

## Patents Assessed through Sectoral Operational Programs

Paula – Angela VIDRAȘCU, PhD candidate

“Hyperion” University, Bucharest [vidrascupaulaangela@yahoo.com](mailto:vidrascupaulaangela@yahoo.com)

**Abstract:** According to the International Accounting Standards – IAS 38 „Intangible assets”; these assets are identifiable non-monetary assets under construction were considered without physical substance. Lack actual physical form must not be understood that an intangible asset would have no material support, because the presence of any intangible asset can be demonstrated only by a support material form. Exmple: frequently encounter compact-disc (in case a software), legal documentation (in the case of licences, trade marks and patents of invention), contracts, permits and licences, technical documentation or films.

Nowadays we are constantly subjected to the changing flow of information that is found in a perpetual technological change which started the emergence of a new stage in the society development that which carries the name of knowledge.

The object of my research is the patent for the structural funds reimbursable project submitted in the "Operational Program, Economic Competitiveness" Operation 2.3.1. "Support for start-ups and innovative spin-offs. Patent is an official document certifying the inventor, the exclusive right to produce a certain good or product or use a particular process.

Remember that evaluation of intangible assets is the most complex and systematic procedure.

**Keywords :** patents, sectoral operational programs, evaluation, intangible assets.

*JEL Codes : D23, H79, D83, D89, M41.*

### 1. Introduction

The evaluation process is a complex system that includes all research, information, reasoning, analysis and conclusions followed by the evaluator to provide customer response on the value<sup>7</sup>.

Valuation of intangible assets is presented and demonstrated according to the International Standard Practice in assessment - GN 4, with the same name. For establishing the right value for any kind of intangibles we need to be in accordance with International Valuation Standard - IVS 1: Market value - value type.

In this context we always have to remember that intangible assets are fundamental to success, providing sustainable competitive advantages and that patents are a part of the intelectual property along with property rights, trademarks, data base, know – how, trade secrets, marketing strategies and the list can go on.

We all know that patents are government licenses that offers the holder exclusive rights to a process, design or new invention for a specific period of time. They are granted by a government to an inventor to manufacture, use, or sell an invention for a certain number of years. They are a set of exclusive rights granted by a sovereign state to an inventor or their assignee for a limited period of time, in exchange for the public disclosure of the invention.

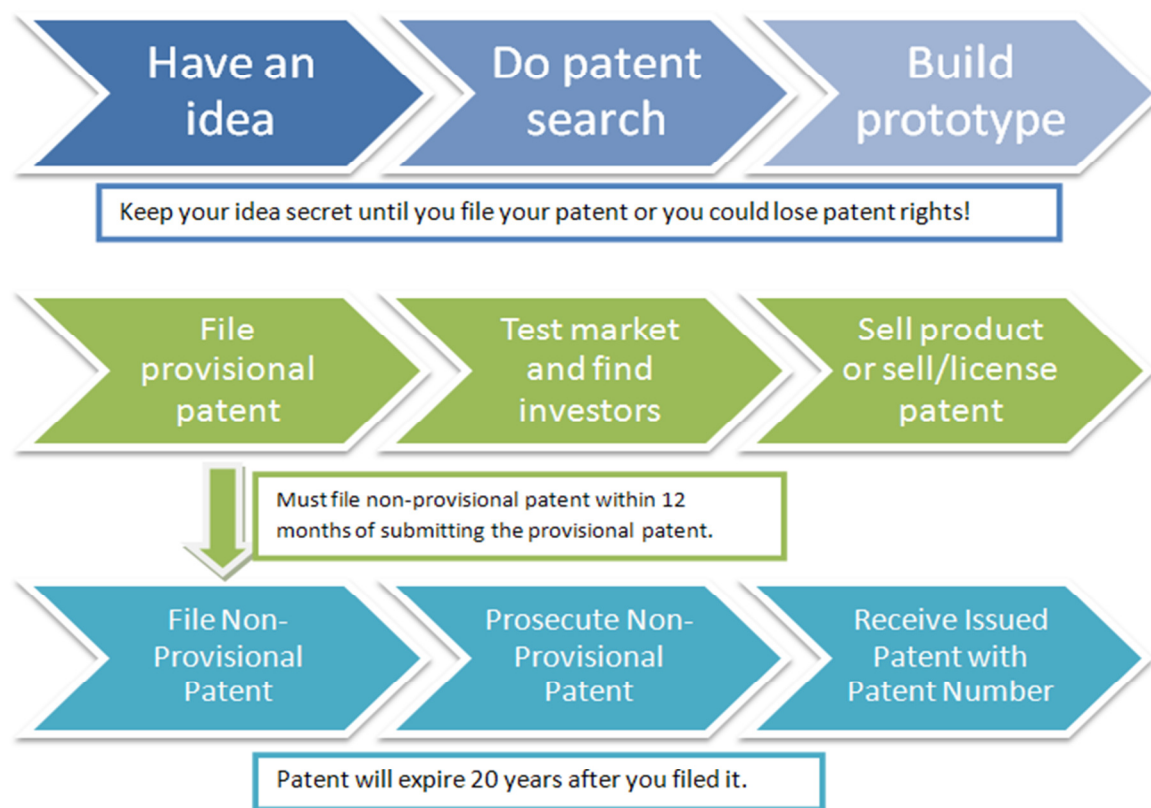
An invention is a solution to a specific technological problem, and may be a product or a process<sup>8</sup>.

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<sup>7</sup> [www.eval.ro](http://www.eval.ro)

## 2. Patent Process and Invention Timeline for Protecting New Ideas<sup>9</sup>

Now I will like to show you a fairly typical example for the patent process presented in figure no. 1.



**Figure No. 1 : A fairly typical patent process**  
 Source : [www.patentlife.org](http://www.patentlife.org), processed by author

As I was just saying this is just an example and each invention has its own differences and so we can't find a size that fits all ideas and there is no standard invention timeline or patent process. We just have to adjust to the resources held for patenting new ideas.

### 3. Case Study: Evaluation of the patent for invention : „ A process for the manufacture of non-conventional organic lubricants and drilling fluids, water-based. "

#### 3.1. The description of the patent for invention

The object of my research is the patent for the structural funds reimbursable project submitted in the "Operational Program, Economic Competitiveness" Operation 2.3.1. "Support for start-ups and innovative spin-offs".

The result of the research has resulted in a patent application "unconventional manufacturing process of organic lubricants for drilling fluids, water-based." Request was filed with OSIM under the number A2010/01037. The main objective is the development and

<sup>8</sup> WIPO Intellectual Property Handbook: Policy, Law and Use. Chapter 2: Fields of Intellectual Property Protection WIPO 2008

<sup>9</sup> [www.patentlife.org](http://www.patentlife.org)

application of technologies (energy efficient and environmentally sound compared to conventional) to produce lubricants and organic additives with various industrial applications using microwave energy.

He founded a start-up for reaching the patent application and in order to continue and complete the research, to improve the initial parameters and to achieve new products and equipment with heating in the microwave field for organic synthesis, inorganic based on market demand. In the first phase will produce organic lubricants for drilling, and subsequently other lubricant products and organic additives, which would lead to economic support for the construction of at least 2 plants per year, which will be used by the external and internal recipients.

Implementation of research results will contribute to increasing the quality of production technology of lubricants and additives ecological improvement of the manufacturing environment, as well as reducing energy consumption by adopting microwave heating technique, which will significantly reduce their production expenses.

In the process of drilling and tubing of the crude oil and gas probes appear significant diving between metal surfaces (drilling rods or tubing column) and the rock walls of the drill hole of the probe. To minimize the frictions present drilling fluids water-based are treated with a series of additives, lubricants, such names may include: sulfatate bitumen, oils and fatty acids, triglycerides sulfonati words, mixtures of alcohols patois with surfactants or diesel, chemicals alcohols or acids oxipopilati words, etc.

Additives mentioned above have a number of disadvantages, namely:

- ✓ they have a negative influence of rheological properties of fluids in which are used;
- ✓ they have a major impact on the environment by the presence in the composition of petroleum products and sulfonated derivatives;
- ✓ they are obtained by processes involving operation in difficult conditions ie pressure and explosion conditions.

This invention overcomes the above-mentioned in that both raw materials and finished product are organic and biodegradable additive practically does not affect the drilling fluid rheology and get through esterification or transesterification reaction in microwave field.

By applying the invention we can obtain the following advantages:

- ✓ it enables obtaining effective organic lubricants with reduced energy consumption in conditions of maximum security;
- ✓ it simplifies the cooking process, which is conducted at atmospheric pressure and in the absence of explosion conditions;
- ✓ the reactions occur in high conversions of over 90% and the process is in the order of tens of minutes;
- ✓ the product obtained is homogeneous, it is not toxic or flammable and readily disperses in the drilling fluid, the country to produce its foaming.

From the data presented in the patent and with the professional experience of the team of researchers was intended to expand the results in the chemical synthesis of the microwave field for lubricants in all types of applications (using a laboratory plant purchased at start-up setting) and achieve technological lines allowing their manufacture.

Current methods for obtaining lubricants are based on the use of mineral oil and petroleum products are usually energy-intensive processes. Conventional methods using superheated steam heating under pressure.

The raw materials used in the process are polluting as well as the process itself, generating pollutants and biodegradable products. Treatment processes related to such processes are costly thus increasing the price of products.

The system of the invention eliminate the above disadvantages, in that the process uses microwave energy to generate heat reduces the energy consumption and the risk of pollution such as air and soil.

To achieve these installations is required to 380V power supply, water supply and sanitation facilities are also present in space.

To achieve the required patent a range of equipment and materials that will serve both research activity and achievement plant for the production of organic lubricants by transesterification in microwave field.

Among these we mention:

✓ laboratory facility for developing recipes and technologies for the production of lubricants and additives ecological various industrial applications;

✓ injection slotted cylindrical chamber oven;

✓ inside and microwave transparent tube for transporting chemical solutions;

✓ microwave generator system;

✓ viscometer BROOKFIELD;

✓ refractometer;

✓ analytical balance;

✓ pH meter;

✓ laboratory glassware;

✓ thermocouple, etc.

Also will use a range of electrical materials (wire fuses, switches, etc..) And connectivity to achieve both the experiments and installation. Experiments and demonstration facility will purchase functionality vegetable oils, bio diesel and other chemicals.

**Tabel no. 1. - Effects on the industry and the national economy**  
**Source : Information collected by the author**

Effects	Observations
1. Increasing the competitiveness of industry and national economy. Export growth.	Applying new technology significantly reduces energy consumption and technical losses, implicitly lowering production costs. This will ensure the competitive product performance ratio much better price.
2. Significant savings of heat and electricity	One of the features is the technology that uses microwave energy consumption per unit of useful effect much smaller than conventional technologies.
3. Savings of raw materials	Application brevetelui vigorously reduce the size of the technological losses obtaining additives.
4. Currency savings (reducing imports)	By generalizing non relieves technology is searing with import balance of additives for drilling.
5. Reducing pollution	The process is clean.
6. Development of the upstream industry	Increasing business cifer extractive industry (oil, gas).

7. Increasing resources available to the state budget	Increase profits from upstream and downstream businesses, increasing the number of employees and so on will increase the taxable table.
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### 3.2. Evaluation of the patent

Evaluation of a patent involves several steps which, moreover, will be included in the evaluation report. These are:

- a) legal analysis;
- b) social analysis;
- c) technical analysis;
- d) own assessment - called.

The evaluation itself can be done in the case of the following two classes of patents:

1. active patents, that is used in production at the time of evaluation;
2. inactive, i.e. the patents not implemented at the time of the evaluation, but with a real chance of implementation.

Applied in the company must meet the following cumulative requirements:

- ✓ to have an important contribution to the generation of economic benefits for the enterprise;
- ✓ This contribution can be insulated from the impact of other tangible and intangible assets.

The value of a patent is:

- ✓ directly proportional to the contribution of the patent to generate economic benefit of enterprise or the size of the royalties payable upfront (in the case when the patent ought, hypothetically, to be purchased through a license agreement);
- ✓ directly proportional to technological advance, in relation to competitors;
- ✓ inversely proportional to their length of service;
- ✓ directly proportional to the nature of the invention and the power base of the patent for invention;
- ✓ directly proportional with the scope of the patent (for example at the industrial branch level).

The usual methods of evaluation are:

- a) the profit contribution method;
- b) exemption from royalty method (several variants are possible);
- c) spending economy method;
- d) residual method.

#### 3.2.1. Method of contribution to profit

Determination of the patent, by this approach implies the existence of justification of assumptions necessary calculations, namely:

- ✓ evolution of annual turnover of products manufactured on the basis of patent or proprietary technologies;
- ✓ discount rate of net profit.

The calculations are based on the following data:

- ✓ duration estimated economic useful life of a patent subject to evaluation and applied in the patent, the owner of the company is 8 years;
- ✓ annual turnover, based on the patent is 173,000 mu in the assessment and will increase at a rate of 5% per year
- ✓ share of gross profit realized by the contribution of the patent, the turnover is 8% share
- ✓ tax on gross profit is 16%

✓ net profit discount rate is 10%.

**Tabel No. 2 : The results of the Method of contribution to profit**  
**Source : Information collected and processed by the author**

Year	Turnover	The patent contribution to turnover 8%	Net profit	Updating Factor k = 10%	Discounted net profit (NP <sub>d</sub> )
1	173,000	13,840	6,920	0,909	6,290.91
2	181,650	14,532	7,266	0,826	6,004.96
3	190,733	15,259	7,629	0,751	5,732.01
4	200,269	16,022	8,011	0,683	5,471.46
5	210,283	16,823	8,411	0,621	5,222.76
6	220,797	17,664	8,832	0,564	4,985.36
7	231,837	18,547	9,273	0,513	4,758.75
8	243,428	19,474	9,737	0,467	4,542.45
<b>TOTAL</b>			<b>66,080</b>		<b>43,009</b>

It results that the value of the invention patent, obtained through the update method net profit attributed to him, is 43.009 u.m.

A more simple method to profit contribution is based on direct estimation of net profit year (NPD), obtained from the patent application. The initial NPD can be attached assuming a future annual increases in a constant growth rate, denoted by (g) and a prediction horizon limited remaining economic life of the patent. By establishing a discount rate and the assumptions above, we can calculate the value of the patent (V<sub>b</sub>) so:

$$V_b = \text{NPD} * m$$

Where m = capitalization factor

For n = 8 years, k = 10%, g = 5% and NPD = 6.920 m.u. follows that m = 5.334 and B = 6.920 x 5.334 = 36.917,69. So V<sub>b</sub> is **36.917,69 m.u.**

This simple approach is appropriate in the case of a patent of invention which may be applied to a single user, apt to satisfy, by products manufactured on the basis of the patent for invention, the total volume of demand for the product concerned. If the calculation of the net annual profit (6.920 u.m.) was not kept account of expenses necessary for carrying out the patent, this expenditure of implementation should lessen V<sub>b</sub> resulted from capitalization of net profit.

In this approach may include patents applied in the company proprietor, in evaluations performed in order to establish economic balance and establishment of joint ventures. The value of a patent, able to generate a measurable annual net profit to a potential buyer is made by:

- ✓ the size of annual net profit annually and possibly the average annual growth rate (g);
- ✓ the capitalization rate is calculated according to two main factors: the risk-free rate and subjective estimation of the potential buyer of the patent, the risk resulting from this acquisition, relating to the following matters;
  - ✓ if the patent will stand in front of their main draw;
  - ✓ if you will download a product or a process better than proprietary ones;
  - ✓ if the new processes or technologies will not turn the patent for invention in a mere relic of the technical Museum.

In other words, the realization of the annual net profits will be more uncertain, with both the discount rate or capitalization will be higher.

### 3.2.2. The exemption method (economy) of fee

This method is usually applied in the case of patents applied by the company's owner. Purpose of evaluation by this method is the value of the patent in the register of economic balance, which is required in case of purchasing the company for another company, some mergers, sale of the enterprise in its totality or of packages of shares.

Conceptual basis of this method lies in the assumption that the economic benefit that can get him a buyer of the patent is relief from the payment of royalties. In other words, being the owner of the patent, you make an "economy of royalty" to pay a third party patent holder by calculating the present value of the stream of royalty payments net of the market, the owner of an intangible asset is exempt.

It uses the same data that were used in the profit contribution method. As a result of analysis performed centralized data in table I below.

**Tabel No. 3 : The results of the Exemption method (economy) of fee**  
**Source : Information collected and processed by the author**

Year	Turnover	%de redeventa	Updating Factors K =10%	The economy	
				brute	Net updated
1	173,000	5%	0.909	8,650	0,833 X 0,84 (8.650- 0,125 Vb)
2	181,650	5%	0.826	9,083	0,684 X 0,84 (9.083- 0,125 Vb)
3	190,733	5%	0.751	9,537	0,579 X 0,84 (9.537- 0,125 Vb)
4	200,269	5%	0.683	10,013	0,482 X 0,84 (10.013 - 0,125 Vb)
5	210,283	5%	0.621	10,514	0,402 X 0,84 (10.514- 0,125 Vb)
6	220,797	5%	0.564	11,040	0,335 X 0,84 (11.040 - 0,125 Vb)
7	231,837	5%	0.513	11,592	0,279 X 0,84 (11.592 - 0,125 Vb)
8	243,428	5%	0.467	12,171	0,233 X 0,84 (12.171 - 0,125 Vb)
<b>TOTAL</b>				<b>82,600</b>	<b>31.719,62- 0,84 Vb</b>

The last column shows a 0.84 factor represents the percentage of net royalties, which remains to the user certificate, after deducting income tax rate of 16%. Annual share of amortization of the patent which has an economic useful life of 8 years is  $100/8 = 12.5\%$  or 0,125. This value is subtracted from the gross royalty to determine which net royalty that would express only the net profit arising from the patent.

So the updated value of the economy of royalty neta is: 62-0,84 31.719 Vb, but updated the annual depreciation value, for those 8 years, that should be added and a discount rate of 10% is: Depreciation updated  $Vb \times 0.125 = m$ , where  $m = 5,334$ ,  $n = 8$  years;  $k = 10\%$ . So depreciation updated =  $0,125 \times 0,666 = 5,334$  Vb follows that patent value , calculated based on net royalties and depreciation over the useful economic life is:

$$Vb = 31.719,62 - 0,84 Vb + 0,666 Vb$$

$$Vb = 31.719,62 - 0,174 Vb$$

$$Vb = 31.719,62 / 0,826 = \mathbf{38.401,47 \text{ u.m.}}$$

#### 4. Conclusions – significant aspects

The order of evaluation of intangible assets is not random but is based on the credibility of information on which assumptions are established for evaluation.

From the application of the methods for evaluating primary and secondary ones, follows different values, for most of the time and there are often substantial differences. Establishing the final value is based on the following assumption: the arithmetic mean of the two values obtained, but only if, the application of the same methods of the evaluation, follows two levels of value.

The results of my research of the evaluation of the patent are different from one method to another. Between the first and the last method are big differences. Between the royalty savings method and simple version of the method of contribution to profit, the differences are small, leading in the opinion of the assessor's estimated market value 37,500 u.m. patent.

The third method takes into account the costs of the company, leading to an estimated market value of the patent smaller. We must not forget the importance of operating expenditure which are most profit to a firm, given that prices of raw materials, materials and energy are not constant.

Finally, the value of a patent is obtained through negotiation, taking into account developments in the market.

In Romania evaluating intangible assets is very little practiced, that is especially due to avoid trading on such assets and their unique nature. Actually valuation of intangible assets is made by an assessor company, they form part of the assets of a company.

Our country faces a number of problems in this area, this causing a number of particular issues that manifest in the application of each of the specific methods of evaluation. Although evaluators confirmed experience in developed economies, applying automated methods can not provide a valid solution for Romanian companies only if they can have strong arguments.

#### References

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