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## INTELLECTUAL CAPITAL FORMATION AND DEVELOPMENT CONDITIONS IN UKRAINE

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Intellectual capital, economy of knowledge, innovations, innovative potential.

### **ABSTRACT**

This article describes the results of research of intellectual capital formation conditions. Author proposes to analyze venture business as one of the alternative way of intellectual capital today.

**Problem statement.** Definition of Ukrainian macroeconomic growth requires specification of theoretic-methodological base for future changes. Ukraine cannot take into account global trends refocusing on a new path of development associated with the most significant role of intellectual capital in the development of any country and ensure its competitiveness in global economic processes. The current conditions, in which the formation of its intellectual capital, are complex. However, there are a lot of problems, including the formation of an atmosphere of general interest in the work of intellectuals, the transition of educational systems to the next level of work to realize the individual needs and desires, personality development, improving people's welfare and quality of its life, the development of national projects in the field of implementation of management technologies and social innovation, intensive development of advanced domestic branches of science, ensuring effective linkages between science and economy.

Research of the formation of intellectual capital is important for the development of economic policy in any country that claims to have meaningful place in the world's economic system.

**Unsolved problems.** Intellectual capacity conversion for intellectual capital is in the process of reproduction of the intellectual capital that is essential and important process in the formation of the modern knowledge economy. In the system of reproduction of intellectual capital allocated to the following elements: the education system, the system of production and recovery of scientific and technical knowledge, the mechanism of protection of intellectual property, the system measures the development of information and communication technologies, public policy in bringing technology from abroad.

**Analysis of recent research** Important role in ensuring effective reproduction process of intellectual capital in today's economy the state plays. The new paradigm of scientific and technological developments related to the socio-economic orientation of new technologies, knowledge and practical sets of factors are used for the economic growth of communities to improve their material and cultural living standards.

**The main material.** The development of science should be considered as a first priority of social development. Unfortunately, in Ukraine the crisis of science, because low salaries of researchers, lack of funds for the purchase of modern equipment, resistance to the introduction of scientific developments and other phenomena cause significant loss of highly qualified human resources. The level of interest of enterprises to use innovation rises slowly due to shortcomings in the tax system of the country and the difficulties associated with the riskiness of significant innovative activities in science and not enough attention is being paid to differential approach to material incentives for scientists to create a dramatic breakthrough "know-how".

Formation and development of post-industrial economy, the growing role of information and knowledge in the production process has a direct relationship to economic progress and social development from solid intellectualization of living.

Come first field, which is the basis for the functioning of the achievements of basic science, information and knowledge. This process is said, first of all, a huge development and priority in the economies of developed countries such fields as biotechnology, software, genetics, biochemistry and various information industries.

Of particular interest is the growth of media companies. Besides the fact that this growth is impressive, from an economic point of view, its pace, it also does not supported in terms of the industrial system. These companies do not possess virtually no fixed assets, but their achievement is very significant.

Another aspect of structural changes in the modern economy is a big role of science in the reproduction process of society. As for traditional industrial sectors, the overall development of the productive forces directly reflected in them.

Changing the structure of employment. In developed countries the share directly involved in material production is less than 20%, while the share of employment in agriculture does not exceed 10%. Reducing the number of workers in the primary and secondary sectors of the economy accompanied by the rapid growth of employment in the tertiary sector, ie services.

However, the actual scope of services is not uniform, and therefore need to pay attention to changes in the structure of employment within it. Here are the following trends. In these sub-sectors of the tertiary sector, such as communication and transport, which do not require an employee to specific individual investment, employment growth was not observed. While in the sub service associated with significant individualized produced their product and use the special qualities of an employee, including primarily special education and his intellectual capacity, employment grew rapidly.

This process is driven by general economic trends, the increasing role of information in the production process, changing methods of transmission, increasing complexity of financial assets and how they are transmitted.

Thus, the observed increase of intellectual component products and information of economic processes. Knowledge and information in today's society are the main strategic resources of economic activity.

Accordingly, particular relevance in the modern economy gain intellectual capital research at the national level:

Firstly, intellectual capital determines the efficiency of modern production at the country level, since this includes factors that today are characterized by the qualitative contribution to value added. This includes human capital as a combination of knowledge, skills, abilities rights and intangible assets (patents, licenses, know-how, trademarks), and organizational structure, electronic networks and databases, etc.

There is no doubt that the foundation of the modern economy is the efficient use of human potential, the availability and use of scientific and technological progress (their share in assets, in products, in fact, their ability to produce in the current economic system), the way of external communication' (position in the world market) institutional environment.

Obviously, all these strategic factors of development of the national economy determine immense practical significance of the formation of the intellectual capital of the country.

Secondly, intellectual capital, as already noted, is an intangible factor. The importance of adequate evaluation of intangible factors confirmed by numerous attempts of scientists to assess. Similar factors at the level of the national economy are sometimes called "soft" factors of economic growth, and they accounted for according to various estimates, in some cases up to 80% of the growth of national product [6]. This ratio is typical for economically and socially developed countries.

Thirdly, the study of modern post-industrial economy and the types of information today mostly are not practical and theoretical, and some even futurological. Scientists try to look into the future, but do not count today. As a result, a lot of practical aspects is beyond the scope of research.

Therefore, the formation of economic policy practitioners have to be content tools industrial economy. Moreover, one of the problems of modern economic theory - provide tools for analysts and economic policy.

As you know, the competitiveness of a state level provides efficient use of national productive resources, increasing productivity and using them on that basis, high, constantly rising standard of living. Condition for the functioning of modern post-industrial society and a major factor in the competitiveness of modern economies is the intellectual capital.

One of the main trends in the modern economy, which is associated with the emergence and implementation of intellectual capital is to strengthen the role and importance of the state in the economy.

In general, the strategy of state conduct in the modern economy is:

On the one hand, in developed countries, it is increasingly the economic sphere, reducing its direct presence as an owner in all areas, and providing the same competition the opportunity to shape a more efficient economy;

On the other hand, the indirect presence of the state in almost all spheres of the economy is the key to further effective development. The state in post-industrial economy a great responsibility for the development and implementation of national socio-economic and scientific-technical policy formulation and development of an institutional framework that includes not only legal, but also ethical, moral relationships of people in today's society [1].

The high level of socio-economic development is the basis of appearance, function, and reproduction of intellectual capital. In a country with low income and consumption possibilities of development (and implementation of intellectual capital) is quite limited. This pattern is due to the following points:

However, it should be noted that some elements of intellectual capital (information, knowledge, education level, professional level, intellectual property) can not alone provide a high level of competitiveness of the economy of the country, and it is no coincidence, because intellectual capital at the level of the national economy is a complex system of interrelated elements, each without which this system cannot be properly. This highlights the importance and significance of playing intellectual capital for the sub? Facilities management in a modern market economy [8].

Ukraine, with a strong intellectual capacity and the possibility of its transformation into capital, cannot be involved in the global process of intellectualization of social production. Compulsory basic condition for further development of the national economy is forming in our state effective market infrastructure of modern post-industrial society, which will create the preconditions for its transition to knowledge-intensive and high types production, and to ensure the development and reproduction of intellectual capital as the main factor of competitiveness of modern economies Ukraine.

According to Art. 1 "Key Terms and Definitions" of the Law of Ukraine "On Scientific and Technological Research" [7], scientific activity is the intellectual creative activity aimed at acquiring and using new knowledge. It should be noted that in the process of market reforms the number of workers employed in scientific organizations, tends to decrease (Table 1). According to Table 1, it should be noted that the total number of employees in the core activities involved in the scientific sector, to analyze only isolated scholars engaged in scientific and scientific-technical work.

By classifying Committee of Ukraine on the distribution of staff of scientific organizations by category of personnel categorized as "researchers" have included scientific and engineering and technical personnel who are professionally engaged in research and development and is directly involved in the creation of new knowledge, products, processes, methods and systems as well as administrative and managerial staff that provides direct management of the research process [3; 4; 6].

*Table 1*

**Dynamics performance scientific and technical work in Ukraine  
(In the context of intellectual capital) for 2000-2010**

Indicators / Years	2000	2005	2010	2013
The total number of researchers engaged in scientific and scientific-technical work (thousands)	89,2	85,2	78,8	77,4
Have a degree Ph.D.	4,1	4,2	4,4	4,5
Candidate of Sciences	17,9	17,0	17,0	17,1
The total number of completed scientific and technical work <sup>1</sup> , total, (thousands)	38,3	63,9	62,7	62,5
With the creation of new products	—	6,3	8,5	8,8
Including the creation of new types of equipment	3,9	3,8	3,0	3,8
Including works which used inventions	1,0	0,8	2,1	2,0
With the creation of new technologies	3,6	5,4	7,6	7,3
Including resource saving	1,7	2,2	3,2	3,1
With the creation of new types of materials	1,1	1,2	1,5	1,5
With the development of new plant varieties, animal breeds	0,5	0,8	0,8	0,6
With the development of new methods, theories	2,2	5,4	8,7	8,4
Other works	27,1	45,0	35,6	35,9
Index performed scientific and technical work that falls to one researcher	0,429	0,750	0,795	0,807

<sup>1</sup> Since 2005, organizations that perform only scientific and technical services do not report.

According to the calculation Table 1, the performance index of scientific and technical work in Ukraine, which accounts for one researcher, the highest value reached in 2013 - 0.807 compared with 2000 - 0.429, or height was 53.15 percentage points. It should be noted that in this Index there is a constant trend of annual growth. But the negative effects include gradual reduction in the total number of researchers engaged in scientific and scientific-technical work. For example, in 2000 the figure was - 89.2 thousand people, and in 2013 - 77.4 thousand people. So for 10 years the total number of researchers decreased by 11.8 million people, or 13.23%. However, the general trend to reduce the number of performers scientific and technical work number of doctors gradually increased, and in 2013 their number amounted to 4.5 million people compared with 4.1 million people in 2000.

In addition, the decrease in the number of candidates from 17.9 thousand in 2000 to 17.1 thousand in 2013. The process of reducing the number of candidates affects the formation of intellectual capital. In addition, a negative factor for the formation of intellectual capital is insufficient funding of scientific and technical work. Distribution by sources of financing scientific and technical work on the state budget is less than half the total cost of financing scientific and technical work. In 2013, the share of funding from the state budget execution scientific and technical activities was 48.7%, at its own expense organizations? 7.4%, means domestic customers - 25.8% of foreign countries? 15.6%, and other sources - 2.4%. This indicates the need to improve the financing of scientific and technical work, including through public procurement pursuant to the priority areas of research that practically affects the formation of the intellectual capital of Ukraine.

Priority targets Ukraine's integration into European economic space confirming paramount importance of scientific and intellectual activity in the global competition. For countries in the European area of significant importance is the study and preservation of intellectual activity involving the greatest number of qualified professionals. Based on the fact that the balance of intellectual labor market serves the basic parameters of intellectual capital formation and significant impact on the competitiveness of the national economy. The demand for intellectual labor market depends on the ability of creating new jobs through new investment and innovation. From the perspective of economic efficiency, additional experts engage in production until the rising costs of organizing their work will be less than the revenue that they bring enterprise.

The practice of developed countries and progressive enterprises shows that well-organized intellectual work makes profits many times higher than the simple reproductive labor [5]. Given the ability of intellectual capital to create intellectual products, its carrier-owner, thus participating in the development of scientific and technological progress, which directly contribute to increased demand for highly skilled intellectual labor. But at the present stage of economic development in Ukraine tendency excess of supply over demand in the market of intellectual labor.

Towards sustainable socio-economic development as soon as possible to use all the power and provisions for the formation of the intellectual capital of Ukraine as sufficient productive forces of society. The parameters of formation of intellectual capital influence the development of scientific and technological progress and create conditions for the commercialization of knowledge.

Law of Ukraine "On the scientific and technical activities" states that one of the main instruments of state policy in the field of science and scientific and technical activities are public resources.

The state should provide budgetary funding of research and scientific and technical activities (excluding defense spending) in an amount not less than 1.7% of the gross domestic product of Ukraine [1]. It was assumed that the said article of the law "will be implemented in stages," that is in the budget in 2010 was planned to be 1.7% of GDP. However, in reality, state funding for science is far from the declared legislative norms of their ownership?

According to most experts [2], subject to European standards spending on science in this country should be 75 billion USD. - 24-25% of GDP in 2009, 17,5-18,5% - in 2011 for fixed amounts of funding. According to other estimates, the country's spending on science should be at least at the level of the lower border of the world's standard of expenditure on research and development per one scientist (as of 01/01/2011 it was about 50 thousand dollars.). If we take the optimal number of scientists in Ukraine 120-125 thousand people, science funding in 2012 - 2013 should be no less than 32 billion., And innovation - 160 billion.

In the 90 years of the twentieth century in industrialized countries formed the phenomenon of so-called "new economy", which was marked by structural adjustment, the rapid deployment of information revolution and rising incomes THK in the global economy. The process of globalization embodied in a "high-tech" way of life, the development of information technology and business venture. A measure of the ability of the society to the real market transformation through the creation, implementation and practical implementation of innovation is the degree of innovation processes, which is the main indicator of economic condition of any country. Achieving STP is the result of targeted innovation policy. Analysis of key indicators of the European Innovation 2010 ranking proves that innovative leaders in Europe are Sweden, Finland, Denmark, Germany and Switzerland, which together have 60% of the leading positions in the ranking. These economic changes that occurred in the last decade, the global economy, have given impetus to structural changes in the economy of Ukraine, but today, as statistics show that they are characterized by serious lag from the processes that determine the information economy (5th of technology) . The statistics show that, for domestic enterprises in various industrial branches and various areas characterized by different technological modes (Table 2).

Table 2

**Innovation Activity in Ukraine in 2005-2013\***

Index	2005	2006	2007	2008	2009	2013
Enterprises - total	10730	11420	10652	9979	10197	11422
Number of industrial enterprises involved in innovation	1470	1359	1193	1417	1397	1462
The share of industrial enterprises engaged in innovation activities,%	13,7	11,9	11,2	14,2	13,7	12,8
Including:						
in engineering	27,7	22,2	23,3	21,2	21,1	22,2
In steel Industry	31,8	29,7	18,4	20,2	17,0	15,4
in the chemical and petrochemical industry	22,4	21,0	33,3	34,0	34,0	33,3
Innovation by ownership,%:						
private	7,0	10,4	12,1	8,1	8,0	7,9
collective	17,8	17,1	18,8	16,4	16,1	15,8
state	23,0	21,6	22,7	15,1	15,0	14,9
municipal	6,4	2,9	4,3	5,0	4,9	4,8

\* Calculated by the author from the statistics: 2013 Statistical Yearbook of Ukraine;

58% of industrial enterprises for the production of products belonging to the 3rd technological structure, 38% - to 4-Th and only 4% - to 5-Th technological way. Slightly better situation in the financing of scientific and technological development: almost 70% today belongs to the 4th and only 23% - to 5-Th technological way. With innovative cost: 60% belong to the 4th way of life and 30% - 3rd (ie total 90%), and 5-way in innovative and cost is only 8.6%. For investments that determine the development of the economy over the next 10 - 15 years, to 75% of the investment can be attributed to the 3rd technological structure and therefore only 20% and 4.5% - to 4-th and 5-th technological structures. It should be noted that, as shown in Table. 2, only 13.7% of the total number of industrial enterprises in 2009, while engaged in innovative activities, while there is a downward trend due to the financial crisis. According to the data, the dominant among industries on innovation are chemical and petrochemical industry - 34% and machinery - 21% of these industries for the period since 2004 have significantly strengthened their positions.



**Conclusion** Now the cost of research and innovation grow quickly and beyond the capabilities of one enterprise. In Ukraine, it is supplemented by the fact that many companies have only recently began to emerge from a deep economic crisis. Revelation? Unity and cooperation within the volume? Associations can help to share the high costs and risks of innovation networks between participants.

Now the cost of research and innovation grow quickly and beyond the capabilities of one enterprise. In Ukraine, it is supplemented by the fact that many companies have only recently began to emerge from a deep economic crisis. Consolidation and cooperation within organizations can help to share the high costs and risks of innovation networks between participants.

In Ukraine, the venture capital market is about \$ 400 million. and has no more than a dozen companies working on it. Among them are "Western NIS Enterprise Fund" (\$ 150 million in capital. Allocated by the U.S. government for the development of food industry, agriculture, construction materials, and the financial sector of Ukraine), "SigmaBlazer" (capital of \$100 million.).

Although the development of venture funding originates in Ukraine since 1992, it remains specific and differs substantially from overseas. Ukrainian venture capital inclined, not too diversifying assets implement investment projects using transactions in financial assets and real estate. Virtually no initial investment and investment in innovation, while in developed countries, venture capital goes into the innovation sector in Ukraine is mainly investments in the company.

Venture investors can only be legal entities or individuals or pension funds or insurance companies cannot invest to the venture fund. The function of venture capitalists in Ukraine performing asset management companies, which unlike other countries are usually the average investor, but further investment business will grow, serving mostly borrowed funds.

Activations of this form of business is necessary, but unfortunately in the state is very vague and shaky regulatory and legal framework governing the market venture enterprise.

Great importance in the formation and development of intellectual capital becomes the system of innovation activity of enterprises. A crucial role in this belongs to governance and regulation. The growth of current and future competitiveness of the economy provided innovation, transformation of the economy, technology, social and other fields contribute to the formation of intellectual capital.

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