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ЦИФРОВОЙ БАНКИНГ В РОССИИ: ОСНОВНЫЕ НАПРАВЛЕНИЯ ФИНТЕХ

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Аннотация

Российские банки, участвующие в усиливающейся глобальной технологической конкуренции на финансовых рынках, идут по пути построения системы FinTech. Скорей всего, реализация такого пути идет медленнее, чем в более развитых банковских системах, и это в свою очередь ставит банковское дело перед двумя проблемами. С одной стороны, громоздкий консерватизм грозит реализации инновационных идей и решений. А с другой стороны – чрезмерные возможности могут привести к несоблюдению системы управления банковскими рисками в связи с отсутствием в ряде случаев корпоративной социальной ответственности. Целью данной статьи является исследование эволюции развития концепции «цифрового банкинга» в книгах и статьях, опубликованных в мире на английском языке, а также анализ проблем и тенденции развития цифрового банкинга в России.

Отношение к цифровому банкингу в России отражает общую концепцию технологических изменений во всем мире. С одной стороны, снижение затрат и сокращение срока внедрения технологий, побуждают участников рыночных отношений более внимательно относиться к FinTech. Между тем вероятное отсутствие должного уровня кибербезопасности, отсутствие обычных рабочих мест требуют трех составляющих: высокой ответственности бизнеса; грамотных клиентов; крайне гибкого и межпрофильного регулирования.

Ключевые слова

Цифровой бандинг, FinTech, интернет-бандинг, мобильный бандинг, виртуальный бандинг, онлайн-бандинг.

DIGITAL BANKING IN RUSSIA: THE MAINSTREAM OF FINTECH

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Abstract

Russian banks participating in the recent global technological competition on financial markets do follow the way of FinTech adaptation. Probably, such path is slower than those in developed systems, and thus puts Russian banking to struggle the double-edged sword. On the one hand, bulky conservatism threatens to skip breakthrough ideas and solutions. But, on the other, excess intents could lead the dismiss in bank risk management, so as an acute lack of social responsibility. The aim of this paper is to study the evolution of the concept «digital banking» in books and papers published in English worldwide, so as challenges and future trends of digital banking in Russia.

The attitudes to digital banking in Russia express a common vision regarding technological changes through over the world. On the one hand, costs reduction and shorter length of service providing withal to the strong completion encourage markets to be more attentive to FinTech solutions. Meanwhile, the possible lack of cybersecurity's quality so as warns of conventional jobs elimination require the threefold context: strong responsibility of business; well-education customers; extreme flexible and interdisciplinary regulation.

Keywords

Digital banking, FinTech, internet banking, mobile banking, virtual banking, online banking.

Introduction

Russian banks, so as conventional financial institutions worldwide, faces the growth of technological expansion. In the last few years, the digital transformation is the most important catalyst behind the FintTechphenomenon. The reasons are several, such as the impact of the 2008 financial and economic crisis, the increasing regulation of incumbent players, and the social and behavioral changes in the customers [1]. Therefore, so-called financial technology or FinTech creates opportunities for service development and also spreads through the banking industry. As such the increased availability of electronically mediated self-service technologies in the banking industry has changed the way banks service their customers. Banking customers today can

access, through a variety of different channels, sets of powerful tools which allow them to conduct analyses, make decisions and enact financial transactions via working from their home, office or elsewhere [2].

The implementation of FinTech in banking relies on the relative boosting in cybersecurity solutions. Otherwise, digital banking delivers not the effective transformation in services but uncovers weaknesses of banks [3; 4; 5]. Russian banks participating in the recent global technological competition on financial markets do follow the way of FinTech adaptation. Probably, such path is slower than those in developed systems, and thus puts Russian banking to struggle the double-edged sword. On the one hand, bulky conservatism threatens to skip breakthrough ideas and solutions. But, on the other, excess intents could lead the dismiss in bank risk management, so as an acute lack of social responsibility [6; 7].

In what follows, FinTech reshapes traditional models of banking and encourage the creation of a new eco-system on Russian financial market, based on the banking industry case. The latter provides transformation of Russian banks by the development of digital banking.

The aim of this paper is to study the evolution of the concept «digital banking» in books and papers published in English worldwide, so as challenges and future trends of digital banking in Russia. The paper consists as follows. Section 1 explains the variety of terms and its historical development along the area of digital banking worldwide. Section 2 presents the term «digital banking» and its further evolution. Section 3 depicts a current vision of Russian digital banking, analyzes promising future trends, so as uncovered the most urgent challenges for digital banking in Russia. Section 4 concludes.

1. Understanding Digital Banking: The Concept and Definition

Commonly, banks that do implement FinTech called digital. Hereby the first question is how to define digital banking?

The literature does not offer a concise definition of this new concept. Whatever the case may be, this concerns issues such as generating the supply, distribution and sales of financial products and services via digital channels, exploiting cutting-edge technology to know customers better and anticipate their needs swiftly and suitably, and an omni-channel solution, or the possibility of customers communicating with their bank via all channels, both analogue and digital, as well as the automation of services [9].

This relatively new topic creates an expected early-stage contribution to the commonly used terminology, so as the fresh stream of research studies [10; 11; 12, 13].

Needless to say that one can still meet the different terms for the same concept of digital banking construction, such as mobile or cell banking and online or internet vs e-banking. For instance, Oxford Dictionary presents the identical definition as for e-banking, so as internet banking and online banking, that is: «A method of banking in which transactions are conducted electronically via the Internet». Despite this Oxford Dictionary has no comments regarding digital banking or virtual banking which we suggest to identify.

With respect to the aim of this paper, we construct the term *digital banking as a banking business based on using software and FinTech solutions to provide financial services and includes two components: both mobile banking and online banking*. Moreover, we assume that «mobile banking» is same to «cell banking», whereas «online banking», «e-banking», «virtual banking» and «internet banking» are absolute synonyms (in terms of 2017).

As presented on figure 1, the term «digital banking» emerged in 1990 and reached the peak of references in 2007, according to Google Inc. Database. We do agree that any shift in technology implemented causes the terminological transformation. So far the creation of digital banking, achieved in 1990, could be evaluated as consequences of mass replacing analog by digital technologies, particularly, internet technology and the implementation of world wide web. Interestingly, that the number of books in the digital banking area, published in English worldwide, fell more than two times in 2008 by the time of 2007–2008's world financial crisis started. Probably, the set of upward and downward trends of citation numbers of the term «digital banking» arose later, but recent frames of Google Inc. Database. are limited by 2008.

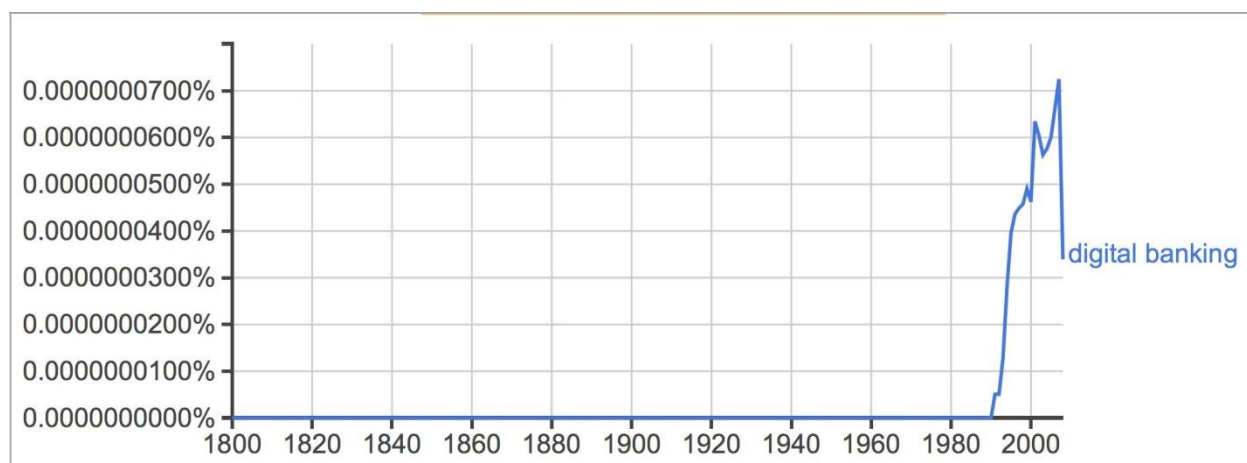


Fig.1. Use of the term 'digital banking' in books published in English worldwide, 1880-2008 (based on Google Inc. data) [14]

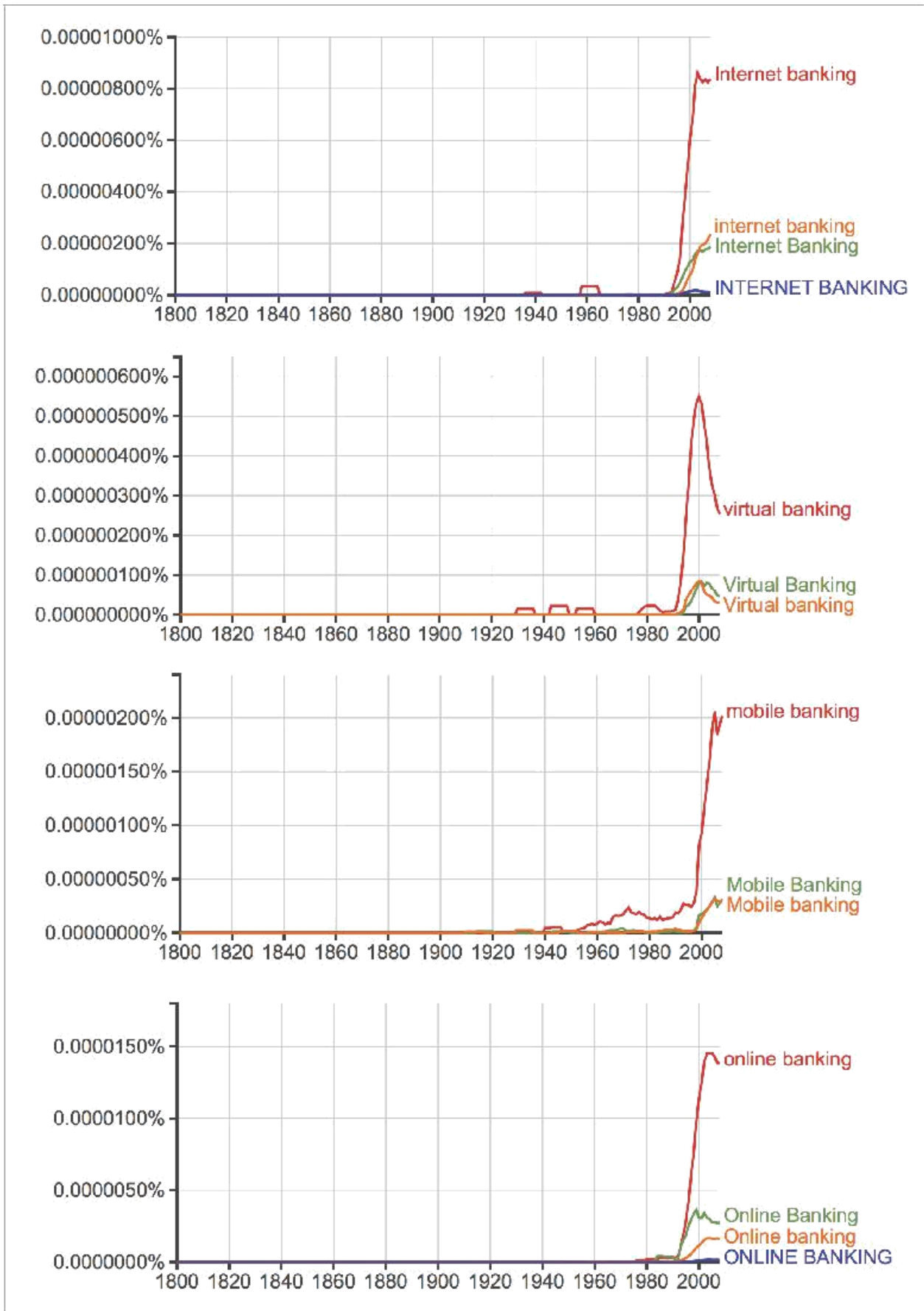


Fig.2. Use of the terms 'online banking', 'virtual banking', mobile banking' and ' online banking' in books published in English worldwide, 1880-2008 (based on Google Inc. data) [15]

Moreover, we uncover a strong mismatch in letter-writing for the same concept of digital banking construction, such as «online banking», «mobile banking» and «internet banking», throughout publications in English at Google Inc. Database. Such as terms «internet banking» and «online banking» have depicted four different letter-writing whereas «mobile banking» and «virtual banking» only three ways of the term letter-writing (see fig.2). The fact is that the only aggregate «digital banking» has unique letter-writing as it presented in our study.

Furthermore, by compounding possible letter-writings, we depict the aggregate data for «online banking», «mobile banking», «internet banking» and «virtual banking». The terms «mobile banking», «internet banking» and «virtual banking» anticipated the term «digital banking» and were introduced in the late 1930's.

2. The term «Digital Banking» and its Further Evolution

As far as digital banking spread through times, the impact of each component should vary due to stages of technological development and financial innovations. Thus, we study the phenomenon of the term «digital banking» evolution estimated as number of citations in books and papers published in English worldwide.

2a. Model and Sample

Sample data collected out of open Google Inc. Database with the sampling period from 1991 till 2008. We name an i -type of letter-writing for j -component of the term «digital banking» used in books and papers published worldwide in English as lw_i^j and

$$lw_i^j = \begin{cases} 1, & \text{if } i - \text{type of letter - writing for } j - \text{component is used} \\ 0, & \text{if } i - \text{type of letter - writing for } j - \text{component is not used} \end{cases} \quad (2a,1)$$

If number of citations of i -type of letter-writing for j -component is named as v_i^j , we name the aggregate number of citations for j -component as C^j , where

$$C^j = \sum_{i=1}^n ls_i^j \cdot \ln v_i^j \quad (2a, 2)$$

Thus, the aggregate number of citations for the term «digital banking» is named as C , so

$$C_t = \tau + \xi \cdot \sum_{j=1}^n \prod_{k=1}^n \varphi \cdot C_T^j + \epsilon \quad (2a, 3)$$

With respect to the definition of digital banking presented in Section 1 and sample data of components quoted in books and papers published worldwide in English, equation (2a, 3) includes four j-indexes for the term «digital banking» components, that are: «ob» for online banking; «mb» for mobile banking; «vb» for virtual banking, and «ib» for internet banking.

Consequently, the aggregate number of citations for the term «digital banking» at time t is named C_t and represent the following equation:

$$C_t = \alpha + \beta \cdot C_t^{ob} + \gamma \cdot C_t^{mb} + \mu \cdot C_t^{vb} + \rho \cdot C_t^{ib} + \epsilon \quad (2a, 4)$$

We propose four hypotheses to be proved in our study.

- Hypothesis 1:* Number of citations of «online banking» - definition (C^{ob}) provides development of references to the term «digital banking» (C).
- Hypothesis 2:* Number of citations of «mobile banking» - definition (C^{mb}) provides development of references to the term «digital banking» (C).
- Hypothesis 3:* Number of citations of «virtual banking» - definition (C^{vb}) provides development of references to the term «digital banking» (C).
- Hypothesis 4:* Number of citations of «internet banking» - definition (C^{ib}) provides development of references to the term «digital banking» (C).

Section 3b provides the results of hypotheses tests.

2b. Empirical results

To precipitate the test of our hypotheses, we indicate correlation matrix for variables of the model. As presented in Table 1, the strong correlation, more than 65%, revealed for the only depended variable C in relationship with C^{ib} and C^{ib} . Thus, we detect no strong multicollinearity of variables put in the model.

Table 1. Correlation matrix

<i>Variable</i>	<i>C</i>	<i>C^{ob}</i>	<i>C^{mb}</i>	<i>C^{vb}</i>	<i>C^{ib}</i>
<i>C</i>	1	-0,373	0,612	0,785	0,804
<i>C^{ob}</i>	-0,373	1	0,177	-0,362	-0,212
<i>C^{mb}</i>	0,612	-0,177	1	0,547	0,632
<i>C^{vb}</i>	0,785	-0,362	0,547	1	0,622
<i>C^{ib}</i>	0,804	-0,212	0,632	0,622	1

Test of the model indicate the strong approval of hypotheses 1, 2 and 3 (**p<0,01), whereas hypothesis 4 is also justified (**p<0,05) (see tabl.2).

Table 2. Empirical results

<i>Variable</i>	<i>Coefficient</i>	<i>Standard error</i>
<i>const</i>	-15,1474**	3,05725
<i>C^{ob}</i>	-0,10788***	0,13201
<i>C^{mb}</i>	0,039674***	0,11094
<i>C^{vb}</i>	0,22803***	0,097694
<i>C^{ib}</i>	0,184759**	0,068438
R ²	0,7914	
sd	0,4239	
N	18	

*p<0,10; **p<0,05; ***p<0,01.

Therefore, we suggest that the aggregate number of citations for the term «digital banking» is constructed by the cumulative effect of the aggregate number of citations for every component included withal to synonyms. These components, throughout books and papers published in English worldwide, are «internet banking», «mobile banking», «online banking» and «virtual banking».

In Section 4 we discuss specific features of digital banking, its perspective and future trends in Russia.

3. The Prospects of Digital Banking in Russia

The better way to analyse digital banking in Russia is to disclosure its specific features on the market. Basically, we assume that current features of digital banking in Russia could be distinguished into four dimensions:

- a) scale of business;
- b) age of business;
- c) degree of urbanisation;
- d) rate of customer centrisism.

From supplier side we define businesses scale and age as major characteristics of digital banking in Russia. Nowadays, Russian banking system includes about 600 banks, but more than 90% of the market share relates to Top-10 by assets value Russian banks. Having the greater scope of business and capital helps to launch new FinTech projects, while smaller banks mostly play the slaver role. Moreover, the younger the banking business, the stronger the intense to follow new trends and to acquire emerging market share.

In case of customer side, we point a rate of customer centricism inherent to business withal to a degree of urbanization measured for the area of banking business. Rapid implementation of FinTech solutions in Russian banking, so as worldwide, depends on the urbanization degree when the more urbanized area depicts the higher level of customers' digitalization. Meanwhile FinTech adoption index for Moscow and St. Petersburg is the highest one around the world, according to EY 2016 survey [16], and prevails the average adoption more than two times.

Also, the achievement of a sustainable growth and an above-average level of profitability by embarking on a customer-centric transformation [17]. Understanding customer needs is quite essential. According to a TransferWise survey, the five main factors that prompt consumers to choose technology providers over banks are as follows: a more secure service than banks (34%), a lower cost than banks (29%), a more convenient service than banks (26%), a quicker service than banks (18%), and a better customer service than banks (18%) [18]. Therefore, modern changes in customer behavior trigger Russian banks to be more customer-centric that strongly requests the application of FinTech solutions in banking services.

Needless to say that contemporary digital banking in Russia provides both public initiatives lead by Bank of Russia and private banks projects. Thus, by consolidating recent tendencies we define the following future trends of digital banking in Russia (see tabl. 3).

Table 3. Future trends of digital banking in Russia

№	Trend	Comment
1	<i>Remote identification</i>	The implementation of biometrics for remote identification of users is announced to be launched throughout the aggregate informational system in the mid of 2017. This provides to consolidate data of user identifications by cloud technologies into the unique public system and start to turn on some online government services, so as selected Russian banks. Also, there is similar private projects applied by few bank consortium. But according to the scale of the unique public system, we expect the great spread of it for the whole Russian banking system. Probably, the system is going to acquire the existed private projects in banking. Moreover, the project should be interested to have interlinkages with other fields such as non-banking financial services and retailers, not to be limited by the banks only

№	Trend	Comment
2	<i>Blockchain</i>	It's early to say than blockchain technology is totally capable in Russian banking. More precisely, one can meet lots of FinTech projects that adopting the ideas underlying blockchain. Although Bank of Russia plans to start testing its own so-called masterchain in 2017 based on the agreement of new-born FinTech Association participants. Blockchain technology serves for information interchange among participants to uncover the distribution registry advantages and to provide the confidence growth, so Bank of Russia's Masterchain could be
3	<i>P2P and P2B lending</i>	Crowdfunding and crowdfunding are commonly seen as main competitors for banks. Meanwhile, we argue that Russian banks could reinforce their efforts to engage services of risk assessment on P2P and P2B lending markets. Banks being well experienced in risk evaluation could provide new services in risk management, particularly, for crowdfunders who have got a quite diversified qualification
4	<i>Clouds for collecting scoring data</i>	Russian banks have an opportunity to consolidate their scoring data in one aggregate place using, for instance, cloud technologies. This process should help to decrease informational asymmetry about borrowers and collateral, so as to improve the bank risk management quality and to reduce scoring costs for a particular lender
5	<i>The new eco-system to join Russian banks and telecom market</i>	New trends of FinTech innovations reshape traditional models of banking and encourage the creation of a new eco-system on Russian financial market. The latter contributes to broaden the horizons of intermediation between industries. Also, such alliances help to improve competitive advantages of the participants, so as to reduce their costs. For instance, the idea could be fulfilled to join efforts of banks and telecom companies to expand their market share and to be more effective in costs and risk management either

FinTech solutions lead our life to the age of inspiring and completely different world. Meanwhile, banking business should always be responsible for every technological changes. Primarily, technologies serve for the better living neither for business cost reductions and its higher profit gains. Therefore, digital banking is more than just technological improvement in finance, but solutions that request strong social responsibility both of businesses and regulators.

The time of rapid digitalization not only reshapes financial services, but also makes banks to be inevitable depended on the technology. Hereby the first urgent challenge of digital banking in Russia arose, that is cybersecurity. The implementation of FinTech in banking relies on the relative boosting in cybersecurity solutions. Otherwise, digital banking delivers not the effective transformation in services but uncovers weaknesses of banks.

Moreover, only market trust in strong cybersecurity could provide banks the loyalty of its customers. And that is the second challenge of digital banking in Russia –

customers' behavior and trust. The next wave of digital banking conforms by so-called payment revolution. As such PSD2 directive adopted in European Union should be marked significantly. The initiative came into force on January 12, 2016 and would be implemented into national law no later than January 13, 2018 [19]. By the terms of PSD2 rules banks are obligated to provide non-banks (third-party providers) access to their customers' accounts through open APIs (application program interface). As a consequence, banks do risk to lose totally the monopoly on payment services withal to enable their competitors (third-party providers) to construct financial services in the heart of banks' data and infrastructure.

Although, the technological transformation our world faces should also conduct consistent changes in bank regulation. The greater scope of FinTech implementation the country chooses; the stronger social responsibility of prudential control the regulators provide.

4. Conclusion

The attitudes to digital banking in Russia express a common vision regarding technological changes through over the world. On the one hand, costs reduction and shorter length of service providing withal to the strong competition encourage markets to be more attentive to FinTech solutions. Meanwhile, the possible lack of cybersecurity's quality so as warns of conventional jobs elimination require the threefold context:

- a) strong responsibility of business;
- b) well-education customers;
- c) extreme flexible and interdisciplinary regulation.

Nevertheless, the world should acquire digital transformation. The formers should always consider not only financial statements and profits growth, but also the consequences how every solution changes the way markets exist so as the influence on inequality level.

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