

# ТЕОРІЯ І ПРАКТИКА ЕКОНОМІКИ ТА УПРАВЛІННЯ ПРОМИСЛОВИМИ ПІДПРИЄМСТВАМИ

## THEORY AND PRACTICAL ASPECTS OF ECONOMICS AND INDUSTRIAL ENTERPRISES MANAGEMENT

УДК 658.589:334.716

### INNOVATIVE DEVELOPMENT OF INDUSTRIAL ENTERPRISES FUNDING FEATURES

T.I. Cherkasova, PhD in Economics, Professor

S.V. Beznos

*Odessa National Polytechnic University, Odessa, Ukraine*

*Черкасова Т.І., Безнос С.В. Особливості  
фінансування програм інноваційного розвитку  
промислових підприємств.*

Аналізується динаміка інноваційної активності промислових підприємств, визначені особливості фінансового забезпечення програм інноваційного розвитку підприємств. Досліджено переваги використання моделі леверидж-лізингу для фінансування інноваційних програм.

*Ключові слова:* інноваційний розвиток, фінансове забезпечення, ризикове інвестування, леверидж-лізинг

*Черкасова Т.И., Безнос С.В. Особенности  
финансирования программ инновационного развития  
промышленных предприятий.*

Анализируется динамика инновационной активности промышленных предприятий, определены особенности финансового обеспечения программ инновационного развития предприятия. Исследованы преимущества использования модели леверидж-лизинга для финансирования инновационных программ.

*Ключевые слова:* инновационное развитие, финансовое обеспечение, рисковое инвестирование, леверидж-лизинг

*Cherkasova T.I., Beznos S.V. Innovative development of  
industrial enterprises funding features.*

The article analyzes the dynamics of industrial enterprises innovative activity, are defined peculiarities of financial procuring of company innovative development programs. In the article the using benefits of leveridge leasing model for innovative programs funding were explore.

*Keywords:* innovation development, financial support, venture investment, leveraged leasing

Modern socio-economic conditions prevailing in the country, as a result led to the economic crisis, some sectors of the economy and partial non-implementation of innovative programs of industrial enterprises. Under the terms of the increase of uncertainty of influence of factors of external environment of the enterprise, a higher level of risk management decisions taken in the implementation of innovative programs, insufficient volume of financing, instability of economic relations with foreign partners, implementation of innovative programmes is fragmentary, and is accompanied by a reduction of innovative activity of industrial enterprises.

However, the implementation of innovative development model of Ukraine's economy more than previously becomes relevant because it corresponds to the world trends of development of an economy and its efficiency is proved by the positive experience of some developed corporations. Significant technological transformation in the various sectors of the economy, the synergetic impact of new scientific and technological progress on the conditions of formation of socially-innovative economy, the need for restructuring of individual enterprises, including industrial consideration in the development of programs of development and competitiveness of industrial enterprises.

#### **Analysis of recent researches and publications**

The study of problems of increase of innovative activity of industrial enterprises and ensuring the effectiveness of their innovative activities dedicated many works of foreign and domestic scientists. The theory and practice of innovation management is

reflected in the works of many foreign economists: P. Drucker, M. Porter, B. Santo, B. Anshina, L. Blachman, A. Dynkin, A. Sablina, I. Tukkel and other. Among domestic scientists to the study of planning and financial provision of innovative-investment activity of the enterprise devoted his works by scholars such as B. Savchuk, N. John, M. Krupka, A. Kuzmin, A. Peresada, G. Kozachenko, L. Fedulova and others.

However, the research on the effectiveness of use of individual instruments for financing programs of innovative development of the enterprise requires further investigation.

The aim of the article is study of the problems of financing programs of innovative development of industrial enterprises and the definition of financial instruments which will reduce investors' risks.

### The main part

The results of innovative activity of industrial enterprises is the basis for ensuring the implementation of the development strategy of the enterprise and its functioning in the conditions of changing external environment, condition for the competitiveness of enterprises. Implementation of strategies of industrial enterprises carried out through the introduction of the chain of innovation projects that collectively represent the innovative development program. The reality of the latter depends on many factors, among which should include the reasons for the choice of technological solutions, the level of skills, the sequence of implementation projects, and most importantly is a full and timely financing.

Investment support of innovative development programs of the enterprise requires consideration of the increased level of risk of implementation of innovative projects associated with such projects of this type as long the payback period, the validity of market forecasts, the term competitiveness of new technologies using in the project, the unevenness of revenue and the sustainability of the project and the enterprise to changes in the external environment. All this needs to be clarified forms and sources of investment support of innovative activity of enterprises, the search and evaluation of the effectiveness of the use of certain financial instruments, in-depth justification of priority implementation of the projects included in the programme of innovative development.

The profitability of investments in innovative activity of enterprises depends on the specifics of the investee – innovation project. According to experts within the economic analysis of the project rate of return from investing in the innovative project exceeds the average level of profitability of investment of the company due to external effects and is an average of 30-80%, and can reach a higher level of investment in the development and implementation of innovative technology that characterizes investments in innovative activities as high-yield [1].

However, this type of investment is not a priority for most investors, because it risks the failure to meet

conditions of project implementation. So according to the study Standish Group [2]:

- only 16% of innovative projects are in line with the planned completion date and planned budget expenditures;
- the project budget is exceeded on the average in 2,5-3 times;
- period is exceeded on average by 222%;
- almost 39% of the projects objectives evolve.

This situation can be explained by the fact that a significant level of novelty is the cause of uncertainty, which manifests itself in the management of innovative projects such characteristic features as the underestimation of complexity of projects and their feasibility, a low level of integration, the mismatch between the necessary conditions of implementation, poor monitoring of project implementation, the unclear definition of the level of responsibility of project participants and other. The financing of innovative projects of enterprises, typically require significant capital investment and does not provide a stable income is received from individual projects, but makes possible a higher rate of return compared with investing in other activities of the enterprise.

Consider the level of innovative activity of domestic industrial enterprises in dynamics for the period 2000-2014 (Fig. 1). Analysis of the data indicates the unstable dynamics of a number of innovation active enterprises in industry of Ukraine. According to the State statistics service of Ukraine in 2014, 16.1% of Ukrainian industrial enterprises engaged in innovation activities, and 12.1% innovate. That is, in 2014, not reached the level of 2000 is 18.0% and 14.8%, respectively. Moreover, the dynamics of the indicator of the amount of innovatively active industrial enterprises in recent years reflects the recession: 2012 – 17,4%, 2013 – 16.8%, 2014 is 16.1%.

The share of firms that have introduced innovations, have not risen to the level of 2000. Low level of innovative activities is also confirmed by dynamics of share of innovation products in total volume of sales in industry: in 2001 – 6.8%, 2012-2013 – 3,3%, 2014 – 2.5%.

A negative factor is that the total expenditure in innovation activities declined almost by half in accordance 2011 and is minimum during the last years (Tab. 1). Analysis of expenses on directions innovative activity in industry showed that although the share of funding for the purchase of machinery, equipment and software in total costs remains at the level of 64-67%, but compared with 2011 absolute definition of this indicator has decreased twice.

The increase in financing is observed only in research and development: both internal and external research SRW. However, in all other areas of innovation over the past seven years, funding has declined. So almost 1.5 times lower costs for the purchase of machinery, equipment and software, and 6 times for the acquisition of other external knowledge, which characterize the level of expenditures on the acquisition of new technologies.

The latter, in our opinion, has a special significance, because it characterizes the level of expenditure that is aimed at overcoming the technological backwardness of industrial enterprises, the modernisation of the technological base of production. For the period studied, expenditure on

innovation fell to 1.56 times, but the cost of the acquisition of new technologies – 6,03. It should be noted that advanced technologies, the implementation period not exceeding three years, take a share of 43.5% used in 2014.

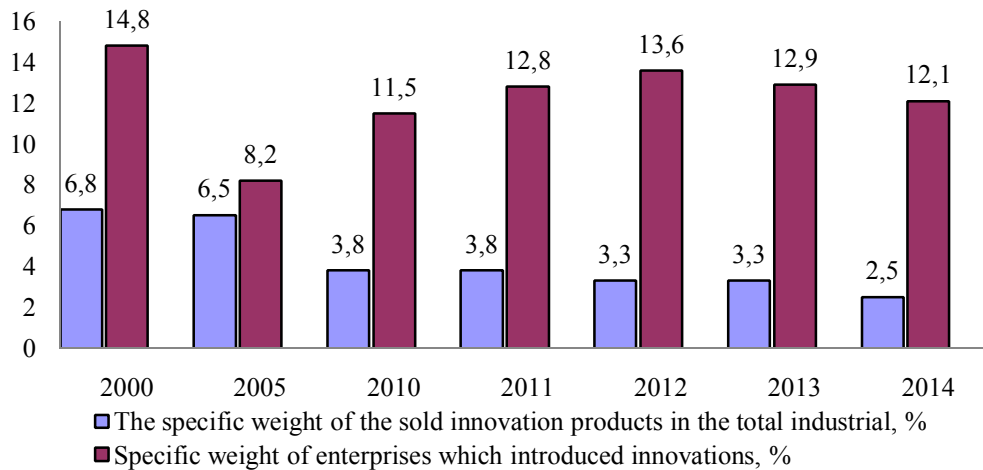


Fig. 1. The characteristics of innovation activity in industrial enterprises during the 2000-2014 by specific weight in total activity (based on data from the State statistics service of Ukraine, data for 2014 are given excluding the temporarily occupied territory are the Crimea, Sevastopol and part of the zone of the ATO [3])

Table 1. The distribution of the total costs under the directions of innovative activity of industrial enterprises in 2008-2014 [3]

Year	The proportion of enterprises engaged in innovation activities, %	Total expenditure, mln.	Including directions, mln.					
			research and development	including		acquisition of other external knowledge	the purchase of machinery, equipment and software	other expenses
				Internal SRW	external SRW			
2008	13,0	11994,2	1243,6	958,8	284,8	284,8	7664,8	2664
2009	12,8	7949,9	846,7	633,3	213,4	213,4	4974,7	2012,6
2010	13,8	8045,5	996,4	818,5	177,9	177,9	5051,7	1855,8
2011	16,2	14333,9	1079,9	833,3	246,6	246,6	10489,1	2440,2
2012	17,4	11480,6	1196,3	965,2	231,1	231,1	8051,8	2185,5
2013	16,8	9562,6	1635,2	1310,1	325,1	86,1	5546,3	2295,0
2014*	16,1	7695,9	1747,0	1219,8	527,2	47,2	5124,4	777,3

That is more than 55% advanced technologies are used for more than 3 years, with the rapid obsolescence of fixed assets implicitly indicate a low level of their competitiveness [4].

In our opinion, this situation with the introduction of new technologies related both to the General lack of financial resources in the innovation sector, and the lack of clear priorities for the implementation of projects that will ensure the creation of basic innovation, but are in need of comprehensive modernization of the technological base of the

enterprise. This direction of innovative activity of industrial enterprises, as a rule, requires significant investment and cannot be funded only at the expense of own means of the enterprise.

In surveys of the State statistics service of Ukraine, the main bottleneck of innovation activity of industrial enterprises in recent years is insufficient amount of financial security. In modern conditions of innovative development of industrial enterprises is possible through the use of different sources of investment (tab. 2).

During the whole period the main source of financing innovation are own funds of enterprises. If the company has enough funds for the implementation of an innovation project, it is usually not able to finance the implementation of an innovative program

that includes several projects whose implementation will provide a comprehensive technical and technological development of production and business re-engineering.

Table 2. The distribution of the total funding of innovation by source, in % of total [3]

Index	2000	2005	2010	2011	2012	2013	2014 *
Total, mln. UAH.	1757,1	5751,6	8045,5	14333,9	11480,6	9562,6	7695,9
including: own funds	79,6	87,7	59,3	52,9	63,9	72,9	85,0
the state budget	0,4	0,5	1,1	1,0	2,2	1,9	4,5
local budgets	0,1	0,3	0,1	0,1	0,1		
extra-budgetary funds	1,9	-	-	-	-	-	-
domestic investors	2,8	1,4	0,4	0,3	1,3	1,3	1,9
foreign investors	7,6	2,7	30,0	0,4	8,7	13,1	
credits	6,3	7,1	7,8	38,3	21,0	6,6	7,3
other sources	1,3	0,3	1,3	7,0	2,8	4,2	1,3

Program implementation typically requires the involvement of venture capital investors and lenders, but they typically attract only for the purpose of funding a separate project, having a reasonable estimate of its profitability.

The peculiarity of investing in the development of industrial enterprises in comparison with the funding challenges of its activity is that it is associated with significant risks. The ratio of the level of risk and return of investments in the development of enterprises is constantly changing during its life cycle, which affects the composition of potential investors, and the sources and conditions of investment.

Therefore, special importance is the problem of prioritizing the implementation of projects included in the program of innovative development of the enterprise, to assess the possibility and feasibility of bringing external investors to assess the attractiveness of projects for other market participants. Of course with a preliminary examination of the projects take into account the following average values of expected return depending on the direction of investment: venture projects – 30%, new production – 30%, expansion of operating business – 15%, the traditional technology – 10% [5].

However, a preliminary assessment of the profitability of several innovative project is not only unique, but the main criterion. The final decision should be made taking into account the compliance capacity of industrial enterprises to the tasks of innovative development and the pursuit of funding of the selected project in full. The latter is connected with the need to clarify the financial instruments that should be used in the choice of technologies, financing of innovative programs and projects.

To basic investment principles of innovative programs include: the necessity of diversification of risk between the partners on the basis of wide attraction of foreign investors, phasing of funding, the use of a wide range of financial instruments to reduce funding costs, the flexibility of financial decisions and stuff. One of the most common technologies used in the implementation of innovative projects, is leasing, which is characterized by flexibility and easy adaptation to specific economic conditions, positively affect the ability quickly to build the necessary technical and technological level of production.

According to the Economic code of Ukraine depending on the peculiarities of leasing operations, there are two kinds of leasing – financial and operational, and the three forms of implementation – return, unit, international [6]. The practice of leasing activities recognizes a larger range of forms of leasing transactions, including direct (bilateral) leasing, Net leasing, Full Service leasing, true leases and other. According to the method of funding usually distinguish direct lease for the leasing of the borrowed funds and unit leasing.

Unit leasing is the most complex form of lease financing, which is widely used in the world practice in the implementation of large investment projects. One of the modifications of the share leasing is called Leveraged leasing (LL) and in the current economic realities can be used to reduce the level of risk financing innovation programmes.

Its main feature involves the Association of several investors who pay 80% of the cost of leasing object, and the remaining 20% is paid by the lessor at its own expense. Usually agreements LL-models take into account a significant number of parties: the

presence of more than one shareholder of the company-linguateca, which affects the decision on the conclusion of a leasing transaction, the presence of more than one creditor and one (or more) manufacturers of goods which are the objects of leasing, the absence of recourse by the lender.

In our opinion, particularly relevant using LL-model should be to Finance innovative projects related to the introduction of new technologies that require a comprehensive modernization of the technological base, i.e. significant volume of purchases of new equipment, reconstruction of infrastructure of industrial enterprise and related significant funding. It is the significant amounts of funding require new tools, which will allow to diversify the risks of the project.

Using LL-model, you can offer the group of investors in a single firm, which would serve lingotes – to conclude contracts of leasing, lending, insurance. An important function of this organization will be the distribution of income among individual investors, who have joined together for the purpose of financing individual large innovation project or programme for innovative development of the enterprise. Compliance with the ratio of 20% own funds and 80% of the attracted credit resources will ensure that the coefficient of financial leverage on the level 4.

The funding model is largely consistent with the model of project financing. In some foreign countries, such firms-lingulate retain tax relief on the entire cost of the object, and not just 20% of its value, making LL-model even more attractive to investors.

In turn, syndicated lending, as the basis of financing the transaction allows on the basis of interbank agreements to create a plan for the provision of financial resources by individual creditors with regard to their share in total funding. In international transactions of this type, often associated with large infrastructure projects, there is no security. In our opinion, should agree with the opinion of V. Gasman [7] that in high-risk conditions, which is characteristic for the implementation of major investment projects in modern conditions, the key should act the object of leasing. Using LL-model will allow to diversify and reduce risks of individual creditors.

An important element is the possibility to use during the implementation of investment and innovative programs such instruments as factoring and Forfaiting, in the conditions of the emergence of receivables on lease payments. This will facilitate the solution of the problem of working capital of

industrial enterprises, which implements an innovative program.

Using LL-model will enable the step of determining sources of financing of innovative project, and particularly the programme of innovative development chain innovation projects, flexibility to determine the terms of credit transactions, take into account the use of different methods (accelerated and straight-line) calculation of depreciation, to more accurately determine the level of residual value at which the lessee can purchase the object of leasing, and to reasonably distribute the profit of the project, which will allow in depth to substantiate the conditions of attracting capital on a long term basis.

### Conclusions

Thus, in practice, the implementation of the target program of innovative development of industrial enterprises is implemented through a chain of successive interrelated investment and innovation projects. The effectiveness of the program of innovative development depends on the proper choice of the sequence of implementation of individual projects and meet the deadlines for completion of individual stages and of the overall program. The fulfillment of these conditions, in turn, depends on the financial support for the programme of innovative development of enterprise.

Typically, these programs require significant amounts of long-term financing and have a higher level of risk. Risk capital is one of the most important sources of financing of programs of innovative development of industrial enterprises. But his attraction is the return of the project, careful budgeting of the project, clarify the sources of financing and cost of capital project.

An increased level of riskiness of innovation projects and the lack of financial resources, the tendency not lenders to long-term financing makes it relevant to the issue of forming a "pool of investors" that will reduce the risks to individual investors. The goal would be achieved more widely in practice to implement a method of leveraged-leasing. However, wide application of this form of leasing requires further research issues such as the conditions determining collateral, the price of leasing transactions, margin linguatca, loan rates and refinement of the principles of income distribution individual project and the programme, provided that the continued participation of investors in the implementation.

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Надано до редакції 17.05.2015

Черкасова Тетяна Ігорівна / Tetyana I. Cherkasova  
[t.cherkasova.od@gmail.com](mailto:t.cherkasova.od@gmail.com)

Безнос Світлана Володимирівна / Svitlana V. Beznos  
[s\\_beznos@ukr.net](mailto:s_beznos@ukr.net)

**Посилання на статтю / Reference a Journal Article:**

*Innovative development of industrial enterprises funding features [Електронний ресурс] / Т. І. Черкасова, С. В. Безнос // Економіка: реалії часу. Науковий журнал. – 2015. – №4 (20). – С. 59-64 – Режим доступу до журн.: <http://economics.opu.ua/files/archive/2014/n4.html>*