UDC 336.647.2

Analysis of sources of financing for the development of intellectual capital of industrial enterprises in the region

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In the article, the structure of sources of financing for the formation and development of intellectual capital of industrial enterprises of the Kherson region is analyzed. There is a conducted estimation of dynamics of volumes of financing of innovative activity in the region according to different sources. The possibilities of expanding the sources of own financial resources of enterprises for activating their innovation activity and development of intellectual capital are determined.

Keywords: intellectual capital, human capital, intellectual resources, theinnovative activity of an industrial enterprise, sources of financing.

Ротань Н.В., Комліченко О.О. АНАЛІЗ ДЖЕРЕЛ ФІНАНСУВАННЯ РОЗВИТКУ ІНТЕЛЕКТУАЛЬНОГО КАПІТАЛУ ПРОМИСЛОВИХ ПІДПРИЄМСТВ РЕГІОНУ

У статті проаналізовано структуру джерел фінансування формування і розвитку інтелектуального капіталу промислових підприємств Херсонської області. Проведена оцінка динаміки обсягів фінансування інноваційної діяльності в регіоні за різними джерелами. Визначені можливості розширення джерел власних фінансових ресурсів підприємств для активізації їх інноваційної діяльності та розвитку інтелектуального капіталу.

Ключові слова: інтелектуальний капітал, людський капітал, інтелектуальні ресурси, інноваційна діяльність промислового підприємства, джерела фінансування.

Ротань Н.В., Комличенко О.А. АНАЛИЗ ИСТОЧНИКОВ ФИНАНСИРОВАНИЯ РАЗВИТИЯ ИНТЕЛЛЕКТУАЛЬНОГО КАПИТАЛА ПРОМЫШЛЕННЫХ ПРЕДПРИЯТИЙ РЕГИОНА

В статье проанализировано структуру источников финансирования формирования и развития интеллектуального капитала промышленных предприятий Херсонской области. Проведена оценка динамики объемов финансирования инновационной деятельности в регионе из разных источников. Определены возможности расширения источников собственных финансовых ресурсов предприятий для активизации их инновационной деятельности та развития интеллектуального капитала.

Ключевые слова: интеллектуальный капитал, человеческий капитал, интеллектуальные ресурсы, инновационная деятельность промышленного предприятия, источники финансирования.

Formulation of the problem. In the market conditions for the enterprises, an important task is to form a high level of competitiveness. This task can be completed by creating the new competitive advantages. In this case, the shortest way is the innovative development. At the level of theenterprise, the basis of innovation development, the strengthening of competitive advantages are the intellectual potential, which, after being transformed into intellectual capital, can increase the cost of the industrial object.

The development of the market of the intellectual resources leads to a continuous improvement of the quality of economic activity of enterprises. The purchasing of high-quality intellectual resources is the key to the effective formation and usage of enterprise's intellectual capital. But the high cost of intellectual resources leads to significant costs for the enterprise to purchase them. In addition, there is a risk of non-coverage of such costs due to therapid technological development and the probability of a rapid loss of relevance of acquired intellectual resources. Therefore, the study of sources of financing for the development of intellectual capital of the enterprise is relevant.

Analysis of recent research and publications. The attention was paid to the problems of the formation and functioning of intellectual capital by scientists of the classical school of political economy. At the present stage, various aspects of the formation and development of intellectual capital were studied by D. Bell, G. Becker, E. Broking, A. Butnick-Siversky, A. Galchinsky, A. Gaponenko, P. Drucker, L. Edvinsson,

D. Klein, H. McDonald, M. Melon, S. Panchishin, A. Chukhno and others.

Formulating the aims of the article. The development of competition enables the enterprise to form the intellectual capital of the high level and its effective use in order to provide competitive advantages. Therefore, the aims of the study are to determine the sources of financing of the innovative costs to create an intellectual product for maintaining the relevance of intellectual resources of the industrial enterprise; analysis of expenditures for innovative activities, modernization of the existing material and technical base and technologies at the enterprise.

The presentation of the material. Intellectual capital in modern conditions of management is getting the special importance as an instrument of innovative development. Its formation and use in this process provide an opportunity to provide favorable conditions for the innovative growth of the economy in the region.

The process of formation of intellectual capital of the enterprise should be considered as a result of the interaction of its components, which are interdependent. One of them is a human capital, it means man, his/her knowledge, education, professionalism. The second is the result of mental work – an intellectual product (innovation).

Consequently, the main component of intellectual capital is the human capital, an active role in the formation of competitiveness of which belongs to the state. The state provides investment in the health of family members, which is the key to the formation of a full-fledged new carrier of human capital, and the further development of its potential, participating in vocational training, retraining, retraining of human capital, as it is a decisive factor in intensive development of the economic system.

In our opinion, today among the social and economic problems of the Kherson region, first of all, it is necessary to highlight the low level of human capital development, which is caused by a number of reasons. The population of the Kherson region among the regions of Ukraine is perhaps the poorest. Kherson region, in terms of disposable income per the person, traditionally occupies one of the last places. If the average monthly wage in Ukraine in December 2016 amounted to 6475 UAH, then in Kherson region it was only 5259 UAH, that is only 81% of the average wage [1].

In the region, there is a demographic decline over the past 10 years, and the process of reduction is reduced by 9.1% of the total population. Mortality exceeds fertility in 1,32 times. Thus, by the end of 2016, approximately 1 million 61 thousand residents lived on the territory of the region, and it was in 5.5 thousand less than in 2015. The number of adult population was 81.4% of the total. This suggests that the children's population is less than 20%, and it is an actual confirmation of the aging population of the region. During the period from January to June 2017, there is a significant excess of the number of deaths over the number of live births: 100 deaths to 57 births. During the period from January to June 2017, the birth rate decreased compared with the corresponding period in 2016: from 9.8 to 9.1 infants per 1000 population. The mortality rate in the region as a whole decreased from 16.2 to 16.0 deaths per 1000 persons from the population [2].

The combined effect of these factors is accompanied by a decrease in the quality of human capital of the Kherson region, which nowadays becomes the main factor of economic development in the whole world (and with the decreasing of this quality as a limiting factor of development).

The quantitative and qualitative membership of the population, which is able to work, determines the possibilities for the enterprise to be attracted by people capable of performing intellectual work, which should be the basis for the formation of the intellectual capital of the enterprise. The low quality and shortage of labor resources reduce the possibility of forming the intellectual capital of a high-level enterprise.

Consequently, the only effective regional policy will contribute to the growth of quantitative and qualitative characteristics of the able-to-work population as the main carrier of the intellectual capital of industrial enterprises. The lack of effective demographic measures and actions leads to aging and degradation of labor sources, which leads to a decline in all spheres of social activity.

Secondly, the innovative model of economic development in Kherson region should be shaped by determining the level of needs of the region in scientific and technological developments, as well as promoting the increase of investment activity of economic subjects.

Kherson region has significant scientific and technical potential which is concentrated in 28 institutions and organizations, including 15 institutions of the durable profile, 6 – academic, 4 – higher educational establishments, 3 – organizations of factory science. Under the conditions of a well-considered personnel policy,

12 professional and technical institutions working in the branch of "industry", can quickly provide qualified specialists in the priority sectors of the regional economy. However, the indicators of innovation of the development indicate that the existing scientific potential in the Kherson region is not used effectively. As it can be seen from Table 1 with the considerable growth of the number of doctors of science and candidates of sciences in the economy of the region from the last 10 years, the number of organizations that perform scientific research and development decreased on 33%, and the number of scientists in them during this time reduced in 4 times.

It is believed that the main reason for such negative changes is the problem of financing scientific and innovative activities. For example, in 2016, the total expenditures for research and development by own organizations of the Kherson region amounted to 48.8 million UAH. During 2016, the implementation of research and development in the region was carried out by 20 enterprises and organizations, 65% of which were concentrated in the regional center, and the number of expenses for applied research amounted to 33.8 million UAH. (69.3%), fundamental researches – 13.7 million (28,1%), scientific and technical (experimental) developments – 1,3 million UAH. (2.6%).

The aging of the modern technological base of science, irresponsible attitude to bringing it in correspondence with modern requirements actually makes it impossible to conduct research in the region on the world level without the help of foreign partners, which isn't often gratuitously: many significant achievements of Ukrainian scientists become the intellectual property of other countries. Almost half of the Ukrainian scientific staff spends their creative potential mainly in the interests of foreign customers.

Analyzing the sources of financing for the development of intellectual capital of enterprises in Kherson region, it should be noted that the main source of financing such expenses is the own funds of enterprises. Thus, in 2014, the share of financing for the creation of an intellectual product (innovation) at the expense of own funds of enterprises amounted to 86.0%, and in 2015 – 86.8%. According to Table 2, it can be concluded that the innovation activity of enterprises in the region is decreasing. During the last five years, domestic and foreign investors have almost never invested in the creation of intellectual products by enterprises in the city of Kherson and its region.

As a result, due to the limited financial resources, the share of enterprises that formed and developed intellectual capital in the region

Table 1

Scientific staff and number of organizations in the Kherson region

Years	Number of organizations conducting research and development	Number of scientists, persons	Number of doctors of sciences in the economy of the region, persons	Number of candidates of sciences in the economy of the region, persons
1995	24	1739	91	579
2012	28	671	141	1049
2013	23	616	145	1011
2014	24	609	149	1052
2015	16	425	104	734

Source: [2]

Table 2

Sources of financing of innovative activities for the formation the intellectual capital of industrial enterprises in the region (thousand, UAH.)

Years	Total cost	Including money from			
		own	domestic investors	foreign investors	other sources
2011	80122,9	78010,7	1313,7	–	798,5
2012	154584,6	152817,4	–	–	1767,2
2013	161367,6	154923,5	–	6407,1	37,0
2014	90461,7	77753,1	570,2	3576,2	8562,2
2015	70130,5	60900,5	1800,0	–	7430,0

Source: [2]

Table 3

Innovative activity of industrial enterprises in Kherson region (thousand, UAH.)

Years	Share of enterprises, engaged in the creation of a smart product, %	Total cost	Including the directions					
			research and development	з них		the purchase of new technologies	the purchased machinery and equipment related to the introduction of innovations	other costs
				domestic	foreign			
2011	26,5	80122,9	9825,3	7541,1	2284,2	3,9	28654,1	41639,6
2012	26,1	154584,6	12432,5	10065,4	2367,1	1,0	49435,1	92716,0
2013	23,6	161367,6	7180,6	6474,0	706,6	25,5	136597,3	17564,2
2014	24,2	90461,7	11315,3	6076,8	5238,5	77231,9	674,0	1240,5
2015	20,7	70130,5	4104,6	3953,8	150,8	65957,8	–	68

Source: [2]

Table 4

Implementation of innovations at industrial enterprises

Years	Share of enterprises that implemented the intellectual product, %	New technological processes introduced	Low-Resource, Resource-Conservation	Mastering of innovative types of products	new types of technology	Share of realized innovative products in volume of industrial, %
2011	11,9	78	1	146	49	4,9
2012	12,3	37	34	95	32	5,6
2013	13,3	121	103	157	36	4,0
2014	10,8	181	97	153	17	5,4
2015	20,7	25	12	41	12	1,4

Source: [2]

over the last five years is constantly decreasing (Table 3) [3].

At the same time, the share of enterprises that introduced innovations grew, and in 2015 it was 20.7%. The introduction of new technological processes is characterized by a leap-like dynamics. In 2015, 25 processes were introduced, which is less than in all 8 years of research. The number of low-waste, resource-saving processes in 2015 decreased to 85 (compared with 2014) and to 91 (compared with 2013) processes. In 2011-2015, there is also a decrease of the production of innovative types of products up to 41 items, which is less than almost 3.5 times compared to 2011. In 2013-2014, the most innovative products of innovative products for the period under investigation was introduced. The share of realized innovative products in the total volume of sales for the studied period also fell to 1.4% in 2015. This is in 7 times less than in 2000 and in 3.5 times less than in 2011 (Table 4).

In our opinion, the main factors which help along the low innovation activity of the industrial enterprises in the Kherson region, as well as Ukraine as a whole, are the lack of a well-founded strategy for the development of intellectual capital, obscurity of goals, lack of ideas, and low demand for intellectual products in the market. Among the factors that impede the development of intellectual capital of domestic industrial enterprises, the most important are: lack of own logistical and financial resources; limited opportunities for attracting investment and loans, lack of skilled workers and partners for cooperation [4, p. 5-6].

Conclusions. According to the results of the study, it can be concluded that the volume of financing for the formation of intellectual capital of industrial enterprises in the region and the reduction of their innovation activity has been decreased. Own funds of enterprises are still the main source of financing. Domestic and foreign investors almost do not invest in creating an intellectual product by enterprises in the region. The insufficiency of funding has affected the reduction of the share of enterprises engaged in creating an intellectual product. For industrial enterprises of the region, the priority areas of financing are the acquisition of new technologies, rather than own research and development.

Therefore, the leadership of enterprises of the industrial sector of the economy in Kherson region should determine the financing of improving the quality of human capital and creating its own intellectual product as a priority task. This will allow increasing investment attractiveness, the creation of competitive regional benefits and increasing the attraction of funds from foreign and domestic investors.

At the same time, effective state regulation and financing of all aspects of intellectual activity will lead to the official level of the relationship between the subjects of intellectual activity and intellectual property in the formation of intellectual capital of the enterprise. The investment of budget funds in the development of scientific and educational institutions will enable the producing the highly skilled specialists for intellectual work. During financing the enterprises of the region, which implement the intellectual product, support is needed for the whole innovation process – from fundamental researches to introduction of development into production and obtaining value added from the purchasing of intellectual capital.

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