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BANK INNOVATIVE DEVELOPMENT IN UKRAINE: MODERN TENDENCIES AND PERSPECTIVES

NOWOCZESNE TRENDY INNOWACYJNEGO ROZWOJU BANKÓW UKRAINY

СОВРЕМЕННЫЕ ТЕНДЕНЦИИ ИННОВАЦИОННОГО РАЗВИТИЯ БАНКОВ УКРАИНЫ

Abstract

The article contains a study of banking innovations and the current state of innovative development of banks. The separate attention is focused on the analysis of innovations and their implementation tendencies in Ukrainian banks. It was analyzed the performance of the company, producing and selling banking innovation. There are analyzed the activity indicators of the companies, which produce and implement bank innovations. Innovation products, which could be implemented into the activity of Ukrainian banks today, are singled out. During the research the detailed attention is concentrated upon the analysis of the most popular bank innovations as long as the tendencies of bank innovative development worldwide. Also, there is argued that the implementation of the new technologies and development of the existing ones will increase the efficiency of banks activity.

Keywords: bank, innovations, bank innovations market, innovative development, tendencies, Ukraine

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Streszczenie

Artykuł zawiera analizę innowacji bankowych i obecnego stanu rozwoju innowacyjności banków. Szczególna uwaga skupiona jest na analizie innowacji w ukraińskich bankach i trendach ich realizacji. Analizowane są wskaźniki firm, które produkują i wdrażają innowacje bankowe. Prezentowane są innowacyjne produkty, które można dziś wprowadzić do działalności ukraińskich banków. Szczególną uwagę podczas badania skupiono na analizie najpopularniejszych innowacji bankowych i trendów innowacyjnego rozwoju banków na świecie. Ponadto argumentuje się, że wdrożenie nowych technologii i rozwój już istniejących zwiększy efektywność działania banków.

Słowa kluczowe: bank, innowacje, rynek innowacji bankowych, rozwój innowacji, trendy, Ukraina

Аннотация

В статье выполнено исследование банковских инноваций и современного состояния инновационного развития банков. Особое внимание сосредоточено на анализе инноваций в украинских банках и тенденциях их внедрения. Проанализированы показатели компаний, производящих и реализующих банковские инновации. Выделены инновационные продукты, которые могли бы быть внедрены в деятельность украинских банков уже сегодня. Подробное внимание при выполнении исследования сосредоточено на анализе наиболее популярных банковских инноваций и на тенденциях инновационного развития банков в мире. Кроме того, выдвинуто утверждение, что внедрение новых технологий и развитие существующих позволит повысить эффективность деятельности банков.

Ключевые слова: банк, инновации, рынок банковских инноваций, инновационное развитие, тенденции, Украина

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Statement of the problem in general outlook and its connection with important scientific and practical tasks.

The banking system as a compound part of the financial system in the country plays the crucial role in its economic development. A question of innovations is particularly important for Ukrainian banks in the conditions of unstable economy, tense political situation, unsteady purchase power of national currency, fluctuations of society confidence to the banks in the period of their insolvency and liquidation. Today the

provision of the effective activity of the banking system participants is impossible without innovations, so far as they enable to distinguish the bank among others, support its image, satisfy the wants of both regular customers and the new ones, expand the range of services and ongoing operations, reduce costs, increase the market segment, where the bank operates etc.

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Analysis of latest research where the solution of the problem was initiated.

The works of many scientists are dedicated to the questions of banks innovative development. In particular the definition of banks innovations, their classification and necessity of realization are disclosed in the works of P. Ilchuk, O. Kots, L. Bondarenko, I. Lashchuk and A. Yakymiv (Ilchuk P., et al., 2018), L. Kuznietsova (Kuznietsova L., 2015, p. 3-9), Z. Shmihelska (Shmihelska Z., 2014, p. 34-41), N. Chyzh and M. Dziamulych (Chyzh N., Dziamulych M., 2012, p. 403-411), M. Krupka (Krupka M., 2014, p. 127-131), V. Kotkovskiy and O. Huzenko (Kotkovskiy V., Huzenko O., 2015, p. 39-42). S. Yehorycheva (Yehorycheva S., 2011, p. 53-57) developed methodical principals of innovation process organization in banks. The works of O. Hlushchenko and M. Tkachenko (Hlushchenko O., Tkachenko M., 2012, p. 5-14), O. Druhov and L. Bratkiv (Druhov O., Bratkiv L. 2015, p. 137-143) present the research results according the separation of innovation process stages as long as bank innovation product life cycle ones.

Studying the main directions of banks innovative development in Ukraine is represented at works of I. Karcheva (Karcheva I., 2015, p. 293-299), O. Zolotarova

(Zolotarova O., Chekal A., 2016, p.112-115), N. Chyzh and M. Dziamulych (Chyzh N., Dziamulych M., 2012, p. 403-411). The tendencies of bank innovations development in Ukraine are analyzed by O. Stepanenko (Stepanenko O., 2012, p. 275-282), S. Yehorycheva (Yehorycheva S., 2010, p. 327-334), O. Kravchenko (Kravchenko O., 2014, p. 39-42), L. Prymostka (Prymostka L., 2015, p. 115-126), O. Cherevko, K. Samoilova and K. Kutsenko (Cherevko O., et al., 2016, p. 139-144). V. Biloshapka and Ye. Danylyuk concentrated the separate attention on the theoretical ground of banks functioning efficiency management in Ukraine on the basis of banking innovation technologies usage and new banking products and services development (Biloshapka V., Danylyuk Ye., 2013, p. 57-65), while N. Pantelieieva – on the methodology of innovations research in banking activity (Pantelieieva N., 2016, p. 163-167).

In spite of active scientific discussion, there is actual the question of modern tendencies of bank innovations development in Ukraine and their implementation prospects, as long as global tendencies in bank innovation investigation.

Aims of paper.

The aim of this research is to determine the guidelines of banks innovative development in Ukraine. In the process of the main objectives achieving there were fixed the following tasks: 1) to define the current state of innovations in Ukrainian banks; 2) to analyze the modern state of the bank in-

novations market on the basis of main activity indicators of the companies, which develop and implement them; 3) to determine the global tendencies of bank innovations development; 4) to identify the possibilities of innovative development of banks in Ukraine.

Exposition of main material of research with complete substantiation of obtained scientific results. Discussion.

In the conditions of economy globalization the banks are more and more frequently faced with the problem of innovation products implementation in order to increase the client base and maintain the competitive ability on the market (both domestic and foreign). As a consequence of the economic crisis in Ukraine it is observed the reduction of the demand on banking products and services, which is conditioned by the decrease of the level of confidence to the banking system and its participants, mass banks liquidation, instable banks activity etc. That's why not every bank is able to implement innovations, as it requires the considerable investments and appropriate level of developed or purchased innovations adoption. The key problems of innovations implementation into the banks activity in Ukraine are: financial resources deficit; insufficient level of personnel experience and qualification; riskiness and exposure of financial resources invested into the innovation products.

It should be mentioned that starting from the year of 2000 there were substantially changed the range of banking products and services, and the technologies, which are used during their realization (Shuba M., Rudnyk A., 2015). There should be noted such banking innovations, which are widely implemented on domestic market today, as follows:

1) Mobile banking – the service for the card account holders, which allows exercising most clearing operations by the use of mobile phone. With this service, you can: get the notification about transfer of funds or their account balance, new services of the bank, about the results of the transaction, as long as transmit funds to the another account etc.;

2) Internet-banking – the technology of the remote banking service, which enables the client to receive banking service via the Internet network. With this service, you can: make the inquire about the account balance, realize remittances, receive the statement of an account, pay for different services, issue the deposit etc.;

3) POS terminals – the devices, which are used for the cashless transfer of funds with the charge card. Its advantage is much faster realization of the payment transactions;

4) BankID – the service provided by the National Bank of Ukraine (NBU), a system of the online verification for the citizens, which allows to get the administrative services online, to prevent frauds with banking accounts and plastic cards.

Despite of all this innovative implementations, Ukrainian banking system is considerably far behind the world trends in banking innovations development. Not all banks use the modern means of communication with their clients. Despite of the well-developed infrastructure of automatic teller machines (ATMs), terminals and bank branches, the penetration of the banking services on the market is insufficient – only 63% of Ukrainians have bank accounts. For comparison, in Czech Republic this indicator is 81%, in Hungary – 75%, in Belarus – 81%, in Austria – 98%, in Netherlands and Denmark – 100% (National Bank of Ukraine, Financial Inclusion Forum, 2018). Most Ukrainians use payment cards exclusively for cash withdrawals, the share of such transactions makes up 60.7% of the total volume of transactions using payment cards, and in the market only 58.2% issued payment cards are active (National Bank of Ukraine, Overview of

the payment cards market and payment infrastructure of Ukraine for 2017, 2017). Together with the high share of cash transactions, Ukrainian banking industry is characterized by the low penetration of the Internet- and mobile banking, although there is a positive dynamics. The volume of transactions carried out on Internet in 2017, compared with 2016 (transactions using payment cards in Internet and mobile banking and e-commerce systems) increased by 69.1% and amounted to 105.5 billion UAH, and their quantity increased by 28.9% and amounted to 275.8 million pcs. The POS terminals infrastructure is also developed not enough, however, was extended in 2017. So, the network of POS terminals in 2017 was increased by almost

15% and 01.01.2018 amounted to 251.7 thousand (32.4 thousand more than 01.01.2017) (National Bank of Ukraine, Overview of the payment cards market and payment infrastructure of Ukraine for 2017, 2017). We can observe a world tendency of the increasing attention to banking innovations development and implementation. Let us make the research of the companies that develop and implement innovations for banks. To provide the research of the bank innovations market objectiveness a listing of the companies, which realize innovations for banks (Bank innovation, 2018), was taken as a basis. The characteristic of this company's activity is represented in Table 1.

Table 1. Listing of the companies, engaged in innovations for banks implementation, and their activity characteristics

Companies	Country	Characteristic of activity
ACI World-wide Inc	United States	Develops, sells, installs and supports the range of software products and services that are directed primarily on the electronic payments facilitation. The products and services of the company are used in the range of transactions generating end points, including ATMs, points of sale (POS), trading terminals, bank branches, corporations and commercial websites. The company gives the payment solutions for the financial institutions worldwide.
Diebold Nixdorf Inc	United States	Provides the connection of trade services, software and technology. The company is busy with the development and connection of commerce for financial institutions. It gives the solutions in the security sphere, which combines the portfolio of services and products to meet the company customers' needs.
Envestnet Inc	United States	A provider of the asset management financial technologies and services for financial consultants, investors and financial services suppliers. Provides the single software for the assets management and authorized financial consultants and institutions services. Proposes centrally the services of technologies hosting on the platform that includes the risk evaluation and the selection of investment strategies, assets allocation model.
Bottomline Technologies	United States	Provides a range of cloudy technologies for business payments, digital banking activity, fraud prevention, financial documents quittance and execution. Offers the software as a (SaaS) solutions service, as well as the software designed to work in the place of the customer allocation. The company is the supplier of the software, which provides a wide range of financial solutions for business processes management.
Fidelity National Information Services Inc	United States	Presents the financial services technologies, directed on the processing of operations and accounts, payment solutions, solution channels, digital channels, risks as well as solutions and services compliance. Its service activities are focused on financial offices and/or international financial institutions with different markets of capital and assets management, insurance solutions, as well as banking and payment solutions and consulting.
Fiserv Inc	United States	It is a provider of financial services technology. Offers the system of accounts processing; processing of electronic payments for products, such as electronic bills payment, processing of transactions, transfers between accounts, payments from one person to another; Internet and mobile banking systems with connected services, including the production and distribution of documents and debit cards, as well as credits and risks management products and services

Companies	Country	Characteristic of activity
Green Dot Corporation	United States	Offers the mobile technologies and mobile banking with the mobile settlement account GoBank.
Jack Henry & Associates, Inc.	United States	A provider of solutions for banks community information processing. The company proposes a wide range of products and services, including those for transactions processing, business processes automation, as well as different corporate structures informational and financial institutions management.
Mitek Systems, Inc.	United States	Develops and sells mobile applications and technologies for corporate clients software solutions verification. Technologies of the company allows their users a remote checks and established accounts depositing, getting of insurance quotations, paying for bills, as well as confirming their identity, taking pictures of different documents from their cameras (on the smartphones and tablets instead of usage device keyboard).
NCR Corporation	United States	It is a provider of Omni channels technological solutions that allows you to connect, interact and conduct operations with your customers, including ATMs, terminals and POS devices, self-services points, software of Omni channel platform and other software applications, as well as a set of services consulting, implementation, maintenance and management.
NetSol Technologies Inc.	United States	A provider of informational technologies for corporate software solutions in banks, financial and lease companies.
Q2 Holdings Inc	United States	A provider of cloud digital banking solutions. Company's decisions work on the general platform, which support the unified digital banking services delivery via the Internet, mobile and voice channels. Its platform provides the single control point, which allows RCFIs to assign the target access, including rights, functions and branding of account holders.
Top Image Systems Ltd.	Israel	A developer and provider of the intelligent content for document circulation receiving and automation, of the solutions for the incoming content verifying and management in any format from the any source within the usage of up-to-date networks, mobile and cloud technologies. The proposed software minimizes the necessity of manual data entry by the instrumentality of information, contained in documents, automatically receiving, reading, understanding, identification, processing, classification and routing
Temenos Group AG	Switzerland	The company is occupied with the development and marketing of the banking software system. Company's services include the implementation, productivity optimization, integration, management, maintenance work, modernization, studying and support of the inhouse software solutions.
Total System Services, Inc.	United States	A supplier of payment solutions, which provides services with payment processing, commercial services and related payment services for financial and non-financial institutions. It is also occupied with the provision and sale of prepaid access devices, such as GPR prepaid debit cards. Company's services and solutions include acquiring services, prepaid and commercial solutions.
USA Technologies, Inc.	United States	Provides with the technologies for solutions support and extra cost services that facilitate electronic payment transactions within the automated points of sale (POS). The company develops and implements systems and solutions, which facilitate electronic payment options, as well as telemetering and machine-machine (M2M) services, including those that enable remote monitoring, control and reporting on the results of distributed assets that include solutions for electronic payments.
Vantiv Inc	United States	Offers a wide range of payments processing services. Provides financial institution with the payment services, such as issuer cards processing, network processing payments, protection from fraud, cards producing, prepaid management programs, driving and network gateway automatic cash terminals, and the switching services.

Note: we didn't take to the consideration the companies, which provide the technological support of the specific banking processes exclusively on their own platforms, without their realization to banks.

Source: compiled by the authors according to (Bank innovation, 2018).

The leader in terms of quantity of concluded agreements relative to banking innovations implementation is the USA (650 treaties in 2016) (Bank innovation, 2018). Also, as we can observe in the Table 1,

banking innovations are proposed mostly by the companies, which were established and registered in the United States (15 out of 17 companies, included to the bank innovations portfolio in accordance with

(Bank innovation, 2018)). But the first place for the financing of bank innovations (8 billion USD of the total 17.4 billion USD invested worldwide) following the results of 2016 takes China, which has financed this year 500 start-ups and 39 investment projects in banking industry. According to the activity characteristics of companies that implement banking innovations, they could be grouped into sectors

considering the priority of innovative products they proposed: Sector A – innovative software; Sector B – innovative servicing technologies; Sector C – innovative technologies for financial services. Information about activity indicators of the companies and general indicators of financial innovations market separate sectors performance is shown in Table 2.

Table 2. Indicators of the companies, which implement innovations for banks

Companies	Indicators, %											
	Price/earnings ratio (2016)	Sales Growth Rate (2016)	Sales – 5 Yr. Growth Rate (2011-2016)	Capital Spending – 5 Yr. Growth Rate (2011-2016)	Total Debt to Equity (2016)	Net Profit Margin (2016)	Return on Assets, ROA (2016)	ROA – 5 Yr. Avg. (2011-2016)	Return on Investment, ROI (2016)	ROI – 5 Yr. Avg. (2011-2016)	Return on Equity, ROE (2016)	ROE – 5 Yr. Avg. (2011-2016)
Sector A – innovative software												
Sector A	19.40	1.05	4.70	2.76	16.19	4.65	8.01	9.69	10.65	12.91	10.28	13.35
ACI Worldwide Inc	18.74	11.05	16.68	27.15	98.54	12.88	6.68	4.91	8.31	6.21	18.38	13.87
Bottomline Technologies	-	0.79	12.63	42.65	65.85	-9.01	-4.93	-3.00	-6.97	-3.54	-10.51	-5.07
Diebold Nixdorf Inc	-	255.77	3.18	-6.32	304.08	-5.15	-4.54	-0.74	-8.07	-1.25	-35.21	-3.92
Investnet Inc	-	31.28	36.24	29.16	46.04	-9.61	-6.36	-1.50	-7.54	-1.78	-13.01	-2.78
Jack Henry & Associates, Inc.	28.31	4.71	6.98	22.75	5.15	18.60	15.13	11.41	18.75	15.27	27.52	19.74
Mitek Systems, Inc.	149.77	25.19	27.58	4.11	0.00	4.58	3.88	-10.37	4.59	-12.64	4.70	-13.01
NCR Corporation	28.41	7.26	4.34	13.04	197.86	4.39	3.75	3.36	4.98	4.49	33.07	18.64
NetSol Technologies Inc.	257.19	8.93	12.05	-27.95	7.67	3.29	2.48	1.33	3.60	1.95	0.30	-0.82
Q2 Holdings Inc	-	38.63	40.97	60.61	0.00	-24.20	-17.93	-19.30	-24.19	-27.41	-33.32	-58.03
Top Image Systems Ltd.	-	5.70	1.99	-	14.94	-20.10	-15.93	-10.39	-21.29	-13.34	-27.61	-15.71
Total System Services, Inc.	30.31	57.95	18.18	8.24	160.20	7.20	5.86	7.97	6.36	8.86	16.13	17.37
USA Technologies, Inc.	-	17.58	27.62	6.23	14.29	-9.95	-10.52	5.53	-13.82	7.51	-16.46	6.75
Sector B – innovative servicing technologies												
Sector B	20.54	16.65	14.61	21.48	69.13	27.14	2.44	2.89	0.42	0.55	15.42	20.19
Fidelity National Information Services Inc	46.68	30.47	10.44	15.45	107.57	6.37	2.26	3.45	2.53	3.88	5.95	7.86
Green Dot Corporation	40.66	7.84	8.99	13.40	122.75	5.79	2.42	3.41	5.26	7.05	6.06	7.38
Sector C – innovative technologies for financial services												
Sector C	27.56	4.02	7.72	11.11	81.86	9.20	4.19	4.18	5.64	5.95	6.19	10.44
Fiserv Inc	27.76	4.61	5.12	8.83	179.54	14.22	8.21	7.15	9.94	8.45	35.76	22.94
Vantiv Inc	55.39	12.06	17.14	12.15	246.40	7.85	4.16	3.73	5.64	5.10	18.80	15.36

Note: no data for Temenos Group AG

Source: compiled by the authors according to (InternetWorldStats; Bank innovation)

In accordance with Table 2 we can conclude that banking innovations market is actively developing, as it is reflected with average 5-years growth rate of banking innovations sales (Sector A – at 4.70% annually during the period of 2011-2016, Sector B - at 14.61% annually for the same period, Sector C – at 7.72% annually for the same period). Meanwhile we could observe the accelerating of the development in Sector B in 2016 (average sale growth rate in 2016 amounted 16.65%), particularly Fidelity National Information Services Inc increased its banking servicing innovative technologies sales for 30.47% in 2016. An additional stimulus of development for the companies that work on the banking innovation market, is their activity efficiency measured by such indicators as return on assets, return on investment and return on equity (for Sector A these indicators in 2016 were 9.69%, 10.65% and 10.28%, respectively, for Sector B – 2.44%, 0.42% and 15.42%, respectively, for Sector C – 4.19%, 5,64% and 6.19%, respectively), although it was observed a slight decline of the efficiency indicators in 2016 in comparison with their average annual values during 2011-2016. The presence of unprofitable enterprises in Sector A, where the innovative software is developed and implemented, is due to the significant cost for the companies of their receiving, approbation and adaptation to the specific conditions of banking industry activity in different countries, as well as the rapid changes of the necessary resort provision for their implementation, that is hindering the pace of development at this very banking innovations market sector worldwide. A positive tendency is also an increase of the capital investment into the activity of the companies, which were busy with development and implementation of banking innovations.

The value of total debt to equity indicators of the researched enterprises (the significant preponderance of the loan capital value on their own capital, the high level of companies financial dependence) is an evidence of investors high interest in the activity development of companies perform on the banking innovations market, even on conditions that their activity is unprofitable during the current period.

So, the results of activity indicators analysis for companies, which develop banking innovations, prove an active development of banking innovations market, its financing by the investors, the efficiency of derived products and technologies, as well as bank interest in implementation of innovations into their activity.

Today the most innovative banks in Ukraine are PJSC CB “PrivatBank”, JSC “Raiffeissen Bank Aval”, JSC “OTP Bank”, PJSC “Ukrsotsbank”. Specifically PJSC CB “PrivatBank” is one of the first in the world that have started to use one-time sms-passwords, pay mini-terminals, entrance to the Internet banking through the QR code, online encashment, non-contact technology PayPass, as well as dozens of different mobile applications. JSC “Raiffeissen Bank Aval” implements and supports actively the technology of non-contact payments Visa PayWave and MasterCard PayPass, develops the performance in the multi-partnership Program of rewards FISHKA, offers the services of Dynamic Currency Conversion (DCC) in the bank network of ATMs. JSC “OTP Bank” offers the foreign currency remittances OTP Express, implements the technology of 3D Secure, cards with the PayPass technology, special products “Cash Management”. PJSC “Ukrsotsbank” develops innovations, while implementing the technologies of non-contact payments Visa Classic pay-

Wave and Visa Gold payWave, the program of the financial protection GAP, innovative for the Ukrainian market etc.

There are a number of innovative products that could be used by Ukrainian banks even today:

1) client identification by the instrumentality of NFC –chip, built into the mobile phone – it will allow most operations to realize from the mobile phone: to transfer funds, to provide loans from one natural person to another, to pay for purchases etc. Besides, the identification of the client in the bank branch will also be possible simply by the usage of the phone without passport. In Ukraine this technology is being provided by the PJSC CB “PrivatBank” and JSC “Credobank”, but as yet only for payments in the trading network;

2) funds remittance without commission via the e-mail through the Square Cash service– the user send the appropriate message on the remittee electronic address, indicating the amount of transfer in the subject line. After that the payer and the remittee connect their e-mail addresses with the debit card, and this allows continuing fund remittance without reentering the debit card data, while the funds are credited to the bank account of the remittee;

3) P2P service – allows realizing the funds remittance via the mobile phone, meanwhile there is no need to know any names, any banks, any accounts numbers of the remittee. One should only fulfill the registration in the program and transfer funds to the mobile phone number. If the mobile phone number is in the system and is attached to the account, than the money will come to it, and if not, than the account will be established automatically (Shuba M., Rudnyk A., 2015);

4) the work in social networks – Socure developed a program Perceive, which allows to identify the client using the social network. The application examines the image

made on the phone and correlates it with the photo in such networks as Facebook, Twitter and LinkedIn. Thereby, after the data examining the system or allows the payment, or activates the alarm signal (Shuba M., Rudnyk A., 2015). NIC Bank Group in particular offers the banking platform, which allows performing banking transactions without leaving the social network. The service is available via the WhatsApp, Facebook, Twitter and Telegram, and allows receiving the statement of an account, to remit funds, to replenish mobile phone account, to order the banking card etc. Ukrainian banks do not pay enough attention on social networks, although global trends dictate otherwise. Our own researches shown that among the 38 biggest Ukrainian banks only 24 (63%) have their social pages in Facebook, and only 16 (42%) – in Twitter (Bondarenko L., Kots O., 2017).

While analyzing the global banking experience in the banking innovations implementation, we can distinguish the world most popular 6 bank innovations:

1) IOT Voice Commerce / Voice Payments Smart Homes / Smart Cars – banks are considering the usage of the voice technologies as a mean of extra protection – an instrument for the user’s security level increasing. At present, voice applications in the banking sphere are being tested;

2) Mobile Banking continues to develop – in the year of 2016 95% of the world population lives in areas with mobile communications coverage (though not everyone uses smartphones). Now 86% of consumers in the world use mobile banking (Bank innovation, 2018) and its further development will enable the creation of new opportunities for payments on purchases, realizing funds remittance, opening deposits using a mobile phone;

3) Regulatory Upheaval: PSD2, Trump, and Beyond (payment regulations by the

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instrumentality of PSD2, Trump та Beyond) – the performance of IT departments with the usage of these banking innovations becomes more active in the world, as they form the information protection systems, that enable the security level increasing when making payments from card to card or between the accounts;

4) Finance in Virtual Reality – there are developed the possibilities for the usage of virtual reality to provide users commercial data in dynamic 3D. Also there occurs the reproduction of the personalized news department, meetings with advisors and portfolio reviews. Virtual technologies may provide the new level of communication between clients and consultants that is the “acceleration” of the digital communication takes place, and it will become virtual;

5) Artificial Intelligence and Machine Learning – artificial intelligence and machine learning has already been (or should be) on the basis of innovation road map of any bank. Virtual assistants become more and more smart. Some banks elaborate their own boats, another – develop the existing innovation technologies of artificial intelligence and machine learning;

6) Blockchain: Out Of the Lab, Into the Real World – using the Blockchain technology as during the banks work with derivative securities, so in the systems of funds remittance and electronic commerce. Bank Innovation’s State of Banking Innovation in 2016 accomplished the survey of 171 respondents (most of them realized self-identification as a banker) according to the banking development with the innovations to the year of 2020 (Bank innovation, 2018). The results reflected 10 key changes that await banks in the nearest future:

1) everything will be mobile– all bank operations will be able to fulfill with the usage of mobile phone (smartphone), and the

mobile payments will display the real wallets (using of cashless transfers of funds), while the computer risks will increase;

2) banks will be actively occupied with innovations and finance innovation technologies implementation start-ups;

3) all the banks transactions will be digitized (computer-assisted, electronic) – the decrease of paper work, abandonment of the paper-based information;

4) «banks» disappearance – only major innovatively oriented banks will refrain on the market, meanwhile small banks will disappear or begin to follow strongly the innovative way of development in order to remain on market. The clients are expected to have one or more financial partners, the access to all financial information in the real time mode, which will provide making the right financial decisions every day;

5) cooperative banks will be priority-driven for the society – this will achieve by the fact they will defend the citizens (but not the owners) interests, and the bank survival will be determined by the place of its geographical dislocation (small population aggregates will prefer cooperative banks, and big cities – the virtual banks);

6) banking system regulators are directed on the small banks abolishment - if there will be no clear regulation of the financial innovations, then this will lead to the big banks exponentially development, as well as absolute lagging of small banks, which wouldn’t finance innovative technological start-ups;

7) the staffing shortage and transition to IT – it is expected that only 20% of the today’s personnel will be enough, but the IT – workers quantity in banks will increase. Traditional banks will move from the direct channels of clients servicing to the IT-ones;

8) changes in servicing channels from “niche” to “Internet of things” thanks to widespread of mobile banking;

9) the robot and API-interfaces uprising – more automation and personalization will take place, banks will act like the platforms, chatbots and artificial intelligence

will accelerate adaptive processes, this also applies to API-interfaces;

10) the reduction of financial services costs (Bank innovation, 2018).

Conclusions.

Banking innovations are the integral part and the necessity of banks development, which should go ahead the customer expectations, propose more products and services even today, because all this will allow not only to maintain the market position, but to develop the banking industry in Ukraine. The implementation of the new technologies and development of the existing ones will increase the efficiency of banks activity. Ukrainian banks should pay more attention to the world tendencies of bank innovations development; strive to implement innovations for the development of products and services that have long been operating in the global banking

market. This implementation of banking innovation will reduce the volume of cash transactions, and as a result – the shadow economy. Non-cash transactions comparing with cash ones will allow to reduce the bank financial resources usage, increase customer comfort and development of the banking market as a whole.

In further studies, it is advisable to focus on banking innovations financing opportunities for Ukrainian banks, the prospects of using the experience of foreign banks in introducing of innovative products in order to improve the banks activity efficiency in Ukraine.

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