

## Problems investment support innovative development of the national economy and solutions

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**Abstract.** This paper highlights the main problems of investment support innovative development of the national economy. Noted the need for incentives to attract venture capital, create an enabling institutional environment for innovation, fostering innovation at all stages, creating a legal environment conducive to high-tech industries, the development of intellectual property, development of specific infrastructure innovation.

**Key words:** investment providing, innovation development, innovation activity, the national innovation system, foreign investment, savings, venture capital.

### INTRODUCTION

The low level of investment activity in Ukraine is particularly aggravated the global financial crisis caused mainly by factors such as worsening mortgage crisis, high levels of external debt, the failure of Ukraine's commitments to international organizations in the legalization of shadow capital and return on investment, imbalances and instability in investment activity and economic freedom, the outflow of capital, lack of effectiveness of changes in the financial market of Ukraine. This will certainly affect the formation and resource financial system in general and investment support innovation in particular.

The economic development of the country must be accompanied by a steady increase in the competitiveness of industrial products. Basis of national industrial policy should be the establishment of Ukraine as a state with advanced, industry is able to produce the latest high-quality products.

There are two ways to improve the competitiveness of industrial products: lower prices and improve quality [4]. Domestic producers have realized that commercial enterprise can survive only under conditions of continuous

improvement of technical, economic, market indices of manufactured products. To solve this problem only through the constant introduction of innovative projects crossing the path of innovative development of the whole industry.

In the current economic conditions appears a problem of finding and effective use of financial resources, the improvement of the financial mechanism of innovation priorities of the national economy.

Addressing the innovative development of the national economy – complicate and lengthy process of overcoming them requires immediate action, raising funds, which determines the relevance of research investment problems of innovative development of the national economy.

Many works of native and foreign scientists such as I. Alekseev, A. Galchinskiy, V. Denysyuk, P. Druker, L. Fedulova, R. Kaplan, M. Kizym, S. Komlev, O. Kuzmin, L. Krushvits, O. Melnyk, D. Norton, V Osetskiy, M. Pashko, M. Porter, N. Chuhray, J. Schumpeter etc. are dedicated to innovative development of the national economy, especially its financial support, solutions to these problems. However, despite the great interest of scientists in solving a given problem and a large number of works devoted to her many problems associated with investing innovation development remain. In particular, there is a need to explore deeper issues of investment innovation. There is a need to identify factors enhance innovation processes and the choice of effective forms of investment innovation [2,3,4,916].

### ANALYTICAL INSTRUMENTS

Introduction of innovative technologies aimed at improving the effectiveness and efficiency of management. Thus, effective financial management is

directly related to funding and innovation, providing investment in these innovative programs and projects that provide a high financial return.

Investing innovative processes is risky, but if successful, the return on investment is much greater than the current activity. Typically, companies seek to finance projects with significant potential for efficiency and provide them high profits. It is a scientific and technological innovation, organizational, economic and social spheres. The economic results of their implementation depend primarily on the characteristics of the innovation, but of great importance for the successful implementation of an innovative project with conditions to attract financial resources and, therefore, a source of funding.

V. Denysyuk notes that increasing innovation activity at all levels of the national economy is a priority of state policy. The author notes that funding is fundamentally a factor of innovation, which requires appropriate conditions of formation of investments, reducing the risk of financing innovative projects, optimize the structure, organizational forms and sources of funding. V. Denysyuk emphasizes critical financial support for highly knowledge-intensive industries and stresses the need to increase the volume of private investment in high-tech manufacturing sector. It should agree with the author's conclusions about the need to diversify sources of funding for innovation sector and ensuring the proper and effective use of funds [3].

A. Shnytko proves decisive importance of accumulation of capital in the industry to ensure a high level of competitiveness of the economy. The author notes that this process should be based on technological modernization and improvement of material and technical base of production. It should be noted that the innovative activity gives the opportunity to create "new investment" through the development of innovative technology products, which is the basis for the intensification of economic growth [14].

A. Galchynskiy and S. Levochkin substantiate the importance of national investment model of economic growth. The authors point out that the investment model should provide not only sustainable (long-term) growth but also structural and investment updates economy. I must agree with the authors regarding the direction of increasing financial security that affect the innovative activity of enterprises. Among the areas highlighted the development of technology parks. His study authors demonstrate the importance of intensive technical and technological renovation of production, the underlying structural innovation model of economic growth [1].

L. Fedulova and N. Pashuta say that the problem of financing R & D and innovation are complex. The priority in this area is to determine the optimal balance in the amount of financial resources allocated for the implementation of individual stages of the acquisition, use, and create new knowledge. The authors note that the

slow and insufficient volume of financial support in all stages of the innovation process underlying negative trends utilization and development of innovative potential at all levels of the economy. Partly it is necessary to agree with the statement of the authors that the increase in foreign investment is an important factor positive impact on the effectiveness of the innovation process. Foreign investment innovation sector certainly has undeniable benefits for foreign investors mainly focus on long-term infusion of large amounts of money, give advice, know-how and so on. At the same time foreign agents pursue their own interests, as seeking to increase profits from the use of investment resources. They are the owners of that created by the resources provided by them, even if manufactured products or results of the research will be used on the territory of Ukraine. Because of this, foreign investment only partially positive for the national innovation development and can be used in cases of shortage of national investment [16].

O. Lapko notes that the resource potential of the country is the subject of innovation policy. Financing innovation process, as it follows from the study author, is an important factor in improving the efficiency of the national economy. Therefore policy should provide for an increase in financial investment in an innovative sector, primarily by stimulating the private sector to invest. You must use diversified instruments of state influence, form which must be based on international experience and national identity [10].

M. Sharko writes that a model of the national innovation system of Ukraine should include a system of financing innovation that would hide features of modern investment process in the country. From the author's research shows that government involvement in the provision of financial innovation activities of the corporate sector needs to grow primarily not to the extent of direct funding and in the organization, indirect regulation of financial investments and monitoring effective (intended) use of funds.

The effectiveness of innovative development largely depends on the availability of optimal (cost recovery) of investment sources. The term "investment" means investment in all its forms in different objects (tools) its business activities for profit and to achieve other economic or non-economic effects, based on market principles and factors associated with time and liquidity.

When it comes to investing innovation development entities, this process can be described as follows: the process of investing capital (physical, intellectual, etc.) at any changes that lead to the creation of new (better) goods, products, technology, process implementation of new ideas, object embedded to save the others, which will allow domestic enterprises to enter the higher, better, energy and materials retaining level of development.

In today's economy development the key to successful management of domestic enterprises is the

consideration of the features of the process of organization and management, establishment of organizational and management capacity, maximize and optimize the use of investment resources. This is important to establish a resource potential of the company that provided the opportunity to achieve a timely and complete implementation of the goals of innovation development.

One of the main tasks of the resource management in the process of innovation is to ensure the formation of sufficient investment resources according to the projections of innovation. This problem is solved by balancing the amount of attracted investment of resources in all their forms (cash, inventory, intangible) with projections of innovative activity. Important role in the realization of this objective justification schemes of financing plays some real projects and optimize the structure of sources of capital for innovation enterprise as a whole and to develop measures to attract them various forms of capital invested with alleged sources.

Also, the issue of financing of innovative development entities closely associated with the provision of financial balance in the process of innovation. The equilibrium is characterized by a high level of financial stability and solvency of the enterprise at all stages of its development. It is one of the most important conditions for effective implementation of enterprise investment and innovation. This is a significant diversion of resources invested in large amounts and is usually for a long period. In addition, cash flows for innovation differ substantially uneven and highly probable that they will return. Therefore, implementing innovation in all its aspects, entities must predict in advance what effect it will have on the level of financial stability and solvency, and optimize for that purpose structure of capital invested.

Thus, in the process of investing innovative development companies certain tasks must be optimized together to effectively implement their strategic goals. Ranking individual tasks performed by determining the significance of each of the priority given to the position of enterprises and increase their market value.

The results indicate that the unavailability of bank loans to domestic enterprises inability of the state to be an investor, if you have a huge free outflow of funds abroad much weight gain foreign investments.

Making using of successful foreign investment enterprises could expand the total market size of goods, services, labor and thus contribute to the revival of the economy. By way of purchase of shares by foreign investors and enterprises are able to provide start-up capital production facilities that are idle. Foreign investment could be an important factor in economic growth in Ukraine, but did not contribute to this lack of volume and, consequently, a very small proportion of them among the means obtained for the revival of production [11].

In developing countries and in transition economies, foreign investment is considered an important source of organizational and technical innovations. Among domestic scientists, economists and experts widely believed that most foreign investors are able to reorient the economy of Ukraine on innovative rail. However, as the analysis shows, in fact, foreign investment coming to Ukraine remain low and their structure does not allow hope for their innovative nature, due to the unstable political situation in the country and imperfect tax legislation.

It is estimated that annual investment need for foreign direct investment exceeds \$ 4 billion. USA. Since independence, Ukraine has been able to attract as of January 1, 2013 only \$ 4.1 billion. USA foreign direct investment is 112 dollars per 1 resident of Ukraine. The largest investor countries act Cyprus, Germany, Netherlands, Russia and others. In 2012, the increase of foreign capital amounted to 4681.2 million. Which is 25.3% less compared with their growth in 2010 [17]. In comparison, foreign investment in Poland is \$ 40 billion, Hungary - 17 billion. USA.

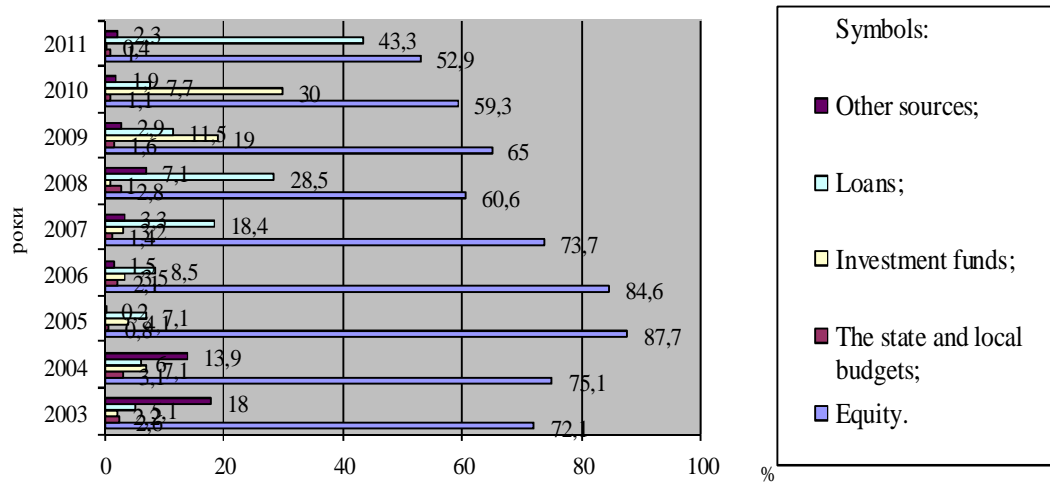
The most attractive for investments in Ukraine are wholesale companies and Brokering - \$ 996.3 million USA (15.0% of total investments) and light industry - \$ 988.3 million USA (14.8%) [131]. Investment is generally attractive projects that are implemented in such economic activities as metallurgy and metal processing - \$ 368.3 million USA (19.2%), light industry - \$ 182.9 million USA (13.1%), extraction of power metal - \$ 127,3 million USA (8.4%), manufacture of machinery and equipment - \$ 101.1 million USA (7.2%), hotels and restaurants - \$ 92.7 million USA (6.6%), chemical production - \$ 82.8 million USA (5.9%) [5].

In 2001-2011 years was the main source of funding for technological innovation by companies' own funds, whose share in total financing innovative activities ranged from 59.4 (2010) - 87.7% (in 2005), although in 2011 share fell compared to 2010 - by 6.5% (Picture 1).

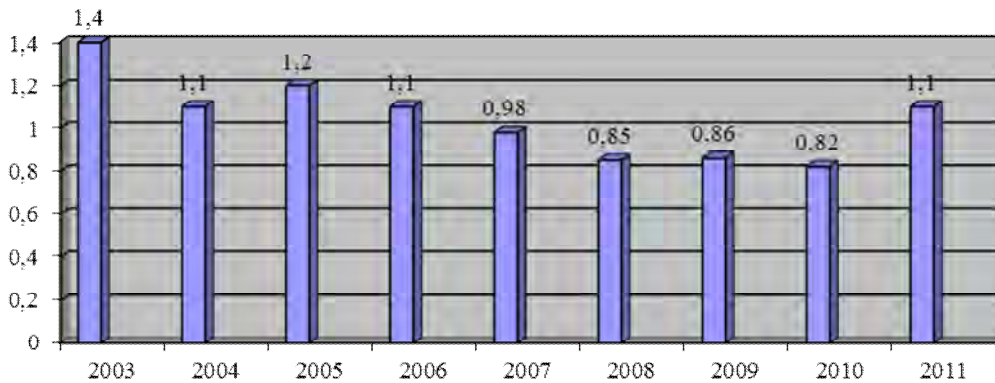
Funding innovative work on the state budget is also characterized by a tendency to decrease: from UAN 336.9 million in 2008 to UAN 149.2 million - in 2011. Moreover, its share was only 1.0% compared to 2.8% in 2008.

In the financing of innovation companies used foreign investors, particularly in the amount of UAN 56.9 million or 0.4% in 2011, which is lower by UAN 2354.5 million or by 29.6% than in 2010, due to the effects of the financial crisis and distrust of foreign investors in the domestic business environment.

The structure of financing innovation in recent years there have been some positive changes, as observed in the dynamics of growth in respect of innovation, as evidenced by an increase in attention from enterprises to the development of innovations. Moreover, despite the negative impact of the economic crisis, funding for innovation has slightly increased: at UAN 6288.4 million. in 2011 compared to 2010.



**Picture 1.** Financial sources of innovation activity in Ukraine in 2003-2011 years \*  
 \*Note: Done with materials of the State Statistics Committee of Ukraine [17]



**Picture 2.** The share of funding scientific and technical work in Ukraine's GDP, %\*  
 \*Note: Done with materials of the State Statistics Committee of Ukraine [17]

In spite of the President of Ukraine Decree of 20 August 2001 that the Cabinet of Ministers of Ukraine instructed to provide since 2002 in projects Ukraine's state budget funds for financing scientific and technological activities in accordance with the Law of Ukraine "On research and scientific and technical activities" (1991) of 1.7% of GDP, the actual amount of such state funding is less than a half (Picture 2). The analysis also shows that by far the funding of innovation activity in Ukraine due to the development of III and IV of the technological structures. Hence, emerging economic model, which in its basic characteristics requires innovation does not form an internal effective demand for innovative products, has incentives to invest in human capital.

The effectiveness of innovation and technological development depends on adequate funding. The level of funding for scientific and technological sphere in the modern world is defined objectives that apply to the relevant sectors of the political leadership of a particular State, and is a key factor in realizing these objectives. In particular, if the country's spending on science do not

exceed 1.1% of GDP, its scientific potential can realize only a very limited objective functions. Only after going through this index certain threshold (at least 1.7% of GDP), which has a degree of scientific and technological development, can provide real impact of scientific and technological advances on the economy - a prerequisite for the transition to innovative development of society, and its science becomes a direct productive force.

Today in Ukraine own investment resources of enterprises, banks and foreign investment can not ensure economic growth, which necessitates radical revision forms of accumulation and mechanisms of transformation of savings into investment. Problem savings (real investment potential of the country is concentrated in the population is estimated at 20-25 billion dollars USA) as a source of investment is one of the most urgent and difficult in transitional economy [11]

Saving resources or "financial capacity of the population" - is the amount of effective actual demand, which is part of the personal savings of the population in the form of liquid assets and the masses paid in the

period revenues (not yet transformed into elements accumulated assets). [9] On the other hand "financial capacity" - it is not free or cash back (or other highly liquid) public resources that can be directed to different investment objectives.

It is important that in practice monetary savings do not act as a source of investment. Even if people really took the decision to invest, it does not often make it yourself, buying, for example, the securities industry. Most people trust their savings to banks on behalf manage resources. And it is not necessary that banks will invest the money in production. They can use these resources to speculation in the financial markets or, for example, give them to the state debt by purchasing government securities.

Thus, not enough people decided to invest their savings in production, has not left the money in his or offered them a loan state also requires that banks, which in most cases people trust their savings, also took the decision to invest in their production. This requires the creation and maintenance of Ukraine macroeconomic environment that will facilitate the transformation of resources into real investment demand. This state should form the legal field, in the middle of which the investor would be able to realize their economic interests without fear of limiting their rights of ownership and the investor will make a safe investment process and cheapen it by reducing transaction costs.

In a market economy transformation savings through the banking sector is the main condition for expanded reproduction. In transition economies, this transformation is not very active. Moreover, in contrast to a market economy in transition economies banking system provides virtually no capital inflow in the real sector, and its outflow. The volume of capital outflows from the sector of financial speculation abroad through commercial banks is more than half of the accumulation fund in the domestic economy [11].

In solving this problem it is necessary to use foreign experience conducting monetary policy in the restructuring of the banking sector. So, after the Second World War, Japan was a system which by Japan Development Bank, Export-Import Bank of Japan and other public institutions of ensuring economic transformation of savings into investment business. This system continues to function effectively and present. So as the world experience, revive and revitalize the economy without transforming savings into investments possible.

Examine the operation of venture capital funds allow us to draw the following conclusions. Basic research to a greater extent held by the state budget for non-returnable basis. In the second stage, the applied nature study, funded both by the budget (state scientific programs or competitive), and by the customers. At this stage, there is the possibility of losing your investment, so investment in this case is risky in nature. By attracted

venture capital funding that actively invests its funds in all phases of commercialization of innovation, and most of all - the stage of development and innovation. In developed countries, placing long-term financial resources in innovation is largely through venture capital.

Especially important venture capital is in high technology for enterprises that plays an important role in the development and introduction of new ideas and new technologies [7]. Such enterprises in developed economies are quite common. In particular, in Canada for the last time, the amount of venture funding has increased dramatically due to the development of the sector in the economy, which is based on high technology. Along with growth in venture funding increases investments in innovation projects. In addition to investment projects already known venture funds involved and the newly created. They not only invest in projects, but also participate in the management, create "incubators" for the maintenance of high-tech firms and companies. Rising quantitative indicators in Canada is accompanied by qualitative changes in the activity of innovative entrepreneurs. In the last three or four years they were much bolder and invest their money in new companies at the earliest stages of their development. It is very important for the development of science-tech sectors of science, and the fact that young innovative companies is possible, if necessary, to attract sufficiently large volume of funds is in the early stages of development. According to experts, to realize their potential high-tech companies at each stage of development should tend increasingly large capital injection [7].

Some venture projects funded by grants through international funds and programs of technical assistance. Most funding for innovative entrepreneurship works in Ukraine through lending business development. Mechanism of earning profit venture funds and banks differ. Venture capital funds provide funds to enterprises on non-returnable basis, and in return they receive securities confirming the right to participate in business and in the distribution of income. Typically, venture funds do not acquire shares in the secondary market, and there are private equity funds. The purpose of the venture business is getting excess profits after technological innovation cycle and simultaneously output from these sector entities after them their mission. This procedure is called "leaving the business venture" and performed in the following forms [15]:

- a public sale of shares;
- sale of shares to a strategic investor;
- sale of shares to financial investors.

Poor business venture in Ukraine is largely due to the poor development of the stock market, making it difficult to profit venture capital by selling its shares. But the main reason which is the most serious to the development of venture funding is a lack of legal

support. Existing legislation in Ukraine in the field of venture capital has not created conditions that would stimulate its development [12].

However, international practice suggests that an important factor activation of innovation is creating a network of venture capital funds. They first appeared in the United States, where today the most developed infrastructure of venture financing. However, the most widespread gained venture capital funding in the UK. According to the Association of European venture capital funds, about half of all Western European venture capital fund is at present the UK. For the survival of venture capital funds during their formation governments of many Western European countries committed full support to this new form of investment. For example, in the Netherlands developed and used a special system of state support for venture capital funds. Under this system, the government guarantees repayment of 50% of the possible losses arising from investments in venture capital funds projects of private companies. This event early 80s spurred the rapid growth of venture capital funds, respectively, active and financial investment in the economy. In Holland, the main investors of venture funds are the big banks and insurance companies. In the UK, such investors are primarily pension funds [13].

As for the stock market, in Ukraine it uses the prospective sources of financing innovation as a means to issue corporate bonds and issue of shares. However, transactions in the securities market, as international practice, are an important financial instrument investment. That is why many scholars are inclined to believe that the essential conditions to attract investment in Ukrainian economy is to increase the efficiency of the securities market and reduce investment risks. Invest

ments in real sector through the stock market, attract these goals through the stock market is not speculative domestic and foreign capital have become an important source of new economic growth. Exactly herein setting of securities is creation of a financial mechanism to launch investment for the survival and recovery industry.

Thus, the investment model of development of the national economy is a system of targeted interventions of public authorities to provide innovative economic restructuring. Such a model today should be a core component of domestic and foreign policy of Ukraine. Construction of an innovative economic model in Ukraine and its integration into the European economic space requires significant acceleration of innovation, enhance the impact of innovation on economic growth.

One of the ways to improve the competitiveness of domestic products is to stabilize and increase production with innovative industrial products. To determine ways to stabilize and increase production of innovative products by the authors constructed economic-mathematical models (for enterprises of Ukraine, Chernivtsi region) in which the volume of innovative products (Y1) and made scientific and technical work made (Y2) dependent on the following factors: funding for innovation own resources (X1), state funds (X2), foreign investors (X3) and other funding sources (X4).

Thus, the method of determining the measures to stabilize and increase the volume of innovative products and enterprises of Ukraine and Chernivtsi region by building a linear multiple regression model.

It is clear that for every economic indicator Y, tends to affect not just one, but several factors X1, X2, ....., Xm.

**Table 1.** Multiple regression models of innovative investment

Characteristics of the models	The determinant of the matrix with the appropriate model	View multiple regression model under certain vectors $\hat{b}^*$
Model of innovation financing in Ukraine at the value Y1	1,29169E +26	$Y1 = 2764,163 + 5,109 \cdot X1 + 58,454 \cdot X2 + 3,538 \cdot X3 - 1,614 \cdot X4$
Model of innovation financing in Ukraine at a value Y2	1,29169E + 26	$Y2 = 744,214 + 0,586 \cdot X1 + 13,480 \cdot X2 + 2,255 \cdot X3 - 0,347 \cdot X4$
Model of innovation financing in the Chernivtsi region at a value Y1	9,27164E + 32	$Y1 = 95,823,93 + 2,665 \cdot X1 - 16,923 \cdot X2 + 0,155 \cdot X3 + 2,864 \cdot X4$
Model of innovation financing in the Chernivtsi region at a value Y2	9,27164E + 32	$Y2 = 5755,049 + 0,857 \cdot X1 - 2,095 \cdot X2 + 1,282 \cdot X3 + 0,072 \cdot X4$

**Table 2.** The results predicted on the basis Yi indicator constructed models of innovation investment

Description of indicators Yi	The calculated value for the constructed model, 2012	Predicted values for the constructed model, 2013	Projected values built refined model, 2013	Rejection (+, -) 2013 (refined) from 2012
The value of Y1 in Ukraine, mln. UAN	51780,2	52381,94	52824,47	1044,27
The value of Y2 in Ukraine, mln. UAN	9003,1	9102,55	9273,84	270,74
The value of Y1 in Chernivtsi region, ths. UAN	37890,0	40162,15	40277,21	2387,21
The value of Y2 in Chernivtsi region, ths. UAN	35035,0	43120,14	43406,11	8371,11

Using Microsoft Excel after transposition matrix for each model in Ukraine and in the Chernivtsi region we obtain the determinant is different from zero, meaning that there is no multicollinearity and data models have their place. Thus, multiple models after transposition will be as follows (Table 1).

After checking the adequacy of models and pairwise colinearity using Fisher's exact test was built refined model of innovation investment, in which predicted values of product innovation and research papers on Ukraine, Chernivtsi region next year.

The results predicted values for each multiple linear regression are summarized in Table 2.

Thus, the calculated values for Y2013 built models are virtually identical, indicating that the adequacy of the constructed models and the possibility of their practical application.

Thus there is a significant deviation in terms Y1 in Chernivtsi region, as calculated indicators (coefficient of determination and the Fisher's criterion) show that the cumulative effect of the explanatory variables in the model dependent variable Y is negligible, and therefore the quality of the model in this case is low. Mathematical language - is due to large amplitude oscillations of innovative products in the Chernivtsi region during 2002-2012.

In general, the projections of the point to the positive trend of general indicators of innovative development of the national economy, the volume of innovative products and volume of scientific and technical work under the condition that the funding of innovation activity in Ukraine, including own funds, funds budget and foreign investments will continue to grow. It is therefore advisable to use this model in practice.

Requires time basis for the strategic course of Ukraine, its defining priorities should be the development and implementation of public policies aimed at structural upgrading of industries as soon as possible its transition to an innovative way of development and establishment of Ukraine as a state with what is an extremely important task today.

Revival of investment activity in Ukraine envisages attracting financial resources, new technologies and best practices government cash flows, which will raise the Ukrainian economy. But the development of real events requires constant research issues and trends activation policy in investment activity in Ukraine.

## CONCLUSIONS

For a country to be successful in the economic, political and social development, such a system is needed that would strongly stimulated the development and generation of knowledge. For such a system requires a broad application of information and computer technology, the development of research facilities, improving the quality of higher education, a

combination of industrial and scientific fields. Moreover, the additional investment in the economy providing goods has early growth through innovation in production.

The investment model of development of the national economy is a system of targeted interventions of public authorities to provide innovative economic restructuring. Such a model today should be a core component of domestic and foreign policy of Ukraine. Construction of an innovative economic model in Ukraine and its integration into the European economic space requires significant acceleration of innovation, enhance the impact of innovation on economic growth.

Experience of other countries shows that one of the most important areas to improve the financial mechanism of investing innovation in times of crisis is, above all, increased regulation of capital investment on the part of the state, which is accompanied by a re-prioritization of public investment and improving procedures requires the allocation of budget funds to implement certain strategic priorities, creating conditions of economic restructuring on the basis of innovation based on existing scientific, technological and innovation capabilities.

Investing Ukraine innovation in modern times of crisis mechanism requires simultaneous funding from various sources, because of the different purposes of investment: initial investment, financing the initial stage, development financing, financing an operation. The principle of multi-source financing (by creating off-budget funds for financing R & D activities through private investments, commercial banks, other financial institutions, the use of financial instruments) is best suited to meet the realities of today, Ukraine's economy.

The article noted the need for incentives to attract venture capital, create an enabling institutional environment for innovation, fostering innovation at all stages, creating a legal environment conducive to high-tech industries, the development of intellectual property, development of specific infrastructure innovation.

The measures for solving the basic problems of investment innovation and the creation of favorable innovation economy as a whole are essential and both require further systematic study and improve in order to solve problems that are as rapid response to new scientific and technological developments and selecting those to be economically viable in the long term.

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