

Evaluation of technological intellectual potential of the enterprise

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Abstract – the objective of the study is to develop methods of analysis of technological intellectual potential of the enterprise. It has demonstrated the necessity of its value for the subject of economy, the essence of the notion “technological intellectual potential” has established and its types. Were given, relatively those the following method will be used. The main criterions were proposed and substantiated as well as the evaluation scale and the formula of the calculation level of the technological intellectual potential of the enterprise.

Key words – the intellectual potential of the enterprise, the intellectual resources, the technological intellectual potential of the resources, the criterions of the evaluation of the technological intellectual potential of the enterprise’s resources, the formula of the calculation of the technological intellectual potential.

I. Introduction

Nowadays, in the conditions of the innovatively aimed activity of the enterprise, there is the necessity of its actual and efficient intellectual potential which, being the basis component in the structure of the innovative potential, determines the capacity to the paying and competitiveness activity of the subject of economy.

The intellectual potential of the enterprise is the cumulative of the resources created by the system of the interconvertible and interferenced intellectual interior resources, which are the actual possibilities in the given period of time for realization of the innovatively directed activity of the enterprise aimed at the creation and the reservation of its competition advantages.

That’s why the inalienable step in the process in the system of formation of the intellectual potential of the enterprise, is the evaluation of its own or attractive intellectual resources. Just these characteristics of the following resources will determine the predictive parameters of the future intellectual potential of the enterprise.

II. The main material

Today, the rapid scientific and technological development and the intellectualization of all the spheres of the economic activity leads to the increase in the weight of intellectual resources in the enterprise’s functioning, its gradual displacement and replacement of material and raw materials. In this regards, there is a need

to create, elect and use the intellectual resources, the characteristics of which are the most desirable and suitable for the intellectual capacity of the subject of economy. The intellectual resources of the enterprise are formed on two levels - the level of the intellectual potential’s carrier and the organizing level. On the first level the intellectual resources are the totality of the individual, personnel characteristics of the concrete person, which the aggregate reflects its possibilities in the creation of the ideas, the completion of analytic operations, the acceptance of the rational decisions. On the second level the intellectual resources change from the exceptionally individual characteristics into the collective obtaining, that can be used by the organization (enterprise) for the achievement of the raised aims. The law and economical relations between the intellectual resources’ carriers and the enterprise that use s these resources and the business –partners of the organization are coordinated thanks to the existence of the institute of the intellectual property, it means the complex of the rights on the results of the intellectual and creative work (activity). In case of the using, the intellectual resources became intellectual actives (capital), that will guarantee the receiving of the certain advantages to the enterprise.

To this end we propose to introduce the concept of the intelligent technological resources. In general, the term «technological» (adaptability) is used in the production sphere and determines the possibility of involvement in the production of goods according to existing optimal parameters for this production [1].

In technical point of view, the researchers [2] interpret this term as «...property of the construction machinery, its parts and components which are provided with the highest technical and intellectual resources, their adaptability should be defined as characteristics that provide the most efficient development and use of intellectual capacity for existing internal and external conditions to achieve the aims of the system».

Hence, it is logical formulation and compliance by the enterprise of the adaptability principle which is that of all possible intellectual resources to attract and to use the intellectual potential of the enterprise to choose the resources that are the most relevant to a particular enterprise technology. In general, the nature and characteristics of this principle, particularly in production systems ,are disclosed in the labor of researcher M. Telemtayev [3] where the author describes the conditions and stages of process design, the development and the application of the adaptability formula of production systems.

The evaluation of the technological level should be make explicit regarding the proper to the enterprise and potential for attracting of the intellectual resources. So far as for the formation of its intellectual capacity, the enterprise can create, improve and get from outside its own intellectual resources. We should understand its own intellectual resources appropriate working on the regular basis to the employees and the resources of the organizational level, formed by the enterprise without attraction of the extraneous subjects.

In the case of necessity (for example, the development and the implementation of the complex innovation project), the enterprise may engage the external informational resources, highly skilled professionals and others, possessing the appropriate level of the intellectual capacity. The attraction of the outsourcing intellectual resources occurs like a process of reentering transfer of knowledges, experience, information, etc. on the commercial and (or) non-commercial conditions. In case of combination, of the own and the borrowed resources form the cumulative intellectual potential of the enterprise.

Conformably to the obvious intellectual resources, they should be understood by those that are diagnosed actually existing at the time of this evaluation. The need for the given clarification due to the presence of explicit that is this kind of the intellectual resources as hidden (can not be detected in this period), the most characteristic of carries of the first level of intellectual potential of the enterprise - the employees forms its covert intellectual capacity and are not subjects for the evaluation of their adaptability to the discovery.

The next logical step is to develop the basis criterions for evaluating the technological business intelligence. We propose using the following basis criterions:

- the accordance to the aims and tasks of the enterprise activity: displays the estimated predictive ability of the resource to be used in full accordance with the needs of the operation of the business;

- the cost of acquisition or creation: demonstrating compliance costs as intellectual resource costs the price that can carry the company to obtain it;

- the alternative application: the possibility of intellectual resources in more than one direction of innovative activity;

- the estimate impact of application: the potential ability of intellectual resources to achieve the desired result from its use in the form of the economic or other effects;

- the focus synergistic effect where is possible the combination with other intelligent resources: the achieving positive results in the system when enabling mutual intellectual resources within the system of the intellectual potential or a negative result in the case of adverse interference;

- the current relevance regarding the current situation on the market of intellectual resources: how intellectual resource is estimated demand in the market and progressive in terms of modern science and technology;

- the rate of mental ageing: shows how long the intellectual resource will retain its relevance relatively to the new ones that will be on the market in the future;

- the possibility of development: the ability of the intellectual resource to the quality improvement in the realizing of the system of intellectual potential of the enterprise;

- originality: the presence of exceptional characteristics of the intellectual resource that create unique possibilities of its development.

For the analysis of the selected intellectual resources using the following criterions it is the optimal use of the

quantitative evaluation by points [-5; 5], taking into account the importance of each criterion for a particular type of resource according to the specific features of the economy subject, and the choice among the alternative intellectual resources which will give the highest results. Thus, the numerical value in the interval [-5; 0) will indicate the negative characteristics of resources for the enterprise, and vice versa (0; 5] - the positive ones. Here is the formula for the technologic calculation of the specific intellectual resource. This formula is well-known for the value expert mark of the economic objects and processes:

$$I r_i' = \sum_{j=1}^{10} I r_{ij} \cdot k_{ij}, \quad (1)$$

where, $I r_i'$ – summative result of the evaluation of the technologic i intellectual resource, $i=1, \dots, n$; $I r_{ij}$ – score (value mark) of this resource by the j -criterion; k_{ij} – ponderability of the j -criterion for i intellectual resource, $\sum_{j=1}^{10} k_{ij} = 1$.

Conclusion

Thus, the analysis of the existing or perspective level of the technological intellectual potential of the company is essential for the development and management decisions for the future functional processes with a view to the effective development and the use. This analysis should be realized by the scoring of the intellectual resources in accordance with the proposed formula. To ensure the accuracy and the adequacy of the results, it is recommended to evaluate only those appropriate company or potential for attracting intellectual resources that are discovered and really existing, that are not hidden. The developed basis criterions of adaptability are reasonable and universal, providing the possibility of their practical use for assessing the intellectual potential business of any scope and ownership.

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