

## MANAGEMENT BANKING INNOVATIVE FINANCIAL TECHNOLOGIES IN AGRARIAN SPHERE

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### ABSTRACT

The essential characteristic of innovations and their functions is realized, economic content and varieties of banking and financial innovations are determined; Specifics, tasks and principles of management of them are specified.

The preconditions of emergence of innovative financial technologies of banks and the methodological basis for forming the mechanism of their implementation are substantiated; systematized scientific approaches to the influence of institutional factors on the development of innovation and financial technologies.

The specifics and tendencies of service of banks by subjects of agrarian sphere are revealed; evaluated the banking policy and reviewed the existing proposals of innovation and financial technologies in the agrarian sector; the risks, threats and risks of introduction of banking innovations and financial technologies are determined; The influence of communications on the development of management of innovation and financial technologies of banks in the agrarian sector is described.

The strategic guidelines for the development of banking innovations and financial technologies in the agrarian sector are determined; the concept of functional-purpose model of bank financial reengineering as an instrument of harmonization of service of subjects of agrarian sphere is substantiated; developed the concept of development of innovative financial technologies for corporate clients of the agrarian sphere; A scientifically substantiated complex system of measures for the formation of client-oriented innovation-financial technologies in the agrarian sector was proposed.

**Keywords:** management, innovative and financial technologies, subjects of the agrarian sphere, bank policy, implementation mechanism.

**JEL classification:** O32, Q55, Q14, G32

### **FORMULATION OF THE PROBLEM**

Currently, banking business is represented by continuous financial and technological improvements, a variety of banking products as well as the development of communications with agricultural actors. It is important for banks to predict the trends of changing customer preferences in the agrarian sector in order to timely and qualitatively meet new demands. To do this it is necessary to develop and implement innovative financial technologies in the agrarian sector which involves the formation of not only unique banking programs but also more efficient communications that can reduce bank costs and increase profits.

This leads to a rethinking of the methodological tools for the development of banking innovative and financial technologies in the agrarian sector and in-depth theoretical studies, the search for new approaches and the development of practical recommendations for defining the tasks and possible vectors of the formation and advancement of innovation and financial technologies of banks in the agrarian sector adapted to the domestic economic realities. Significance of this scientific problem is actualized by the fact that a significant group of subjects of the agrarian sphere is in a difficult financial situation which requires unconventional innovative financial technology and methods of banking services and promising communications.

The expediency of the definition and scientific substantiation of the directions and tasks of development of management of banking innovative and financial technologies in the agrarian sector of Ukraine for the crisis imbalances of the economic space in accordance with the challenges of today and the demands and requirements of the modern stage of its progress, the need to determine the possibilities of development of innovation and financial technologies of banks in the agrarian sector, the development of strategies for their growth and the vectors for the formation of client-oriented innovation and financial technologies in the agrarian sector confirmed the relevance of the choice of research topic.

### **ANALYSIS OF RECENT RESEARCH AND PUBLICATIONS**

Y. Bajal is convinced that M. Tugan-Baranovskyi is „the founder of the innovative theory”. His ideas were highly appreciated by J. M. Keynes and researcher U. Rostou who in his excursion "Theorists of economic growth from David Ume to the present time ..." argues that "the scientific platform of the theory of economic growth of

business cycles began to be formed based on the works of M. Tugan -Baranovskyi and his progress was obtained with the intelligence of A. Spithof, G. Haberler, M. Kondratyev (the role of innovations in the cyclical fluctuation of macroeconomic indicators of the countries was determined), J. Schumpeter (famous work: "Business cycles"). Interestingly the translation of the term "innovation" from English "innovation" in their writings is interpreted by scientists in different ways. In language dictionaries we find that this means "introduction of innovations" or "introduction of new" that is it involves the use of innovation and "from the moment of adoption to the spread of innovation acquires a new quality and becomes an innovation." Thus the term "innovation" is defined as the transformation of the potential of "scientific and technological progress into real achievement, embodied in new products and technology" [4]. In scientific use the concept of "innovation" was introduced in the 19th century in the theory of anthropology and ethnography, in defining the processes of change and interpenetration of cultures of different people.

However, this concept was widely used in economy in the 20th century after the publication of J. Schumpeter's works on "new combinations" which are the generator of entrepreneurial profits and the factor of influence on cyclic crises and which the scientist interpreted as "innovations".

According to J. Schumpeter's identification new combinations determine the progress of production through the application of some new combination of resources and new ideas that produces innovation.

### **FORMULATING THE GOALS OF THE ARTICLE**

The object of the study is the management of innovation and financial processes and phenomena in the banking and agrarian sector. The subject of the research is the theoretical and practical principles of management of innovation and financial technologies of banks in the agrarian sector.

### **RESEARCH METHODS**

The theoretical and methodological basis of the research is general scientific postulates of fundamental theories of innovation and finance, management, publication of leading domestic and foreign scientists on the management of innovative and financial technologies of banks in the agrarian sector.

The system and integrated approaches were used in the work which provided the research on the management of innovation and financial technologies of banks in the agrarian sector. The solving of certain tasks is accomplished by combining evolutionary, logical, comparative and structural methods, in particular:

-the evolutionary method (for determining the stages of development and the categorical apparatus of the theory of innovation); logical-cognitive (for substantiation of definitions concerning the development of innovative financial technologies of banks in the agrarian sector); system-structural method (for the allocation of a dynamic approach in the study of the nature of management innovation and financial process);

-semantic and content analysis (to characterize dynamic research in banking); structural-logical analysis (for structuring the process of development of innovative financial technologies of banks); complex analysis (to highlight the stages of development of banking innovation and financial technologies in the agrarian sector and to develop a model of the mechanism for their implementation);

- abstract-logical (in the study of the specificity of innovation activities of banks in the agrarian sector); economic-mathematical and economic-statistical methods (cluster, regression, trend, multivariate comparative analysis);

- in the instrument of diagnostics of dynamics of development and activation of innovative and financial technologies of banks in the agrarian sector.

### **PRESENTATION OF THE MAIN RESEARCH MATERIAL**

The essential characteristic of innovations and their functions was fulfilled, economic content and varieties of banking and financial innovations were determined; specifics, tasks, classification of innovational-financial technologies of banks and principles of their application are specified.

Innovation is a decisive tool for increasing the competitiveness and economic upsurge of each economic entity. In order to successfully transition to a competitive business model, the platform of which is the growth of knowledge and innovation, it is necessary to create conditions that activate the innovative processes of all economic actors. The complexity and multidimensionality of the above-mentioned task caused the emergence of different theories about the development and progress of innovative procedures. It was found out that the features of banking innovation and financial technologies (IFT) should be considered: "mandatory sale or realization of a financial transaction on the market; high functional dependence on time factors; relatively short life cycle; availability of mass and individual demand;

high rate of distribution of profitable IFT; the chain of character of the diffusion of IFT; minimum costs of IFT generation and provision; availability of IFT limitations; the existence of various forms of IFT (real and virtual means, property rights) ".

The tasks of management of innovation and financial technologies recognized: the formation of certain values; production of certain products on request of customers; collection, systematization and transmission of information flows; the formation and use of various means of communication, etc. The objective principles of the formation of innovative financial technologies by banks are: target orientation - ensuring the needs of the bank and customer requirements; manageability of innovation and financial technologies by bank employees; technological innovation of financial technology; efficiency of functioning of innovative and financial technologies; compliance with financial capabilities of the bank, society, clients.

Diagnostics of modern trends of innovative banking business combined with existing developments in the typology of innovative financial technologies of banks allowed us to develop an author's classification based on the criteria of coherence, chain combinatory of their development, customer orientation, business configuration, implementation platform, reliability of the ecosystem which significantly expands the range of capabilities of the multi-dimensional characteristics of innovative financial technologies of banks and contributes to their more precise formalization, structuring and so on in-depth assessment, provides a more detailed picture of what needs to be changed and what effect is being achieved.

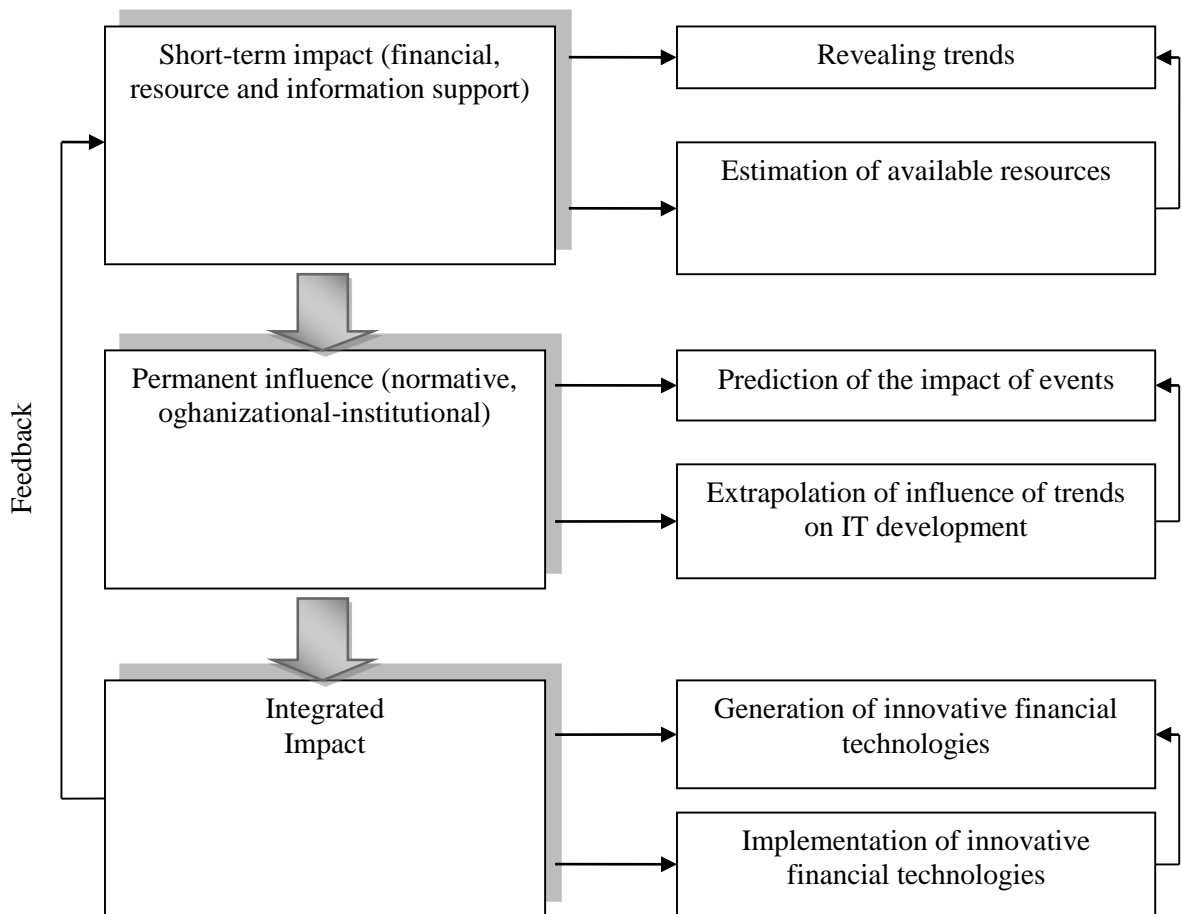
At the same time the developed gradation demonstrates the dynamism of procedures inherent in modern banking.

The prerequisites of emergence of innovation-financial technologies of banks are outlined and the methodological basis for forming the mechanism of their implementation is substantiated; generalized scientific approaches to the influence of institutional factors on the development of innovation and financial technologies.

It is revealed that the key motive for the development of innovative financial technologies is the desire and aspiration of the economic agent to have a strategic perspective in general and to pursue an innovation policy in particular.

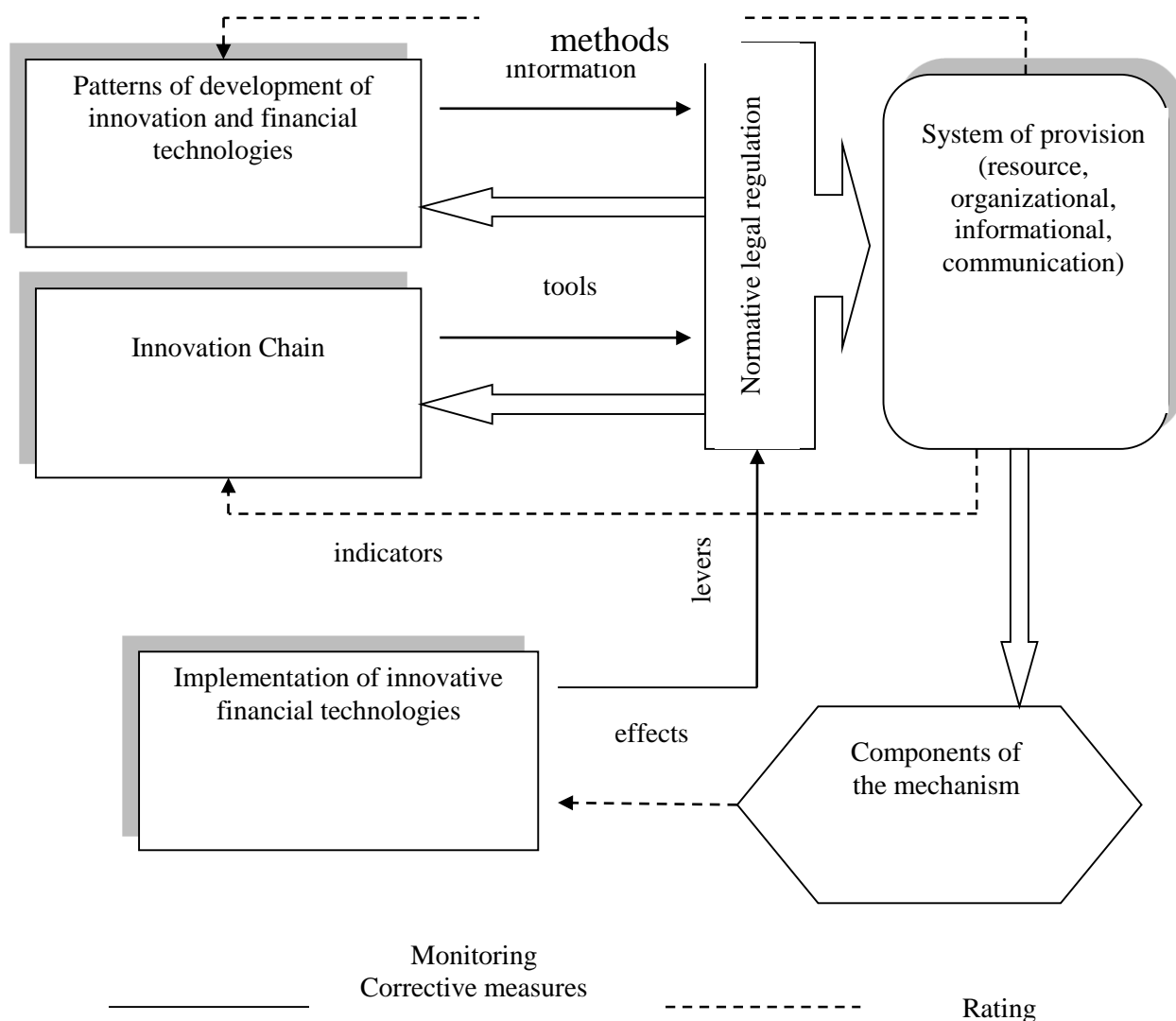
The scientific approaches to the differentiation of macroeconomic prerequisites for the introduction of innovative financial technologies of banks have been improved which unlike existing are based on their segmentation on the criterion of influence on a permanent and short-term basis and according to the essential criterion, the prerequisites of normative, organizational-institutional, financial, resource and

information providing which allowed to clarify and deepen the theoretical aspects of their meaningful content and influence (Figure 1).



**Figure 1:** Scientific approaches to the establishment of the macroeconomic prerequisites for the introduction of innovative financial technologies of banks

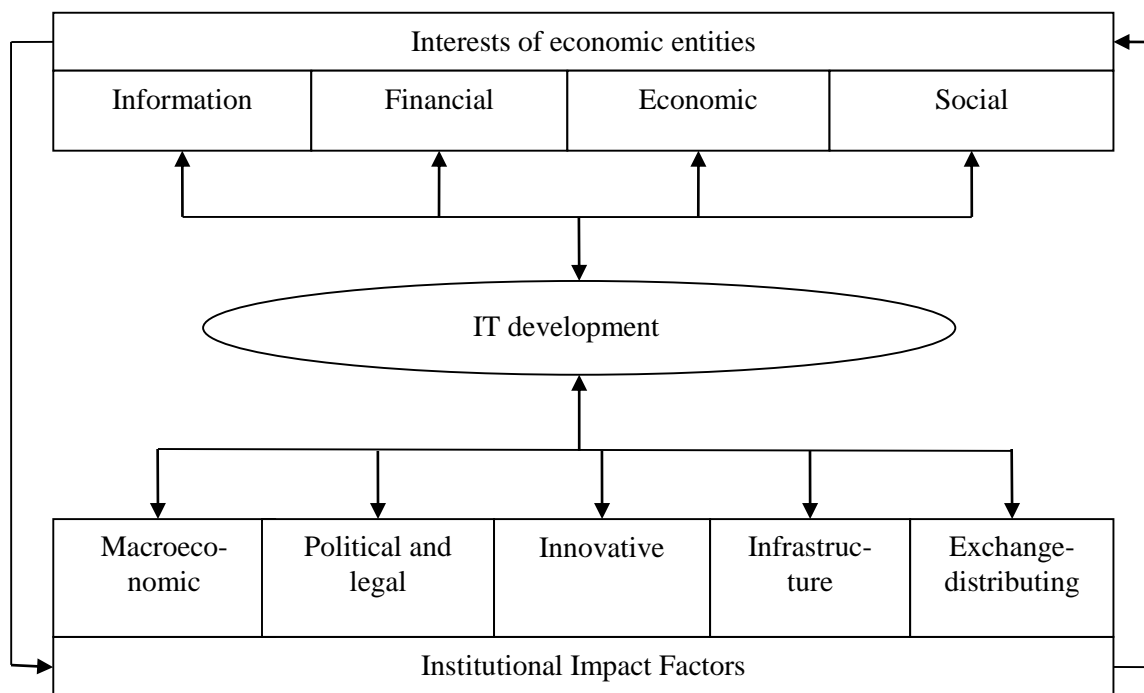
The factors determining the feasibility of introducing innovative financial technologies by banks are determined, namely: expediency of support of profitable functioning of the bank in the short-term and strategic perspective; the bank's ability to generate new financial flows through the development of innovative financial technologies, high quality customer service which is ensured by the implementation of innovative measures; increasing transaction efficiency which in the current circumstances can no longer be a consequence of the sole saving of resources but requires the development of process innovation and financial technologies.



**Figure 2:** Methodological basis of the formation of the mechanism of implementation of innovative financial technologies of banks

The methodological basis for the formation of a mechanism for the introduction of innovative financial technologies of banks is proposed based on two types of structural and logical matrices on the basis of which the laws of technological development are determined and innovation chains are formed which have a cyclical character and probabilistic characterization concerning the structuring of the hierarchical set of component mechanisms, modulation of segmental innovation tools, normative legal regulation, resource, organizational, informational support, system of levers tools, methods and indicators (Figure 2).

Support for the effectiveness and efficiency of the mechanism for the introduction of innovative financial technologies enables: to clearly outline all its participants and measure their responsibility; to ensure the functional implementation of its stages with the establishment of feedback and the implementation of corrective measures; reduce time and reduce costs for the provision of innovation and financial technologies; to create a balanced, strategically sound portfolio of innovative financial technologies; to constantly monitor the development of innovative financial technologies.



**Figure 3:** Scientific approaches to assess the impact of fiscal factors on the development of innovation and financial technologies

The scientific approaches to assess the influence of institutional factors on the development of innovative financial technologies based on the transformation, hierarchy, interdependence and satisfaction of the interests of various economic entities, the organization of information and resource processes, exchange-distribution flows between financial, regulatory, innovation and infra-structural institutes (Figure 3).

The specifics and tendencies of service of banks by subjects of agrarian sphere are revealed; evaluated the banking policy and reviewed the existing proposals of innovation and financial technologies in the agrarian sector; the risks, threats and risks of introduction of banking innovations and financial technologies are

determined; the influence of communications on the development of innovative financial technologies of banks in the agrarian sector is described.

Banks are interested in developing and mastering innovative financial technologies in the agrarian sector which contribute to the improvement of the quality of service solutions, as well as the modernization of competitive market positioning tools to minimize operating costs and optimize pricing policies that would meet the growing competitive position. However, despite the banks active development of loyalty concepts it should be noted that they now have some drawbacks and peculiarities of implementation that reduce their effectiveness and don't allow to achieve the desired tasks, in particular:

-the meaning of many loyalty concepts is focused on VIP-servicing of corporate customers due to relatively high incomes that the banking structures receive from their interaction with them; a deficit in domestic banks of high-tech, individual that is focused on a certain cluster of consumers of the bank, costly, integrated loyalty concepts due to insufficient development of innovative financial technologies of banks and a lack of understanding of the importance of their mastery by senior management of banks;

-loyalty of consumers is closely intertwined with the quality of service provision by the bank and given the low quality of service in domestic banks, the effectiveness of the implementation of these loyalty concepts is also considered low; the lack of feedback from the client, limited awareness of domestic banks about requests, values, wishes and problems of their own consumers reduce the productivity of the development of loyalty concepts, prevent the formation of partnerships between the banking institution and the client and often lead to a client's transition to another banking institution.

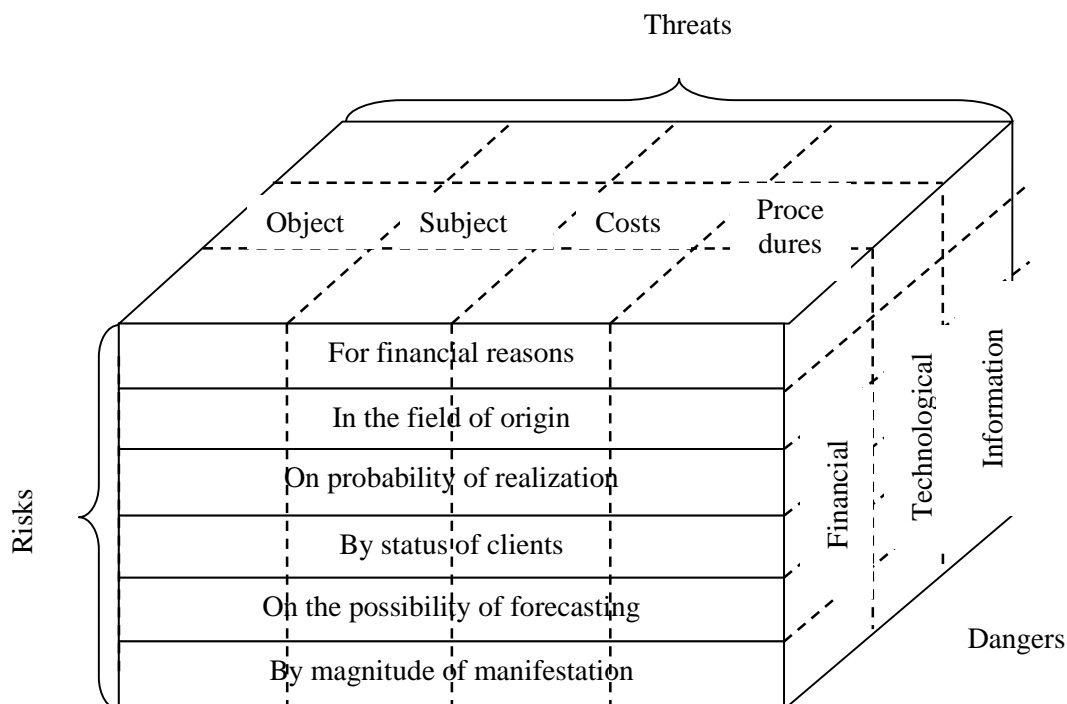
It is emphasized that in general the effectiveness of the development of innovative financial technologies in the agrarian sector in the domestic banking business is rather low (Table 1).

Therefore the diagnostics of the achievements of the development of innovation and financial technologies in the agrarian sector by domestic banking institutions has been carried out, indicating that currently Ukrainian banks individually implement separate elements of innovation and financial technologies in the agrarian sector and have a number of applied problems in establishing partnerships with customers, namely: shortage of developed chain of realization of perspective client-oriented strategies with outline of stages, parameters, conditions of their development in the bank; low level of customer service and the expediency of mastering a complex of special measures to increase the quality of banking services.

**Table 1: Characteristics of the effectiveness of innovation and financial technologies in banks of Ukraine**

Indexes	Bank groups			Together
	big ones	average	small	
Assessment by resource management banks introduction of innovative financial technologies (IT)				
Resource provision is sufficient for the development of IT	12,6	5,7	1,8	6,7
Resource support is limited to the development of IT	35,7	32,7	28,3	32,3
Resource support is limited to the development of IT	43,3	34,1	30,6	36,0
Resource support is not sufficient for ITT development	8,4	27,5	39,3	25,0
Factors that reduce the efficiency of innovation and financial technologies				
Low awareness of IT clients	27,5	32,5	14,3	24,7
Unwillingness of clients to use ITT	32,6	41,3	15,3	29,7
Lack of unified information bases	17,8	21,5	27,4	22,2
Lack of necessary communications	15,6	27,3	31,8	24,9
Unwillingness of bank staff to use ITT	18,5	26,4	34,1	26,3
Lack of special research	17,5	25,4	41,7	28,2
Limited financing of ITT	53,3	75,4	78,5	69,1
Low level of interaction between departments	16,7	26,5	17,5	20,2
Limited communication channels	15,4	25,3	37,4	26,0
Low qualification of specialists	10,6	23,6	18,8	17,6
Lack of specialists in the innovation department	16,7	23,8	30,8	23,7
Low network branching	15,4	25,8	78,3	39,8
The lack of adapted techniques for assessing the effectiveness of ITTs	24,3	34,1	37,4	31,9
Undeveloped ITT implementation strategy	14,7	27,4	43,1	28,4

The approval of a new creative knowledge economy on the domestic territory sparked the emergence of qualitatively new challenges in the banking business. Thus under the influence of destructive phenomena, they acquire a modern color and innovative financial technologies in banking (Figure 4).



**Figure. 4:** Development of negative impact on the object from risk to threat

Given the current situation in the country for banks, the security frontier for the development of banking technology innovation in the agrarian sector, the amount of financial resources should be about 100 billion UAH (Table 2).

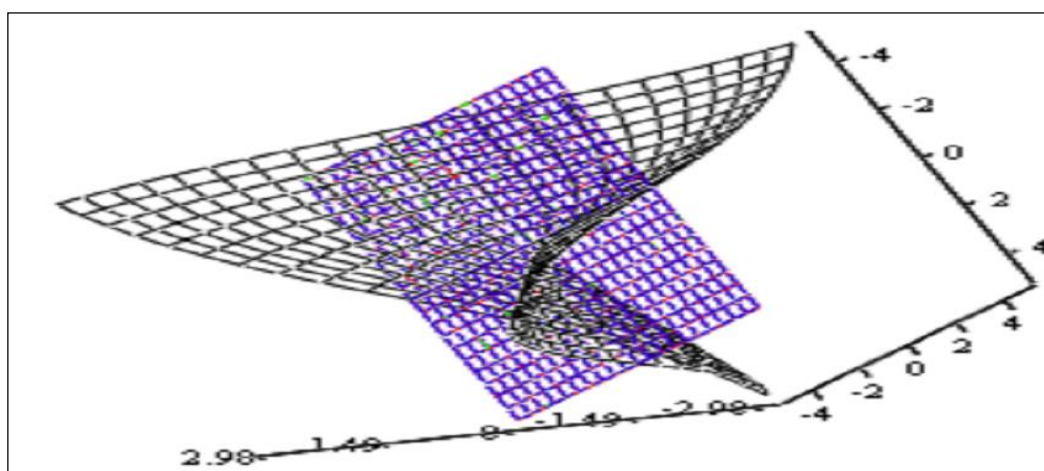
The narrowing of the bank's fixed communications in the region is regarded by clients as a source of difficulties in the bank which inevitably leads to a decrease in confidence in such banks by economic entities. At the same time the subjects of the agrarian sector can't use the new terms of service due to a shortage of technological support for communication with the bank.

**Table 2: Calculation of capital by the method of VIA (Budget Impact Analysis) to cover the innovation risk of Ukrainian banks, UAH million.**

Indexes	Year				
	2013	2014	2015	2016	2017
Interest income	113 334	113 352	117 547	129 932	151 257
Interest expense	61 409	59 506	68 204	80 881	97 171
Net interest income	51 925	53 846	49 343	49 051	54 086
Commission income	15 270	15 473	21 161	24 974	28 276
Commission costs	2 660	3 072	3 080	3 975	4 889

Net commission income	12 610	15 401	18 081	20 999	23 387
The result of trading operations	2 207	3 993	3 231	3 304	15 511
Gross net income	66 742	73 240	70 655	73 354	92 984
Average income over the past three years			70 212	72 416	78 998
Capital for innovative risk coverage calculated using the VIA method			10 532	10 862	11 850

The proposed multi-criteria assessment of the impact of digital communications on the activation of innovation and financial technologies of banks in the agrarian sector involves outlining the range of external and internal factors, formalizing the interdependencies of the development of the digital communications of the bank and the amount of innovations (Internet and mobile banking, branching out of communications, payment terminals, cash machines, implementation of payment cards) (Figure 5).



**Figure 5:** Multi-criteria assessment of the influence of digital communications on the activation of innovation and financial technologies of banks in the agrarian sector

## CONCLUSIONS

According to the results of the work we can draw a number of conclusions:  
The theoretical platform for innovation is in constant development and it reflecting complex and multifaceted processes of scientific and technical, economic and social development of society is being modified and enriched. The goal of each innovation is to meet the specific needs and demands of consumers fluctuating due to social progress.

Diagnostics of modern trends of innovative banking business in conjunction with existing developments regarding the typology of innovative financial technologies of banks allowed to develop an author's classification which would serve as the theoretical platform for organizing strategic adjustments to the innovations in the bank outlining the content and nature of the bank's strategic prospects. It makes it possible to identify the patterns and disadvantages of mastering innovations in the bank (since the dominance of some kind of innovative financial technologies determines the type and orientation of the bank's innovation strategy) and to design the necessary economic and managerial models and innovation chains (as they are defined precisely by the type of technologies being implemented and the developed by an innovative perspective).

The mechanism of management of the introduction of innovative financial technologies which has a cyclical and probabilistic character is usually outlined: the number and uncertainty of the directions of achievement of tasks and high risk; asymmetry and lack of information for the adoption of harmonious measures; impossibility of detailed forecasting and orientation to predictive indicators; the expediency of eliminating resistance and resolving conflicts that arise in the process of introducing innovative financial technologies.

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