

MANAGEMENT OF BANKING INNOVATIONS IN THE CONDITIONS OF DIGITALIZATION

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Abstract: The modern specifics of the introduction of innovations in banking and the formation of the latest digital banking products involve a significant transformation of the entire banking system into digital banking. Therefore, the issues of effective management of innovation activities of banking institutions depend on the technological features of innovative solutions and the number of resources that banks direct to investments in this area. Thus, the digitalization of banking requires an effective management system for innovation in the bank.

Keywords: Banking innovation, Digitalization, Digital banking, Innovation, Innovation Management.

1 Introduction

The intensive introduction of technological innovations in banking, which has been taking place in recent years, is due not only to the desire of banking institutions to increase the customer base and the general simplification of their activities through the use of digital technologies. One of the main incentives for any bank to make decisions regarding the transformation of its activities is a significant increase in competition in the market.

It should be noted that due to the total spread of Internet banking systems, there is a global market for banking services, where any small regional bank in its local market can compete with global financial institutions, which through the use of digital technologies spread their activity through the Internet to all market niches. Such trends force commercial banks to actively use the latest technological advances in the digital economy, which results in their focus on innovative development, the success of which largely depends on the level of use of existing innovation potential by banking institutions themselves.

The introduction of scientific and technological advances in the process of organizing banking services not only ensures the continuous improvement of banking products but also leads to the systematic transformation of existing banking technologies into a specific digital banking system. Thus, the study of problems related to the management of innovation activities of banking institutions becomes especially relevant in terms of the need to provide banks with liquidity and provide adequate opportunities to attract financial resources in the market for active operations.

As such innovations are currently concentrated mainly in the field of digital technologies, the effective management of the digitalization of banking innovations is one of the key elements of their success in fierce market competition.

2 Literature Review

Many theoretical works are devoted to the study of improving the efficiency of the introduction of innovative technologies in banking in terms of the need to move to a digital economy and the formation of digital banking. It should be noted that scientists actively discuss the need to choose an innovative way of development of banking institutions and study the main issues of managing the innovative potential of commercial banks, which is revealed in the works of scientists such as O. Agres [1],

O. Apostolyuk [2], O. Binert [3], A. Boiar [4], Y. Chaliuk [5], N. Chyzh [6], M. Dziamulych [8-11; 18-20], S. Iehorycheva [12], N. Pohorelenko [16], N. Popovenko [17], R. Sodoma [21-23], O. Stashchuk [24-26], I. Yakoviyk [27], Ya. Yanyshyn [28], I. Zhurakovska [29] and others.

However, the systemic transformations that are currently taking place in the field of banking products due to the intensive spread of digital technologies and the general digitalization of financial and monetary relations, the emergence of crypto currencies, and virtual banks, require careful study of specific features of these processes. At the same time, the main attention should be paid to the processes of digitalization of banking innovative solutions, because in the modern economic system they can provide commercial banks with the appropriate level of interaction with customers and help banks actively attract financial resources in foreign markets.

3 Materials and Methods

The methodology of research of banking innovations provides for the formation of systematic methods of their classification in order to provide opportunities to determine the appropriate tools for their management. From this point of view, regardless of the technological features of the introduced changes in banking, innovations are divided into the following typical areas of their implementation:

- Breakthrough innovations, which are the latest ways to improve existing banking services and products, as well as allow at a new technological level or with the help of innovative technologies to develop new types of banking products;
- Strategic innovations, which consist in the development and implementation of innovative marketing strategies in banking and are based mainly on modern digital technologies and digital software solutions;
- Technological innovations – innovations related to the transformation of internal banking processes, which are related to customer service and include the improvement of Internet banking systems and the mass introduction of chat bots;
- Structural innovations, which provide for the structural transformation of a banking institution into a digital banking system or the change of certain elements of banking activities to more advanced technological solutions to ensure the overall efficiency of operation.

However, if we talk about the management of banking innovation in terms of the formation of the digital economy and related transformations of the general system of economic relations, it is advisable to use international standards for banking innovation, which are accordingly divided into [14]:

1. Product innovations that are related exclusively to the development and implementation of the latest banking products and services, their promotion on the market. These innovations are divided into actual products and banking products in the form of financial instruments. The actual product banking innovations include those related to the traditional activities of banking institutions and those related to the penetration of other areas of financial activities – investment, insurance, trust management.
2. Process innovations, which consist in the implementation and realization of new or radically improved principles of banking, technologies, equipment, and software solutions. These innovations improve the conditions and mechanisms for banking institutions to meet the needs of economic entities in a variety of financial services. These innovations are specified by the following processes:
 - Innovations of technological processes – related to the development of technical capabilities of the bank;

- Actual process innovations – improvement of business processes in the bank
 - Service innovations, which provide for the introduction of qualitatively new approaches to customer service and are currently the main product of digital banking [12].
3. Marketing innovations related to the improvement of the complex “4P” – product, place, promotion, price, which involves the promotion of banking products in new markets, improvement of banking marketing communications, and innovative improvements in the sales channels of banking products.

4 Results and Discussion

As the practice of recent years shows, the systematic introduction of innovations in banking involves improving the creation and distribution of new banking products and technologies to meet customer needs, which change under the influence of many factors.

It should be noted that most of the innovative solutions in the field of banking, which are implemented in modern conditions, are, above all, an effective means of competition, because through the use of digital technologies to meet customer needs that cannot be identified by traditional banking service. In turn, this results in a significant expansion of the customer base of such banking institutions, which allows attracting more financial resources, as well as generally increases the profitability of banking.

In this aspect, the assessment of the effectiveness of innovation activities of commercial banks is a very relevant and practically important task, the solution of which will contribute to the overall improvement of the efficiency of banking innovation management. It is also necessary to take into account the fact that modern digital technologies allow automating the process of managing the implementation of innovations and their use. This is largely due to the fact that digital banking is based on software solutions of the digital economy, which, in turn, involves constant analysis of Big Data online 24 hours a day.

Such an analysis gives banks the opportunity to obtain extremely accurate and reliable data on customer needs and behaviour, which is the basis for the formation of a policy of interaction between the bank and them. But traditional approaches to the management of such analytics are impossible, because the amount of data to be processed, as well as the algorithms of such analysis, is based on digital technologies.

Thus, if we talk about the management of banking innovations, it is necessary to determine the possibility of using cognitive technologies to ensure the proper effectiveness of the management process. In other words, the management of a banking institution in the conditions of its transformation into a digital bank itself is changing and includes not only professional managers, but also professional management digital software products that can operate without human intervention.

Thus, we can support the opinion of A. Kasych, who argues that modern banks operate in a situation of rapid and irreversible changes in technology, competition in the banking market with an increase in the number of non-banking organizations, changes in customer behaviour and regulation. As a result, banks and their operating models that operate today will not be able to remain unchanged in the future [13].

Based on this, it can be argued that there is a close relationship between the processes of formation of digital banking and the intensive introduction of innovations in the banking sector, which are carried out in the context of systemic digital transformation of the banking sector (Figure 1).

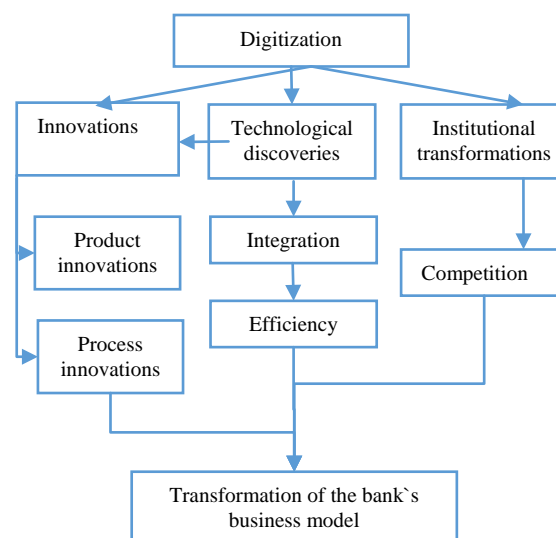


Figure 1 – Introduction of innovations in the bank's activities in a digital economy [13]

Thus, in the context of the overall digital transformation of banking services, the innovation of banking institutions is a key requirement for ensuring their profitability. In this aspect, innovation should cover all areas of the bank's activities, including both internal technological and organizational innovations that are directly used within the bank, and external, aimed at improving or applying new methods of selling banking products, developing new marketing technologies, or new forms of financial and investment instruments.

Given the peculiarities of the formation of digital banking systems under the influence of specific digital technologies, the following innovative software solutions are currently being identified, the implementation of which will be associated with the innovation policy of banks in the coming years. These areas include the following:

- Transformation of the organizational structure of banks based on the introduction of Web 2.0 and “web life”, which will lead to a significant reduction in the staff of banking institutions, which will be replaced by chat bots and artificial intelligence;
- Creation of a single investment market online with direct access of clients to operations with their own funds and sale to investors of banking analytical software solutions to determine the effectiveness of investments;
- The final formation of Internet banking as the main way of customer service with the subsequent transformation of the banking institution into a virtual bank;
- Total use of electronic payments by the bank's clients and expansion of financial transactions in the field of crypto currencies;
- Improving the identification and verification of the bank's customers with the use of biometric tools in order to increase the security of banking operations in terms of digitalization of economic relations;
- Development and implementation of cash management;
- Deepening cooperation with insurance companies and forming financial groups with integrated banking and insurance products;
- Improvement of risk management systems based on Big Data analysis, which significantly increases the efficiency and reliability of forecasting market processes;
- Formation of new sources of funds intended for financing banking innovations by including them in the cost of customer service for digital software solutions;
- Constant development of new and improvement of existing banking products on the basis of constant introduction of the newest innovative digital decisions in the automated

control systems of banking activity with the subsequent transformation of them into self-regulated digital systems.

However, it should be noted that the main reason for innovation in the banking sector is, of course, the prospect of making a profit. That is why banks, whose relationships with customers are based on the principles of partnership and mutual benefit, are always interested in increasing the capital of their customers, who hope to innovate, at a certain level of risk, get more material benefits from cooperation with the bank than before [12].

However, favorable conditions for the emergence of banking innovations are created primarily by changes in the external banking environment. The main institutional factor influencing the process of development and implementation of banking innovations in the digital economy is the current system of banking regulation, as well as legislation that determines the development of other financial markets. At the same time, the specific mechanism for implementing the bank's innovation policy includes a set of elements of analysis and the need for resources to ensure the implementation of innovations.

The consequence of this approach is the need to ensure proper control over the implementation of the bank's innovation policy at all stages of the innovation process. And in the context of digitalization of banking, such control also passes into the field of automatic digital software solutions, when innovation management is not entrusted to professional managers, but to specialized software products.

Another problem with the feasibility and effectiveness of banking innovations is the need to take into account the real demands of consumers for the implemented digital banking products. At the same time, more reliable data on customer needs can be obtained only after the introduction of innovative software solutions in banking, which track and analyze these needs. Therefore, it is necessary to form a set of basic requirements for innovative banking products, compliance with which will allow the bank to increase the efficiency of interaction with customers and ensure the overall growth of profitability of banking operations based on these innovative solutions. In our opinion, the main such requirements include the following:

- Compliance with innovations with current and prospective inquiries of the bank's clients;
- Projected financial payback of the implemented innovative solutions and products in the bank's activities;
- Providing the best technical solutions for the characteristics of an innovative product or service over existing counterparts used in the activities of banking institutions;
- Compliance with the introduced innovative products with the defined strategy of development of the banking institution.

An important element in assessing the effectiveness of the implementation of innovative solutions in banking is to determine their effectiveness. In this case, as is known, the overall effect of innovation is determined by the following indicators: a commercial effect and general economic effect. The commercial effect reflects the financial consequences of the implementation of the results of innovative activities of the bank for itself, its owners, and customers.

This effect is calculated as the difference between financial results and costs and can be positive or negative. Thus, despite innovative approaches to the formation of new digital relationships in the banking sector, the economic aspects of assessing the effectiveness of these changes remain the same as for any other area of activity.

If we focus on the above aspects of innovation of banks, the result of which is the transformation of traditional banking into digital banking, it is necessary to note the typical directions of transformation of traditional banking services into a system of digital banks. An important point of such transformations is that

the basis of the changes taking place in the field of innovation is the need to ensure an appropriate level of governance of digital banks. Moreover, if automated technical systems cope with this task on the basis of the algorithms laid down in them, then in the field of bank management it is necessary to make structural changes related to the need to involve staff able to understand the principles of digital banking.

Therefore, digital banking under such conditions can be implemented only in one of four possible scenarios:

1. Multichannel banking. Each channel needs its own set of workflows, content, screen design, and other support tools. The work is repeated many times, and the end result is distributed through channels that are not interconnected. Instead of creating digital business functions for each channel, the development of one and distribution on all channels through a central hub becomes relevant. This requires a central multi-channel digital banking platform to interact with customers through any point of contact.
2. Modular banking. Thanks to the modular architecture, banks can innovate quickly and according to customer needs. The modular architecture gives the bank the opportunity to go beyond responding to market realities and actively create them together with the client.
3. Open banking. Banks need to open their application software interfaces. Used properly, it can help them improve their products and services. Open banking has several elements: access to connections; distributed work; unit production; common meaning; wealth management.
4. Smart banking. Effective segmentation, targeting, and tracking are done by collecting data from various sources and analyzing them to create effective statistics [13].

It should be noted that the development of financial technologies, on the basis of which innovations in the field of digital banking are implemented, leads to the formation of financial ecosystems – systems that combine the use of digital technologies of all financial market participants. However, it should be emphasized that financial ecosystems will develop only if the bank will form its basis. Therefore, only in the case of the introduction of financial technologies in banking and their appropriate regulation, they will move to full-fledged banking products and innovative services designed to increase fictitious capital.

In particular, according to Yu. Onyschenko, now banks have started to create financial supermarkets, where a wide range of innovative digital products and services was presented to the client, not only banking but also offers of the bank's partner companies. This approach proved to be beneficial for all parties involved: for customers, for the banks themselves, and their partners. The financial ecosystem is much more than a financial supermarket, it combines many services of different nature on one IT platform, and their providers are not only the banks themselves but also third-party organizations, so the customer gets in one place in one platform all the services it needs at the moment. The key trend in the development of ecosystems is the active struggle for the customer and the share of products and services provided to him. At the centre of any ecosystem is always the customer [15].

In addition, the feasibility of banking innovations, as already mentioned, is based on the potential market size that they create for the bank itself by improving banking products and improving the efficiency of interaction with customers. In this aspect, it is worth assessing the forecast made by Business Insider experts regarding the financial capacity of the market of innovative banking products (Figure 2).

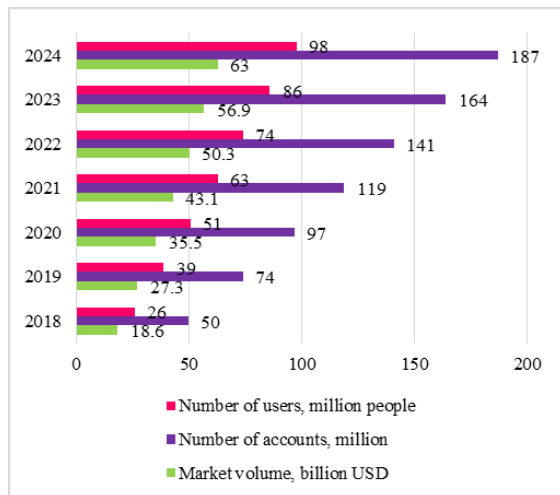


Figure 2 - Digital banking market [7]

As can be seen, the prospects for the development of digital banking are able to provide a high level of profitability to any bank that is able to provide an appropriate level of funding for the implementation of innovative solutions in its activities.

5 Conclusion

Thus, we can conclude that in the context of intensive digitalization of economic relations in general and taking into account the processes of transformation of banking into digital banking in particular, management of banking innovation should be considered as a process of financing the development and implementation of new digital banking technologies activities of the bank. At the same time, it is an objective necessity to use automated management systems for banking innovation, which are based on cognitive technologies and artificial intelligence, in order to increase the efficiency of innovation management and to ensure the appropriate level of efficiency in a dynamic market environment, possible only with the use of digital technologies.

It is also important to prioritize the subordination of organizational and economic transformations of banking to the requirements of modern digital banking, focused on achieving the strategic goal of the banking institution, as well as aimed at meeting the innovative digital needs of bank customers. Therefore, the overall improvement of the banking innovation management system should focus on ensuring the implementation of integrated digital solutions aimed at both organizational and economic improvements of banking products and to meet customer needs in digital innovative products that meet their needs. Only on this basis is it possible to successfully implement the innovation policy of banking institutions.

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