third, to describe how digital technologies are beneficial in lending SMEs.

Findings: The authors defined the crucial role of digital technologies, underlined the leading role of the Russian financial sector in the world according to experts and offered the scheme of a digital banking product development. Also, the authors compared digital development in the EU and in Russia and made the conclusion towards some new opportunities to SMEs.

Practical Implications: The research results may be implicated in a system of lending by means of digital products offered to SMEs and future key points of development in the digital sphere for the commercial banks, e-trade and fintech companies.

Originality/Value: The main contribution of this article is in comparison between digital development in the EU and Russia, some leading role of the Russian banks in the world, description of a digital banking product development and considering the experience of the ecosystem of Sberbank for SMEs in Russia.

Keywords: Banking products, digitalization, digital economy, Small and Medium-size Enterprises (SMEs), mega-regulator, lending, cryptocurrency, blockchain, bitcoin.

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1. Introduction

Banking industry is changing under the influence of modern digital technologies, which are becoming a strategic direction for the credit institutions' development. In future, the business digitization development will determine the competitiveness level of not only commercial banks, but also their clients. Innovatively oriented commercial banks strive applying all modern technologies in their systems, among them business digitization, artificial intelligence, big data analysis and blockchain technology. The use of digital technologies is aimed at solving three important tasks: reducing costs, changing the approach to the work with clients in order to attract and retain them, and increasing efficiency of work with contractors. Digitization ensures stability of modern commercial banks' business. It is important to keep up with a new trend associated with digital innovative technologies application. Transition to the digital philosophy of business is not only an issue of credit institutions survival, but also a model of their new vision and strategic development. If the Russian banks do not conduct promptly a business digital transformation, they will no longer be able to provide acceptable profitability, and will not meet the market and customers' demands.

Under the influence of digital technologies, credit institutions are enlarging, while financial and technological companies (Fintech) are entering the market, seeking to occupy new niches in the banking industry, creating a new financial infrastructure based on information and network technologies. It is possible to describe the current pace of digital development and cooperation between financial and technological companies as a Techfin, not really Fintech. At the same time, it is obvious that digital financial infrastructure will determine priorities in the banking services' market development.

2. Materials and Methods

According to "Bank 3.0" (King, 2012) the gap between consumers and suppliers of financial services increases quickly. It gives a set of favorable opportunities for competition for the market from the new, non-bank participants who can destroy this sector (King, 2014). In Europe several advanced financial and technological companies ("Fintech") already obtained banking licenses, for instance Solaris Bank, N26, Monzo Transfer Wise. At the same time the U.S. Treasury published requirements to special purpose national banks, having allowed them everything, except deposits. Especially successfully fintech take up "a transactional glade".

Russian banking (like the Chinese ones) develops on the BaaS model which stands for "banking as a service". A client is in the center and some connected services of traditional banks, new banks, mobile network operators, IT companies, vendors of banking ABS, vendors of cash registers, certification centers and so forth all around a client. At the same time the IT companies do understand observance of

requirements of the regulator will inevitably slow down their development. Thus, it is logical that it is better to create partnership with banks instead of going alone.

Fintech startups, entering the banking market, operate based on an online business development model, which competes actively with classical model of the banking business development (for example, the British company Revolut). Innovatively active banks are forced to compete not only among themselves, but also with Fintech companies, which, according to their tools, methods and capabilities, do not differ much from classical banks. Large Fintech startups are comparable to traditional credit institutions in terms of service coverage, quality of services, and financial products. Fintech companies have more flexible technologies for development and positioning in the market, scale the implementation of a customer-oriented business model and provision of services, open offices operating 24 hours for the customer's service convenience. On the one hand, digital technologies simplify the banks' business, automate promptly business processes, seeking to respond quickly to new challenges of the customers' business development. On the other hand, in the process of the banking business innovation, there are risks of fraud associated with the credit institutions' information transformation when obtaining borrowed funds and unauthorized removal of funds from the clients' bank accounts.

In the report of the consulting company KPMG the concept of the "invisible bank" (KPMG, 2016) representing the virtual massive system of interactive relationship of clients with banks is actively analyzed. Digital channels of communication and the EVA virtual assistants (Enlightened Virtual Assistant) which are successfully functioning based on advanced system of analysis of data and personification of banking products, biometric identification, cloudy technologies and artificial intelligence, acts as an intermediary of this system. Experts of "KPMG" recommend to the largest Russian commercial banks to pay special attention to active introduction and development of innovative technologies. Currently, the most technologically advanced Russian banks have already switched to a digital development model. A typical example of digital Russian companies is a group of monolayer banks, such as, e.g., Tinkoff Bank, Rocketbank, and Touch Bank. The basis of these credit operators' business model is the remote customer service, when all information services, financial products and services are available to the client in a mobile application. Traditional banks, such as Sberbank, Alfa-Bank, and Raiffeisenbank, show a high level of digitization (Thalassinos & Thalassinos, 2018).

Not all market participants have certain technological conditions required for the business digitization development. Digital business solutions in the banking sector should be aimed at providing technologies, methods and tools for data storage and processing, which will correspond to the regulators' current requirements. Retraining of specialists and customers is required for the development of banking services digitization. The process of transition to digital business technology is quite long and requires high resource costs. For example, the banking system of the European Union started transition to a new model of credit institutions development.

European banks have been implementing a payment services directive (PSD) for more than ten years, the first version of which was adopted at the end of 2007 (PSD2, 2018). Difficulties in digitizing credit organizations are fixed through the lens of information technology solutions, primarily in terms of information security.

In the financial sector, security requirements are higher than in other sectors of the economy; therefore technologies, methods and tools providing a proactive approach to cyber security and credit institution protection have been updated in the banking business, e.g., EDR-system helping preventing new types of attacks, not used before, with the help of big data analysis (Polyakova *et al.*, 2019).

While some authors (Davenport and Westerman, 2018) claims that digitalization can not be a panacea for all businesses and covers some negative and infective aftermaths of digital transformation of global companies like "Procter & Gamble" "The Lego Company", "The Ford Company", "Burberry" and others, digital transformation is still a challenge to accept in the business world. According to Wyman (2017), digitalization is especially important in the financial sector because transition to a digital segment helps to reduce costs of a baking product, to offer lower percent on a loan and more customized banking and service products to clients like SMEs. The research is conducted on the basis of a system approach to digital economy and digital transformation, digital economy itself, finance and credit postulates, theories of management and marketing, graphical visualization methods in banking products for SMEs. The pragmatic approach as a part of the philosophy of the research was used while dealing and analyzing the data in the research.

3. Results

3.1 Russian banks in the context of digital banking

According to the resent Deloitte's research "EMEA Digital Banking Maturity 2018" (Deloitte, 2018) the most developed digital banks are in Russia; thus, Russia is placed by Deloitte in the 1st group of countries with the most promising development of digital banking ("digital champions"). Also, Russia is the leader in contactless payments in the world. Due to the conservative business model since 2000, the Russian banking institutions let financial and technological companies, digital banks, and electronic trading companies to have the best positions in the market, determined by the quality of its customer service. But the gap between banks and their competitors (so-called "frienemies" which stands for friends and enemies at the same time) is reducing by constant process of a system digitization of services and operational processes.

Application of digital technologies from Fintech companies increase efficiency of the banking business (first, it will allow reducing costs) and maximize not only the share of customer self-service, but also make automation of interaction with a borrower, fast, safe and convenient.

The product line of digital service for SMEs in Russia includes all services which are necessary for businessmen: cash management and payment services, ruble and dollar accounts maintenance, online accounts department, design of websites and necessary documents, payroll card program, trade and Internet acquiring, termination payment security for participants of government procurement and also the Customer Relationship Management System (CRM) for sales management.

3.2 Some aspects and experience of digital banking in the world

An important area of the banking industry digitization is the creation of a digital center's business format as a core multifunctional division, uniting information technologists, analysts from product teams and customer service groups. The global task of a new business format is the informatization of customer service processes, aimed at creating a user's positive experience with the bank, accelerating making credit decisions, and ensuring customer access to new banking products.

Creation of digital centers of management in a bank will allow ensuring formation of a promising operational model for the banking business development and key business processes improvement. Formatting an information and network operating model based on a digital interface modeling will reduce the costs of interaction between a credit institution and contractors. The informational management model, which has been tested in a bank, is the basis of a new management system. Thus, banking business digitization is based on modeling of a new architecture with an innovative managerial center inside the banking institution.

Digital centers of management were an innovative platform for the development of the largest operators of the global financial and credit market, such as the British Lloyds and HSBC banks, the Canadian Scotiabank, the Swiss UBS, and the Italian Intesa San Paolo bank. According to the analytical assessment, the Lloyds bank has managed to reduce the total costs on reorganized processes by up to 35%, the number of physical transactions with customers by about 30%, and time on customer service by 50%; new online services only in the client segment provided a 40% increase in the opening of digital accounts (Goloschapov, 2018).

According to successful experience of financial business digitization, the Scotiabank has largely reduced costs on mortgage products promotion. Digital modernization of business processes has supported the sustainable competitiveness of the bank in the market of financial and credit services, having provided an annual effect of about 30 million euros. The Scotiabank, applying digital technologies, has achieved a high speed of service operations. For example, currently in the Scotiabank the service of a customer's credit application for card products takes about 2 minutes.

The ING Dutch financial group, after business digital transformation, has switched from the classical business model to the competency-based management model. Its previous model was based on the classical principle. The management system

included more than three dozen multifunctional organizational structures aimed at managing informational capital, customer capital, and promotion of banking products and services. Business informatization reduced the number of special control centers accompanying the development of financial and client capital.

Digital technologies ensured creation of an operating agile model of management and new directions of business development based on the business processes reformat. New business processes controlled the development of new sales channels and financial products aimed at meeting the customers' interests. The competency-based management model was based on the interrelated work of operational teams focused on specific customer segments or areas of lending: corporate lending, target lending, mortgage lending, and small business service.

In such conceptual approach to the operating business restructuring, the main condition is the responsibility of specialized teams for the result. The specialists were selected for these management groups in a certain way, primarily based on combination of financial and digital competencies. The ING financial group management carried out the business digitization in several stages, including the merger of the ING bank and Postbank and their product line. Because of innovative changes in business processes, the client base of the updated financial operator has expanded, having reached 9 million loyal consumers of financial services.

Because of expanding the informational component of business management, the systems and processes are simplified, transparency of financial operations is growing; on the one hand, complex-structured and, on the other hand, adapted (unified) products for remote customer service appear. The competency-based agile-model reflects new level of corporate management and the corresponding level of new corporate culture.

3.3 The policy of the regulator in the Russian banking sector

In the emerging conditions, the main task of the regulator is to create such a regulatory basis that will maximize the opportunities of cryptocurrencies and at the same time the risk level that they bring. Considering the cryptocurrency's cross-border nature, it is required to create incentives for attracting capital to the national economy, protecting the residents' rights, providing preferences for turnover and emission primarily for legal business, rather than a shadow one. Thus, while developing national payment tools based on new technologies, it is necessary to ensure their national independence and focus on solving the problems of maintaining conditions providing the growth of the country's economic potential.

For instance, blockchain is already being implemented in Russian practice. The creation by the Russian mega-regulator together with the Deposit Insurance Agency (DIA) of a unified register of depositors, based on the blockchain technology, was announced. The innovation will allow dealing with unscrupulous bankers, who at the

time of the license revocation destroy the database of depositors. The transparency of the bank deposits market will increase. All information about depositors will be well protected, since the data from the blockchain cannot be deleted or modified. This will help avoiding situations when the database of depositors is "lost" when a bank license is revoked.

A marketplace platform is also being launched, with help of which the citizens will be able to not only open a deposit or take a loan from a commercial bank remotely, but also purchase an insurance contract. Before using the marketplace platform, potential customers will need to visit the bank in order to register biometric parameters (they fall into the Unified Banking System (UBS), which was tested in 2018 (Aleskeevskikh, 2018) At the same time, it is impossible, while developing new financial tools using the blockchain technology, to create a risk management system for the potential substitution of the ruble by the bitcoin and other cryptocurrencies.

4. Discussion

In this regard, in the Russian market there are two ways to limit the cryptocurrency spread at the national level. The first is the regulator's prohibitions or the establishment of a tax on operations with cryptocurrencies, which in practice leads to their unprofitable (inefficient) use in the payment industry. Such measures may appear in the expected federal law "On digital financial assets" (FL, 2018). The second approach is related to the use of innovations in the financial system the use of the blockchain technologies for the creation of the Central Bank's own digital money, which can compete with private cryptocurrencies. Among relevant tasks of financial policy of the Central Bank of the Russian Federation is increasing availability of credit resources to SMEs. High rates and increased level of risk of SMEs had a negative affect on the dynamics of the Russian credit market up to 2017. The risk level at this category of borrowers remains high: loan delinquency rate in 2018 jumped to 14-16% that exceeds the loans' delinquency rate in retail crediting by almost two times (Gavrilov, 2018).

Aspiration of the Russian banks to credit for such clients restrains low information transparency of a segment of SMEs. An opportunity to make accountable decisions on rates, terms and terms for crediting is limited to the incomplete reporting and separation of external data on subjects of SMEs. Digital technologies which are implemented in a system of a risk management of a bank are necessary for development of a system of accountable crediting of SMEs (Solntsev, 2017). Low information transparency affects availability of financial resources. For example, PSD2, the European Union directive on payment services (EU Directive, 2014), demands from banks (with consent of a client) free of charge provision of transactions information to the third parties. It allows not only banks, but also Fintech companies analyzing financial flows, evaluating crediting parameters more

precisely, initiating operations for optimization of expenses, and receiving supplementary and other services from a client.

Similar trends in the USA promoted the emergence of the companies-aggregators collecting information from e-wallets of clients, banks, delivery services, online account departments and mobile network operators for the help in making decisions on crediting, delays, pricing. Digitization of credit processes is one of the few opportunities for increase in revenues of banks. Results of processing of such information are reported to the banks working with SMEs. According to analysts, the following cross-industry integration allows optimizing processes on collecting of constantly increasing volumes of information with considerable increase of its quality (Sorin, 2017).

Modeling of a new architecture with innovative control center in a credit institution must be carried out based on digitalization of banking business. Digital centers of management of a bank were the innovative platform for development of the largest participants of a global financial and credit market.

4.1 The digital banking products for SMEs in Russia

External data, available now on the Russian market, allow undertaking more precise estimation of companies' credit risk. It creates an opportunity for digitization of credit process by banks. Creation of a credit "marketplace" acts as an important element of digitization of crediting. A bank on the mentioned marketplace performs as a mediator in organization of financing for corporate clients with funds gained from retail clients and other investors. Creation of these platforms-marketplaces allows satisfying the need for financing of SMEs and at the same time expanding the banking product offer for other clients. In the Russian market credit marketplace is organized in the business processes of Alfa-Bank. As a result, digital tools promote expansion of new technologies of development of platforms.

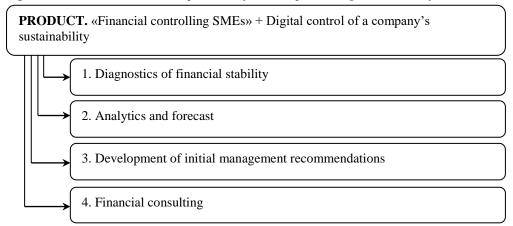
According to the "Software + Service" scheme, a comprehensive "package" solution is suggested as a banking product. The product is an integrated analytical system, whose work is focused on improving financial stability of partner companies, as well as a set of complementary consulting services aimed at help and support in making managerial decisions on the effective financial policy development. The main stages of the product offer are the following. The constituent components of the product are showed in figure 1.

1. Diagnostics of financial stability: Aggregating current data from the accounting system (e.g., "1C: Accounting"), financial and management reports, the integrated system calculates and processes actual indicators of the companies' financial stability (liquidity indicators, net working capital, asset turnover, leverage, profitability indicators, etc.), compares them with target values, calculated

considering the contractors' operation specificity, as well as criteria established by banks as recommended, and legal documents.

2. Analytics and forecast: This point includes a comprehensive analysis of the company's current financial stability, considering the retrospective data, with subsequent detailed interpretation of the obtained results; development of the forecasted points for changes in financial stability.

Figure 1. The Constituent Components of the Proposed Digital Product for SMEs



- 3. Development of initial management recommendations: Based on the conducted analysis, the system provides primary support for decision-making in the context of increasing financial stability depending on the target: e.g., to attract loans on favorable terms, form a credit policy, reduce "hidden" costs, search for sources to rationalize expenses, risk management, increase efficiency of operation, etc.
- 4. Financial consulting: A set of complementary services aimed at improving the client companies' financial stability and focused on generation of reasonable managerial decisions in the field of financial policy targeted at: ensuring the company's liquidity, increasing the efficiency of assets use and managing capital sources, increasing profitability of the operation, etc. The main directions of its monetization, the most viable of which are shown in Figure 2, also determine the potential of the product:
 - ✓ The analytical system can be provided as an aggregate licensed product or sold under a subscription scheme with payment of a periodic subscription fee.
 - ✓ The system integration procedures, depending on the client's business size, can be extremely complex and long-term. This determines the commercial nature of the service. The cost of integration may be included in the license price for small amounts of work.

- ✓ It may be reasonable for small businesses, to provide the system through a cloud service. In this case, the client will be able to save on the infrastructure cost but will pay the rent for the integrator company's servers.
- ✓ A specially designed mobile application can be tied to the system (in future), providing the client with the opportunity to conduct online monitoring of the company's financial stability outside the workplace, which will be convenient in case of a branch network. In fact, this is an extension of the capability of the private banking solutions.
- ✓ Financial consulting services can be sold as complementary to the analytical system.
- ✓ Information on the financial status of the borrowing company may be of interest to the banks when granting loans, because the system analysis will reduce the risk of non-payment. This information can be sold, or the system can "bring" the borrower to the target bank (sale of leads). In response, the borrower may be stimulated by a reduced credit rate from the bank's side. A three-sided interaction is formed: "borrower − company-integrator − bank", which will be beneficial for each of the parties.
- ✓ A simplified version with respect to the previous paragraph is also possible: aggregating information about the company (similar to social networks for individuals) the system can show contextual suggestions from financial organizations (banks, insurance companies), corresponding to the financial goals of the client company, its resources, and financial status.

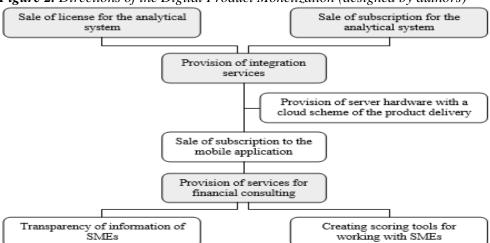


Figure 2. Directions of the Digital Product Monetization (designed by authors)

Note: The logic of the scheme interpretation is inverted: from top to bottom, the white blocks are compulsory, the grey ones are optional. The variants are alternative to each other in places where the scheme is split.

It is interesting to consider experience of the ecosystem of Sberbank for SMEs. Sberbank of Russia launched digital services integrated with banking for SMEs in 2015 after consideration of a life cycle of the companies from a segment of SMEs.

Sberbank found services which, generally, suit most the companies: registration, conducting activity, interaction with a bank and with a state, dealing with partners, deposit opening, winding up of a business (Cossa, 2019). For example, Sberbank promoted additional services integrated with necessary banking services for a SME by means of digital marketing like banners in an ecosystem of a bank. There is cooperation between banking products for SMEs in the context of the activities in the lending system. For instance, a businessman creates payment in rubles, fills a digital document, and chooses a contractor to be paid. The system addresses this service of a contractor's checking which is inbuilt directly in the payment order. For the user it looks like a traffic light which shows several statuses: green, everything is ok with the contractor; yellow, indicates some risks; red, there are serious risks.

5. Conclusion

- 1. Nowadays the Russian banks concede in the digital competition to finance technological companies, digital banks and companies of e-trade. Carrying out system digitalization of services and operational processes would increase efficiency of banking business (first, because of the lower expenses) and boost not only a share of a client self-service, but also automation of a process of interaction with a borrower.
- 2. Creation of a business format of the digital center is possible to consider the important direction of digitalization of banking business. Such business format operates as a cross-functional business-unit uniting information technologist, analysts from product teams and groups of client service. The global problem of a new business format is informatization of customer service directed at the creation of users' positive experience while interacting with a bank, acceleration of credit decisions approval and ensuring access of clients to new banking products.
- 3. The process of formatting of information and network operational model on the basis digital interface modeling would reduce interaction expenses of a credit institution with its partners. Creation of the digital centers will allow providing forming of perspective operational model of banking business development and development of key business processes. The information model of management would undergo approbation in bank and become a basis of a new management system.
- 4. Expansion of volumes of available information and creation of infrastructure for simplification of the centralized access to it with the consent of the companies can increase availability of financial resources to SMEs. In order to allow dealing with external data several structural system solutions of technological and regulatory character should be undertaken. As experience of the developed markets testifies, such initiatives should be supported by the Central Bank and a state: for instance, necessity of expansion of the list of information available in official databases as well as creation of infrastructure. It would benefit effective data exchange between participants of the market and further development of the platforms (which are aggregators) centralizing access to such data.

5. The leaders of the market in their volume of provided credit resources and services issued to SME in 2018 are Sberbank, Tinkoff Bank (the bank without any physical banking offices), VTB and Raiffeisenbank. The processes of digitalization of crediting developed by the Russian banks on the Tinkoff Business model create the ecosystem for businessmen giving full support to SMEs. In 2018 Tinkoff Bank started crediting SMEs, having offered businessmen the reverse credit, overdraft and credits for any purposes. It is possible to issue the credit without documents, pledges and guarantors.

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