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ANALYSIS OF THE PROBLEMS OF DEVELOPMENT OF INTELLECTUAL POTENTIAL OF KAZAKHSTAN IN THE CONDITIONS OF INNOVATIVE ECONOMY

Abstract.

The innovative economy was created, is being created and is developing jointly and in parallel with the growth of the quality and value of the accumulated intellectual potential, i.e. in parallel with the development of science, and intellectual human capital is the main factor in its development. And the accumulated high-quality intellectual potential serves as the main part of the foundation of the innovative economy sector, as well as the knowledge economy. The purpose of the study is to identify the main problems in the development of intellectual potential in the formation of an innovative economy. The study was conducted based on a system-structural-functional approach, a SWOT analysis of the development of intellectual potential of Kazakhstan was carried out.

The analysis of the strengths and weaknesses of the intellectual potential of Kazakhstan allowed not only to show the positive sides, but also to identify the main shortcomings in the development of intellectual potential and problems in the formation of an innovative economy. The development of intellectual potential is hindered by the underdevelopment of infrastructure for education and research; inequality in the quality of education in urban and rural schools, national, regional and private higher education institutions; migration of talented people, mainly with technical education abroad in search of better opportunities

Based on the results of the analysis, the system conditions for the formation of an innovative economy in a country where the formation of human capital with the corresponding intellectual potential is the main one are proposed.

The results of the study, in our opinion, will allow us to activate the formation of an innovative economy in the country, and the identified strategic priorities for the formation of intellectual potential will allow us to focus on those points that need to be developed in this context.

Key words: innovative economy, intellectual potential, SWOT analysis, competitiveness, education, science, culture.

Introduction.

Today's world is experiencing an era of rapid technological progress, where innovation and the development of intellectual potential have become integral factors of success for countries and societies. In the face of globalization and competition on the world stage, countries are forced to actively develop their intellectual resources and create innovative economies to ensure a stable and prosperous future.

In this context, Kazakhstan - a young and rapidly developing country - faces challenges and opportunities related to the analysis of the problems of developing its intellectual potential. Optimizing the use of intellectual resources, stimulating scientific and technical innovations and understanding how to attract talented people are the main aspects of the country's sustainable development in the context of an innovative economy.

The purpose of this study is to carefully analyze the main problems that may affect the development of the intellectual potential of Kazakhstan and to identify possible ways to solve these problems.

The following tasks were set to achieve the goal:

- conducting a SWOT analysis for the development of the intellectual potential of Kazakhstan;

- to propose ways to solve identified shortcomings and problems.

The subject of research is organizational and economic relations arising in the process of formation of intellectual potential in the conditions of innovative economy.

The object of research is the intellectual potential of the Republic of Kazakhstan.

It is important to note that the analysis of the problems of developing the intellectual potential of Kazakhstan is not only an important academic task, but also a practical one for the formation of long-term development strategies of the country. Researching this topic opens up new opportunities for understanding the complexities and prospects of Kazakhstan in a rapidly changing world and helps determine the best ways to achieve sustainable economic growth and prosperity for the nation.

Materials and methods of research.

In order to study and evaluate the development of the country's intellectual potential, the SWOT analysis method was used. This analytical tool made it possible to determine the country's strengths and weaknesses in the field of intellectual potential development, as well as identify the opportunities and challenges facing it in the context of the innovative economy. The use of SWOT analysis in research provides systematization and structuring of data that allows for a deep and comprehensive analysis of the country's intellectual potential [1].

Qualitative analysis made it possible to deeply understand the complex and multifaceted phenomena related to the development of the country's intellectual potential. This method uses a variety of data sources, such as expert interviews, document analysis, and statistical materials, to obtain a wide range of information and assess various aspects of intellectual potential.

The use of the method of quantitative analysis in the study of intellectual potential provided objective and accurate data, which allowed a deeper understanding and assessment of the current state of intellectual resources and prospects for development. Using quantitative analysis method, various quantitative data related to education level, scientific research activities, innovations, technological development and other aspects of the country's intellectual potential were collected and processed.

Literature review.

The concept of “intellectual potential” appeared several decades ago and was introduced into scientific circulation by various researchers and experts in various contexts. It is very difficult to attribute the exact source and authorship of the term to a specific person, since it has recently become popular and has been used in various scientific works and publications.

However, the concept of “intellectual potential” has been actively developed and used in research in the field of human capital management, economics, innovation and education. Many scientists, economists and sociologists have contributed to the understanding and research of intellectual potential and its importance for the development of countries and societies.

Analyzing the domestic research in this field in recent years, it can be determined that most of them depend on the point of view that intellectual potential should be considered as a set of some resources or as an indicator describing the state or level of development of some object, or as an ability or opportunity [2], [3]. In addition, all scientists distinguish between an individual's intellectual potential and a system's potential (society, region, firm).

Foreign scientists such as D. Acemoglu, N. Bontis, D. Bloom, R. Florida, M. Porter, X. Sala-I-Martin, R. Solow, J. Stiglitz and others open up issues of formation and development of intellectual potential in their research. Their work explores the links between innovation, human capital and economic growth, as well as the role of public policy in stimulating innovation.

R. Alshanov, G. Aubakirova, N. Buktukov, F. Dnishev, A. Koshanov, A. Maidyrova, O. Sabden, R. Sabirova, K. Sagadiev, Z. Satpaeva, B. Kazakh scientist-economists such as Serikbaev

and others have made a certain contribution to the study of the issues of diversification of Kazakhstan's economy on the basis of innovation and the role of human capital in its development.

To study the issues of formation of intellectual potential, its expansion and development, assessment of its condition and search for methods of its effective management in order to increase it. B. Bermukhamedova, U.E. Daukenov, K. Zhangalieva, A.S. Zhuparova, D. Kangalakova, D. Rakhmetova, R.A. Rakhimova, R.M. Ruzanov R.K. Saghieva, L.K. Sanaliyeva, A.B. Turushbekova and other Kazakh scientists whose made a significant contribution [4], [5],

Despite the large amount of research that has been done on intellectual ability, there are still several areas that are under-researched. There is a need for a deeper comprehensive study of the relationship between education, the level of people's skills, the infrastructure development of science and the country's ability to innovate [6].

Results and its discussion.

The future well-being of any country is determined by its intellectual potential. The authorities are interested in increasing the level of intellectual potential not only at the level of the country, but also at the level of subjects. After all, if the intellectual potential is used more effectively, it is clear that the region will have great competitive advantages in interregional and international markets [7], [8].

Currently, three important elements of Kazakhstan's innovative growth - higher education, science and business - are still acting individually. Despite the current economic trends in the country, which require the integration of these components for effective results, the independence of science, education and industry as separate social institutions and legal entities, as well as the lack of integration mechanisms prevent them from using the full potential from combining the efforts of the scientific, educational and industrial sectors brings.

The formation and development of the intellectual potential of Kazakhstan is influenced by the strategic priorities set before the state, their implementation is carried out by some strategic documents. The main ones are the 2050 Strategy and the Strategic Plan until 2025, as well as a number of state programs and national projects.

The analysis of strategic documents showed that the country has achieved certain results in the development of education, science, innovation and culture. However, in general, some problems claim that the system of formation, implementation and use of intellectual potential in the country does not work properly and allows strategic mistakes, as a result of which Kazakhstan misses opportunities for advanced development. In addition, the system has a certain foundation of intellectual potential, which allows for an advanced development trajectory, timely increases its competitive advantages in the main areas of forming a new innovative structure [9].

As a result of the review of various factors and statistical data, we formed a SWOT analysis on the development of the intellectual potential of Kazakhstan, identified strengths and weaknesses, as well as opportunities and threats shown in Table 1.

Table 1 – SWOT-analysis of the development of intellectual potential of Kazakhstan

Advantages	Disadvantages
- Investments in education and workforce development; - Focus on research and innovation; - Emphasis on digital transformation; -Emphasis on preservation and development of national culture and cultures of peoples and ethnic groups inhabiting the country.	- Underdeveloped infrastructure for education and scientific research; - Inequality in the quality of education of urban and rural schools, national, regional and private higher educational institutions; - Inadequacy of the qualifications of the released specialists to the needs of the labor market; - Brain drain, many talented people leave the country in search of better opportunities; - Lack of a strong tradition of scientific and technological innovation.

Opportunities	Threats
- Increasing global demand for highly educated and skilled workers; - Opportunities for partnership and cooperation with other countries and institutions; - Increasing demand for innovative solutions to solve global problems; - The potential of attracting foreign investments in education and research; - Development of the non-raw sector - creative economy	- Competition from other countries in attracting highly educated and qualified workers; - The rapid pace of technological changes that require constant investments in human capital; - Political instability can hurt the development of the country's intellectual potential.
Note: compiled by the authors	

According to the results of the SWOT analysis, we identified the main shortcomings in the development of the country's intellectual potential. Let's look at them in more detail.

- Underdeveloped infrastructure for education and scientific research

S.P. Trapeznikov and V.P. Agree with Elyutin's opinion, they equate the concept of "intellectual potential" with education, and its formation is connected with the growth of the population's education, it should be noted that special attention is paid to education and science in Kazakhstan [5. – 72].

But despite the positive results of the development of education and science in Kazakhstan, the problem of infrastructure is still relevant. This conclusion is subjective and may vary depending on the approach and criteria used to evaluate Kazakhstan's education and science infrastructure. Despite this, it is widely recognized that the education and science sector in Kazakhstan, as in many other countries, has problems and areas for improvement. These problems range from limited resources and funding to a lack of qualified faculty and researchers to inadequate facilities and infrastructure. The government and various organizations are making efforts to solve these problems and improve the education and science sector in Kazakhstan.

For example, in Kazakhstan, educational schools (about 30) that were built 40 years ago and are in a dilapidated condition are still operating. Three-shift schools are still operating (about 54). In this regard, it is necessary to build new schools using three methods: building schools within the framework of public-private partnership (PPP), purchasing ready-made school buildings that meet comfort standards from private investors, and building schools through a designated operator.

In 2021, on the basis of 20 Kazakh higher education institutions, work began on the launch of academic excellence centers (AAO), which were supposed to provide the regions with the necessary personnel, as well as create modern educational and scientific laboratories. But currently, no university has started working within the AAO. It is necessary to continue this work, which will allow universities to form a material and technical base, infrastructure, which will have a positive effect on the quality of education and conducting scientific research.

In Kazakhstan, there is an annual increase in domestic expenditures on R&D, in 2021 the expenditures amounted to 109,332.7 million tenge (Figure 1), but it should be noted that private financing of them is an average of 45%, and the rest belongs to public sector expenditures. It is necessary to increase private financing in domestic R&D expenditures.

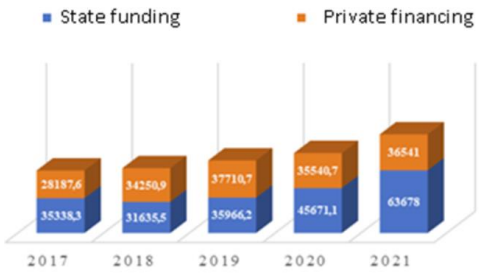

Figure 1 – Internal R&D costs, million rubles. Tg

Note: compiled by the authors based on the source [6. – 1].

As can be seen in Figure 2, most of the domestic expenditure on government-funded R&D consists of labor and other costs.

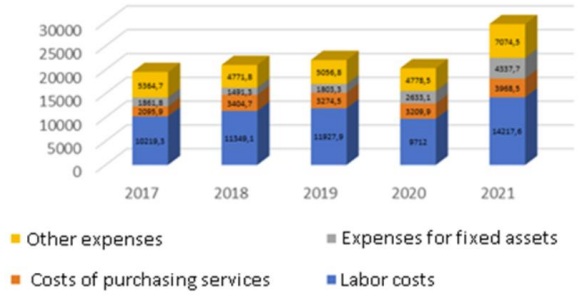

Figure 2 – Composition of internal expenditures on state-funded R&D

Note: compiled by the authors based on the source [6. – 2].

In 2017, expenses for the purchase of fixed assets amounted to only 9.5%, in 2018 - 7.1%, in 2019 - 8.2%, in 2020 - 12.9%, in 2021 - 14.7%. In R&D expenditures carried out at the expense of non-state enterprises, the costs of purchasing fixed assets vary from 10% to 13% of the total amount of costs. In our opinion, this is a very small amount, so it is necessary to increase the costs of purchasing fixed assets in the total amount of R&D expenses.

In 2021, the number of employees carrying out research and development work in Kazakhstan has decreased. (Figure 3)

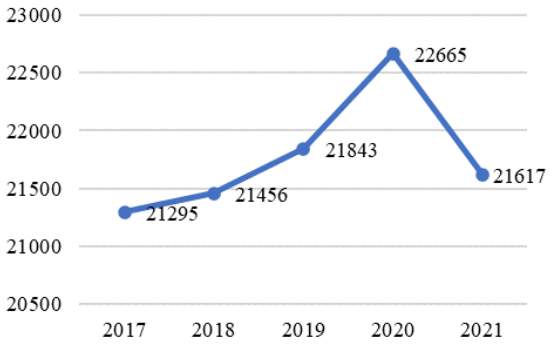

Figure 3 – Number of R&D employees, people.

Note: compiled by the authors based on the source [6. – 3].

A special reduction of workers was observed in all regions of Kazakhstan, Shymkent city (by 23.5%), West Kazakhstan region (by 14.7%), Pavlodar region (by 13.0%), Almaty region (by 12.7%).), in Aktobe region (by 11.6%), in Kostanay and Atyrau regions - by 10.2%. It is necessary to increase the number of employees carrying out R&D.

- Inequality in the quality of education of urban and rural schools, national, regional and private higher educational institutions

Excessive inequality in all areas of society leads to social tensions and conflicts. The root cause of future inequality is identified in the secondary education system, where there is a disparity in the quality of education between different types of schools, especially between urban and rural schools.

President K.-Zh. Tokaev It was touched upon in the first and second Addresses of, which emphasizes the need for systematic measures to ensure equal opportunities for students.

International comparative studies and national assessments of student learning reveal growing disparities in academic performance between rural and urban schools. Poor student outcomes in Kazakhstan can be explained by a variety of factors, including an emphasis on the elitism of secondary education, insufficient attention and funding to vulnerable rural schools, and the challenges faced by small schools. These factors prevent rural youth from entering the middle class. If the problem of poor quality education in rural areas is not solved, there is a risk of marginalization of rural youth, which will lead to problems in both the educational system and the economic system. Future growth and development of regional industry and agro-industrial complex will be difficult without sufficient supply of highly qualified personnel.

Recently, the concept of "digital inequality" has received widespread attention both in the media and in academia. With the onset of the pandemic, digital technologies have become an important aspect in all areas of human and social life. In this regard, it is necessary to equalize the digital inequality, organize free training in addition to digital skills, strengthen the material and technical base of schools with computer equipment, multimedia teaching tools and provide high-speed Internet [7. – 4].

Inequality in Kazakhstan's higher education also occurs. The best graduates of schools try to enter national higher educational institutions, and only those who have low scores in the national university or children who cannot study in other cities due to health conditions are allowed to study in regional higher educational institutions. The "Grant for the Learner" initiative further exacerbated this situation. The Ministry of Science and Higher Education should initiate a review of the system of educational grants based on the differentiation of UNT results and other relevant indicators.

In addition, students should be able to obtain a long-term loan with a low interest rate of 2-3% per annum to cover the costs of university education. It is necessary to increase the amount of student scholarships at least twice. Providing all students with free access to online libraries necessary for learning. Finally, the problem of limited student accommodation needs to be addressed. For this, it is necessary to improve the mechanism of public-private partnership, study the possibilities of attracting private construction organizations, especially within the framework of PPP, and develop a plan to increase the charter capital of state higher educational institutions for the construction of dormitories.

Another problem is that the largest number of scientists are concentrated in national higher education institutions, and their salaries are higher than those of regional higher educational institutions. And regional universities barely keep their scientists.

National higher education institutions are implementing a large share of state-funded grant projects. In order to ensure the development of university science in the region, it is recommended

to establish a percentage ratio of grant funding for regional and national universities, for example, 30% for regional universities and 70% for national universities.

Also, it should be noted that the list number of the main (full-time) staff of higher educational institutions decreased by 5% (Table 2).

Table 2 – List number of the main (full-time) staff of higher educational institutions

Year	List the number of the main staff	among them						
		have the academic title of master	has a scientific degree				has a scientific title	
			Doctor of Philosophy (PhD)	Doctor in profile	Doctor of Science	Candidate of Science	Professor	Professor (associate professor)
2017	38 212	12 098	1 854	208	3 251	13 276	2 349	5 983
2018	38 275	12 337	2 157	222	3 197	12 896	2 291	5 650
2019	38 470	12 995	2 635	235	3 274	12 723	2 466	5 876
2020	36 307	13 067	2 942	137	2 952	11 514	2 280	5 345
2021	36 378	13 818	3 410	138	2 649	11 116	2 365	5 235
Note: compiled by the authors based on the source [8. – 175].								

In particular, at the beginning of the 2021/2022 academic year, the number of doctors of science decreased by 22.7%, the number of candidates of science by 19.4%, the number of doctors by profession decreased by 50%, but the number of PhD doctors increased by 54%. Compared to 2017, the number of scientists will decrease by 5% in 2021.

For the development of regional science, it is necessary to create a program that offers scientists the choice of a regional university as a place of work, offers certain favorable conditions for at least 7-10 years, and defines the indicators that the scientist must fulfill. This allows to raise the quality of regional science and university education in the regions.

- Inadequacy of the qualifications of the released specialists to the needs of the labor market

According to the analysis of statistical data for 2017-2021, the number of graduates of higher and post-higher education organizations is 138.1 thousand people per year on average (Table 3).

Table 3 – Number of graduates of higher and post-graduate educational organizations, 2017-2021

	2017	2018	2019	2020	2021	On average	2021 fraction%
All	136 469	127084	130691	142435	153627	138061	
Education	42 819	36 085	38 321	44 573	48 654	42090,4	30,5
Humanities	3 603	4 637	4 577	4 819	5 006	4528,4	3,3
Law	19 814	3 647	3 434	3 608	3 656	6831,8	4,9
Art	2 229	3 929	4 021	4 208	3 945	3666,4	2,7
Social sciences, economics and business	23 055	35 452	35 104	37 444	40 275	34266	24,8
Natural sciences	3 774	7 558	6 866	7 423	8 064	6737	4,9
Technical sciences and technologies	26 332	18 655	19 670	21 670	23 131	21891,6	15,9
Agricultural sciences	2 163	2 361	2 948	2 476	2 585	2506,6	1,8

Services	4 855	828	1 087	1 112	1 214	1819,2	1,3
Military affairs and security	567	6 433	6 709	6 232	7 312	5450,6	3,9
Health and Social Care (Medicine)	1 493	4 034	4 734	5 580	6 419	4452	3,2
Veterinary	973	1 763	1 502	1 521	1 415	1434,8	1,0
Health and Social Care (Medicine)	4 792	1 702	1 718	1 769	1 951	2386,4	1,7
Note: compiled by the authors based on the source [8. – 176].							

A large share in the total number of graduates is 30.5% of graduates of the "Education" group, 24.8% of the graduates of the "Social sciences, economics and business" group, and 15.9% of the graduates of the "Technical sciences and technologies" group. In 2013-2014, the market was filled with lawyers and economists, due to this, the number of educational grants for these professions decreased, accordingly, in 2018, the number of graduates decreased by 6 times. But the number of graduates in economics is still not decreasing, these professions are still popular. The market is saturated with economists. Agricultural professions, veterinary medicine, services are still not popular. Given the country's dependence on food imports, it needs to develop agricultural production, and 1.8% of graduates annually is not enough for this.

- Brain drain, many talented people leave the country in search of better opportunities.

The loss of skilled workers can undermine a country's long-term growth sustainability. In 2021, about 7,500 Kazakhs between the ages of 18 and 25 left the country, which is 8.9% more than in the same period last year. Unbalanced growth between regions is caused by increased internal migration and higher youth unemployment, which worsens the criminal situation and creates economic problems such as lower incomes and increased criminal activity.

For example, In 2020-2021, a group of scientists of Atyrau University named after Kh.Dosmukhamedov conducted a social survey on the topic "Monitoring of the public opinion of the people of the Republic of Kazakhstan on the social well-being of youth aged 18-25 in Kazakhstan: issues of employment, labor market and labor migration" in 2020-2021. In the course of the study, such a parameter as a possible intention to move to another country was studied, according to the results of which 24% of those who took part in the survey consider this possibility to some extent. About 8.9% of those surveyed are serious about leaving the country, and all of them are men. The most popular destinations of emigration are the USA, Canada and European Union countries. Respondents cited the desire to find a good job, provide a decent and reliable future for children, and enter the world market as the reason for emigration.

The government should prioritize improving the welfare of the youth as it directly affects the production of both capital and labor intensive goods in the country. The education of students and students plays a decisive role in determining the quality of the workforce. To solve the problems of inequality of regional development, youth unemployment and labor resources, the Government should adopt policies that contribute to economic growth and job creation in the regions. This should be achieved by ensuring equal access to public goods and services and by creating an enabling environment for business. It is important to ensure the attractiveness of jobs in the regions, that is, the supply of jobs must correspond to the demand of the population.

- Lack of a strong tradition of scientific and technological innovation.

Before proving the weakness of the development of intellectual potential in Kazakhstan, it is worth giving a defining of the concept of intellectual potential given by E. Naumova and A.F. Martynov.

E.Naumova understands intellectual potential as the ability to create, use and develop innovative products and technologies by transforming knowledge and experience. A.F.Martynov somewhat expands this concept and defines the country's intellectual potential as the collective ability of society to master and understand the world, the amount of scientific and cultural information it has accumulated, the production system, education, as well as the work capable of

receiving, processing, using, multiplying and transmitting information. defines as the appropriate set of forces [9. – 472].

In Kazakhstan, despite the efforts of the state, the development of the innovative system is limited by a number of factors. Thus, the following problems affecting the change of its structure were identified in the field of development of innovative activities in the regions:

- insufficient provision of manufacturing industries with innovative equipment and technologies;
- general technical and technological backwardness of enterprises;
- low innovative activity of enterprises;
- low investment attractiveness of non-raw materials processing industries;
- lack of monetary resources affecting the innovative activity of production of the real sector of the economy;
- limitation of communication between science and production and lack of effective mechanisms for bringing scientific and technological products to the level of goods;
- weakness of the system of training and retraining of specialists and workers;
- lack of development of the field of small innovative enterprises, which have the necessary flexibility for rapidly changing conditions of the market;
- under development of innovative infrastructure, low level of R&D funding.

All state programs for incubation, acceleration and granting of grants, cooperation efforts of corporations with startups have a limited effect due to private or state monopoly in many sectors - this opinion is expressed by the representatives of the Kazakhstani startup ecosystem.

The participants of the program noted that mainly single operators, single suppliers, single sources work, lack of transparency and competitive environment. As a result, startups remain a limited niche in an economy with limited growth potential, and finding funding for such projects is virtually impossible [10].

Research and analysis of the main constituent elements and indicative data of the intellectual potential of Kazakhstan and other developing countries of the world allows to identify systemic problems in this field.

Issues received:

- Average competitiveness indices in the global rating;
- Low level of activity of enterprises in the implementation of R&D;
- Low level of innovative activity of enterprises;
- Mismatch of human development and competitiveness index trends;
- low share of innovative products in the GDP structure;

Problems and their occurrence:

- Low proportion of the number of labor resources in the total composition of the population;
- Low level of economic activity of the population and high level of unemployment;
- Low proportion of personnel training at the expense of enterprises, firms, companies;
- Low efficiency of work of technoparks, business incubators, commercialization offices near higher educational institutions.

Systematic problems of intellectual potential development require new, non-standard, diversified forms of solving them.

The global technological transformation not only defines the modern digital trend in the development of world civilization, transforming production, logistics, financial and social relations, but also imposes completely new requirements on the quality of intellectual potential, as well as on the ways of its use.

A particularly important property from the point of view of the application of state efforts is the reproducibility of intellectual potential, which consists in its ability to be renewed. At the same time, the expanded reproduction of intellectual potential should be ensured by purposeful actions at different levels of the economic hierarchy due to additional attraction of resources: expansion

of the education system, financing of scientific research, development of information and communication technologies, accumulation of intellectual capital, creation of new knowledge, innovations and their dissemination. The problems of the formation of a knowledge-intensive economy, its high-speed and qualitatively new technological transformation continue to be the object of attention of modern economists and researchers. At the same time, the focus of scientific interest is increasingly shifting to the use of human capital, especially its intellectual potential, as the main source of new knowledge and a key asset in creating innovations and ensuring the competitiveness of an individual, company, region, country.

Conclusion.

Thus, intellectual potential is an important factor in stimulating innovation, technological development and economic success of a country. Effective management and investment in the development of intellectual potential contributes to the strengthening of the country's position on the world stage and contributes to sustainable development in the context of the innovative economy.

In order to rapidly develop intellectual potential and strengthen economic security, it is important to develop the education and science system and improve its quality, taking into account the modern requirements of the domestic and world market. It is necessary to implement the innovation process, focusing on the period of developing the competitiveness of the economy, improving the state management system, and forming the country's intellectual potential.

The regional analysis of intellectual potential also revealed a significant difference in the effectiveness of its use in different regions of the Republic of Kazakhstan, thereby identifying both natural geographic and socio-economic barriers to its successful development, and institutional ones requiring consistent state administrative, legal and economic measures. At the same time, as the above analysis of the use of intellectual potential shows, despite the unified state policy in the field of human capital development and innovation in the country, opposite trends are observed at the regional level.

Thus, it becomes possible to consistently create a special regional ecosystem for the development and effective use of the intellectual potential of the region and to ensure the connection of business and science, technology transfer, commercialization of scientific results. Legislative mechanisms for improving the efficiency of the use of intellectual potential include, first of all, measures to clarify the status of a researcher, protect intellectual property rights and support the integration of science and the business sector. The improvement of legislation in the field of intellectual property rights protection is especially relevant in the conditions of rapid digitalization, when it is increasingly difficult to ensure the safety and security of personal and corporate data. For the successful operation of regional high-tech zones, it is necessary to adopt a law following the example of the famous American Stevenson-Weidler Law, which would formulate the principles of cooperation between the academy, national laboratories, employees and industry in such forms as technology transfer, personnel exchange, joint research projects and other activities. Economic mechanisms for increasing the efficiency of the use of intellectual potential, along with an increase in the share and quality of state funding for scientific research, include measures to expand the instruments of venture financing and tax incentives. The development of information technologies makes it possible to use financial resources more successfully through the development of crowdfunding platforms.

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ИННОВАЦИЯЛЫҚ ЭКОНОМИКА ЖАҒДАЙЫНДА ҚАЗАҚСТАННЫҢ ЗИЯТКЕРЛІК ӘЛЕУЕТІН ДАМЫТУ МӘСЕЛЕЛЕРІН ТАЛДАУ

Андатпа.

Инновациялық экономика жинақталған зияткерлік әлеуеттің сапасы мен құнының өсуімен бірге, яғни ғылымның дамуымен қатар құрылады және дамиды, ал зияткерлік адами капитал – оның дамуының басты факторы болып табылады. Ал жинақталған сапалы зияткерлік әлеует инновациялық экономика секторының, сондай-ақ білім экономикасының іргетасының негізгі бөлігі болып табылады.

Зерттеудің мақсаты – инновациялық экономиканы қалыптастыру кезінде зияткерлік әлеуетті дамытудағы негізгі проблемаларды анықтау. Зерттеу жүйелі-құрылымдық-функционалдық тәсіл негізінде жүргізілді, Қазақстанның зияткерлік әлеуетін дамытуға SWOT-талдау жасалынды.

Қазақстанның зияткерлік әлеуетін дамытудың күшті және әлсіз жақтарын талдау оң жақтарын көрсетіп қана қоймай, зияткерлік әлеуетті дамытудағы негізгі кемшіліктерді және инновациялық экономиканы қалыптастырудағы проблемаларды анықтауға мүмкіндік берді. Зияткерлік әлеуетті дамытуға білім беру және ғылыми зерттеулер үшін инфрақұрылымның дамымауы; қалалық және ауылдық мектептердің, ұлттық, өңірлік және жекеменшік университеттердің білім беру сапасындағы теңсіздік кедергі келтіреді; талантты адамдардың көші-қоны, негізінен техникалық білімі бар шетелде жақсы мүмкіндіктер іздеуде.

Талдау нәтижелері бойынша тиісті зияткерлік әлеуеті бар адами капиталды қалыптастыру негізгі болып табылатын елде инновациялық экономиканы қалыптастыру үшін жүйелі жағдайлар ұсынылды.

Зерттеу нәтижелері, біздің ойымызша, елдегі инновациялық экономиканы қалыптастыруды жандандыруға мүмкіндік береді, ал зияткерлік әлеуетті қалыптастырудың белгіленген стратегиялық басымдықтары осы тұрғыда дамыту қажет сәттерге назар аударуға мүмкіндік береді.

Негізгі сөздер: инновациялық экономика, зияткерлік әлеует, SWOT-талдау, бәсекеге қабілеттілік, білім, ғылым, мәдениет.

АНАЛИЗ ПРОБЛЕМ РАЗВИТИЯ ИНТЕЛЛЕКТУАЛЬНОГО ПОТЕНЦИАЛА КАЗАХСТАНА В УСЛОВИЯХ ИННОВАЦИОННОЙ ЭКОНОМИКИ

Аннотация.

Инновационная экономика создавалась, создается и развивается совместно и параллельно с ростом качества и стоимости накопленного интеллектуального потенциала, т.е. параллельно развитию науки, и интеллектуальный человеческий капитал является главным фактором ее развития. А накопленный качественный интеллектуальный потенциал служит основной частью фундамента сектора инновационной экономики, а также экономики знаний.

Цель исследования – выявить основные проблемы в развитии интеллектуального потенциала при формировании инновационной экономики. Исследование проведено на основе системно-структурно-функционального подхода, сделан SWOT-анализ развития интеллектуального потенциала Казахстана.

Анализ сильных и слабых сторон развития интеллектуального потенциала Казахстана позволил не только показать положительные стороны, но и выявить основные недостатки в развитии интеллектуального потенциала и проблемы при формировании инновационной экономики. Развитию интеллектуального потенциала препятствуют неразвитость инфраструктуры для образования и научных исследований; неравенство в качестве образования городских и сельских школ, национальных, региональных и частных университетов; миграция талантливых людей, в основном с техническим образованием зарубеж в поисках лучших возможностей и другие.

По результатам анализа предложены системные условия для формирования инновационной экономики в стране, где основным является формирование человеческого капитала с соответствующим интеллектуальным потенциалом.

Результаты исследования, на наш взгляд, позволят активизировать формирование инновационной экономики в стране, а обозначенные стратегические приоритеты формирования интеллектуального потенциала позволят акцентировать внимание на те моменты, которые надо развивать, в этом контексте.

Ключевые слова: инновационная экономика, интеллектуальный потенциал, SWOT-анализ, конкурентоспособность, образование, наука, культура.

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FORMATION OF NEW INNOVATIVE TECHNOLOGIES FOR THE DEVELOPMENT OF AGRICULTURE IN THE REPUBLIC OF KAZAKHSTAN

Abstract.

The aspects of using innovative technologies in the field of agriculture of the Republic of Kazakhstan have been studied. The importance of digitalization in agro-industrial sectors is justified. Tasks of introduction of technological innovations in domestic agricultural sector were identified: improving regulatory support, effective technical support, growth in innovation activity, a sufficient degree of financial support, implementation of environmental legislation, conservation of natural resources, increasing the scale of situational analysis, training and upgrading of personnel on issues digital economy and smart technologies in agricultural sector. The experience of countries where advanced agricultural technologies are applied is studied.

The potential of accumulated information on digital technologies, as well as factors and conditions for their implementation in Kazakhstan, is considered. The pace and plans of introduction of SMART farms in the republic are analyzed, specific regional examples are presented. The spheres of application of numbering methods in agricultural production are shown. It was revealed that digitalization is not only the use of information content across the entire spectrum of agricultural activity, but also the need to create a comprehensive electronic automated system in each region of the country, its integration with other information databases. The authors note that nanotechnology in agriculture will facilitate the simplification of relations between agricultural producers and the State (facilitating workflow, soft loans), improving the situation in supervision and certification of agricultural products, environmental control, increasing productivity in digital agricultural enterprises, and developing educational sphere.

Key words: Agro-industrial complex, agricultural producers, innovative potential, digital technologies, electronic automation systems, agricultural products, investments, markets.

Introduction.

Digitalization and innovative development are strategic directions for the development of the entire economy, it is known that the agro-industrial complex is also one of the industries that should not remain outside this trend. The need for digitalization of the agricultural sector of the Republic of Kazakhstan is largely due to many factors that determine its results, the number and territorial separation of economic entities; intensive and multilateral intersectoral ties within the branches of the agro-industrial complex, etc. A feature of digitalization of agriculture is the frequent unavailability of information and communication technologies to the population of small towns and rural areas due to the lack of broadband Internet in this country.

According to the results of measurements in recent years, 47% of the world's population has access to the Internet, in developed countries the number of regular users reaches 89%, And in Kazakhstan this figure is 80.3%. According to statistics, in 35 countries, Internet use in rural and sparsely populated localities is significantly lower than in urban areas. It depends on the level of