International Business Management 9 (7): 1723-1726, 2015
ISSN: 1993-5250

Systematization of Expert Evaluations in Terms of Intellectual Property Commercialization

Aleksey V. Shusharin, Aidar M. Tufetulov and Fatikh Sh. Nugayev
Kazan Federal University, Kremlyovskaya Street 18, 420008 Kazan, Russian Federation

Abstract: An increasing significance, within the framework of sustained development of the Russian economy is taken on by innovative economy, since this is where occurs the transformation of scientific and technical products, based on the results of fundamental and applied research into market products with high consumer properties. The need to accelerate the commercialization of the most advanced innovations is caused by aggravation of competition in the world markets under rapid development of science and technology, accompanied by a huge number of new ideas, inventions and discoveries. It is imperative to choose the most preferred, in terms of maximizing the benefits, uses of intellectual property. In the context of this research, it is suggested reviewing the method of expert evaluations a questionnaire method of ranking for direction of the commercialization of intellectual property by way of the example of a patent for "Method of Core Examination via the Analysis of its Coloration" (hereinafter, the object of intellectual property). The ranking method is applied to organize the information according to a factor when it is not required or impossible its precision measurement. According to the results of the survey in terms of the group peer review, it has been defined the most preferred direction of the commercialization of intellectual property for the "Method of Core Examination via the Analysis of its Coloration". The proposed method is applicable in the areas where quantitative assessment of the object is impossible or extremely difficult.

Key words: Intellectual property, study core, ranking method, commercialization, expert evaluations, exploration

INTRODUCTION

Today in Russia an increasingly important role is played by the processes taking place in the intellectual sphere where it is created as cientific-technical potential not only of an individual company but also of the stateas a whole. The results of R and Dare the intellectual property that is one of the most important factors in Russia's transition toa post-industria lsociety basedon high technology, therefore, the questions of creation, protection and commercialization of intellectual property today a cquirea special significance.

Ever greater importance is assumed by innovation sector of the economy, as this is where the transformation of scientific and technical products, based on the results off undamental and applied research, into market products with high application properties occurs. The need for the accelerated commercialization of the most prospective innovations is caused by aggravation competition in the world markets under the conditions of rapid development of science and technology, accompanied by a huge numberof new ideas, inventions and discoveries (Andreychikov *et al*., 2015; Anonymous, 2010). The process of commercialization of innovations requires considerable investments, the efficiency of investments of which is subject to a variety of risks (financial, technical, organizational and others). Thus, it is extremely important to choose the most preferred use of intellectual property in terms of maximizing the benefits.

MATERIALS AND METHODS

Expert evaluation method questionary method of ranking: In the context of this research, it is suggested reviewing the method of assessments-questionnaire ranking method (Garayev and Ryazantseva, 2012) to select the direction of commercialization of the object of intellectual property by way of the example of a patent for "Method of Core Examination via the Analysis of its Coloration" (hereinafter, the object of intellectual property) (Valdaytsev *et al*., 2002; Kletkina, 2008).

This methodis aimed atsolving the problems of geology and allows within the shortest possible period of time (3 days per 100 m of core) to obtain more precise information (up to a few ten ths of a millimeter) of lithological rock structure as well as the location of reservoir rocks and average number of permeable intervals of the well profile.

Corresponding Author: Aleksey V. Shusharin, Kazan Federal University, Kremlyovskaya Street 18, 420008 Kazan, Russian Federation

As the introduction of the specified areas of intellectual property into economic circulation it has been identified:

- Usefor auxiliaries(production)-area 1
- Pledge ofproperty rights-area 2
- Formationofthe charter capital ofa legal entity-area 3
- Transfer of rights tothe useaccording tolicense agreements-area 4
- Assignmentof property rights-area 5

The ranking method is used to organize the information according to afactor when it is not required orimpossible its accurate measurement. An expert as signs numerical rankes to each of the factorsliste din the questionnaire: the most unimportant; the next in rank, etc.

If the survey is conducted (to increase the objectivity of the results) of several experts, then one ranges the factors in terms of relativesum of ranks of individual experts. For thispurpose, one calculates the value which is determined by Eq. 1:

$$W_j = \frac{R_j}{\sum_j R_j} \quad (1)$$

Where:

$$R_j = \sum_{i=1}^{n} a_{ij}$$

the sum of ranks assigned by all the experts to the factor with number j. The next step is to calculate the coefficient of competence of the experts K which is calculated by Eq. 2:

$$K = (k_1, k_2, ..., k_n) > 0 \quad (2)$$

Where:

$k_j = 1/n$ = The initial value of competence of the experts
n = The number of the experts involved

Further, it is necessary to calculate the vector of the current group estimate:

$$\left[y_i^{(0)} = \sum_{j=1}^{n} k_j^{(0)} \times y_{ij} \right] i = \overline{1, m} \quad (3)$$

In case of using the method of valuation, each expert a number in the interval from 0 to1 assigns to each assessed factor. The result in gweight of the jth factor that determines its importance, is calculated as follows:

$$W_j = \frac{1}{m} \sum_i w_{ij} \quad (4)$$

Where:

m = The number of expert sparticipating in the survey
$w_{ij} = b_{ij} / \sum_j b_{ij}$ = The relative weight ofthe j thfactor based on estimates of the jth expert

In the process of implementing a questionnaire method of ranking of the commercialization of intellectual property, professional expertsof tenpeople have been engaged. The evaluation results of the areas of commercialization of intellectual property by ten experts on the ten point scale (0-10 points) are summarized in on the basis of the stated above evaluations to confirm the experts' opinions with the help of tools economic modeling, we have done the following calculations (Vishkaryov, 1984):

- Evaluation of relative significance of each of the areas of commercialization of the object of intellectual property
- Evaluation of competence of each expert

At the same time, not <2 iterations of calculation have been used to realize the given task.

RESULTS AND DISCUSSION

First of all, let us find the sums of evaluations of each of the expert (bottom line in Table 1). Further, divide the valuation given by each of the experts from Table 1 by sum total of his valuations, as a result, we will obtain the matrix of normed valuations presented in Table 2. To find theoriginalcompetence often experts (K_0), let us divide 1by their number (Fig. 1).

Further, on the basis of multiplying the arrays of Table 1 and Fig. 1 we will calculate the estimate of the current group (Y0) of the areas of the commercialization of intellectual property by ten experts (Fig. 2) using in Excel operator "MMULT" returning the product of matrices, stored in arrays. The result is an array with the same number of columns as array 1 and the same number of columns as array 2 (Fig. 2). If you use this operator, after supplying arrays references, shown in Table 2 and Fig. 1, press the keyboard shortcut: CTRL+ SHIFT+ ENTER.

Then the initial data needed to calculate the values of competence often experts K1 by multiplyingout and summing the corresponding elementsin Table 2 by values (K0) are formed. The results of calculation of input data for K1 are shown in Table 3.

The values of competence of experts (K1) are calculated by dividing the initial values for calculating (K1) by their sum total = 2.5489 (Fig. 3).

Table 1: The evaluation results of the areas of commercialization of intellectual property by ten experts, points 0-10

Areas of commercialization	Experts									
	1	2	3	4	5	6	7	8	9	10
1	0	0	2	1	3	4	1	2	0	1
2	2	3	4	5	5	3	4	7	0	2
3	2	2	3	5	4	4	7	0	2	1
4	7	8	9	9	7	5	4	7	8	9
5	4	5	7	2	3	6	1	2	4	8
Sum	15	18	25	22	22	22	17	18	14	21

Table 2: The matrix of normed valuations for each of ten experts on five areas of intellectual property commercialization

Methods of commercialization	Experts									
	1	2	3	4	5	6	7	8	9	10
1	0.0000	0.0000	0.0800	0.0455	0.1364	0.1818	0.0588	0.1111	0.0000	0.0476
2	0.1333	0.1667	0.1600	0.2273	0.2273	0.1364	0.2353	0.3889	0.0000	0.0952
3	0.1333	0.1111	0.1200	0.2273	0.1818	0.1818	0.4118	0.0000	0.1429	0.0476
4	0.4667	0.4444	0.3600	0.4091	0.3182	0.2273	0.2353	0.3889	0.5714	0.4286
5	0.2667	0.2778	0.2800	0.0909	0.1364	0.2727	0.0588	0.1111	0.2857	0.3810

Table 3: The results of calculation of input data for K_1 (units)

Data	Experts									
	1	2	3	4	5	6	7	8	9	10
Input data for K_1	0.2817	0.2779	0.2514	0.2558	0.2295	0.2109	0.2130	0.2499	0.3040	0.2747
The sum according to K_1										2.5489

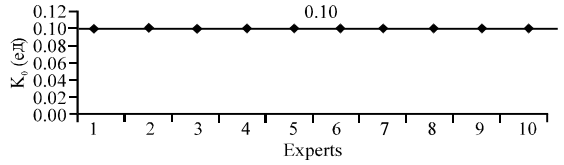

Fig. 1: The values of the original competence of ten experts (K_0)

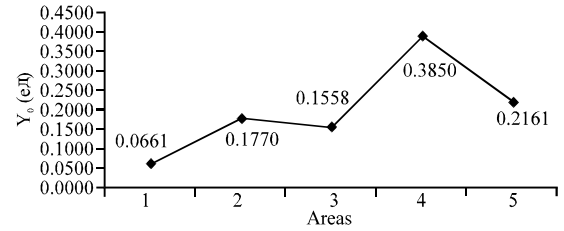

Fig. 2: Currentestimate of group (Y_0) of the areas of commercialization of intellectual property by ten experts

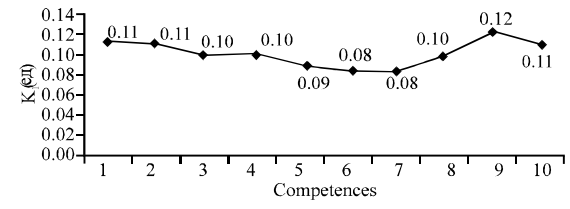

Fig. 3: The values of competence of ten experts (K_1)

The values of current group estimate (Y_1) of the areas of commercialization of intellectual property by ten

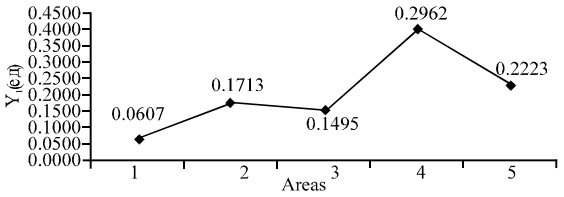

Fig. 4: The values of the current group estimate (Y1) of the areas of commercialization of intellectual property by tenexperts

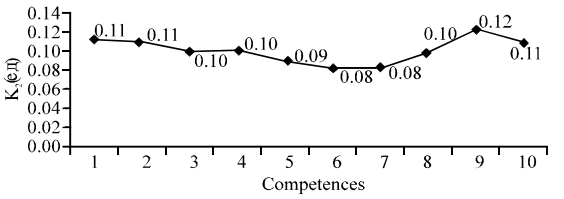

Fig. 5: The values of competence of tenx experts (K_2)

expertsare shown in Fig. 4. The results of calculation of initial data for K2 are given in Table 4. The values of competence of ten experts (K2) are shown in Fig. 5.

On basis of the datain Fig. 5, one can conclude tha tan expert numbered 9 has the highest competence level of 0.12 units, but at the same, the competence of the other experts is quite highand a little different from the coefficient of competence of the expert.

The values of current group evaluation (Y_2) of the areas of commercialization of intellectual property by ten experts are shown in Fig. 6.

Table 4: The results of calculations of initial data for K_2, (units)

	Experts									
Data	1	2	3	4	5	6	7	8	9	10
Initial data for K_2	0.2869	0.2830	0.2551	0.2580	0.2308	0.2122	0.2117	0.2521	0.3113	0.2808
The sum of K_2				2.5819						

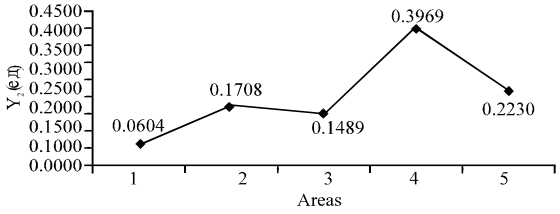

Fig. 6: The values ofthe currentgroup evaluation (Y_2) of the areas of commercialization of intellectual property by tenexperts

Summary: Thus, one can conclude that in view of the group expert assessment, the mos tpreferred of the areas of commercialization of intellectual property for the "Method of Core Examination via the analysis of its Coloration" is the fourth one the transfer of rights under license agreements.

CONCLUSION

The proposed method of determining the areas of intellectual property commercialization allows to examine the view point of each expert most objectively, it can be applied in the absence of resources and time for economic calculations on each area, or used as an adjunct to traditional methods of calculation of economic efficiency of commercialization.

ACKNOWLEDGEMENT

This research was performed in accordance with the Russian Government Program of Competitive Growth of Kazan Federal University.

REFERENCES

Andreychikov, A.V., O.N. Andreychikova, Ye.V. Tabunov and Yu.A. Firsov, 2015. Building modelsand information technology of decision-making for the management of intellectual resources in the form of patents for inventions. Cloud Sci., 2 (2). https://cloudofscience.ru/sites/default/files/pdf/CoS_2_216.pdf.

Anonymous, 2010. Commercialization of intellectual property and increase of the capitalization of the company. Materials of session of the Third National Forumon Intellectual Property XXI Century, Moscow. http://www.labrate.ru/education/rgiis-materials-ip-2010.pdf.

Garayev, Ya.G. and M.V. Ryazantseva, 2012. Assessment of intellectual property and intangible assets by comparative approach using expert and mathematical methods. Modern scientific research and innovation, http://web.snauka.ru/issues/2012/10/17777.

Kletkina, Yu.A., 2008. Evaluation of commercial potential of intellectual property. Russ. Entrepreneurship, pp: 70-75.

Valdaytsev, S.V., P.N. Zavlin and L.E. Mindeli, 2002. Intangible assetsin science: evaluation and use. Bulletin of the State Higher At testation Committee of the Russian Federation, 2: 24-40.

Vishkaryov, A.F., 1984. Methods oftechnical and economic assessment of the significance of inventions. Actual questions of examination of technical solutions. Inter-institutional collection of scientific papers. ARRIPI, pp: 73-82.