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PATENT ACTIVITY IN THE REPUBLIC OF KAZAKHSTAN: REGIONAL DIFFERENCES AND THE MAIN PROBLEMS

Currently, a distinctive feature of the functioning of the market of intellectual products is the possession of its subjects a high scientific and technical potential, which, in turn, is highly dependent on the characteristics of the region.

According to the State Program of forced industrial-innovative development of Kazakhstan for 2010-2014 years, at the present stage an urgent strategic task is the development of domestic high-tech industry, the development and introduction of new high-tech and information technology, are focused on generating competitive products and ensuring the interests of national economic security through conservation and development of industrial, scientific and technological potential of the country.

In the regional context of the Republic of Kazakhstan the city of Almaty was characterized by the most inventive activity. In the period from 1992 to 2011 there were 14,029 applications filled in in Almaty. On the second place is Karaganda region – in the same period 2833 applications for industrial property were filled in (Tab. 1) – [Merkibai, ed., 2012, p. 21-22].

Table 1

The allocation by regions of Kazakhstan with regard to the number of filed applications for protection of inventions by the period from 1992 to 2011

№	Region	The number of applications, units	The share of the number of applications,%
1	2	3	4
1	Almaty	14029	50
2	Almaty region	719	2,6
3	Astana	1486	5,3
4	Akmola region	430	1,5
5	Aktobe region	457	1,6

Table 1 cont.

1	2	3	4
6	Atyrau region	179	0,6
7	East Kazakhstan region	2369	8,4
8	Zhambyl region	1306	4,7
9	West Kazakhstan region	195	0,7
10	Karaganda region	2833	10,1
11	Kostanai region	542	1,9
12	Kyzylorda region	134	0,5
13	Mangistau region	319	1,1
14	Pavlodar region	971	3,5
15	North Kazakhstan region	297	1,1
16	South Kazakhstan region	1798	6,4
Total		28064	100

Source: Based on: the data of the Republic State Enterprise “National Institute of Intellectual Property” of the Committee of Intellectual Property Rights of the Ministry of Justice of the Republic of Kazakhstan (hereinafter – RSE “NIIP”).

Inventors from Almaty have a significant share and represent 50% of the domestic market of intelligent products for the period of 1992-2011 years. After the Almaty inventors followed inventors from Karaganda, East Kazakhstan and South Kazakhstan regions, which share is 10.1%, 8.4%, and 6.4%, respectively. Other regions of Kazakhstan in terms of inventive activity are less than 6% of the contribution to the market of intellectual industrial property.

This situation is not accidental, since the Almaty is the scientific center of the country where 46% of all scientific studies are conducted from among the total number of organizations in the country. Thus, only in 2011 year, 196 organizations and research institutes were engaged in scientific development.

Since the end of 2011 there have 424 scientific organizations been working in the country. The number of scientific organizations in Astana is 42, East Kazakhstan region – 33, Karaganda region – 28. In other regions, the number of scientific organizations of Kazakhstan does not exceed 20 [Smailov, ed., 2012, p. 14].

A special place in the analysis of the regional market of intellectual property is an analysis of regional differentiation of patent activity. For this analysis, the grouping method was used, by which the entire set of regional actors is divided into several homogeneous groups.

To form groups of regions with different indicators of patent activity the cluster analysis was used.

«Cluster» is a group of elements which is characterized by a general property. The basis of this method is a set of data describing the objects under study for a number of attributes. The basis of the method of cluster analysis is a division of groups of objects to clusters which are separated from each other at a distance [Mandel, 1988, p. 53-63].

Cluster analysis allows solving the following tasks of economic and statistical research: to form a homogeneous population, to select the essential features, to identify the typical groups.

Cluster analysis algorithm based on the calculation of distance matrix. In this article, to calculate the distance matrix the usual Euclidean distance was used.

Official statistics do not contain complete information describing the volume, the dynamics and direction of the regional markets, intellectual property of the Republic of Kazakhstan. Only the analysis of the existing publications on patent activity by subjects of the Republic of Kazakhstan allows classifying regions by occupied place in the target market.

In the article multivariate classification of regions of Kazakhstan was carried out using the following indicators of patent activity of market in 2011 year: the number of issued preliminary patents and patents on the inventions, the number of issued preliminary patents and patents on the utility models, the number of issued preliminary patents and patents on the industrial designs, the number of certificates issued on the trademarks (Tab. 2) – [Merkibai, ed., 2012, p. 30, 37, 50, 58].

Table 2

The allocation by regions of Kazakhstan the issued by national applicants protection documents on the object of industrial property for 2011 year

№	Region	The number of issued protection documents			
		for the inventions	for the utility models	for the industrial designs	for the trademarks
1	Almaty	728	34	90	841
2	Almaty region	22	1	3	99
3	Astana	155	5	28	145
4	Akmola region	11	1	0	15
5	Aktobe region	24	1	0	56
6	Atyrau region	11	0	1	13
7	East Kazakhstan region	201	18	7	40
8	Zhambyl region	91	3	0	22
9	West Kazakhstan region	15	4	2	12
10	Karaganda region	169	4	0	62
11	Kostanai region	25	3	12	40
12	Kyzylorda region	5	1	1	4
13	Mangistau region	4	0	0	21
14	Pavlodar region	56	2	0	30
15	North Kazakhstan region	28	3	4	22
16	South Kazakhstan region	97	1	3	64
Total		1642	81	151	1486

Source: Based on: The data of RSE NIIP.

For the analysis 15 regions of the Republic of Kazakhstan were selected, with a sample population of Almaty was excluded, as it is much greater than for the rest of the analyzed parameters.

Based on the results of the group produced different algorithms of cluster analysis, we have chosen the method of middle connection between groups, since it is based the best results of the partition were obtained.

Figure 1 provides a graphical result of the division of the complex target into clusters of regional participants.

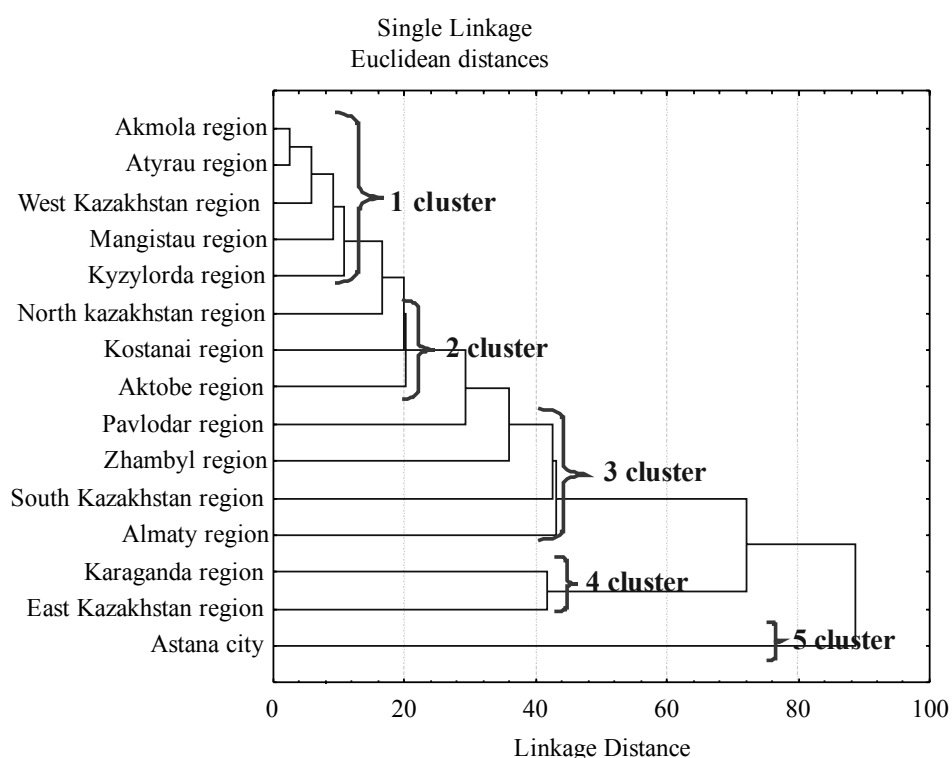


Fig. 1. The dendrogram of the classification of the regions of the Republic of Kazakhstan on patent activity in 2011 year

As a result, multi-dimensional classification was obtained 5 clusters:

- first joined five areas – Akmola, Atyrau, West Kazakhstan, Mangistau and Kyzylorda regions;
- second cluster included 3 subjects: North Kazakhstan, Kostanai and Aktope regions;
- the third included four areas – Pavlodar, Zhambyl, South Kazakhstan and Almaty regions;

- fourth cluster combined with the Karaganda region of East Kazakhstan regions;
- fifth cluster in terms of patent activity is presented Astana city.

The results of cluster analysis of the regions of Kazakhstan on patent activity are presented in Tab. 3.

Table 3

The results of the cluster analysis of the regions of the Republic of Kazakhstan in terms of the patent activity

№	Regions included to the cluster	Factor			
		The number of issued protection documents			
		for the inventions	for the inventions	for the inventions	for the inventions
1	Akmola region	11	1	0	15
	Atyrau region	11	0	1	13
	West Kazakhstan region	15	4	2	12
	Mangistau region	4	0	0	21
	Kyzylorda region	5	1	1	4
Average for the 1 cluster		9,2	1,2	0,8	13
2	North Kazakhstan region	28	3	4	22
	Kostanai region	25	3	12	40
	Aktobe region	24	1	0	56
Average for the 2 cluster		25,7	2,3	5,3	39,3
3	Pavlodar region	56	2	0	30
	Zhambyl region	91	3	0	22
	South Kazakhstan region	97	1	3	64
	Almaty region	22	1	3	99
Average for the 3 cluster		66,5	1,8	1,5	53,8
4	Karaganda region	169	4	0	62
	East Kazakhstan region	201	18	7	40
Average for the 4 cluster		185	11	3,5	51
5	Astana city	155	5	28	145
Average for the 5 cluster		155	5	28	145

Analyzing the results of the classification, it can be noted that the fifth cluster, represented by Astana city, is the most powerful.

The fourth cluster also unites the regions with a high level of patent activity. The regional superior of the cluster corresponding data areas that fall in the first cluster, an average of 10, included in the second – by 3,5 times, and the third cluster – 2 times. This demonstrates the desire of the fourth cluster regions to innovative development and, consequently, to an increase of investment appeal. The average amount of issued certificates for trademarks and service marks of the analyzed cluster is 51 units, the number of issued patents on the inventions is 185, on the utility models is 11, on the industrial design is 3,5.

Regions of the first and second clusters have significantly lower values of the indicators, which points to their low patent activity. Studies show that in these regions the industrial designs and utility models practically do not invent; in the future it will certainly play a negative role, and will have a negative impact on their innovative development.

The data in the Tab. 3 can be used to form a local component of innovative strategies for each classification group.

Thus, cluster analysis of the regions of Kazakhstan on patent activity helped to solve the following problems:

- to classify the regions of Kazakhstan with the signs which reflected the essence of the nature of intellectual industrial property market, leading to a better knowledge of the totality of the regions classified by the level of patent activity;
- to build a new classification of regions of the Republic of Kazakhstan by the level of patent activity and to establish the relationships within a selected complex of objects.

The problems of the stimulation and development of the innovation, patent and licensing activities in the regions, there are more than a year.

Unfortunately, only a small part of the invention in the country finds its practical expression. One of the reasons is the lack of public agencies concerned with the introduction of patented inventions.

During the period from 2003 to 2011 years 1868 license agreements and patent assignment were registered; dynamic registration is shown in Tab. 3. However, every year the number of registered license agreements is between 3 and 9 percent of the total number of patents, for the reporting period is 5,7% [Merkibai, ed., 2012, p. 69].

At the present conditions, when the economic development of Kazakhstan connects with the industrial and innovative development, as ever, the role of patent and inventive work increases. Today the Institute of Intellectual Property in Kazakhstan is one of the most important. However, the question of patentability of inventions developed very weakly.

In this regard, there was a need for an expert survey, which identified the main problems in the implementation of innovations in the economy.

In the expert survey the patent attorneys of Kazakhstan were participated. Respondents identified the most common problems of inventors during registration of inventions, industrial designs and utility models.

According to the experts, the main problem is the lack of legislation for the protection of documents (83%) – (Fig. 2).

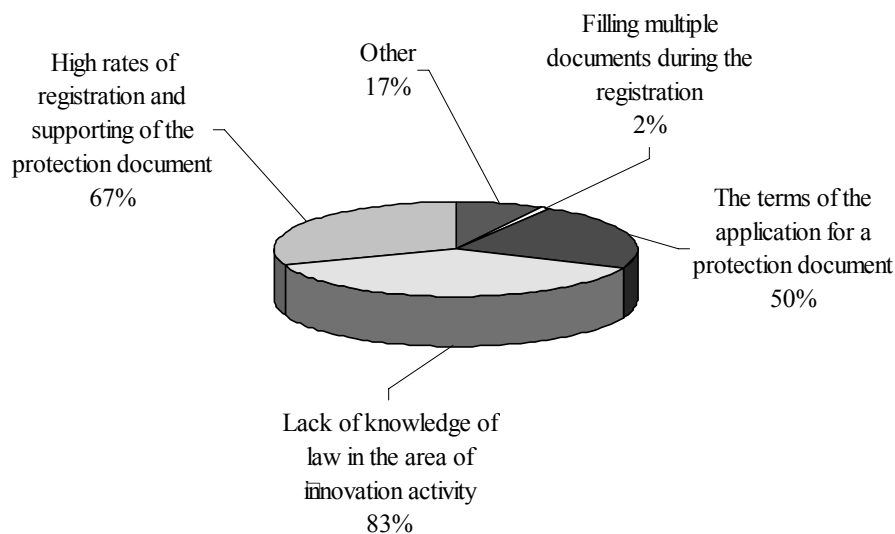


Fig. 2. The most common problems in the registration of inventions

Also experts notes the high rates of registration and maintenance of protection; the terms of the application, the inability to identify an invention, utility model and the wrong scope.

According to the survey, all the experts see a necessity in specialists of marketing for the successful commercialization of the researches (Fig. 3).

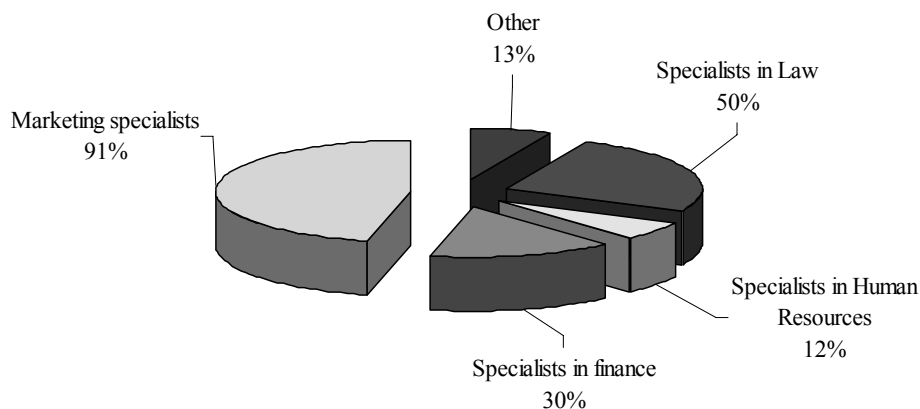


Fig. 3. The necessity for specialists in innovation business

Marketing of intellectual industrial property, in their opinion, it is necessary to study and analyze the patent situation, validation of the patent family and the life cycle of intellectual industrial property. In this analysis of the supply and

demand for the same products, all the parameters are compared with similar test object, view, or operating in the market, it is projected the expected demand for new technologies or products, and how to choose the type of advertising, plans to promote products, select the depth and width of the channels goods movement. The experts also noted the necessity in specialists of law and finance (50% and 33% respectively).

On the question, what are the intentions of business innovators, experts noted the following: licensing and searching for investors, selling the patent, the sale of products. In another variant of the answer, experts pointed to the intention of the inventors using a patent for the defense a dissertation work – the vain desire to be the “inventor”.

The most effective element of the infrastructure to support innovation, experts say targeted program of support and development of small business and funding innovation. 3 experts have identified the necessity to establish and conduct special training programs in the field of business innovation and the formation of a larger number of venture funds (Fig. 4).

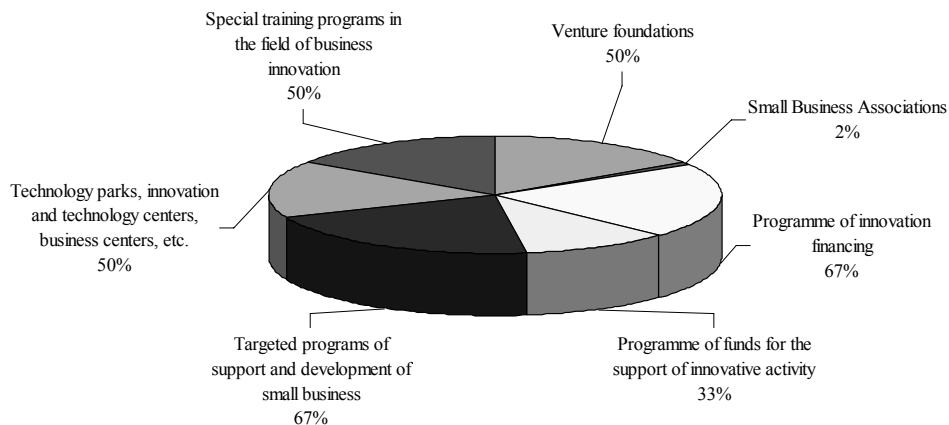


Fig. 4. The infrastructure elements of the supporting of innovative activity

However, they do not consider essential elements of infrastructure to support innovation – technology parks, innovation technology centers, and business – centers and small business associations.

Experts were asked at what stage it is advisable to sell innovative business result of scientific activity? Experts, relying on personal professional experience, noted that the most appropriate selling industrial design as a model of production and technology, driven to industrial applications.

On the issue of the necessity of increasing the number of patent attorneys in Kazakhstan, the respondents said that the current number of patent attorneys is sufficient to document the service of inventors, but they want to improve the quality of services and their professional competence.

Thus, based on the study the problems of innovative business in Kazakhstan, which implies the commercialization of intellectual industrial property, were identified:

- **legal nature:** the absence of legislation the concepts of “innovation”, “innovation activity”, the misuse of industrial property, the presence of counterfeit goods;
- **the registration and examination of innovations:** ignorance of the law inventors; high rates of registration and maintenance of protection; long-term consideration of the application; the lack of a search of the electronic database of trademarks and service marks;
- **personnel nature:** a lack low of qualified experts (no patent education); an insufficient number of specialists in marketing, management, able to promote innovation in the market; the lack of a mandatory training program for managers, universities, designed to eliminate patent illiteracy; the lack of some services connect with patenting and commercialization innovations on the enterprises;
- **financial nature:** insufficient public funding of innovation; high duties on equipment; the lack of income tax incentives; minimum demand for innovative small businesses;
- **informative:** the lack of accurate data about innovative enterprises; the lack of information about new domestic and innovations.

Many inventions cover a narrow scope of legal protection, allowing other persons to legally circumvent the patent, slightly modifying the parameters of the process or design elements. This is due to the fact that most of the applicants are no methodological skills supply and preparation of its invention of the formula. Not all organizations that create technological innovations, there are competent professionals that can render methodical assistance in patenting inventions. Worsened training in patenting in line with international standards (lawyers, experts, economists). Need to address the issue of the training of specialists in the field of patents in universities, with appropriate material and methodological framework and a qualified faculty.

Literature

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Summary

In the article the current state of inventive activity in the Republic of Kazakhstan was considered. In particular, the analysis of the dynamics of the number of patents granted for inventions, utility models, industrial designs, trademarks and service marks were given. The regional differences are investigated, the dominant region of Kazakhstan in terms of innovation are highlighted. In the article the results of the expert survey of patent attorneys were shown, in order to identify the main problems of functioning of the inventive activity.