

SECTION 7. INNOVATIVE ECONOMY

7.1 Theoretical justification and practical application of approaches and methods of evaluation of intangible assets and objects of intellectual property authorities

One of the main indicators of civilized society has been and continues to be the attention paid to the development of science, culture and technology. Ultimately, the success of the solution of the economic problems facing it depends on the significant intellectual potential of the society and the level of its cultural development. In turn, science, culture and technology can develop dynamically only if appropriate conditions are in place, including the necessary legal protection and assessment of intellectual property.

At the present stage of development of the domestic economy, the key factor in the success of any organization is the control over the assets at its disposal. To do this, the company's management needs to have information about the current and projected market value of assets, the average return on similar assets and other sets of technological information. Only with such information in full, you can effectively manage the property complex of the enterprise, which means a set of actions such as modernization, reconstruction, liquidation, purchase, sale of assets in case of projected negative changes in their value and insufficient return. This information can be obtained by valuing existing assets, both tangible and intangible, with the help of independent appraisers who use the latest methods of cost analysis of assets.

To date, there are already methods for estimating the value of patents, technologies and other intellectual property. But practically none of the methods allows to objectively assess the objects of intellectual property (IPR) taking into account the phases of their life cycle, which would allow to carry out the whole range of work to assess the rights and value of IPR . This causes a slowdown or inability to commercialize them due to inaccurate estimates. Problems may also arise due to the lack of objective information about the state of the relevant market segments, when forecasting the competitiveness of this object and modeling its life cycle. At the same time, all calculations should be conducted not in relation to hypothetical programs for

the use of a particular object of intellectual property, but on the basis of real, practical programs and plans.

In view of this, it can be argued that this issue is relevant, this problem of today, the solution of which needs more and more attention.

It is well known that in the post-industrial society, science is a powerful generator of increasing the intellectual potential of the national economy, and the commercialization of the results of mental labor provides growth of its competitiveness in the global economic space.

A characteristic feature of the functioning of modern developed economies is an efficient market of intellectual property, through which the products of creative intellectual labor are introduced into economic circulation. Since no country in the world today is able to provide a full range of scientific and technical research and development in all possible directions, the formation of developed scientific and technical potential of the state is almost impossible without active participation in international exchange of intellectual products: buying and selling patents and licenses. know-how, engineering services; foreign trips of specialists, their participation in international scientific and practical conferences; organization of international exhibitions, fairs, etc.

Thus, the use of intellectual property in a market economy is carried out on the basis of its commercialization , the mechanism of which allows the continuous movement of intellectual capital and profit [527].

It is generally accepted that intellectual property rights act as a specific commodity that is introduced into economic circulation in national and global markets. According to modern researchers , the competitiveness of a particular object of intellectual property is determined by the following factors:

- degree of legal protection;
- technical level;
- novelty;
- market specifics;
- price;

the expected intensity of the rivalry;
the likelihood of market expansion [515].

Purchase and sale of intellectual property are confirmed by the relevant agreement, which is an effective tool for reconciling the interests of economic entities. Thus, the commercialization of intellectual property relations acquires institutional form in the relevant market agreements.

Intellectual property market is a system of economic relations concerning the purchase and sale of intellectual property. Agreements on it are made out as transfer of exclusive rights to these objects. Thus, the essential feature of this market is that it is not the products of intellectual activity, but the rights to them. Therefore, the value of objects appears as the value of rights, and the object of purchase and sale are security documents.

According to modern researchers [515, 516, 519, 521], the characteristic features of the intellectual property market are:

high degree of monopolization;
high rate of return;

long-term and deep connections between buyers and sellers. In today's market economy, there are two main ways disposal of intellectual property rights: sale (alienation) of property rights, for which the seller loses these rights forever, receiving a one-time payment for them (the price of intellectual property) or donating them on a gratuitous basis; transfer of property rights through licensing, under which the seller gives permission to others to perform certain actions in a certain period in a certain area.

Persons who have acquired exclusive property rights through licensing may transfer them to other persons (with the consent of the owner) on the basis of sublicensing.

The main subjects of relations concerning the commercialization of intellectual property in the modern market economy are:

authors, creators of intelligent products in ;

labor collectives, organizations whose activities are related to the creation and use of intellectual property;

public administration bodies of the national innovation system;

investors financing the creation and use of intellectual property;

producers and consumers of intellectual products.

The relations that develop between these entities are not institutionalized in different segments of the intellectual property market. Among these segments are the following:

1. Copyright market where transactions are concluded:

on the transfer of exclusive rights (granting permission to use the work in a certain way within the limits established by the contract to the person who receives the right to prohibit such actions to others);

on the transfer of non-exclusive rights (granting permission to use the work to a certain person, which does not preclude the possibility of its use by the author or other persons who have received a similar permit).

The most common forms of copyright transfer are contracts: on the publication (publication and reprint) of the work; staging, concluded for conditions when the main way to use the work is its public performance; script, associated with the transfer of the right to process the text of the work on the script; on the deposit of the manuscript related to the transfer the right to publish and use the work special information bodies in accordance with the established procedure, etc.

2. Market rights for computer programs and databases, on which the following types of copyright agreements are concluded: on partial transfer of exclusive rights; on the transfer of all property rights; on the transfer of non-exclusive rights.

3. Trademark rights and service mark market, where agreements are concluded to provide the owner of a trademark (service mark) with permission to use it to counterparties subject to certain conditions (term, territory, methods, requirements for the quality of goods or services, etc.).

following types of agreements are concluded on the market of trademark and service mark rights: exclusive, which provide for the transfer of significant amounts of

rights to use trademarks (service marks), including the obligation of the owner not to use this trademark (service mark) during the term of the agreement; non-exclusive, under which the owner reserves the right to use the trademark (service mark), which is the subject of the agreement.

4. Patent rights market, where agreements on the transfer of rights to use industrial property protected by patents (inventions, utility models, industrial designs, etc.) are concluded.

On the following agreements are concluded on the patent rights market : exclusive, which guarantee the buyer the absence of competition from the owner within the time and territorial limits specified in the contract; non-exclusive, which give the right to use a certain object of industrial property, without depriving this right of other economic entities.

5. The market of know-how, engineering services, etc., on which the following agreements are concluded: on the transfer of know-how in a materialized form (to documents, photographs, computer programs, databases); on the transfer of know-how in non-materialized form (consultations, training, technological assistance); on the provision of engineering services, etc.

In practice, the market for patent rights, the market for know-how and engineering services are closely interrelated and, as a rule, complementary.

Thus, in a modern market economy , various methods and legal agreements are used for the transfer or sale of intellectual property [517].

An intellectual property object, like any economic object, has a beginning and an end. The vast majority of scientists [520] identify five stages of the life cycle of IPR: creation, acquisition of rights to it, use (commercialization) of rights, protection of intellectual property rights, disposal of IPR. The creation of intellectual property rights begins with an idea. For example, it could be an idea of an invention or a work of art. In business , ideas are usually aimed at increasing the competitiveness of technologies or products. Next is the development of this idea. For example, if it is an invention, it is necessary to do a patent search to make sure that such inventions have not yet existed. Then m test this idea experimentally. The creation of an intellectual property object

ends by reproducing it on a tangible medium (paper, electronic media, etc.) so that it becomes clear to others. We emphasize that the creation of objects of intellectual property rights are people of creative work: scientists, engineers, musicians, writers and more.

Acquisition of intellectual property rights is an important stage of its life cycle. These objects are vulnerable to unfair competitors. For example, you told another person about the idea of the invention. This person may use it without your permission in their production. Even if you and his production start at the same time, the competitor wins because he did not invest in the development of the idea of the invention and, therefore, his products or services in which the invention will be used will be cheaper, ie more competitive. To prevent this negative phenomenon, it is necessary to obtain legal protection against IP or to restrict access to the secrecy used in technology.

The use of intellectual property rights is the most productive stage of its life cycle. Prior to this stage, the IP did not benefit the developer. On the contrary, funds were spent on the creation of IPRs and legal protection. And only at the stage of use (commercialization) are reimbursed for front costs, as well as make a profit - actually what they are created for in most cases.

Protection of rights is carried out when these rights are violated by an - unscrupulous competitor. The current legislation of Ukraine provides the owner of the rights to IP with several ways to protect them. The most effective form of defense is to go to court.

Disposal is the last stage of the IP life cycle . Since the IPR is an intangible object, there is no need to destroy it or process it into something else. After the expiration of the legally defined term of intellectual property rights, it disappears as an object of property and becomes public property. That is, anyone can use it without the permission of the copyright holder. If at the time of expiration of the rights to the IP its legal service life is not exhausted, it is possible to extend the use of such object for a fee (royalty) or cede (sell) ownership of it, thus obtaining additional income [516] .

At all stages of the life cycle it is necessary to know the value of the object and the intellectual property rights , which is of great importance for management

decisions. Valuation of intellectual property rights in accordance with International Valuation Standards [518] is carried out in order to determine: the taxable base of the property of the enterprise ; the value of intellectual (industrial) property contributed to the authorized capital; the value of the exclusive rights transferred on the basis of the agreement on the transfer of rights to the object of intellectual property or the license agreement on the right to use such object; the amount of compensation to be paid in accordance with applicable law to the owner of intellectual property for violation of his exclusive (property) rights.

The need to assess the value of intellectual property rights also arises during their registration, when determining the price of the license; when insuring and transferring intellectual property as collateral for the purpose of obtaining a loan; in case of bankruptcy of the enterprise in the process of its liquidation in order to satisfy the claims of creditors, as well as in other cases.

Cases in which there is a need to assess any property, including rights to IP , can be divided into two groups. The first group includes those in which the legal status of the object of appraisal or the enterprise to which it belongs should change : the agreement on the sale or purchase of the appraised property; distribution of property between business owners; separation from a large enterprise of a small viable firm; it is planned to take over one enterprise from another; reorganization of the enterprise is expected ; liquidation of the enterprise; received a warning about the alienation of assets by the state.

The second group includes situations in which the legal status of the enterprise using the assessed asset does not change: there was a need to contribute intangible assets to the authorized capital; the conclusion of a license agreement is expected and it is necessary to justify the calculation of the fee for the use of the asset; it is necessary to determine the amount of royalties; it is planned to obtain a bank loan secured by the exclusive rights of the owner of intellectual property (in practice it is rare); a business plan is drawn up in order to attract investment; the amount of property tax is determined when donating or inheriting it; intellectual property insurance is carried out; the amount of compensation for damage caused by the infringer of exclusive rights is determined.

This is by no means a complete list of all possible situations that occur in economic practice.

Among the above objectives of the assessment is especially popular now determining the value of IPR rights contributed to the authorized capital of the enterprise, which provides for the use of intangible assets (including IP) in the formation of statutory funds (capital) of companies.

Given the modern market, there is another relatively new goal for Ukraine in the assessment of IPR, namely the assessment for its registration. In accordance The work [526] and current legislation must include an estimate of its value as an intangible asset when it is registered as an intangible asset. Ukraine does not yet have a developed legal framework for assessing the value of IPR rights.

An analysis of assessment approaches and methods is needed to fully understand IPR assessment issues. The choice of valuation approach is made depending on the specific combination of the object of evaluation, purpose and selected for this type of value. Most researchers [520] have identified three approaches to evaluation: cost approach; comparative (market) approach; income approach. Each of the approaches corresponds to one or more methods. Based on the analysis of the modern literature [521-525] on the evaluation of IPR, the relationship between approaches and methods can be represented as follows (Table 1).

Table 1

Relationship between approaches and basic methods of IP assessment

Approaches _	Methods
1	2
Expensive approach _	direct recovery method
	substitution method
	actual cost method
	reduced cost method
Comparative approach _	comparison method
Profitable income _	direct capitalization method
	of discounting cash flows
	excess profit method
	royalty method
	method of royalty exemption

Summarizing the above approaches and valuation methods, we can conclude that there is no universal, accurate method of determining the value of intangible assets, as each is so individual that it is impossible to create a formalized mathematical algorithm for reliable and accurate calculation of intangible assets, ie IPR. In addition, the value of intangible assets is influenced by many different factors, which differ depending on the phases or stages of the IPB life cycle. This allows us to suggest improvements in the methods of IPR assessment, taking into account the phases of their life cycle, because depending on what stage of the LC is IPR, it is possible to choose one or another approach and evaluation method that is more appropriate for this phase or stage.

cost approach is based on the principles of utility and substitution. The scientist [523], taking into account this approach, proposes to determine the current cost of reproduction or replacement of valuation objects in current prices and further adjust it to the amount of depreciation (depreciation), ie the cost. In this case, the profit value of the IP is also present different values of am and. It would seem that this type of value is unsuitable for the market. However, experts are increasingly resorting to it, realizing that the value of IPR, determined by this approach, corresponds to the value of the "ideal" balanced state of the market.

In an active IP market, comparative and revenue approaches are used in most cases to determine market value. However, in the vast majority of cases, the cost estimate is a necessary component for concluding on the final value of the market value.

Comparing the results of the evaluation of IPRs obtained by the cost approach with the results obtained by the comparative and income approaches can be a kind of indicator of the market situation. In particular, if the cost of the cost approach is higher than that calculated for the other two approaches, it means that competition in the market is low and prices may rise in the near future. If, on the contrary, we can expect increased competition and lower prices. In most cases, the final IPR price is adjusted as the average between the results of the income assessment and the comparative approach for a clearer definition.

Cost approach is the only one that can be used when the IPR is not intended to generate income or when, for one reason or another, the market value is difficult to determine by the other two approaches. For example, when IPRs are unique (works of art) that are sold very rarely or not at all. In the case of determining the basis for taxation, the cost approach is the main when calculating the cost. The cost approach has significant limitations when evaluating long-term IPs due to difficulties in measuring the amount of aging. In addition, the results of the asset-based approach reflect the value of full ownership, so when assessing partial ownership, it is necessary to adjust the results. Thus, an asset-based costing approach is a useful element of the market value procedure and, on the other hand, the only tool to give some idea of the value of unique IPs or when accounting for IPRs as intangible assets.

The essence of the comparative approach is that the value of IPR rights is determined by comparing the prices of recent sales of similar objects. Although this approach to evaluation, at first glance, seems quite simple and straightforward, its application in practice is associated with many difficulties and conventions. First of all, the presence of such difficulties is due to the fact that no two are exactly the same IPR. Country, type of IPR, term of legal protection, composition of authors, terms of financing, time of sale, these are just some of the positions on which, as a rule, objects have differences. Moreover, some differences may change their contribution according to changes in the market situation. Another obstacle to the application of this approach is the need to consider agreements that meet the definition of market value, ie those that have not been affected by non-market factors. In large transactions, information on economic characteristics and terms of sale is often not available or incomplete, so in such cases the market approach can only outline the range in which the value of the market value is most likely to remain. That is why the assessment of IPR based on this approach should be performed carefully. However, if there is sufficient reliable information about recent sales of such objects, the market method of comparative approach allows to obtain a result that most closely reflects the market's relationship to the object of evaluation.

Full use of the comparative approach can be only if the buyer has the opportunity to choose the IP among other similar and with the same functions. At the same time, out of several IPRs of approximately the same value and usefulness, the buyer should be able to choose the one that suits him with a list of the following properties: functional purpose, reasonable cost, service life, degree of protection, uniqueness and other characteristics.

As practice shows, during the transfer of rights to industrial property on market terms there are additional difficulties. The more unique the production or products in which the object and industrial property are sold, the more difficult it is to find a buyer and, accordingly, the less likely a full-fledged market relationship. Conversely, the larger the production and the more such production in the world, the easier it is to find buyers for patents and other rights, and the easier it is to use a comparative approach. An example of this is the production of computers, calculators, TV stars, and so on.

The advantage of comparative (market) the approach is that it allows to determine the so-called fair price, which best corresponds to the market situation. A prerequisite for applying this approach is an efficient market and access to a representative sales database of similar IPs. Unfortunately, a full-fledged IP market has not yet been formed in Ukraine, so using this approach to assess IP rights is currently problematic [522].

The income approach is based on the principle of expectation, which indicates that the value of IP is determined by the amount of future benefits of its owner. This approach is formalized by converting future cash flows generated by OI into real value [523, 526].

As a rule, potential buyers consider OI, which brings income, in terms of investment attractiveness, ie as an object of capital investment in order to obtain a corresponding profit in the future. One of the main features of profitable IPR is that it very rarely belongs to one owner in full ownership. That is why specific sets of property rights that define the subject of the assessment are usually considered during the IP assessment.

Since the income approach is based on the principle of anticipation of future benefits, it is essential to clearly define and classify these benefits for uniform interpretation. It is considered that the benefit of owning IPR includes the right to receive all regular income during possession, as well as income from the sale of IPR after the end of possession (reversal), if provided by the license agreement.

The income approach to the assessment of IPR is based on a mathematical apparatus, which is quite fully described in the study [526]. The essence of the income approach is that the value of any intellectual property object can be identified with capital (investment) of a certain amount, capable of generating additional value or, more precisely, excess added value in terms of efficient use of this asset. Therefore, to solve the inverse problem (estimating the value of intellectual property rights) it is necessary to determine the additional profit for any period (eg, year), which can be obtained through the manifestation of new ideas, principles, improvements in organizational, technological or business activities of the enterprise. In this case, the additional profit is identified with the return on some capital equal to the value of a particular object of intellectual property rights [516, 519].

Knowing the profitability of a particular industry to which an enterprise belongs, or determining the internal profitability of the flow of surplus value through known value added, using known economic and mathematical formulas can estimate the value of a particular object of intellectual property rights, ie determine the amount of capital.

The method of direct recovery is to determine the cost of replacement with subsequent deduction of depreciation (depreciation). The replacement cost of an asset determines the amount of costs required to create a new exact copy of the asset being valued. These costs should be based on current prices for raw materials, supplies, energy, equipment, information, as well as the average industry cost of labor of a certain qualification. The direct recovery method is the best method of calculating the value of unique intangible assets [521].

The method of replacement is to determine the cost of replacement O I B with the subsequent deduction of the amount of its depreciation. When valuing an asset using this method, the substitution principle is used, which states that the maximum

value of property is determined by the minimum price to be paid when buying an asset with similar utility or similar consumer value. This value is called the value of a new asset, equivalent in functionality and options for its use, but not necessarily similar in appearance and construction of components automated accounting program.

The actual cost method is most often used to determine the book value of IPR rights for accounting purposes and to reflect this value on the balance sheet as the property of the enterprise on the date of registration of this property or on the date of commissioning . In determining the book (accounting) value of IPR is usually used cost method of direct calculation of actual costs without taking into account the time of their implementation. A prerequisite for using this valuation method (especially for accounting purposes) is the availability of primary accounting documents confirming the actual costs.

The calculation of the current market value of the object of evaluation by the method of "reduced costs" is, in general, the transfer of actual past costs for the creation and preparation for use of the object of evaluation in current value, ie its value on the date of evaluation. The value of an asset determined by this method is called historical because it is primarily based on the actual costs selected from the financial statements of enterprises over the past few years. Special attention should be paid to two circumstances, their size and the term of the asset. Expenditure previously incurred should be adjusted as necessary, if necessary , and then indexed to the statute of limitations . The method of reduced costs is most often used to estimate intangible assets that are not involved in the formation of future income and which are not profitable at this time [527].

In practice, this method is used in cases where the assessed intangible assets are of social importance or are used in defense programs, security programs of national or regional importance. Accounting for costs incurred should include costs not only for the development and legal protection of IPR, but also for: production of prototypes; production preparation; ensuring the normal course of the production process; product sales.

The more detailed the real costs are taken into account, the more reasonable the evaluation result is.

The method of sales comparison is the main in the comparative market approach . If the appropriate conditions are met, the method allows to determine the most accurate, so-called fair price. However, despite its simplicity, its use is associated with certain difficulties inherent in the comparative (market) approach .

The method of direct capitalization of income is used in the case when the forecast is constant in magnitude and equal to the periods of forecasting net operating profit, the receipt of which is not limited in time. Capitalization of such income is carried out by dividing it by the capitalization ratio, which characterizes the rate of return on invested capital (own and / or borrowed) and the rate of its return [517 , 523 , 524].

The calculation of the value of IP rights by this method is performed according to the formula:

$$PV = \frac{CF}{K} \quad (1)$$

where; PV - current value of the object of evaluation;

CF - cash flow of average annual income;

K - capitalization ratio.

A typical case of applying the method of direct capitalization of income when assessing the rights to R & D may be the evaluation of R & D owned by the company and constantly used in production activities indefinitely, such as production technology, trademarks, trade secrets [520].

The method of discounting cash flows belongs to the methods of indirect capitalization. The method is based on the first law of finance. The relationship between current and future value for fixed by the formula for increasing the discount in future cash flows by the compound interest method. In the process of implementing this method, firstly, future cash flows are estimated, secondly, the discount rate is determined, thirdly, the total value of cash flows is calculated.

This method also uses the second law of finance. Therefore, the discount rate for risk-free investment is minimal, and for high-risk, the maximum.

The actual value of IP rights by this method is determined by the formula:

$$PV = \sum_{t=1}^n C_t DF \quad (2)$$

where: PV - actual value of rights to IPR, UAH; t - periods (years);

C_t - net profit in the period t;

DF - discount rate.

$$DF = \frac{1}{(1 + i_t)^t} \quad (3)$$

where: and i_t is the rate of return on capital (discount rate), in the period t.

When calculating the discount rate for cash flows generated by the assessed property, usually take into account the risk-free rate of return on capital, the amount of premium for risks associated with investing capital in the acquisition of assessed intellectual property, rate of return on capital similar to the level of investment risk.

The risk-free rate of return on capital is usually defined as the rate of return on the least risky capital investment (for example, the rate of return on National Bank deposits or the rate of return on redemption of government securities).

The discount method can be used in most valuation cases when the amount of royalty cash flows varies in size and is received for a limited period. A typical situation of discounting method is the assessment of intellectual property used in the production activities of the enterprise on the basis of a license agreement under which the company under certain conditions specified in the agreement gets the right to use licensed objects (exclusive rights) [520].

The method of excess profit is a variant of the method of discounting cash flows. The difference is that the cash flow is taken as the net excess profit generated in period t. Here, the excess profit is understood as the profit received from the use of IPR in excess of the profit received in this production before the use of IPR. The word "net" means that this income is "cleared" of taxes, ie taken after tax.

The determined value of IP by this method, as well as for the previous version, is the estimated value of IP for the case of its use by the owner in its production. This method can be applied to IPR devices and IPR methods in cases where their use brings to market products manufactured using IPR.

an evaluation procedure basics and international experience in selling licenses.

Valuation by the royalty method consists in discounting (or capitalizing) the annual cash flows (receipts) of the royalty under a hypothetical (expected) or valid license agreement [521].

The formula for determining the price of a royalty -based license is as follows:

$$PV = \sum_{t=1}^n C_t \frac{R_t}{100} \quad (4)$$

where: PV - the actual price of the license , UAH;

C_t - cash flow in period t;

R_t - royalty rate in the t-th year,%.

Most often, cash flow is taken as sales in the period t:

$$C_t = V_t Z_t \quad (5)$$

where: V_t - the volume of production under the license in the period t , units;

Z_t - selling price per unit of output in period t, UAH

The size p (value) of royalty rates is influenced by a number of circumstances, which in practice are taken into account when choosing their specific value, in particular, usually take into account: technical value of the license object; economic efficiency; stage of development and readiness for industrial development; availability and scope of patent protection; the amount of rights transferred under the license; volume of transferred documentation and know-how; engineering support; market conditions ; competitive offers; other pricing factors [520].

The royalty exemption method is used when there is information about transactions with similar assets or at least data on royalty rates used in similar circumstances . The essence of this method is based on the assumption that the intellectual property used in the enterprise does not belong to him. In this case, part of the profit that the company should pay in the form of remuneration to the owners of

this intellectual property, it actually retains, because the property belongs to this - company and therefore generates for him. Additional income generated by this asset [523].

The formula for determining the price of a license by the royalty exemption method is the same as in the royalty method, except that the right part is multiplied by the RF, the discount rate:

$$PV = \sum_{t=1}^n V_t Z_t \frac{R_t}{100} RF \quad (6)$$

Thus, analyzing the existing approaches and methods of IPR assessment, we can conclude that they can all be applied in practice. However, the result of the evaluation depends on which method will be chosen when evaluating each individual IP, because so far there is no single correct evaluation method, and the expert evaluator must choose one or another evaluation method.

A leading design institute in the Kharkiv region was selected to study the methods of IPR assessment. However, in modern conditions it is not possible to reveal its name. But the results of his work can be analyzed and draw appropriate conclusions about the factors and methods of evaluation of IPR, based on which to draw conclusions about the appropriateness of their use. Analyzed is actively and productively engaged in innovation and creates intellectual property, but does not have a license to conduct IPR appraisal, so the institute is forced to work with a company - appraiser, which has a license for appraisal. In turn, this contributes to increased operating costs than if the institute had its own evaluation department. The question is not that the institute does not have qualified personnel, but that it takes a lot of material, labor and time resources to obtain a license. The assessment of IPRs is very complex, and for a clearer assessment, according to our proposal, it is necessary to take into account at what stage of the life cycle of IPRs. Also, the complexity of IPR assessment is primarily due to the difficulty of quantifying the results of commercial use of IPR, which is at one stage or another of development, industrial development or use, and is influenced by many, sometimes divergent factors. As practice shows, out of 100 objects of industrial property (ie those for which the relevant patents or certificates

have been obtained), on average only 2-3 in the process of their commercial use are really valuable and bring high profits, and less than 10 objects allow cover the costs of their development. Other objects of industrial property are unprofitable.

The basic method of evaluation used by the firm appraiser cooperating with the institute is comparative. It is advisable to investigate in more detail its features and identify which factors determine the final cost of IPR.

The comparative (market) approach to IPR valuation is based on the principles of substitution, supply and demand, according to which a "knowledgeable" buyer, having certain information about the object of acquisition, will never pay for it more than the other object. an object that has the same consumer qualities.

The market (fair) value of intellectual property according to the comparative approach is the value due to differences between the object of evaluation and its closest analogue and which on the date of evaluation is able to pay a potential buyer. To determine the market value, the appraiser, as a rule, analyzes and comparative analysis of the appraised object with data on real, recent at the time of concluding market agreements with objects similar in their consumer qualities.

The application of a comparative (market) approach to the valuation of IPR involves the use of indicators of market attractiveness of the object of evaluation, due to the desire for monopoly in a particular market segment, using the method of comparative analysis of sales.

According to the method of comparative analysis of sales, the value of IPR is estimated by comparing and analyzing the object of evaluation with similar properties, purpose and usefulness of objects (objects-analogues) that were sold (or offered for sale) in the comparative period on relevant market segment, as well as prices for sale or offer for sale of similar objects. In this case, the usefulness of the object of evaluation should be understood as the ability of the object of intellectual property rights to meet the needs of its owner or user for some time.

The main condition for applying the comparative approach is the ability to estimate the value of the object of evaluation by adjusting the value of analogous objects in accordance with their characteristics that differ from the evaluated object.

To apply the method of comparative analysis of sales to assess the value of intellectual property rights, it is necessary to: identify recent agreements on the transfer (sale) of similar objects or offer such objects in the relevant market segment and information on their value; select units of comparison and perform a comparative analysis of the object of evaluation with the object we-analogues for each of these units; determine the market value of the object of evaluation by adjusting the value of the nearest analogous object, taking into account the characteristics of the object other than the evaluation of the analogous object.

Determining the value of intellectual property rights by the method of comparative analysis of sales consists of the following stages: collection and analysis of legal, financial, technical and other data on the object of evaluation, namely information on: the owner of the object of evaluation; legal status (type, form of legal protection, etc.) of the object of assessment; the environment of his immediate environment, which affects its value; components of the object of evaluation, the value of which needs to be determined during the evaluation; state of the market (marketing) in relation to the assessed object, etc. ; analysis of the main forms and possible uses of the object of evaluation; collection and analysis of information on purchase and sale agreements (offers) of similar objects that took place in the relevant market segment, and the terms of such agreements; collection and analysis of information necessary to assess the value of the components of the object of evaluation; collection and analysis of information on the actual costs of creating (purchasing) components that are similar in their consumer qualities to the components of the object of evaluation; collection of information necessary to determine the depreciation (amortization) of the object of evaluation; collection and analysis of information on the economic characteristics of the object of evaluation, in particular information on profits (actual and forecast) that are obtained and can be obtained from the use of comparable objects; collection and analysis of information needed to determine the capitalization rate (discount rate) for the estimated assessment periods.

The comparative (market) approach is applied provided that there is sufficient and reliable information on the relevant market segment about: recent facts of transfer

(sale) or offer for sale of similar objects or issuance of permits (licenses) for their use or supply for the sale of such objects; the terms of such agreements on the transfer (purchase - sale) of objects - analogues or license agreements for their use, in particular their value, or information about the proposed prices for similar objects.

In this case, the information on similar objects must meet the following criteria: the terms of agreements of transfer (sale) of similar objects or license agreements for their use or the terms of the proposal for such agreements do not differ from the conditions for market costs; the factors that determined the formation of selling or offering prices for sale in the relevant market segment have not changed significantly at the valuation date or the changes that have taken place can be taken into account; precedent (purchase and sale) of similar objects was carried out in compliance with standard payment terms.

Taking the sales comparison method, or the market method, as the basic valuation method of the appraiser's firm, it is possible to identify factors that affect the value of IPR, which in the comparative analysis of sales can be compared with the amount of investment in IPR. The analysis of 26 innovative projects implemented in the Kharkiv region made it possible to identify these factors. Given the innovative projects submitted and registered in Kharkiv, with the help of Statistica 12.0, we will analyze the dependence of investment in intellectual property on many factors that affect the final value and, consequently, the amount of investment in IPR. The importance of these factors is obvious, because almost everyone of these significantly affects the amount of investment and, consequently, the cost of IPR. In most cases, the higher the level of risk of an innovative project, the greater its profit, which in turn increases the cost of IPR, so it is advisable to determine what factors affect the amount of investment in IPR. Consider three models of dependence of investment in IPR in USD (Y) from such indicators .

The first limit (M1) is the volume of sales of the project in physical units (x_1), level of profitability, % (x_2), discount rate (level of risk), % (x_3), net present value, USD (x_4), the number of new jobs created, units (x_5). The initial data for analysis are given in Fig.1. - model 1.

	1 Інвестиції у ОІВ, USD	2 X1	3 X2	4 X3	5 X4	6 X5
1	5040	140000000	1,08	20	64598	21
2	5107,2	134467200	1,23	20	523532,36	135
3	22458	255000	2,57	15	2746595,56	102
4	14459,24	27525	2,58	15	811656	91
5	1874,4	92152	1,79	16	538956	36
6	7350	40800	1,26	20	439413	12
7	24935,6133	316034	1,04	10	53408	20
8	22393,0304	14055	1,06	16	61722	6
9	577535,952	491500000	1,2	12	2407056	38
10	690012	78000	60,8	20	865 362	113
11	18000	53200	2,5	20	1086760	81
12	15106	268989	3,19	15	1844975	117
13	35038,68	42901	1,1011	16	144754	89
14	89525	90720	2,01	20	3260605	44
15	1116900	0	2,21	25	1779407	328
16	1120000	115600	1,82	12,5	26140	900
17	401336,74	89	1,6	15	3688843	0
18	344465,22	694260000	1,08	15	231040	0
19	149600	26676	1,6	12	356 500	19
20	101257,2	1771	2,18	15	1896541	124
21	2267,108	36493	5,74	20	399602	49
22	400050	157000000	1,13	15	3 278 370	0
23	80681,2685	122827	1,11	15	1694287,99	96
24	328784,983	38412	1,1	10	48917	40
25	1520	5341000	2,23	16	948116	104
26	40288	13442	1,17	15	856544	40

Figure 1. Initial data for M1 analysis

According to the second model (M2) - these are indicators of the volume of products sold under the project in cash equivalent, USD (x1), level of profitability,% (x2), discount rates (risk level),% (x3), number of new jobs created, units (x4). The initial data for analysis are given in Figure 2 - Model 2.

	1 Y	2 X1	3 X2	4 X3	5 X4
1	5040	12039993	1,08	20	21
2	5107,2	21514752	1,23	20	135
3	22458	68595000	2,57	15	102
4	14459,24	8716240	2,58	15	91
5	1874,4	16670264	1,79	16	36
6	7350	19978825	1,26	20	12
7	24935,6133	17934096	1,04	10	20
8	22393,0304	15793619	1,06	16	6
9	577535,952	77291746	1,2	12	38
10	690012	32291940	60,8	20	113
11	18000	17059915	2,5	20	81
12	15106	25198741	3,19	15	117
13	35038,68	29290867	1,1011	16	89
14	89525	23540688	2,01	20	44
15	1116900	62644755	2,21	25	328
16	1120000	312462	1,82	12,5	900
17	401336,74	11466764	1,6	15	0
18	344465,22	36566329	1,08	15	0
19	149600	5335200	1,6	12	19
20	101257,2	86270300	2,18	15	124
21	2267,108	16274590	5,74	20	49
22	400050	203975000	1,13	15	0
23	80681,2685	176643373	1,11	15	96
24	328784,983	7497084	1,1	10	40
25	1520	20302158	2,23	16	104
26	40288	76324072	1,17	15	40

Figure 2. Initial data for M2 analysis

According to the third limit (M3), these are indicators of the level of profitability,% (x1), discount rates (risk level),% (x2), payback period, months. (x3), the total amount of profit, USD (x4). The initial data for analysis are given in Figure 3.

- Model 3.

During the analysis, the dependent variable (Dependent var .- investment in IP (Y)) and independent var .- set of parameters x1, x2... x n) variables to build the first regression model.

Model M1 has the following form:

$$Y = b_0 + b_1 x_1 + b_2 x_2 + b_3 x_3 + b_4 x_4 + b_5 x_5 \quad (7)$$

After the regression analysis, we have information on the beginning coefficients density communications which __ have the following data :

coefficient multiple correlations equal to 0.82;

coefficient multiple determination is equal to 0.67 and adjusted coefficient multiple determination equal to 0.59;

the value of the F- criterion is equal to 8.42;

standard errors standard error of estimate = 208425,49 ;

the value of the free term of the regression equation b_0 (Intercept) is = - 107325.08 and its error (Std . Error) = 204670,3, the value of the free term of the regression equation b_1 is equal to 0 standard and the error is equal to 0, $b_2 = 8698$ Std . Error 2 = 3720.1, $b_3 = 1371$ Std . Error 3 = 12208.2, $b_4 = 0$ Std . Error 4 = 0, $b_5 = 1394$ Std . Error 5 = 1394;

the value of the Student's criterion is = -0.52;

values of β_i -coefficients: $\beta_1 = 0.33$, $\beta_2 = 0.31$, $\beta_3 = 0.01$, $\beta_4 = 0.25$, $\beta_5 = 0.75$;

the value of the t-test: $t_1 = 2.52$; $t_2 = 2.33$; $t_3 = 0.11$; $t_4 = 1.96$; $t_5 = 5.76$;

actual materiality levels p-level is = 0.61: $p_1 = 0.02$, $p_2 = 0.03$, $p_3 = 0.91$, $p_4 = 0.06$, $p_5 = 0.0001$.

	1 Y	2 X1	3 X2	4 X3	5 X4
1	5040	1,08	20	42	159479
2	5107,2	1,23	20	45	656159
3	22458	2,57	15	44,73	1658466,89
4	14459,24	2,58	15	36,8	340272
5	1874,4	1,79	16	61	368390
6	7350	1,26	20	55,69	592289
7	24935,61	1,04	10	67	21082
8	22393,03	1,06	16	29	158665
9	577536	1,2	12	77	3185707
10	690012	60,8	20	35	467543
11	18000	2,5	20	28,1	222506
12	15106	3,19	15	33,48	571830,08
13	35038,68	1,1011	16	50,39	301040
14	89525	2,01	20	31	3260605
15	1116900	2,21	25	41,08	529986
16	1120000	1,82	12,5	31	34129
17	401336,7	1,6	15	47	2874793
18	344465,2	1,08	15	73	798169
19	149600	1,6	12	56,4	129370
20	101257,2	2,18	15	38	814156
21	2267,108	5,74	20	43,1	62282
22	400050	1,13	15	45	3683
23	80681,27	1,11	15	72,34	3682566
24	328785	1,1	10	110	68409
25	1520	2,23	16	30	96942
26	40288	1,17	15	70,33	1547599

Figure 3. Initial data for M3 analysis

The table of results of regression analysis of the 1st model is presented in fig. 4.

Regression Summary for Dependent Variable: Інвестиції у ОІВ, US						
R= ,82345468 R²= ,67807762 Adjusted R²= ,59759702						
F(5,20)=8,4254 p<,00020 Std. Error of estimate: 2084E2						
N=26	Beta	Std. Err. of Beta	B	Std. Err. of B	t(20)	p-level
OTPE3OK			-107325	204670,3	-0,524380	0,605778
X1	0,328468	0,130203	0	0,0	2,522739	0,020226
X2	0,307335	0,131449	8698	3720,1	2,338051	0,029887
X3	0,014873	0,132408	1371	12208,2	0,112324	0,911686
X4	0,253573	0,129051	0	0,0	1,964910	0,063469
X5	0,750093	0,130126	1394	241,8	5,764357	0,000012

Figure 4. Result of regression analysis

Considering the results of regression analysis of the 1st model, we can talk about the significance of the parameters, ie they have a significant impact on the dependent mine (Y). The constructed model has the following appearance:

$$Y = -107325 + 8698x_2 + 1371x_3 + 1394x_5 \quad (8)$$

The adequacy of this model can be judged by the values of the coefficients of multiple correlation and determination, by the values of Fisher's test , which is more than the tabular $8.42 > 2.58$. The coefficient of multiple correlation is equal to 0.82,

which is very close to 1, ie to the ideal, the coefficient of determination is equal to 0.67, which is also a satisfactory value of the indicator .

In addition, we analyze the residuals of the model, the results are presented in Fig.5.

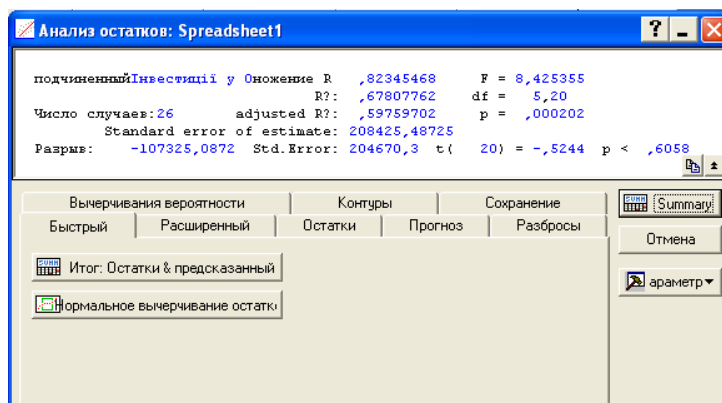


Figure 5. Analysis of model residues

For the analysis of model residues, the histogram of residue distribution in Fig. 6 and the graph of residues in the normal probability field of Fig. 7 are clear and the most important.

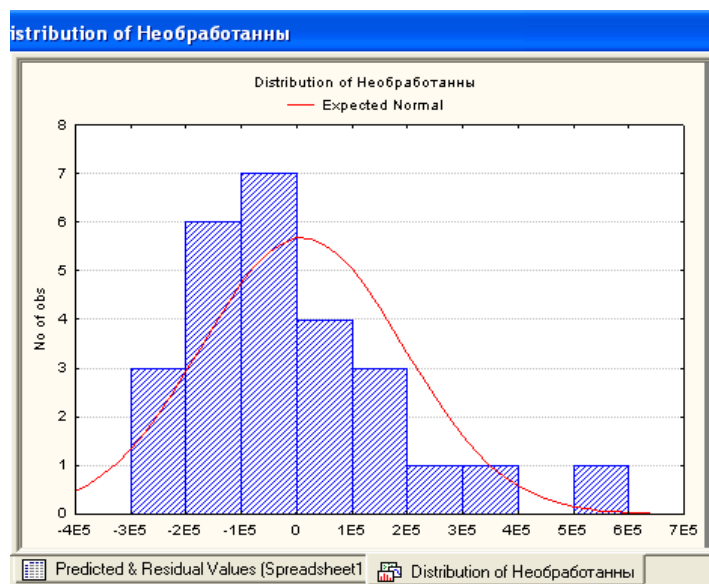


Figure 6. Histogram of the distribution of residues

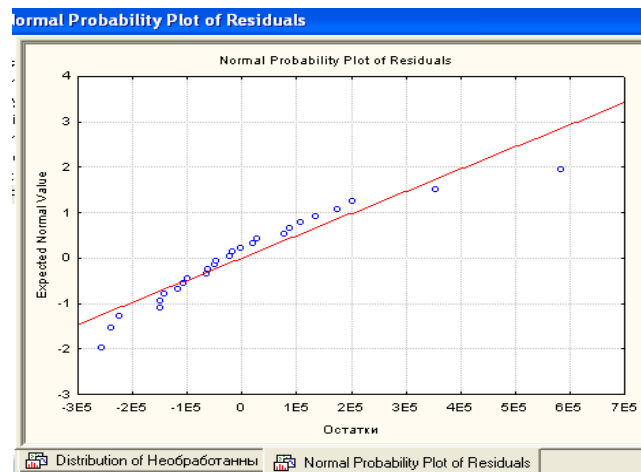


Figure 7. Graph of residuals on the normal probability field

The residuals are distributed according to the normal distribution law (histogram of the residuals) and lie well on the line (graph of the residuals in the normal probability field), which indicates the adequacy of the constructed model. Thus, it can be argued that investment in IPR depends on the factors presented in this model. Although, based on the developed model, such a factor as the discount rate does not have a large impact on investment in IPR, it should not be neglected, because it plays a key corrective role in estimating the value of IPR and is present in almost all each formula for calculating the value of IPR. And if you pay attention to it in more detail, then it is possible to review its dynamic nature, which depends on many factors and circumstances, such as at what stage of the LC is the IPR, how risky is the project and more.

We will build and analyze the second regression model, the initial data are shown in Fig. 2.

The values of the bond density coefficients have the following data:

the multiple correlation coefficient is equal to 0.74;

the coefficient of multiple determination is equal to 0.55 and the adjusted coefficient of multiple determination is equal to 0.46;

the value of the F-criterion is 6.4;

standard estimation error (Standard error of estimate) = 240624.78;

free term of the regression equation b_0 (Intercept) is equal to = -9133.05 and its error (Std . Error) = 234612.6, the value of the free term of the regression equation

b 1 is equal to 0 standard and the error is equal to 0, b 2 = 7833.17 ; Std . Error 2 = 4280 ; b 3 = 850.93 ; Std . Error 3 = 13939.3 ; b 4 = 1267.19 ; Std . Error 4 = 274.4;
 the value of the Student's criterion is -0.039;
 values of β_i -coefficients: $\beta_1 = 0.19$; $\beta_2 = 0.27$; $\beta_3 = 0.009$; $\beta_4 = 0.68$;
 the value of the t-test: $t_1 = 1.28$; $t_2 = 1.83$; $t_3 = 0.06$; $t_4 = 4.61$;
 actual p-level materiality levels are 0.96: $p_1 = 0.21$; $p_2 = 0.08$; $p_3 = 0.95$; $p_4 = 0.0001$.

The constructed model has the following appearance:

$$Y = -9133.05 + 7833.17x_2 + 850.93x_3 + 1267x_4 \quad (9)$$

Considering the results of regression analysis of the 2nd model , we can say that only the parameter x_4 (the number of new jobs created) is significant.

But the model is adequate , it can be judged by the values of multiple correlation and determination coefficients, by the values of Student's and Fisher's criteria. The coefficient of multiple correlation is equal to 0.74, which is very close to the critical value of the model (0.75-0.99), the coefficient of determination is 0.54, the value of the Student's criterion = -0.039 and Fisher 6.4 .

Considering the residuals of the model and relying on the histogram of the distribution of residues and the graph of the residuals on the normal probability plane , we can say that the residues are distributed according to the normal distribution law (histogram of residues) and fit well), which indicates the adequacy of the constructed model.

We construct and analyze the third regression model, the initial data are shown in Fig. 3.

The values of the bond density coefficients have the following data:

the multiple correlation coefficient is equal to 0.29;

the coefficient of multiple determination is equal to 0.08 and the adjusted coefficient of multiple determination is equal to -0.088;

the value of the F-criterion is equal to 0.49;

standard estimation error (Standard error of estimate) = 342857.09;

free term of the regression equation b_0 (Intercept) is equal to 79516.18 and its error (Std . Error) = 509161.8, the value of the free term of the regression equation b_1 is equal to 8249.07 standard and the error is equal to 6121.6, $b_2 = 2662$, 40 Std . Error 2 = 22981.9 ; $b_3 = 1017.65$; Std . Error 3 = 4243.9 ; $b_4 = 0.01$; Std . Error 4 = 0.1;

the value of the Student's criterion is equal to 0.16;

values of β_i -coefficients: $\beta_1 = 0.19$; $\beta_2 = 0.27$; $\beta_3 = 0.009$; $\beta_4 = 0.68$;

the value of the t-test: $t_1 = 1.34$, $t_2 = 0.11$, $t_3 = 0.23$, $t_4 = 0.17$;

actual p-level materiality levels are 0.87 ; $p_1 = 0.19$; $p_2 = 0.91$; $p_3 = 0.81$, $p_4 = 0.86$.

The constructed model has the following appearance:

$$Y = 79516.18 + 8249.07x_1 + 2662.4x_2 + 1017.65x_3 + 0.01x_4 \quad (10)$$

Considering the results of regression analysis of the 3rd model, we can say that the model is inadequate . This can be judged by the values of multiple correlation and determination coefficients, by the values of Student's and Fisher's criteria. The multiple correlation coefficient is equal to 0.29, which is the critical value of model acceptance (0.75-0.99).

Considering the residuals of the model, the results and based on the histogram of the distribution of residuals and the graph of residuals in the normal probability field , we can say that the constructed model is inadequate.

Thus, the analysis of the results of multiple regression of the three models allows us to conclude that the most acceptable is the first model (M1) with its group of factors : sales of the project, the level of profitability , discount rate , net present value and number of newly created jobs. Therefore, the factors selected in M1 play a significant role, so it is advisable to use them in estimating the value of IP using not only the market method, but also cost and revenue methods, because these factors are present in almost every one of them. For example, the discount rate is used in all methods, net present value in the income and cost methods, the creation of new jobs - jobs in the cost method, the level of profitability and sales in the income method. Therefore, it is advisable to use all these factors when estimating the value of IPR in all valuation

methods. Given the proposals, the stage of the life cycle and the method used to estimate the value of IPR depends on the result of the evaluation, ie the monetary equivalent of IPR, and hence the income from its commercialization.

Valuation of IPRs for the purpose of their transfer (purchase - sale) or issuance of permission (license) for their use on the basis of a civil contract is carried out by agreement of the parties to such an agreement, each of which may involve in the assessment of the appraiser qualification and acts in accordance with the current - legislation of Ukraine.

When assessing the value of IPR property, the appraiser usually determines their market (fair) value as the amount calculated on the valuation date for which, after proper marketing, the buyer is willing to buy and the seller is willing to sell property rights under a civil law agreement. each party acts competently, prudently and without coercion. Market (fair) value is defined as the most probable price that can be achieved in a given market segment at the valuation date, ie as the maximum price that the seller can receive and the minimum price that can be paid by the buyer [516] .

In accordance with International Standards [518] and the purpose of the valuation, the appraiser may also determine the consumer, investment, insurance, liquidation value, as well as the cost of reproduction or replacement, etc.

According to the specific purpose of the assessment, the appraiser chooses the type of value to be determined and the methodology (approaches and methods) of assessment.

Three main approaches are used in valuation: cost, profit and market, each of which has its own methods.

When choosing approaches and methods of evaluation, the evaluator should be guided by such principles as: objectivity, use only objective information; reliability, use only information from reliable sources and methods of assessment that are credible both from a theoretical and practical point of view; adequacy (compliance), use approaches and methods that meet the user's needs; universality, use mostly standard approaches; practicality, chosen approaches and methods should be clear and relatively simple to use; consistency, the methods chosen should be used consistently from year

to year and thus facilitate the evaluation process; reliability, the assessment must be substantiated in such a way that other assessors can reproduce it using similar approaches and methods; the criterion of monetary costs, benefits that provide knowledge about the value of intellectual property rights, should exceed the cost of valuation.

Depending on the stage of the life cycle of the IPR, the method of estimating its value is also important. After all, in terms of life cycle appraisers IPRs do not differentiate between which method to choose at a certain stage of the IPR. Thus, based on the logistic curve of the LR OIV, at the initial stage it is advisable to choose the cost approach, because at this stage the costs are growing faster than profits; at the stage of growth the parity between the cost and income approach is equalized, because both costs and profits grow almost proportionally, or profits grow faster, in addition, as an auxiliary it is advisable to use a comparative approach; in the aging phase, costs again outweigh profits, and based on the decision to remove or "resuscitate" IPs, a cost-effective and comparative approach should be used.

In addition to the correct choice of valuation methods, it is necessary to choose a more reasonable discount rate at each stage of the LF, taking into account the level of risk. Thus, at the stage of rise it is advisable to take into account the level of profitability and inflation (reduced cost method), at the stage of maturity only the level of inflation, because the risk will be minimal, at the stage of decline or aging the risk will be high.

Therefore, it is necessary to choose the right method of valuation of IPR depending on their stage of the life cycle to conduct a more accurate assessment of IPR, which will allow a clearer assessment, and thus increase profits from commercialization of IPR, also increase the authorized capital of the company and increase the level of its innovation and investment attractiveness.

Based on the fact that the appraiser uses as a basic method of calculating the value of IPR - a comparative approach, we will evaluate IPR taking into account the phases of their life cycle.

The subject of the evaluation will be the development of a new coking technology in a coke battery without capturing chemical coking products with the production of coke and electricity.

Thus, given that this IPR is at the stage of creation, in accordance with the proposals of this article, we will use the cost approach, compared to the comparative, which is used by the appraiser of the institute. But it is necessary to analyze the methods of the cost approach and choose the appropriate one.

The methods of estimating the cost of IP based on the cost approach are as follows.

Initial cost method. The cost of IPR, determined by the method of initial costs, is based on the actual and reflected in the financial statements of the enterprise costs incurred during the creation (acquisition) of the assessed object. The current value of the appraised intellectual property is defined as the sum of all initial costs for the creation (acquisition) and bringing the appraised object to a condition suitable for use for its intended purpose, less all depreciation, to which may be added profit from possible sales (reversion) of the object of assessment:

$$PV = \sum_{i=1}^n (pv_i - A_i) + H \quad (11)$$

PV - current value of the object of evaluation;

pv_i - the amount of costs for the creation (or acquisition) and bringing the assessed object to a condition suitable for use for its intended purpose on the date of their implementation in the i -th year, UAH;

A_i - the sum of all types of depreciation of the assessed object in the i -th year, UAH;

H - additional payments, UAH;

$i = 1, 2, \dots, n$ - evaluation period, year.

The main types of depreciation of intellectual property, in contrast to material objects, which are more characterized by physical, functional and economic depreciation, are moral and depreciation.

Depreciation of intellectual property is due to the emergence in the relevant market segment of new, most progressive objects of similar consumer value.

Term depreciation is determined by the useful life and (or) legal (the term of the security document) or other restrictions (the term of the license agreement). The method of initial costs is used, as a rule, in cases where the costs of creating (purchasing) the object of evaluation and bringing it to a condition suitable for use for its intended purpose have been made recently and do not require adjustment at the date of evaluation .

Method of reduced costs . If the costs have been incurred for a long time, they need to be adjusted on the date of evaluation taking into account the time of their implementation, in particular by indexing (by the method of reduced costs).

$$PV = \sum_{i=1}^n (pv_i \times \hat{E}_i) \quad (12)$$

pv_i - costs of creation (or acquisition) and bringing the assessed object to a condition suitable for use for the intended purpose on the date of their implementation in the first year, UAH ;

$\hat{E}_i$ - conversion factors, which take into account changes in the value of money over time and inflation in the i -th year, for the period from the date of loss to the date of assessment;

$i = 1, 2, \dots, n$ - evaluation period, year.

Indexation is carried out according to consumer price indices for all cost elements, and in the absence of available and reliable information on such indices, price change indices by relevant industries or other relevant indices are used [520].

Replacement cost method . The valuation of intellectual property using the substitution value method uses the substitution principle, according to which the maximum value of intellectual property is defined as the minimum price to be paid for an object of similar consumer value, ie an object equivalent to its functional capacity and option of use.

Reproduction cost method. The use of the cost of reproduction method involves determining the present value of the cost of creating a new exact copy of the same

object as the object of valuation in prices on the date of valuation before deducting all types of depreciation. The reproducible value of intellectual property rights is defined as the sum of all costs necessary to create an object of intellectual property rights that is identical to the assessed, in prices on the valuation date. The cost of reproduction method is the most acceptable for the evaluation of unique objects [519].

According to the analysis of the methods of cost approach of IPR valuation, for this case it is advisable to choose the method of reduced costs, because the development took three years and prices (creation costs) need to be adjusted on the date of evaluation to take into account their time, including indexation. Object of assessment - a new technology of coking in a coke battery without capturing chemical products of coking with the production of coke and electricity, which was developed by the institute for three years, so the value of the conversion factors is 1.123; 1,103 Hours; 1,116 according to [522].

Therefore, using formula (10), determine the cost of IPR.

$$PV = (989,5 * 1,123) + (1702,5 * 1,103) + (1419,7 * 1,116) = 4573,45 \quad \text{thousand UAH}$$

Whereas according to the results of the appraisal by the appraiser, this value amounted to 4111.7 thousand UAH.

The economic effect of using IPR valuation proposals taking into account the life cycle phases is:

$$E_f = 4573.45 - 4111.7 = 461.75 \text{ thousand UAH.}$$

The use of the results of intellectual activity directly by the company is the main guarantee of business efficiency, and hence the object of management: planning, analysis, evaluation and more. That is why it is proposed to create a subdivision in the researched institute that would deal with it consideration of issues related to the planning, analysis and evaluation of intellectual property. When setting up an intellectual property appraisal unit, it is necessary to hire or transfer employees with the appropriate qualifications to conduct an intellectual property appraisal. The typical instruction for the appraiser of intellectual property, which will define the general

provisions, rights, duties and responsibilities of the appraiser of intellectual property, is as follows.

Job description of the intellectual property appraiser:

I. General provisions

1. The appraiser of intellectual property belongs to the category of specialists.

2. An intellectual property appraiser must know:

Current legislation of Ukraine, normative legal and methodical documents in the field of legal protection and assessment of intellectual property.

Copyright.

Antitrust law.

Organization of work to establish the value of objects intellectual property.

The procedure for valuing intellectual property and methods for determining their value.

The procedure for establishing the factors that create competitive advantages in the use of intellectual property.

Customs rules.

The procedure for concluding contracts of sale of intellectual property and registration of assignment of property rights.

Fundamentals of accounting and analysis of economic activity of the organization.

International treaties and agreements governing legal issues related to intellectual property.

Ethics of business communication.

Rules of negotiations with clients.

Fundamentals of labor law.

3. Appointment to the position of intellectual property appraiser and dismissal shall be made by order of the head of the organization.

II . Job responsibilities

Intellectual property appraiser:

1. Carries out appraisal activities .

2. Carries out work on establishing the market value of protected intellectual property, including industrial property (inventions, industrial designs, trademarks, service marks, appellations of origin, utility models), objects of copyright protection and related rights, computer programs, databases, topologies of integrated circuits, rights to technical, commercial information, secrets of production (know-how) and other objects for which protection is provided in accordance with the legislation of Ukraine.

3. Establishes the value of intellectual property in their privatization, use for accounting purposes of intangible assets, commercial use, as well as determines the balance, lease, liquidation, insurance, loan and other types of value depending on the needs and purposes of valuation of intellectual property property.

4. Performs work to establish the subject, purposes of assessment and ownership of intellectual property rights.

5. Analyzes information on the subject of assessment for legal examination, establishing the parameters of its competitiveness that affect the cost.

6. Defines the forms and methods of valuation (cost, market, profit) and the main pricing factors (direct and indirect costs, actual and planned income from commercial use of property).

7. Substantiates the forms and methods of evaluation, makes the necessary calculations of the expected economic benefits, license prices, etc.

8. Based on the results of marketing research determines the volume, prices and payment terms of sales of products based on the use of the assessed object.

9. Establishes the actual costs associated with the creation, acquisition and commissioning of intellectual property, adjusting them taking into account depreciation and price index on the date of valuation.

10. Carries out business contacts, negotiates with clients, concludes contracts in the prescribed form, monitors their implementation.

11. Advises customers on current laws and other regulations of Ukraine, which must be followed in determining the value of intellectual property.

12. Prepares a reasoned notice of inability to participate in the assessment of intellectual property due to circumstances that prevent the objective assessment, and submits it for approval to the immediate supervisor for final decision and transfer to the client.

13. Draws up a written report on the work performed, which indicates: the date of preparation and serial number of the report; the basis for the appraiser's assessment of the intellectual property object; the legal address of the organization and the information on the license issued by it to carry out appraisal activities on intellectual property; an accurate description of the object of intellectual property, and in relation to the object belonging to the legal entity, the details of the legal entity and the book value of the object; valuation standards to determine the appropriate type of value of intellectual property, justification of their use in the evaluation, a list of data used in the evaluation, indicating the sources of their receipt, as well as adopted in the evaluation of the assumption; the sequence of determining the value of the object of intellectual property and its final value, as well as the limitations and limits of application of the result; the date of determining the value of the object of intellectual property; a list of documents that were used in the evaluation and establish the quantitative and qualitative characteristics of the object of intellectual property.

14. Personally signs the report on the performed work, certifies with the seal and transfers to the head of department.

15. Reflects in the report the initial data and the content of the methods used for a complete and unambiguous interpretation of the results of the assessment of the object.

1 6 . Maintains the confidentiality of the information received during the assessment of the object.

1 7 . Ensures the observance of laws and other normative legal acts of Ukraine related to legal protection, the use of intellectual property in the process of evaluation activities .

III . Right

The intellectual property appraiser has the right to:

1. Independently determine and apply methods of valuation of intellectual property in accordance with valuation standards.
2. Require management or customers in the mandatory assessment of intellectual property to ensure full access to the documentation required for this assessment.
3. Receive from management or customers explanations and additional information necessary for the assessment.
4. Invite in writing or orally from third parties the information necessary for the assessment of intellectual property, except for information that is a state or commercial secret.
5. Involve, as necessary, with the knowledge of the head of the organization and the client to participate in the evaluation of intellectual property on a contractual basis, third-party appraisers or specialists.
6. Get acquainted with the documents defining his rights and responsibilities after the position, the criteria for assessing the quality of performance of official duties.
7. Participate in discussions on issues related to their responsibilities.
8. To demand from the management of the organization assistance in the performance of his official duties and the realization of the granted rights.

IV. Responsibility

The intellectual property appraiser is responsible for:

1. In case of improper performance or non-performance of their official duties provided for in this job description - within the limits set by the current labor legislation of Ukraine.
2. For offenses committed in the course of their activities - within the limits set by the current administrative, criminal and civil legislation of Ukraine.
3. For causing material damage - within the limits set by the current labor and civil legislation of Ukraine.

The proposed establishment of a unit for intellectual property is of practical interest, as it will perform a systematic analysis of organizational and legal issues and issues of IPR assessment, taking into account the phases of their life cycle that will arise in the commercialization of IPR as an integral part of innovation. After all, the

effective regulation of property relations is the main means of forming market relations in industry and ultimately determines the effectiveness of innovative activities of the enterprise.

Also, in the commercialization of IPR, the presence and correctness of documents confirming the company's rights to IPR is considered fundamental, as the company's accounting documents reflect only those values that belong to the company in ownership or use, so strict adherence to job descriptions is mandatory in the process. work with IPR.