

**SUB-SECTION 12: Economics of enterprise and production management**

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**EFFECTIVENESS OF ENTERPRISES INTELLECTUAL  
PROPERTY MANAGEMENT**

*The article deals with the essence of "effectiveness management" concept. The main tasks of evaluating the effectiveness of intellectual property management at companies are identified. The main directions of improving the management of intellectual property of domestic enterprises are considered.*

**Keywords:** competitiveness, effectiveness management, intellectual property, and effectiveness evaluation.

**General statement of the problem and its relation to important scientific and practical tasks.** Intellectual property is becoming increasingly important in the context of acceleration of Scientific and Technological Progress and the use of modern information technology. Creation and use of IP is not only the key to improving production and products of modern enterprise, but also a promising new area of activity.

According to researchers, formation of intellectual property at enterprises provides the following competitive advantages: the possibility of IP objects to entry into the share capital that does not involve real investment funds; to obtain additional income from the transfer of ownership of IP objects; ensure protection on the competitive market with release of new products; promote the image and reputation; the possibility of reducing the Value Added Tax, etc. [1].

Namely intellectual property is becoming now extremely important resource of the company, an additional source of income and a factor of increasing enterprise's competitiveness in the market environment. However, the problem of determining the cost-effectiveness of intellectual property management remains open.

**Analysis of recent research and publications on the issue.** Theoretical and practical aspects of intellectual property management effectiveness are reflected in such works of foreign and domestic scientists as J. Louha, Leif Edvisson, Patrick H. Sullivan, V. Cohen, J. Simmons, M. Afanasyev, M.V. Vachevskiy, V.G. Zinov, P. Kuznetsov, V.P. Chebotarev, P. Tsybulov and others. However, issues related to the definition of approaches to assess the effectiveness of intellectual property management are still not investigated.

**Formulation of research objectives.** The article aims to study the characteristics of evaluating the effectiveness of enterprise's intellectual property management (IP). The goal necessitated the following tasks:

- the analysis of major trends in the formation of intellectual property rights in Ukraine;
- the disclosure of economic meaning of the "management effectiveness" category;
- the identification of main types of management effectiveness;
- the consideration of theoretical foundations and approaches to evaluating the management effectiveness;
- the allocation of main tasks of evaluating the effectiveness of IP management;
- the identification of key areas to ensure the company's intellectual property management effectiveness.

The object of study is the process *of assessment* of intellectual property management of enterprises effectiveness. The purpose of the study is the system of theoretical, methodological and applied aspects of the assessment of the effectiveness of IP management of enterprises.

**Statement of the main results of research and study.** Analysis of the statistics of recent years shows the significant reduction in the number of organizations in Ukraine carrying out research and development: from 1303 in 2010

to 999 in 2014; reducing the proportion of fulfilled scientific and technical work in GDP from 0.90% in 2010 to 0.68% in 2014 [2]. In line with these trends, there is a decrease in filing applications for inventions and utility models by domestic applicants in 2010 - 2014 years (Table. 1).

Table 1

Receipt of applications for inventions and utility models from domestic applicants

Objects of Industrial Property	2010	2011	2012	2013	2014	Growth rate of 2014 to 2010, %
Utility models	10528	10285	10030	9977	9244	-12,2
Inventions	2553	2641	2484	2855	2455	-3,8
Total:	13081	12926	12514	12832	11699	-10,6

(Source: developed by the author on the basis of [3])

Analysis of the table shows the annual reduction of applications for utility models from national companies and organizations that significantly reduced the index in 2014 to the level of 2010 (12.2%). As for receipt of patent applications, no clear trend is observed, although in general, the number of patent applications decreased by 3.8% over the period analyzed. It can be concluded that there have been total negative trends in innovation activity and formation of the intellectual property of domestic enterprises that shows, above all, the lack of efficient management of these processes at the state level and at the level of domestic enterprises, that retards the studied processes.

According to the researchers, effective system of intellectual property should focus on the active support of the national economy, be able to quickly make the grounded decisions, respond adequately to environmental changes and complex processes in the controlled system and to create the conditions in which creative potential of the state and enterprises will be mobilized and directed to achievement

of sustainable progress and acceleration of the processes of intellectual property formation [4, p.89].

Investigation of peculiarities of the company's intellectual property management effectiveness evaluation should, in our opinion, begin with clarifying the essence of this concept. Analysis of scientific papers showed the close connection between the concepts of "effect", "result" and "effectiveness". The origin of the "effectiveness" concept is closely related to the "effect" concept (Lat. *Effectus* – performance, results, action, from *efficio* – perform action), which refers to the result achieved; consequence of any reasons; events; actions [5].

The authors of [6] distinguish the concepts of "effect" and "result". According to researchers, these concepts are related, but not identical. The effect is some form of the result. The economic effect is an overall result, for example, production output, and economic benefit – is the net result i.e. profit. Thus economic benefit is equal to the difference between economic performance and economic costs required to achieve it [6, p. 4–5]. In "Economic encyclopedia" effect is defined as "the result achieved in various forms of manifestation (material, money, career, social, etc.)." [7, p. 505].

A somewhat different interpretation of the economic effects we can find in the economic Encyclopedia, edited by B. D. Hawrylyshyn [8]. The economic effect is "... the quantitative and qualitative characteristics of the influence of economic system elements on the effectiveness of its operation. In contrast to the technical, technological and other non-economic effects economic effect exists mainly in monetary form and is monetary income. So in a certain sense, the concepts of "economic effect" and "monetary income" are identical. Depending on the nature of the influence of individual elements on the performance of the economic system we can distinguish positive, the plus (with the "+" sign, "plus effect"), negative, minus (with the "-" sign, "negative effect") and "null effect" [4; c. 506]. According to the authors of [9] "... the effect is situated within the result, and the latter characterizes

every aspect of economic activity in terms of the obtained ultimate, final outcome of these activities (for example, the amount of dividend payments, the market value of the shares, the result of the investment project proceedings, enterprise value, etc.)"[9; c. 12].

Summarizing the considered approaches to the definition of "effect", we want to note that, in our opinion, the effect and the result are identical concepts, which describe the objectives of a process.

As noted by researchers, scientists today don't have the unanimous approach to the definition of "management effectiveness" [10; 11]. In scientific works [12, 13; 14; 15] the authors note that effectiveness is a multidimensional and complex concept, which is regarded as the performance of a certain action or process. At the same time, according to the researchers, the term "management effectiveness" should be considered as a comprehensive description of management that reflects the degree of implementation of tasks and achievement of objectives of the company [16; 17; 18]. General applicable approach to determining the effectiveness, including management effectiveness, is the ratio of benefits to costs necessary to achieve it. According to N. Lapyhina management effectiveness is:

1. Certain concrete result (effectiveness of action, process);
2. Matching of the outcome or process with maximum possible, the ideal or planned;
3. Functional diversity of systems;
4. Numerical characteristics of satisfaction of functioning;
5. The performance of targets and functions;
6. The ratio of real to desired effect (normative) effect [18, p. 139].

In [19] the author notes that the effectiveness of management is focused operational control of the company's activity in certain areas of effectiveness management in order to ensure compliance of the real (actual) state of enterprise with specified parameters. Besides, effectiveness management involves evaluation

of activity of the entire company or specific areas in terms of success achievement under conditions of the availability of effective mechanism of effectiveness management [19, p. 8].

I.V. Kopytova stresses that the assessment of effectiveness of industrial production is an important part of the management process, embodiment of the principles of its feedback and a tool of the whole management system improvement. The author defines the evaluation of production processes effectiveness as specific relation of its subject to actual management effectiveness based on the comparison of the effectiveness with certain equivalent, which was chosen as the criterion to meet the needs of enterprise in high production results with an optimal organization of management [20, p. 7].

For more in-depth study of the management effectiveness we should consider types of enterprise effectiveness. There are different approaches to the classification of effectiveness in the literature of today. In particular, in [21] the following types of effectiveness are highlighted: economic, social, local (commercial) national economic, absolute, relative, primary, multiplexing, synergistic, of workplace, of work unit (section, department, production), of the whole enterprise, of extensive development, of intensive development, scientific, engineering and technology, organizational and management innovation, of investment projects and programs, of operating costs, of disposable (capital) costs, total (integral), part (separate), factor (multifactorial), of foreign trade of the company, of joint ventures and multinational corporations activity.

As the author of [22] states, the most common classification of effectiveness includes the following: economic, social, socio-economic and environmental. Economic effectiveness is calculated using different cost parameters that characterize the intermediate and final results. The production economic effectiveness is the ratio of obtained effect to material, labor and financial resources necessary for the production process.

Significant changes, the author notes then, to the essence of effectiveness occurred with the development of the social sphere. The growth of civil society activity in developed countries, pollution of water and air basins of the Earth, excessive consumption of exhaustible natural resources, increased disease due to intensification of production, distribution of social problems and other factors led to the selection of the notion of "socio-economic effectiveness" as the basic category of public production. Socio-economic effectiveness shows the level of satisfaction of society's needs with the material and cultural benefits, the degree of spiritual development of man. It provides, on the one hand, economic goals of enterprise owners, and on the other hand, social outcomes that reflect the needs of both - the individual-employee and the society as a whole. Social effectiveness is the result of economic activities influence on the formation of human life.

Environmental economic effectiveness indicates the maximum possible satisfaction of social needs at optimum cost of production, receiving ecologically friendly products while maintaining the environment. Ecological and economic effectiveness, together with the achievement of economic goals, provides also satisfaction of social needs of the population, production of environmentally-friendly products and environmental protection. Today, underlines the scientist, the importance of this kind of performance is growing, and that shows compliance of technological process in the company and its products with international quality standards and objectives of environmental protection. Then author notes that the considered types of economic effectiveness in their turn are divided into absolute and relative economic effectiveness. Absolute economic effectiveness is determined by the ratio of economic benefits to the costs required to achieve this result. The relative (comparative) economic effectiveness is determined by the ratio of costs to the already achieved results when considering two or more alternatives that solve the same problem [22, p. 268].

To form an effective system for evaluating the effectiveness of intellectual property it is necessary first of all to identify the main task of the system. We believe that the main tasks of evaluating the effectiveness of IP management include:

- identification of the evaluation procedure, its types and frequency (systematic analysis of IP management effectiveness promote timely identification of gaps and their causes, and formation of corrective measures);

- checking the degree of targets performance on the creation and use of IP (this test will help assessing feasibility and validity of plans in terms of resource supply and separation into the planning periods);

- development of criteria and indicators for assessing effectiveness of IP management (lack of a balanced benchmarks and performance indicators makes it impossible to analyze management effectiveness);

- study the effectiveness of IP management using developed system of criteria and indicators (deviations of the actual indicators from forecast shows the failures and shortcomings of IP management);

- ensuring timely response to the emergence of violations and shortcomings of enterprise IP management system (intellectual property is the result of innovation activity of the company that is focused on constant intensive changes. Innovative products have today a tendency to reduce their life cycle, so correction of innovation should be urgent);

- analysis of the causes of shortcomings and irregularities in the IP management (identification of the real causes of irregularities will help to develop and implement adequate measures);

- identifying the perpetrators of these deficiencies and disorders (enhancing of the personal responsibility is an important element of employee motivation);

- Checking the display value of IP objects (intangible assets) in the accounting system of the company (proper assessment of IP value is the basis for further determination of the effectiveness of their use);



- Development of measures aimed at eliminating of deficiencies and violations in the management of enterprise IP (carefully designed activities will neutralize disadvantages of management and allow to achieve planned objectives).

To determine the effectiveness of management, as it was noted earlier, it is important to select criteria and indicators which will be the assessed. "Economic encyclopedia" edited by S. Mocherny states that criterion is an indicator or measure, based on which an economic assessment of the object and a process is formed, namely a measure of this assessment. For example, the criterion of effectiveness characterizes the level of effectiveness of the production system, and the optimality criterion, describes its approximation to the optimum state [7, p. 412]. As stated in [9] "... the criterion of economic effectiveness should express the purpose of economic activity of the enterprise and the conditions of its achievement. Based on this performance criterion must meet the following requirements: to reflect economic performance and fix and measure the degree of achievement of this goal" [9, p. 21].

According to some researchers, profitability is the main criterion of economic effectiveness of the enterprise and its parameters are calculated based on income received by the company [23, p. 13-14]. We believe this approach is somewhat one-sided and narrowed because of the fact that enterprise in today's competitive environment requires, for example, periodic investments in technical re-equipment of production, which is known to lead to a temporary deterioration in earnings and profitability of production. However, implementation of scientific and technological progress is a long term aim, so it is certainly an important way to increase the competitiveness of the enterprise and its effectiveness.

We agree with the authors of other studies that indicate that the criteria characterizing the success of the company should reflect its diversity and be closely related to each other [24, p. 20]. According to the authors of this paper, the effectiveness of the company is advisable to estimate based on multi approach and

the main criteria are: profitability, efficiency, quality, innovation, market position, productivity, efficiency and quality of work life [24, p. 18]. D. Cinco analyzing the category of "effectiveness" notes that the terms "effectiveness" and "productivity" due to the nature of translation in English, can be considered identical and interchangeable synonyms. Researcher identifies seven key performance (effectiveness) criteria: effectiveness, efficiency (a measure of re-use of resources by system), quality, profitability, productivity, quality of work and innovation. The essence of these criteria is as follows:

- effectiveness shows the degree of goals achievement;
- efficiency shows the level of resources use;
- quality means matching with system requirements, specifications and customer expectations;
- profitability shows the ratio between gross income and total expenses;
- performance is a ratio of quantity of products to the cost of their production;
- quality of work indicates the degree of satisfaction and expectations of the production participants in the workplace;
- innovation shows the degree of use of company's scientific and technological potential [25, p. 18].

We consider reasonable outlining by the author of [26] following directions of improving the effectiveness of the company's IP management:

1. Diagnosis of the current situation and providing the company with personnel, information, scientific, material resources for effective IP management.
2. Formation of a portfolio of IP objects with the direct participation of both the management and all staff.
3. Identification of the main priorities in managing the creation of IP.
4. Building an effective motivational system aimed at intensifying IP objects creation.

5. Consideration of internal factors of production in the process of company's intellectual property management.
6. Improving the system of IP evaluation.
7. Organization of the system of accounting and inventory of enterprise's IP objects. Formation of databases on the movement of IP objects and their use in business.
8. Activation of the processes of self-reproduction of intellectual property as an important factor for increase the competitiveness and profitability.
9. Purposefulness in achievement of planned results concerning the formation of enterprise's IP.
10. Identification of reserves of enterprise IP management improvement [26, p. 130].

**Conclusions and suggestions for further research.** The article analyzes the works of scientists and recent publications on economic essence of enterprises' management effectiveness. The economic nature of the category of "effect" and "management effectiveness" is considered; key task for analyzing the effectiveness of IP management in companies is identified; the basic directions of improving the enterprise IP management are outlined. Prospects for further research are as follows: development of benchmarks and indicators of enterprise's intellectual property management, definition of their calculation methods, outlining of the basic principles of building of such a system and the factors of its formation.

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