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THE PROBLEMS OF DEVELOPMENT OF INDUSTRIAL ENTERPRISES' INNOVATIVE POTENTIAL

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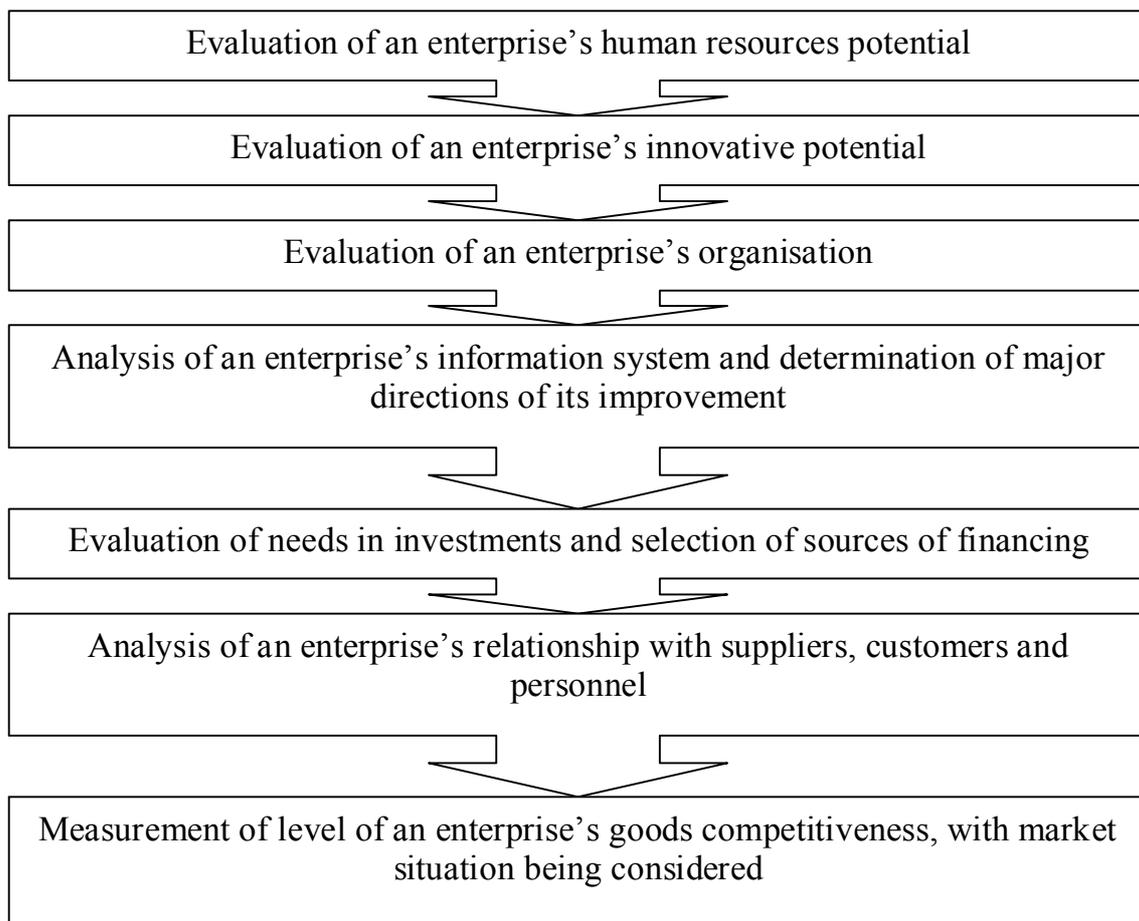
In spite of the fact that works of many scientists are dedicated to researches of innovative strategies' essence and issues of their formation, there has been no unanimous opinion on determination of the innovative strategy concept up to now. Some authors consider that "an innovative strategy is a plan, in the sense that it covers the entire length of a process, from researches, through production and sales to use, with basic points of "interference" and control being marked, rates of increase in a technological level and methods of finding intellectual labour products necessary for this purpose being determined". Others understand the definition of an innovative strategy as "timely concentration of management efforts on mastering and using prospective accomplishments of scientific and technical development and timely supply of innovations dynamics with resources" [1, p. 112].

Different definitions are frequently used when developing variants of the innovative strategies typology in order to describe one strategy type, which has its specific content and special terms of use, For example, in innovation science the following concepts referred to innovative strategy, namely "defensive", "adaptation" and "passive"; "licensed" and "imitation"; "offensive" and "active", etc. are identical. "Strategy of innovative activity" and "innovative strategy" terms are usually used as synonyms [2, p. 260].

The selection and grounding of directions of an enterprise's innovative activities and evaluation of all forms of this activity are in the basis of formation of the portfolio of an enterprise's innovative strategies. The most significant among them are as follows:

- improvement of existing goods and technologies;
- development of innovative goods and technologies;
- development and improvement of an enterprise's technological base;
- increase of efficiency of innovative activity management;
- increase of efficiency of resources use [3, p. 12].

For determination of an enterprise's innovative strategy it is expedient to evaluate the basic aspects of its functioning for the purpose of acquiring necessary information about its current status and capabilities. The algorithm of this task fulfilment is given in Pic. 1.



Pic. 1. Universal algorithm of analysis of an enterprise's functioning key aspects

Launching the production of innovative goods types and innovative technique types, introduction of innovative technological processes including low-waste

resource-saving processes depend on the volumes of scientific and technical work (Table 1).

Table 1

Volume of scientific and technical work, mln. hrn.

Years	Total, actual prices	Including.			
		fundamental researches	applied researches	developments	scientific and technical services
2007	6700,7	1504,0	1132,6	3303,1	761,0
2008	8538,9	1927,4	1545,7	4088,2	977,7
2009	8653,7	1916,6	1412,0	4215,9	1109,2
2010	9867,1	2188,4	1617,1	5037,0	1024,6
2011	10349,9	2205,8	1866,7	4985,9	1291,5

Source: [4]

The difference of innovative development from technological one consists in the fact that the former includes the component of dynamism, which characterizes capability of an enterprise to develop in the future, and the latter reflects the changes of the state of its production vehicle and technical level of manufactured products. As these concepts are related, they are sometimes examined together, as innovative-technological development of an enterprise.

The figures in Table 2 show that in 2011 the volume of scientific and technical work increased by 4,8% compared with 2010. The cost of applied researches also rose by 15,4%. The cost of scientific and technical services increased by 26,05%. The results of this forecast are the ground for evaluation of less substantial aspects of innovative development, which is carried out by means of detailed analysis of innovative projects.

The results of this forecast are also the basis for evaluation of innovative projects which are planned to be implemented, their compliance with the current capabilities of an enterprise and market requirements. The data acquired allow to do calculations of the most essential indices, which determine innovative development of an enterprise, analyse the factors which influence it, compare the level of this development with the levels of its competitors' development.

In the conditions of external environment which changes dynamically, in order to effectively perform its functions, an enterprise should be ready to switch over to application of innovative technologies and new products manufacture. Thus, when developing an innovative strategy, evaluation of an enterprise's capabilities in terms of manufacture diversification should be carried out. Availability of resources necessary for innovative development should be considered as well.

As to the factors which influence sales volumes, it is expedient to put them in Table 2, from which it is evident that in 2011 the total volume of costs of innovations increased by 78,16% compared with 2010, that is a very positive trend for industrial enterprises.

Table 2

The total volume of costs of innovations at industrial enterprises within 2007-2011, in actual prices

Indices	2007		2008		2009		2010		2011	
	mln. hrn.	% of the total volume	mln. hrn.	% of the total volume	mln. hrn.	% of the total volume	mln. hrn.	% of the total volume	mln. hrn.	% of the total volume
Total	10821	100	11994	100	7949,9	100	8045,5	100	14334	100
Acquisition of other external knowledge	328,4	3	421,8	3,5	115,9	1,4	141,6	1,76	324,7	2,27
Acquisition of machines, equipment and software	7441,2	68,9	7664,8	63,9	4974,7	62,6	5051,7	62,8	10489,1	73,18
Others	2064,9	19	2664	22,2	2012,6	25,3	1855,7	23,1	2440,2	17,02

Source: [4; 5, p. 77-78; 6; 7; 8]

Grounding on the analysis of the proposed (specified) methodological basis of formation of an enterprise's innovative strategy, it can be concluded that its content is determined by the content of its major strategy (growth, stabilization or survival). A major strategy type influences the task of innovative strategy. Thus, for example, a major strategy of an enterprise's growth is optimal in terms of its capabilities for innovative development, while application of a major strategy of survival does not allow it to implement an effective innovative strategy.

Proceeding from the above stated, all innovative strategies of an enterprise depending on the content of its major development strategy can be divided into strategies of an offensive character, protective character, combined (protective-offensive) character.

As a rule, under terms of an enterprise's functioning stability it is expedient to use protective-offensive innovative strategies. Regarding a risky character and high capital intensity of RED, frequently it is more effective to purchase the results of research-and-developments of another enterprise for the purpose of their technological improvement and organization of innovative goods production.

In addition to the strategies considered above, an enterprise can use special innovative strategies including the following ones: penetration strategy; reaction strategy; absorptive strategy. Penetration strategy is used in case technology is a major condition of its penetration to a new market. Reaction strategy is used in case there is a threat of "technological breakthrough" from competitors. Absorptive strategy is aimed at acquisition of scientific and technical developments of a strategic value for an enterprise, with evaluation of capabilities and acquired developments being of huge significance.

The process of an innovative strategy formation consists in doing multiple calculations which allow to determine types and cost of own RED, licenses purchased, types of products forecast to be manufactured, necessary product and technological innovations, etc. Thus, selection of a product range to be manufactured within a forecast period, for which a strategy is developed with consideration of product and technological innovations, is of significance.

Taking into account the fact that a necessary condition of innovations implementation is an innovative potential of an enterprise, its innovative strategy formation is impossible without evaluation of the size and structure of its potential. At present a necessity of innovative potential evaluation has increased sharply as one of most crucial current issues for the Ukrainian economy is transition to an innovative development type.

Analysing different definitions of an enterprise's innovative potential, it can be concluded that it characterizes an enterprise's current capabilities related to acquisition and application of innovations (innovative technologies, product types, etc). The application of an innovative potential in activities provides an enterprise with innovative activities given in Table 3.

Table 3

Innovative activities of industrial enterprises of the Zaporizhzhya oblast within the period of 2007-2011, mln. hrn.

Years	Specific gravity of enterprises engaged in innovations, %	Total costs	Including those by directions					
			RED	including.		acquisition of other external knowledge	acquisition of equipment and software	other costs
				internal RED	external RED			
2007	10,8	160,3	42,8	37,3	5,5	0,3	84,6	32,6
2008	8,9	202,5	54,7	25,0	29,7	0,2	102,0	45,6
2009	7,0	163,9	55,1	19,7	35,4	0,3	89,5	19,0
2010	5,3	128,6	53,8	49,6	4,2	0,6	69,9	4,3
2011	27,6	800,4	77,0	55,4	21,6	252,3	418,0	53,1

Source: [9]

Analysis of an enterprise's innovative potential structure is a difficult task; when solving it, different aspects of its activity should be considered. Innovative potential as economic category is characterised by self-contradiction and duality, which consists in the fact that simultaneously with positive influence it affects negatively an enterprise's development, which is stipulated by distraction of considerable resources necessary for innovative activity execution without any guarantee of receiving corresponding positive effect. It means that it is necessary to determine which part of an enterprise's resources should be allocated to innovative development so that its current activities remain effective.

An enterprise's innovative potential is closely related to its scientific and technical potential, human resources potential, information, production and other potentials and depending on a degree of these potentials attraction to innovative activities, their resources can be included in an enterprise's innovative potential.

Thus, all potentials are characterized by their specific features, namely: structure, size, list of parameters, which describe them, etc.

In our opinion, development of an enterprise's innovative potential should be examined as dynamics of its size and ratio between the components, qualitative and quantitative changes in its components. There are different methods of innovative potential evaluation which allow to evaluate it in terms of different types of audit, of the system state monitoring, SWOT-analysis and others.

Although in some methods, together with use of expert evaluations, formalized mathematical tools are used. At present there is no generally accepted, practically applicable and scientifically grounded system of evaluation indices of economic systems' innovative potential, which is explained by complication and a variety of descriptions of its different aspects and by a variety of systems.

Most existing methods of an enterprise's innovative potential evaluation are characterised by a common drawback consisting in absence of a system approach to selection of evaluation indices. Development of a system of indices for analysing an enterprise's innovative potential is a complicated task, which has not been fulfilled up to now. In our opinion, when fulfilling this task, the potential should be evaluated by the constituents of its separate components. As innovative potential is a complex system, whose development is characterized by a significant number of indices, several criteria should be used to determine the level of achievement of an enterprise's strategic goals.

The most expedient way to fulfil this task is to reduce an enormous amount of different criteria to one, as simultaneous application of several evaluation criteria increases complexity of calculations substantially. In addition, it often does not allow to find an optimal solution considering the following reasons:

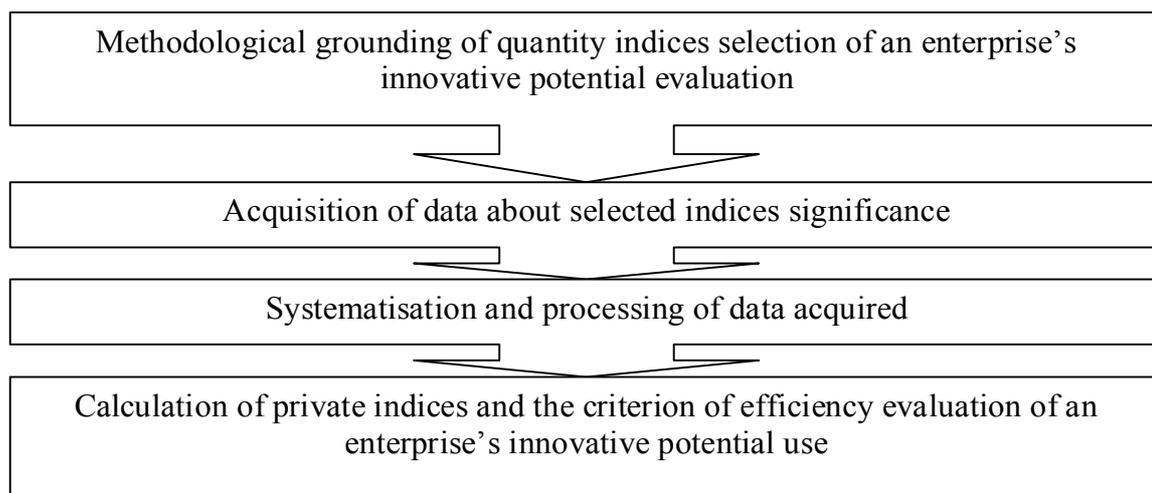
- criteria can duplicate each other increasing complexity of calculations when evaluating an innovative potential;
- criteria currently used are not often mutually adjusted; it does not allow to obtain unambiguous evaluation of the potential;

– criteria used do not meet a generalised index of evaluation of an economic system's innovative development.

Thus, evaluation of an innovative potential should consist in receiving private indices with their further reduction to a generalised index, in the capacity of which the criterion of maximum efficiency of innovative potential application should be used. An increase in the size of an economic system's innovative potential is not a positive fact as it should be accompanied by an increase in growth rates of its use.

An enterprise's innovative potential is referred to a class of complex systems, for studying of which the methods of system analysis should be applied including modelling for the purpose of its presentation as a model by means of the related indices system. The index system is currently used for the above stated purpose, it has a number of substantial drawbacks as it is mainly intended for presenting economic operations realised and is of little use in terms of forecasting since the indices used in it often do not allow to reveal future trends of an enterprise's innovative development.

Considering the above stated, the algorithm of evaluation of an enterprise's innovative potential can be shown as follows (Pic. 2).



Pic. 2. Algorithm of evaluation of an enterprise's innovative potential

Thus, in the XXth century in industrially developed countries innovative development provided approximately 80% of their economic growth, structural

changes in economy and improvement in people's living standard. Unlike the world economy, the economy of Ukraine has been in a distinctive state, the parameters of which were set by the market reforms of the 90-ies of the XXth century and specific terms of management at that time.

General worsening of the economic situation in the 1990-ies caused a row of negative trends in development of science and innovative technologies, among which it is necessary to distinguish a sharp decline in demand for scientific and technical products, a considerable reduction of sources of financial, material and technical supply of science and intensive outflow of human resources. It resulted in a technological lag of our country and stipulated the fact that at present most economic activities, which are referred to a high-tech technology in developed countries, in Ukraine are referred to a group of mid-tech technologies. The analysis of the world market shows that at present approximately 50 macrotechnologies provide manufacture of science intensive products, with Ukraine only being competitive in 10-15 out of them [10].

Nowadays the volumes of financing the national innovative system of Ukraine (Table 4), are approximately one and half-twice as low as the necessary level; a lot of measures taken in this area are sometimes of a declarative or local character.

Table 4

Sources of financing innovative activities, mln. hrn.

Years	Total amount of costs	Including those provided by funds			
		owned	of the state budget	of foreign investors	from other sources
2007	10850,9	7999,6	144,8	321,8	2384,7
2008	11994,2	7264,0	336,9	115,4	4277,9
2009	7949,9	5169,4	127,0	1512,9	1140,6
2010	8045,5	4775,2	87,0	2411,4	771,9
2011	14333,9	7585,6	149,2	56,9	6542,2

Source: [10]

The data from Table 4 show that in 2011 financing of innovative activities provided both due to owned funds and the state budget funds rose. Financing of innovative activities from other sources increased as well but financing of innovative activities by foreign investors was 40 times as low [9; 10; 11, p. 48-49].

Under modern terms an enterprise legally and economically interested in reaching certain competitive advantages can be a major link of innovative activities. World practice shows that it is only possible under two conditions: periodical updating (modernization) of products, which determines the basis of economic results of this enterprise and extension of its economic activity lines.

A lot of managers of Ukrainian enterprises (especially, of small- and medium-sized ones) are not ready to refocus activities of their enterprises in an innovative direction, which is explained, first of all, by presence of enterprise risks characteristic of innovations. As development and adaptation of innovations, as a rule, takes a long period of time and requires additional costs of all types of resources, the external environment of any business in conditions of economy integrated into the world space is quite dynamic. Up to the moment of an innovative product launching in the market the objective terms dictated by entities of market relations may have been unfavourable and as a result its commercial success may be considerably less significant than expected.

At present innovative activities of Ukrainian enterprises are carried out under the terms characterized by absence of clearly defined national objectives and their achievement mechanisms institutionalised for short- and medium-term periods as well as for a long-term prospect. Thus, serious changes should be made in the Ukrainian state innovative policy, which is presently based mostly on introduction of macro- and pseudoinnovations (modifications of products and technologies developed before), and is not always scientifically grounded and financially provided to a sufficient degree; it results in a decline of stimuli of innovative processes intensification.

The acceleration of enterprises' innovative development is largely hampered by difficulties related to making reasonable management decisions for a long-term period. Without fulfilment of this task effective innovative development of Ukrainian enterprises is impossible as average length of one innovation life cycle in Ukraine is approximately 10 years (compared with a period of five years in highly developed countries).

Within a transition period in Ukraine the significance of science and innovations was underestimated. It resulted in the fact that according to the share of RED costs in the GDP, our country found itself in a group of countries whose scientific potential was several hundred times as low. By the law about the state scientific and technical policy the volume of budget financing of science should account for not less than 4% of the state budget items of expense.

In 2011 the specific gravity of the volume of scientific and technical work in the GDP went down by 0,11% and made up 0,79% compared with 2010. Compared with 2009, a decline was 0,16% [11, p. 53].

As a result the country has lost its scientific and technological leading position and experiences difficulties in development of its innovative potential. Nowadays the volume of budget financing of civil science (its share accounts for approximately half of all the means spent on development of science in Ukraine) is many times as low as similar indices in developed countries. The analysis of the Ukrainian structure of RED costs testifies that the share of industrial companies in development of innovative technologies in Ukraine is 1,9 times as low as in the USA, 2,1 times as low as in Japan or Korea. On the whole, it should be noted that, if in highly developed countries a great part of RED costs is provided by business, in Ukraine economic structures are only subsidiary in the process of their financing [12, p. 71].

The conducted researches and statistical data testify that great part of innovations at Ukrainian enterprises is related to organizational and management, marketing and infrastructural lines of their activities and only insignificant part of enterprises implements innovation directly in the production. Most part of

innovations is implemented on the old technological grounds without improving products' quality and the correlation analysis shows absence of relationship between marketing and technological innovations. It can be concluded that at the present stage innovative activity development at national industrial enterprises is not of a technological character to a full degree.

The current innovative policy of Ukraine as well as innovative processes carried out on its basis are largely identical with similar activities in developed countries but the actual state of the domestic economy testifies the lack of stimuli of innovative processes intensification. It is mostly explained by the fact that often the measures taken are not fully adequate to a relative level of a country's development at this stage and to its scientific and technical as well as innovative potential.

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