The search for new economic tools, technologies, and directions for the development of banking services in the context of increased competition is caused by the presence of several problems, which are outlined in the following way. First, the developing Kazakh banking services market is very attractive for foreign financial institutions, whose entry into the financial markets of leads to an increase in market concentration, and, as a result, an increase in competitive pressure. Secondly, the recent trend of growth of the Kazakh economy and the development of its real sector led to a decrease in the profitability of speculative instruments, which traditionally served as the main source of profit for banks. Third, during the reform of the Kazakh economy, there was a significant change in the value system of consumers of banking services, a shift in emphasis from the price characteristics of the product to the service ones, which increases the importance of developing and implementing modern technologies to meet customer demand. Fourth, under the current circumstances, it is important to identify the prospects for banks to maintain strategic competitive advantages in the national financial market, despite the increased presence of foreign companies. This requires studying the country features of the formation of the banking services market, identifying the main development trends, justifying a set of technologies to improve the efficiency of working with clients in a competitive environment. As a result of the author's research, the practical aspects and significance of banking services management are substantiated, based on which the corresponding conclusions are made

Keywords: banking innovations, banking system, information technologies, competitive advantages, economic efficiency

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DIGITAL TRANSFORMATION OF BANKING SERVICES: DEVELOPMENT SCENARIOS AND MANAGEMENT MECHANISMS

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1. Introduction

The current stage of development of the global banking system takes place in the context of increased competition and crisis phenomena in the financial markets. One of the main factors of successful development of banking activity is the policy of constant innovations [1]. Currently, innovation is a key factor in the stability, competitiveness, and sustainable economic growth of banks. The current realities of the banking business allow to identify three main catalysts for banking innovation: the globalization of global financial markets and banking services markets, and increasing competition from the banking sector [2]. A significant impact on the qualitative and quantitative composition of players in the banking services market leads to key changes in consumer behavior, thus leaving banks with the only opportunity to maintain and increase their competitive advantages through the introduction of innovations, the direction of which determines the strategy for the development of the banking sector in the future [3].

The development of information technologies in banking requires banks to increase and improve their services. The use of modern banking technology enables the generation and processing huge amounts of data, which in general enables the accumulation of data about customers and taking into account the level of potential risks. According to research [4], the level of development of banking institutions is largely determined by the level of their development, taking into account the efficiency and competitiveness of the bank, which in turn is characterized by the level of innovation and technology of any commercial bank from the introduction of new banking products, technologies or processes. The authors of the research [5] note that the use of banking innovations not only allows credit institutions to use modern and less expensive technologies but also to refine them, as well as to compete in the market as innovation centers, to differentiate cash flows based on the need for their placement.

The widespread use of information technologies has become an objective necessity [6, 7]. One of the areas where they are traditionally important is the financial sector. It is safe to say that the process of informatization of banking activities will continue in the future. In the banking sector in the near future, trends will prevail to improve the quality and reliability of the offered products and services, increase the speed of settlement operations, and organize electronic access of customers to banking products. This is primarily due to the desire of banks to achieve competitive advantages in the financial markets.

Therefore, the research on the development of digital transformation of banking services is relevant.

2. Literature review and problem statement

In the modern scientific literature, attention is paid to the management of the banking sector from various positions of economic development. The authors of work [8] conducted a study of the development and organization of financial institutions. They analyzed the features of the modern market of banking services are, identified innovative aspects of banking activity. However, due to the small sample of the study, the problem of the new digital products of the banking sector were not investigated. In the paper [9] the author considered the issues of the introduction of banking innovations at the regional level. The investigation considered the development of banking in Croatia in the interwar period based on the analysis of historical and economic literature and archival materials. However, the current state of banking in Croatia has not been investigated. In addition, due to the limitation to one country, no comparative analysis was conducted. In turn, the research [10] carried out a systematic assessment of the current state of banking innovations. The authors of the work conducted the studies on problematic issues of the banking system, but did not provide prospects for its development.

In the work [11], the directions of prospective dynamics of the regional banking market were outlined, a set of theoretical, methodological, formed the organizational and practical recommendations for improving the functioning of the regional banking sector in modern conditions. However, due to the insufficient sample of the study, no tools for the promotion of individual banking services were developed. The paper [12] analyzed the problems of institutional development of the regional banking system and its structure. The investigation considered market opportunities and prospects of the traditional bank guarantee instrument implemented on the technology of distributed registers, but no innovative aspect was presented.

According to [13], the banking sector is the most technologically advanced segment of economy. The requirements of regulators and the struggle for the client in the context of increasing competition force banks to quickly implement technological innovations. In the paper [14], the researcher noted that in addition to the software itself, banking information technologies solve a whole range of tasks related to information and hardware support of banking operations. The main technologies currently used by banks were determined [14]: information technologies for accounting; information technologies for management accounting and strategic planning; information technologies for information transfer; information security tools. However, due to methodological difficulties, the research did not address problems related to the current state of development and the market of local information systems.

Thus, due to the rapid technological development of banks, problems related to modern trends in the economic development of banking services remain unresolved. That is why the aim of the presented research is promising.

3. The aim and objectives of the study

The aim of the study is to determine the features and current trends in the economic development of banking services. This will make it possible to improve the quality of services and financial activity of banks.

To achieve this aim, the following objectives are accomplished:

– to develop a model for evaluating the economic efficiency of cloud-based automated banking systems;

– to identify promising directions for the development of innovative management methods in the field of banking services.

4. Materials and methods of research

The object of the study is banking services. Research hypothesis assumes that the remote service is the main regulator of the development of banking information technologies.

The work uses the method of data analysis of companies, as well as the method of mathematical calculations.

As a source for comparison, it is most appropriate to use fairly representative data from various consulting companies. At the same time, it should be remembered that one single statistic on IT costs does not allow to measure the effectiveness of information technologies and is not a standard for mandatory compliance of an IT system with business objectives. The current level of IT costs that support the business model of specific business sectors is often not adequate for the new conditions. For most enterprises, the reasons for the increase in information technology costs are:

– changing the business model;

– development of electronic business, expansion of business in general;

– changing the role of information technologies in the organization.

One of the most important areas in the activity of any company is budgeting, including in the field of IT. With the help of budgeting, it is possible to predict the number of costs and expenses of the company. Usually, this process involves planning the needs of the customer in those types of services that are associated with such costs. Cost forecasts are based on statistical data for similar periods in the past but companies do not always have such types of data, so it is not possible to reject to use similar services in the form of a model.

5. Results of banking economic development research

5. 1. A model for evaluating the economic efficiency of cloud-based automated banking systems

The success of any banking innovation will depend on how much it will be in demand among consumers – customers of the bank. A product, service, or technology is difficult and painful for any enterprise. Competition can be considered as an engine of innovative solutions, but the risk of innovation is quite high, the effectiveness is difficult to predict and is mostly not calculated. Through the globalization of the financial system, the need to create a single information field is stimulated. These circumstances cause the need for the introduction and development of new technologies for banking services, technical re-equipment, the development of new products that are in demand, the introduction and development of innovative mechanisms and techniques to increase the efficiency of the bank's activities, which will help to maintain the existing niche in the banking sector, and the development of this industry in the future. In this

regard, let's calculate the economic efficiency from the introduction of cloud Automated banking system (ABS) – an object-oriented system for automating banking activities of a new generation, developed by specialists of the Center for Financial Technologies, the cost of which is 600 million tenge (1 USD equals 461.49 tenge) (Table 1).

The calculated data are summarized in a table, where two options are presented depending on the correction coefficients: the first one for the correction coefficients is equal to 20 %, the second option is for the value of 10 % for the implementation of the traditional International Baccalaureate System Object.

Let's consider the calculation of Total Cost of Ownership (*TCO*) for the implementation of the traditional ABS (Table 2).

Let's calculate the CO according to the (1) for a flat five-year plan, cut it out in Table 2 and build a graph for two options (Fig. 1).

$$TCO=I_{abs}+K_{cor1}*I_{abs}+(K_{cor2}*I_{abs})*Tp_{lan}. \quad (1)$$

Table 1

Implementation and operation costs for the year of automated banking system in a second-tier bank

Indicator	Option 1, million tenge	Option 2, million tenge
The cost of ABS	600	600
Cost of implementing ABS	120	60
The cost of operation of the ABS	120	60

Table 2

Calculation of TCO for the implementation of the traditional ABS of a second-tier bank for five years

Option	Costs, million tenge					
Option 1, million tenge	720	840	960	1080	1200	1320
Option 2, million tenge	660	720	780	840	900	960

The calculation of *TCO* for the implementation of a cloud-based automated banking system can be calculated using the following approximate formula, which can be obtained from (1), adjusted for reduced costs during the operation of the cloud-based ABS and an increase in hidden costs during operation:

$$TCO=i_{abs}+k_{cor1}*i_{abs}+ki_{cor2cld}\,(k_{cor1cld}*k_{cor2}*i_{abs})*t_{plan}, \quad (2)$$

where $K_{cor1cld}$ – the correction factor for reducing the cost of operating a cloud abs, which according to statistics lies in the range from 30 % to 80 %; $Ki_{kor2cld}$ – the second correction coefficient determines the hidden costs of operating cloud abs, the value of which, according to expert data, is 1.2, is determined by the growth of costs for cloud abs due to inefficient management of the automated banking system; $i=0, n$ where n – the year of the planning period.

The calculated data are summarized in a Table 3, where two options are presented depending on the correction coefficient: the first for correction coefficients equal to 30 %, the second option for the value of 80 % for the implementation of traditional ABS, taking into account that when implementing cloud ABS, it will be 10 % since the deployment of ABS takes place on the servers of a third-party organization, which provides savings. A value of 30 % is considered for the first option of implementing traditional abs, as the most expensive from the point of view of the operation, to assess the entire range of costs for cloud abs (Table 3).

In Table 4, let's present a comparison of the main indicators of the bank's activities before and after the implementation of the measures.

Cs is the cost of cloud ABS, tenge:

$$El=4{,}071{,}750-10{,}466.5=4{,}061{,}284 \text{ tenge}. \quad (3)$$

Table 3

Implementation and operation costs for the year of the second-tier bank's cloud abs

Indicator	Option 1, million tenge	Option 2, million tenge
Cost of cloud-based ABS	600	600
Cost of implementing cloud-based ABS	60	60
Cost of operating a cloud-based ABS	84	12

Table 4

Calculation of the project implementation of the cloud automated banking system

Name of expenditure items	Costs, tenge
Consumables	374,370
The basic salary of developers	2,001,864
Additional developer salary	400,373
Social security contributions	509,274
Other expenses	72,559.5
Total costs	3,358,440.5

The cost of traditional abs is determined by the formula:

$$C_{st}=A_i*C*G_d/RP, \quad (4)$$

where A_i – the amount of information processed manually, MB; C – the cost of one hour of work, tenge/hour; G_d – coefficient that takes into account the additional time spent on logical operations during manual processing of information (established experimentally) $Gd=2.5$); RP – the rate of production of the MB/hour; $C_{st}=89*73.2*2.5/0.004=4{,}071{,}750$ tenge.

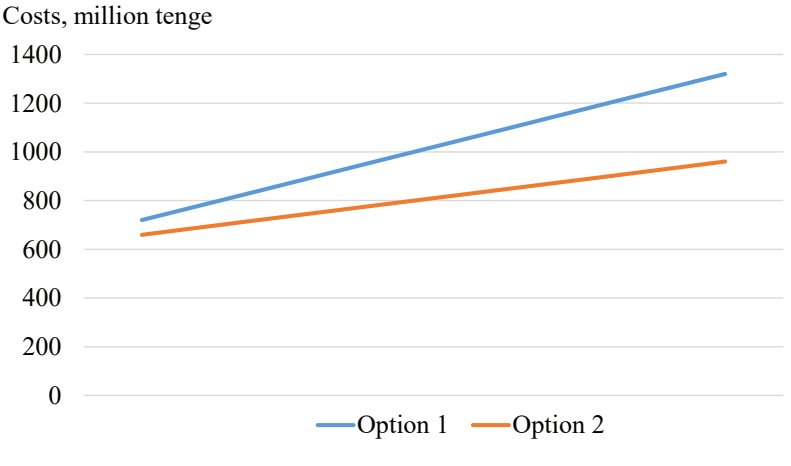

Fig. 1. Range of Total Cost of Ownership costs for the implementation and operation of a traditional second-tier bank automated banking system

The costs of cloud ABS is calculated according to the following formula:

$$C_{st}=t_a*C_m+t_0*(C_m+C_o), \quad (5)$$

where t_a – time of automatic processing, h; C_m – the cost of one hour of machine time, tenge/hour; t_0 – operator's working time, h; C_o – cost of one hour of operator's work, tenge/hour.

C_{st}=15*24.4+95.16*(24.4+81.5)=10,443 tenge.

The economic effect of using cloud abs for the year is determined by (6):

$$E_u=E_u-E_n*Z_a, \quad (6)$$

E_g=4,061,284–
–0.2*3,358,440.5=
=3,389,595.9 tenge.

The effectiveness of the development can be estimated by (7).

$$E_d=E_g*0.4/E_u, \quad (7)$$

E_d=
=3,389,595.9*0.4/4,061,284=
=0.33.

If the E_d>0.20, it can be concluded that the installation of a cloud-based abs is economically feasible. Net discount income (NPV) is calculated as the difference between the accumulated discounted income from the implementation of the project and the discounted one-time costs of implementing the innovation:

$$NDI=\sum PV_i, \quad (8)$$

where PV_i – discounted income of the first period of project implementation; n – number of project implementation periods.

The discounted income of a certain period is calculated using the (9):

$$PV_i=\left(D_i*\frac{1}{(1+d_i)^i}\right)-\left(R_i*\frac{1}{(1+d_i)^i}\right)=$$
$$=(D_i-R_i)*\left(\frac{1}{(1+d_i)^i}\right), \quad (9)$$

where D_i – income of the i-th period of project implementation; R_i – costs of the i-th period of project implementation; d – discount rate.

The main indicators for determining the effectiveness of an innovation project are shown in Table 5.

It is advisable to present the results of the calculations of the NPV and PV for each period of the project implementation in the following Table 6.

The payback period of the project is the estimated date from which net discounted income takes a stable positive value. Mathematically, the payback period is found when solving the exponential equation for calculating the NPV with an unknown implementation period (X), while the value of the NPV is assumed to be 0, i.e., when the discounted income is equal to (covered) the discounted costs. However, in practice, the method of approximate estimation of the payback period is used:

$$T_{ok}=1-\text{NPV}/(\text{NPV}_n-\text{NPV}_1), \quad (10)$$

where t – the last period of project implementation, in which the difference between accumulated discounted income and discounted costs takes a negative value; NPV– – the last negative value of NPV; NPV+ – the first positive value of NPV.

Table 5

Key indicators for determining the effectiveness of an innovation project

Indicators	Units	The value
One-time costs	tenge	3,358,440.5
Annual savings from the implementation of PV	tenge	4,061,283.5
Economic effect for the year	tenge	3,389,595.5
Discount rate	%	0.2
The life of the project	year	5

Table 6

Calculation of net discount income

Period	D_i	R_i	$1/(l+d)_i$	$D*1/(l+d)_i$	$R_i*l/(l+d)_i$	PV	NPV
0	0	3,358,440.5	1	0	3,358,440.5	–3,358,440.5	–3,358,440.5
1	3,389,595.5	0	0.83333	2,824,651.62	0	2,824,663	–533,780
2	3,389,595.5	0	0.69444	2,353,870.7	0	2,353,886	–533,780
3	3,389,595.5	0	0.5787	1,961,558.92	0	1,961,571.5	1,820,110
4	3,389,595.5	0	0.48225	1,634,632.43	0	1,634,643	3,781,680
5	3,389,595.5	0	0.40188	1,362,210.64	0	1,362,202.5	5,416,325
Subtotal	0	0	0	10,136,965	671,688.1	0	–533,780

T_{ok}=1–533,780/(1,820,110–(–533,780))=1.23. The yield index (YI) is the ratio of total discounted income to total discounted costs: YI=10,136,965/3,358,440.5=3.02. The average annual profitability (AP) of the project is a type of profitability index, correlated with the duration of the project. The criterion of the economic efficiency of an innovative project is the positive profitability of the project. The success of the implementation of information technologies is determined by the level of technical means (10 %), the quality of software and information support (40 %), the human factor (50 %)^AP=(3.02–1)*100/5=40.4.

5. 2. Banking management analysis

The process of managing banking services consists of planning, organization, coordination, motivation, and control. The main stage of planning is setting goals (long and short-term). Thanks to planning, a strategy for using the company's resources to achieve goals is developed. Organizational activity depends on the concept of labor segmentation and is carried out by delegation of authority. Coordination is cooperation, that is, each manager of the bank coordinates the work of its subordinates with other groups of the bank. Effective motivation not only increases

productivity but also significantly reduces staff turnover. In addition, the head of the bank should help create certain incentives for self-motivation among employees. The function of control consists in checking the implementation of the adopted management decisions and ensuring the possibility of continuous implementation of the bank management process [15, 16]. The ideal management of banking services can be ensured by the correct coordination of all these elements.

At present, banking competition is concentrated in the field of remote banking services (RBS) due to the increased interest of users in obtaining services through the use of mobile devices, personal computers and other means of communication. One of the most important integral characteristics of the IT budget is its comparison with typical values for organizations that are comparable in scale and profile of activity. To bring all organizations to a comparable scale, the ratios of various information technology costs to the organization's annual revenue are used as metrics. This comparison makes it possible to assess the level of IT support for the enterprise as a whole. At the same time, of course, only deviations of this indicator from the average parameters are significant:

– approximate compliance of the budget values, generally speaking, does not mean the adequacy of the IT system (since inefficient use of funds is possible);

– a significant excess of the budget concerning the standard one can be caused both by the inefficiency of investments in information technology, and the necessary active development of the organization as a whole and its IT system, for example, for a rapid change in market share;

– a significant reduction in the budget with the standard one indicates insufficient financing of information technologies and significant prerequisites for the inefficient operation of the enterprise.

The use of modern information technologies dramatically affects and changes business processes in banks, bringing them to a fundamentally different level. Banking technologies are inextricably linked with information technologies that provide comprehensive business automation. Modern banking technologies as a tool for supporting and developing banking business are created based on a number of fundamental principles:

– a modular construction principle that allows to easily configure systems for a specific order with subsequent build-up;

– openness of technologies that can interact with various external systems, ensure the choice of a software and hardware platform and its portability to other hardware;

– flexibility in setting up banking system modules and adapting them to the needs and conditions of a particular bank;

– scalability, which provides for the expansion and complexity of the functional modules of the system as business processes develop;

– multi-user access to real-time data and implementation of functions in single information space;

– modeling of the bank and its business processes, the possibility of algorithmic settings of business processes;

– continuous development and improvement of the system based on its reengineering of business processes.

In the modern world, banks offer their customers various electronic services but not all e-services are the best. Of course, not all banks provide electronic services based on modern technologies (Internet, cellular communication capabilities). Of the electronic services that exist at the moment, some do not allow the client to perform operations, but only provide information on accounts. The versatility of electronic services is still rare. With the rapid development of technical means and technologies, the Internet, mobile communication opens up great prospects for the development of electronic banking services. In addition, in the context of the development of the country's banking system, as well as the financial and technical literacy of the population, the demand for electronic banking services will steadily grow [12, 17]:

1. Banks are turning towards a new promising segment of the solvent audience of Kazakh who actively uses the Internet. If in the early 2010s, less than a dozen banks had Internet banking offers for retail consumers, at the moment 24 second-tier banks out of 28 offer their customers the possibility of non-cash payment of their bills and purchases through the Internet resources.

2. This strategy already shows results for the whole of 2018 and 16.7 million transactions were conducted through the Internet resources of banks. The number of transactions increased 2.2 times compared to the same period last year.

3. The volume of non-cash payments in the territory and outside the Republic of Kazakhstan using payment cards issued by Kazakh issuers in January–July 2019 amounted to 6.3 trillion tenge – 2.1 times more than in 2018.

4. Until this year, the share of international payment systems in the volume of non-cash payments reached 97–99 %, but in January–July 2019, the share of local systems increased to 7.5 % compared to the same period last year, when its share was only 0.7 %; the volume increased 23 times, to 476 billion tenge.

5. The volume of non-cash payments using payment cards of local systems began to grow significantly in May: then it increased from 4.3 billion to 28.7 billion tenge, in June – to 36.4 billion tenge, and in July the growth was already 11 times, to 396.4 billion tenge. The number of active maps of local systems also increased – from 474.1 thousand to 3.2 million at the end of July 2019 (Fig. 2).

The share of non-cash in the total turnover of payment cards increased from 26.2 % to 39.4 % (Fig. 3).

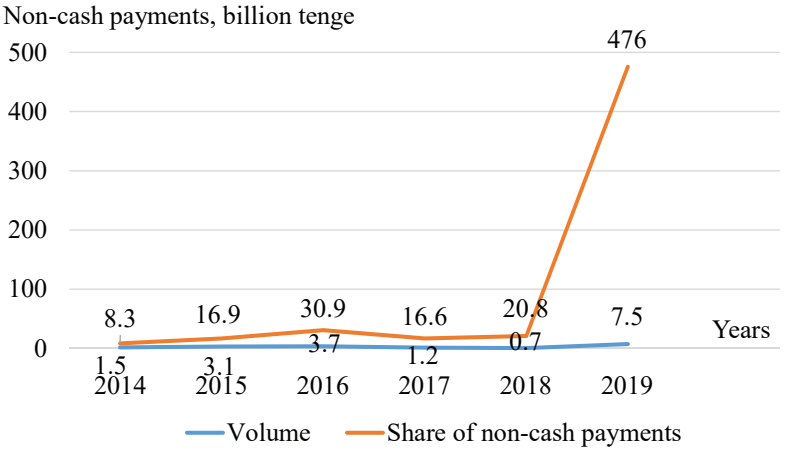

Fig. 2. Number of non-cash payments made via Internet resources

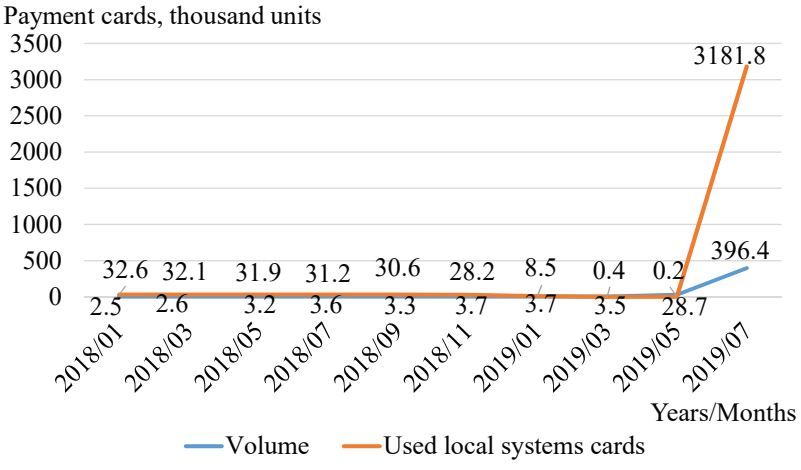

Fig. 3. Non-cash payments in the territory of Kazakhstan and abroad using payment cards of local systems

The number of cashless payments carried out through Point of Sale (POS)-terminals increased 70.3 % to 1.9 trillion tenge. Other channels account for only 105.6 billion tenge, 37.2 % less than a year earlier (2019). The share of non-cash payments via Internet resources increased from 49.9 % to 65.2 %; the share of payments via POS terminals, respectively, decreased from 43.6 % to 33 %.

6. Discussion of the results of banking economic development research

As technology widens the efficiency gap in human-machine interaction, taking into account individual behavior will improve not only the quality of the user experience but also the efficiency of technological solutions [18, 19]. Large banks are interested in maximizing their competitive advantage in digitalization [20, 21]. This determines the shift of priorities towards in-house development.

It was defined that second-tier banks use traditional ABS (Table 1). Based on the calculations obtained, it was determined the minimum reduction in the cost of implementing a cloud-based ABS of a second-tier bank in comparison with a traditional automated banking system (Fig. 1), which will be about 20 % over five years. In addition, it was noted if the NPV for the entire period of implementation of the project has a positive value, therefore, this project is cost-effective (Table 5). According to Table 6, the NPV for the entire period of project implementation is equal to –533780 tenge, has a positive value; therefore, this project is cost-effective. Based on the methods of commercial and economic evaluation of the investment project, such indicators were calculated as: the economic effect of using cloud ABS funds for the year – 677919.1 tenge; development efficiency–0.33; NPV for the entire period of project implementation is equal to –106756 rubles, has a positive value, therefore, this project is cost-effective; the payback period of the project is 1.23 years; the index of the yield to 3.02; the average annual profitability of the project is 40.4 %.

Fig. 2 showed that the volume of non-cash payments in the territory of the Republic of Kazakhstan using payment cards issued by both Kazakh and foreign issuers in January–July 2019 amounted to 5.8 trillion tenge, an increase of 2.3 times over the year. Also, it was researched that the overall increase in the volume of cashless payments contributes to significant growth in online payments is 2.9 times, up to 3.8 trillion tenge (Fig. 3). The proposed measures will generally improve the quality of services provided, provide an opportunity to expand the customer base, and improve the financial performance of second-tier banks.

Limitations of the study are that only Kazakh banking services market was considered. The disadvantages of the study are that the necessity of implementing the priority tasks of the development of commercial banks was not investigated. Therefore, these are prospects for further research.

7. Conclusions

1. A model for evaluating the economic efficiency of cloud-based automated banking systems based on the total cost of ownership method was created, taking into account two coefficients: correction factor that determines the reduction in the cost of implementing cloud-based ABS compared to traditional; correction factor that determines the increase in the cost of cloud ABS costs, due to management inefficiency compared to the traditional one. When evaluated using the created model, the introduction of a cloud-based automated banking system compared to traditional abs reduces the cost of implementing and maintaining the system by at least 20 % over five years.

2. In the process of analyzing technological innovations in the field of customer service, it is about bank cards, payment terminals, ATMs, which are constantly developing in terms of their functionality, as well as remote service channels. Currently, the most promising areas of development of innovative management methods in the field of banking services are:

– attracting new customers who do not have a bank account via remote service. In hard-to-reach areas where it is difficult to open and maintain branches, mobile and Internet banking opportunities;

– encourage more frequent and diverse use of banking services by existing customers. In the case of profitable and convenient remote work for the client, it will increase the probability that the other services offered that are necessary for this particular client will interest it;

– electronic interaction with customers will allow the bank to effectively collect, store and process data about customers and their transactions, as well as take into account their personal needs and make the service more personalized.

Conflict of interest

The authors declare that they have no conflict of interest in relation to this research, whether financial, personal, authorship or otherwise, that could affect the research and its results presented in this paper.

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Data availability

Data will be made available on reasonable request.

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References

1. Barkhatov, I. V. (2011). Osobennosti innovatcionnykh bankovskikh uslug. Vestnik Cheliabinskogo gosudarstvennogo universiteta, 32 (247), 130–135.
2. Benić-Penava, M. (2013). Banking of Croatia in the kingdom of Yugoslavia. Development Economics, 2, 10–15.
3. Dolan, E. Dzh., Kempbell, K. D., Kempbell, R. Dzh. (1993). Dengi, bankovskoe delo i denezhno-kreditnaia politik. Moscow-Saint-Petersburg: Avtokomp; Profiko, 448.
4. Ibraeva, Zh. N., Meirmanova, N. T. (2018). Development of the system for evaluating the effectiveness of active operations in the banking risk management system. Transit Economy, 2 (114), 77–87.
5. Kaliyev, K., Nurmakhanova, M. (2020). Bank risk evaluation through Z-score measure and its effect on financial health of the industry of transitional economy of Kazakhstan. The Journal of Economic Research & Business Administration, 133, (3), 40–50. doi: https://doi.org/10.26577/be.2020.v133.i3.04
6. Kalsina, E. A. (2012). Classification of bank of innovations. Scientific Works of the Free Economic Society of Russia, 163, 318–326.
7. Kasymbekova, G. R., Markelova, M. A., Dzharikbaeva, D. T., Abdildin, S. S. (2019). Actual assessment of the equity capital of second-tier banks in Kazakhstan from the standpoint of various criteria. Bulletin of Turan University, 4 (84), 135–140.
8. Kirdasinova, K. A., Sabirova, R. K., Aibossynova, D. A., Kabdullina, G. K. (2020). Contemporary management of commercial banks. The Bulletin the National Academy of Sciences of the Republic of Kazakhstan, 1 (383), 226–234. doi: https://doi.org/10.32014/2020.2518-1467.28
9. Korobeynikova, O. M. (2020). Prospects of digital banking, blockchain guarantees. Scientific Bulletin of BelSU, 47(1), 110-116.
10. Kunitcyna, N. N., Sitnikova, E. V. (20160. Regionalnyi rynok bankovskikh uslug: problemy i perspektivy razvitiia. Stavropol: SKFU, 191.
11. Lambekova, A. N., Nurgalieva, A. M. (2017). Content, purpose and tasks of internal control in banks. Reports of the National Academy of Sciences of the Republic of Kazakhstan, 3, 24–27.
12. Mobile banking on smartphones-review of mobile applications of Kazakhstan banks in 2019 (2020). Available at: https://www.deloitte.com
13. Nesterov, L. V., Kupriianova, G. Ia. (2014). Bankovskie innovatcii na sovremennom etape. Voprosy ekonomiki, 11, 102–103.
14. Parusimova, N. I. (2015). Bankovskoe delo v usloviiakh rosta neopredelennosti. Vestnik Orenburgskogo gosudarstvennogo universiteta, 4, 318–321.
15. Poryadina, I. V. (2012). Measures to improve the assessment of the effectiveness of customer service of the bank. Banks of Kazakhstan, 2, 21–27.
16. Shabanova, Yu. N., Chaikin, D. S. (2019). Institutional analysis of the structure of the regional banking system of the Russian Federation. Research Result. Economic Research, 5 (3), 52–65. doi: https://doi.org/10.18413/2409-1634-2019-5-3-0-6
17. Tleuzhanova, M., Dzhaparova, K., Kodasheva, G. (2017). On the development of banking activity in Kazakhstan. Economics and Statistics, 2, 127–131.