Effective mechanism of intellectual property management in a company

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Abstract. The article considers the role of intellectual property (IP) system in the modern economy; defines main functions of innovations and intellectual property objects in the knowledge economy and basic properties of an innovation, such as scientific and technical novelty, industrial applicability, commercial feasibility, under interconnection with IP management. Current paper researches intellectual property objects as the results of innovation activity; reveals the main principles of effective intellectual property management and the essential elements of the effective mechanism of intellectual property management in a company under the conditions of knowledge economy. The study presents the author's definition of the term “intellectual property management”, considers the essence of effective IP management mechanism and develops the author's mechanism of intellectual property management in a company. The study substantiates that the continuous introduction of innovations and expansion of intangible assets, which occurs due to a developed intellectual property management system that ensures the protection of intellectual rights, is a strategic factor of the company's competitiveness.

Keywords: Intellectual Property Management, Intellectual Property Objects, Innovations, Knowledge Economy.

1 Introduction

Currently, the global economy is experiencing a boom of innovation: under the conditions of alternation of economic management forms and methods, all the economic entities have to deal with innovations. In the conditions of modern technological structure, intellectual property (IP) is an important asset of any company and has a significant impact on innovation performance. In the context of the development of the knowledge economy, intangible assets and products are becoming increasingly important to meet the needs of society and business.

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Development of the knowledge economy in today's world is accompanied by the increasing role of intellectual capital. Thus, it is necessary to innovate the mechanisms of intellectual resources management of a company to stay up to date. There are numerous works devoted to the problems of IP expansion, which reveal issues of innovation development [1-3]; modeling of IP management and valuating processes of companies [4-7]; boosting of the IP strategies effectiveness [8, 9]. But still in the works, devoted to the enhancement of IP assets within global value chains, the issues of intellectual property management in a company remain insufficiently studied, including determining the essential elements and efficiency criteria of IP management mechanism. As in a progressive society, development is closely connected with the innovations and creativity, this problem is always relevant for any developing social-economic system.

In connection with the above, the aim of the current paper is to consider the alternatives to the solution of the problem of intellectual property management in the knowledge economy and to develop the effective mechanism of IP management in a company.

2 Materials and Methods

The study base on theoretical and practical highlights of IP role in innovation development, profiting from innovation, IP protection and IP management practices. The link between innovation and IP management is revealed through systemic technology innovation management and analysis of other forms of IP protection [1], necessary leverage for effective innovation in times of crisis [2], and by focusing on the role of open innovation in decisions to terminate underperforming NPD projects [3]. A broad range of aspects of increasing the value of intellectual assets is considered in works [4, 5]. The wide review of strategies for managing intellectual property value is presented in work [6]. Building value and growth for small businesses through IP protection is revealed in article [7]. The study [8] proposes a framework for responsible intellectual property strategy based on five case studies of sustainable companies in different sectors. The article [9] explores IP models affection on green innovation diffusion.

The study used an array of information about IP indicators worldwide from analytics and statistics of World Intellectual Property Organization [10, 11]. To conduct the research the general scientific methods were used such as dialectical, theoretical cognition (to form the theoretical basis of IP system); generalization and comparison (to study the interdependence between innovation and IPOs); systematic approach (to generate the essence and the content of the effective mechanism of IP management in a company, and to define the main criteria for IPOs inclusion to the IP portfolio of a company); system analysis and synthesis (to develop the effective mechanism of IP management in a company).

3 Results

Intellectual property is understood as the rights to the results of intellectual and creative activity subject to legislative protection, the acquisition of which makes it possible to control their use. In modern conditions of innovative transformation, the IP system provides both protection of innovative products and services and prevention of loss of the results of creative work. IP rights create proprietary rights on such objects as inventions, literary and artistic works, design developments, software, symbols, names and images used for commercial purposes, those are the intellectual property objects (IPs).

Since the results of intellectual work that can be used to create new or improved products, services or...
Technologies represent innovations, the IP system contributes to the global expansion of innovation, as well as competitiveness and the development of the knowledge economy.

Being the results of innovative activity, in the conditions of the modern knowledge economy, IP Os carry important functions, in many respects similar to the functions of innovations (figure 1).

Fig. 1. Main functions of innovations and IPOs in the knowledge economy [developed by the authors]

Since IPOs are the result of innovative activity, in the process of IP management it is important to rely on the basic properties that an innovation must possess in order to be considered an innovation [1-3]:

- Scientific and technical novelty means that innovation contains new knowledge, ideas, methods or solutions that differ from existing or traditional ones;
- Industrial applicability means that innovation can be implemented in a specific project, process or product, and also has the necessary conditions and resources for this;
- Commercial feasibility means that innovation is able to meet certain needs and demands of consumers in the market, as well as bring profit to the manufacturer or creator.

Therefore, IP management is inextricably linked with the competitiveness of created innovations.

The main principles of effective IP management should base on value creation from company’s IPOs and gaining a competitive advantage in the market [4; 5]. It follows:

- The function of creativity – innovation is a channel for bringing to life the achievements of human intelligence, scientific and technical results, contributing to the intellectualization of labor activity, increasing its knowledge intensity.
- The cultural function – IPOs contribute to the dissemination of knowledge, culture and information in society, as they disclose technical information about inventions or the artistic content of works to the general public in published documents.
- The function of needs satisfaction – innovations expand the range of products and services produced, improve their quality, which contributes to the growth of each person needs and society as a whole and the satisfaction of these needs.
- The commodity function – IPOs determine the quality of goods and services, which are based on new intellectual solutions. They also serve to distinguish the products of one manufacturer from others with the help of distinctive signs.
- The function of saving resources – innovations make it possible to involve new capacities in production, while producing products and services with less labor, materials, and energy.
- The stimulating function – IPOs encourage creativity and innovation by giving authors and creators the opportunity to control the use of their creations by others and receive recognition or financial reward for their efforts.
- The function of development proportionality – innovations contribute to the creation of conditions for the harmonious development of various spheres of society, bring the structure of reproduction in line with the structure of changed needs and the structure of the external environment.
- The social function – IPOs contribute to the socio-economic development of society, as they create conditions for the harmonious development of various spheres of society life, meeting the needs of people and improving the welfare of the nation.
To ensure the effective use of IPOs during an innovation project, companies need to implement the mechanism of IP management in a company. The essence of this mechanism is to select IPO for the implementation in the company and makes it possible to conclude in the portfolio, especially in the context of innovation and the development of the scientific, technical, and commercial level of IPOs.

The essence of the mechanism of IP management in a company is to identify protectable objects, select the optimal form of legal protection, and implement it. This is due to the necessity while project development to choose the method of IPOs implementation. The main indicators of the effectiveness of IP implementation include the presence of positive social, environmental, and other effects. The prospective of IPOs commercialization is based on the above features, which will be applied on its further commercialization. The increase in the value of IP is due to the inclusion of intellectual creation and using. IP valuation can be useful for various purposes, such as licensing, sale, donation, and utilizing for continuations, such as litigation, taxation, accounting, or financing.

Thus, the task of implementing an IP management mechanism in a company is to support subsystems; build an effective protection mode, which lists the IP assets. The purpose of the mechanism of IP management in a company is to conclude in the portfolio, especially in the context of innovation and the development of the scientific, technical, and commercial level of IPOs.

To estimate the feasible proceed of IPOs structuring for the selection of IPO for the implementation in the company, it is necessary while project development to choose the method of IPOs implementation. The main indicators of the effectiveness of IPO implementation include the presence of positive social, environmental, and other effects. The prospective of IPOs commercialization is based on the above features, which will be applied on its further commercialization. The increase in the value of IP is due to the inclusion of intellectual creation and using. IP valuation can be useful for various purposes, such as licensing, sale, donation, and utilizing for continuations, such as litigation, taxation, accounting, or financing.

For the effective IP management during an innovation project, it is advisable to use the following methods and tools optioning for IP rights protection and disposal of IP rights, which are the intellectual creation using and substantiation rely on legal protection of IPOs, which assume formation of IP rights portfolio for secure structuring, which lists the IP assets.

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4 Discussion

Table 1. Total applications growth in 2013 – 2021 (%) [calculated by the authors based on 10]

<table>
<thead>
<tr>
<th>Year</th>
<th>Type</th>
<th>Utility model</th>
<th>Patent</th>
<th>Trademark (class count)</th>
<th>Industrial design (design count)</th>
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Table 2. IP rights in force growth in 2013 – 2021 (%) [calculated by the authors based on 10]

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<tr>
<th>Year</th>
<th>Type</th>
<th>Utility model</th>
<th>Patent</th>
<th>Trademark (class count)</th>
<th>Industrial design (design count)</th>
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</table>
The mechanism of intellectual property management

Functional subsystem:
- Planning, regulation and control;
- Organization and motivation of personnel;
- Accounting and analysis, internal audit;
- Information service.

Support subsystem:
- Principles of IP management;
- Methods of IP management;
- Tools of IP management;
- Regulatory support for the creation and protection of IP;
- Intellectual resources of a company.

Target subsystem:
- Purposes of IP management;
- Tasks of IP management;
- Effectiveness criteria of IP management.

Formation of IPOs:
- Creation of a result of intellectual activity;
- Purchasing of a result of intellectual activity;
- Identification (detecting and individualization) of IP;
- Inventory (in accordance with the legislation) of IP.

Securing the rights and disposal of rights on IPOs:
- Recognition of the rights;
- Preventing violations;
- Compensation of losses;
- The seizure of counterfeit products;
- Publication of court judgment.

The use in the own production

The use as an innovative product:

Formation of IPOs:
- D
deposing in the authorized capital of a company;
- Assignment of ownership rights (selling);
- Transfer of use rights (license agreement, franchise, lease agreement).

Valuation of IPOs:
- Cost approach: method of determination of initial costs, method of replacement costs, method of restoration costs;
- Income approach: method of additional profit, method of profit sharing;
- Comparative approach: method of comparative analysis of sales, method of the market of IP (relief from royalty).

Accounting as intangible assets

Formation of a portfolio of IP rights:
- Determination of patentability;
- The choice of form of right protection;
- Legal protection;
- Legal support (maintenance).

The use in the own production (production of innovative products)

The use as an innovative product:
The United States, China, and Japan are the three largest economies in the world (as measured by nominal GDP according to the International Monetary Fund) and have the largest share of world total key numbers (Table 3).

Table 3. The countries of the largest share of applications in 2021 [11]

<table>
<thead>
<tr>
<th>Type of Intellectual Property</th>
<th>Country</th>
<th>Share of World Total (%)</th>
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<tbody>
<tr>
<td>Patents applications</td>
<td>China</td>
<td>46.6</td>
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<td></td>
<td>US</td>
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<td></td>
<td>Japan</td>
<td>8.5</td>
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<tr>
<td>Utility models applications</td>
<td>China</td>
<td>97.5</td>
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<tr>
<td></td>
<td>Germany</td>
<td>0.4</td>
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<td>Russian Federation</td>
<td>0.3</td>
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<td>Trademarks application class counts</td>
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<td>US</td>
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<td></td>
<td>EUIPO (EU office)</td>
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<tr>
<td>Industrial designs application design counts</td>
<td>China</td>
<td>53.2</td>
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<tr>
<td></td>
<td>EUIPO (EU office)</td>
<td>7.7</td>
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<tr>
<td></td>
<td>UK</td>
<td>4.9</td>
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</tbody>
</table>

IP right is a valuable asset that the most successful companies use to grow its business. According to the Fortune Global 100, the top five companies in the 2021 ranking are Apple, Saudi Aramco, Microsoft, Amazon.com, Alphabet. At the same time, for example, Apple and Amazon have four times fewer patents than IBM, which have the most patents in the US while in 2020 occupied 38th place and in 2021 is not in the rank. In this regard, the competitiveness or profitability of a company depends not on the number or types of IP, but on the effectiveness of IP management that reflects the strategy and vision of a company.

Effective mechanism of IP management in a company must be integrated with business strategy, what provides competitive advantage reinforcement by IP rights using. IP management aligns IP strategy with the overall goals and is important for businesses because it protects its innovation and creativity, provides information to the public, adds value to the products and services.

5 Conclusions

The development of the knowledge economy is accompanied by an increase in the role of intellectual capital, the continuous innovation and the expansion of intangible assets, which occurs due to the IP system development that ensures the protection and security of intellectual rights. Intellectual resources in modern socio-economic systems contribute to the intellectualization of labor activity, expand the range of products and services and meet the needs of people, promote to creation of conditions for the harmonious development of various spheres of society. Intellectual property is one of the key factors for increasing the market share and potential profit of companies, as it makes their products and services more distinctive from others. Intellectual property objects are different types of original material created by human intellect and protected by law. IPOs are the results of innovative activity and as intangible assets can provide value and competitive advantage to their owners and creators. To manage intangible assets and products IP management is required that supposes IPOs structuring, evaluation and further commercialization. To create and hold sustainable competitive advantages, innovative companies need to apply an IP management.
mechanism that ensures the effective implementation of IP rights and contributes to IP commercialization strategy.

Effective mechanism of IP management in a company is considered as the process includes IPOs creation or acquisition and IP rights using to achieve economic and other effects.

Acknowledgement

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References