

Liudmyla Tsymbal*Doctor of Economic Sciences**Kyiv National Economic University named after Vadym Hetman, Kyiv, Ukraine**E-mail: l.tsymbal@ukr.net**ORCID: <https://orcid.org/0000-0002-0873-9227>*

Conceptual principles of achieving intellectual leadership

Abstract

The article identifies the key conceptual foundations for the formation of intellectual leadership of economic entities, including countries as specific actors in the global economy. Thorough preconditions for increasing the level of economic development and the impact of education have been identified. It is determined that historical concepts and modern realities of economic activity only actualize the role of education and enlightenment in the economic development of the national economy and ensuring its competitiveness. The strategies of increasing the competitiveness of individual countries of the world are analyzed, their key priorities in the conditions of formation of the knowledge economy are determined. The evolution of views on the role of human and intellectual capital in increasing the welfare of countries, the impact on GDP and other macroeconomic indicators is described. The ratings of countries are analyzed, in particular by the level of investment in intellectual capital and the structure of their GDP, which confirms the dominance of science-intensive economic activities. In addition, it was determined that the leading countries are characterized by increasing the role of knowledge-intensive activities, increasing the share of intangible assets, redistribution of capital of leading international companies and increasing research spending, increasing investment in human and intellectual capital, increasing exports of high-tech products. Analytical assessment confirms the advanced development of science-intensive industries in countries with developed economies, which creates the need for training and retraining of specialists needed for such industries. In modern conditions, the educational process ceases to be predominantly the prerogative of young people, and becomes a lifelong process, which increases spending on education in developed countries, but without denying the significant asymmetries on this indicator. Research confirms the direct relationship between the quality of human and physical capital and economic development, which is typical of highly developed countries, one of the main reasons for the development lag of the poorest countries. In addition, the article substantiates the key factors of intellectual leadership and their impact on the development of economic development strategies.

Keywords

intellectual leadership, leadership concepts, educational services, education, economic growth

JEL: F20, F23, I23, I25**DOI:** <https://doi.org/10.30525/2500-946X/2021-2-18>**1 Introduction**

The formation of a new global system is accompanied by the identification of new factors and factors of competitiveness of the company or country. And these factors are not just related to human resources, they are based on intellectual activity, its results in the form of the latest achievements and technologies and their application. The importance of the intellectual component of leadership is gaining new meaning in modern conditions, which requires research at the present stage of development of world economic relations. Extensive and intensive growth of human capital includes several parameters: investment in human resources (health care, education). The level, quality and scale of education determine the volume of GDP, the dynamics of economic growth and the general level of development of society. The ability of a country to ensure national competitiveness depends on the formation of scientific potential. Modern economic processes take place on a new, technological basis, which increases the requirements for education in the field of human capital formation. The system of higher education is tasked not only to provide the knowledge, skills and abilities necessary to perform production tasks, but also – to form

the ability to analyze information, creatively comprehend and professionally use the acquired knowledge. Innovative processes in the economy require constant updating of knowledge and justification of selected methods of work in order to increase the focus and efficiency of work. An important requirement of today for employees and the higher education system is not just to obtain a document on the level of education, but the ability to effectively use the accumulated educational potential.

2 Research review

The role of education in the economic development of the country is proved in the works of a large number of scientists T. Schultz (Shultz, 1975), G. Becker (Bekker, 2003), R. Lucas (Lukas, 1988), P. Romer (Romer, 1990) and other. The problem of studying the level of influence of education and higher education, in particular, on the level and rate of growth of the national economy E. Denison (Denison, 1962), W. Brockbank, D. Parson and others has long been relevant in the scientific literature. Modern scientists define knowledge and science as the most influential factor in development (R. Lucas, P. Romer, G. Mankiv, D. Romer, D. Weil, D. Scrim). The development of

the theory of human capital as the basis for the formation of the knowledge economy and post-industrial society continues in the XXI century in the works of M. Castells, P. Drucker, D. Bell, E. Toffler and others. However, scientists do not pay attention to the key conceptual foundations of the formation of intellectual leadership of economic entities, including countries.

The purpose of the article is to define the strategic imperatives and conceptual foundations for achieving intellectual leadership. To achieve this goal, the article uses the method of system-structural analysis to identify the main characteristics of intellectual leadership and the characteristics of its features in the context of evolutionary development and modern features.

3 Results and discussions

The importance of education in the formation of the knowledge economy has been noted in the public policy of many developed countries. Thus, back in 1998, the program "Building the Knowledge Driven Economy" was developed in the UK, the main purpose of which was to identify priority areas for economic development and increase its international competitiveness in the growing role of information technology and dissemination of knowledge.

Among the main tasks of this program were identified: increase funding for scientific and engineering facilities (in the amount of 1.4 billion pounds through the relevant funds); increase funding for the State Department of Trade and Industry by more than 20% in three years (the department is responsible for the development of entrepreneurship, innovation, including technology); development of a system of rewarding universities for developing a strategy for innovative development and improving the efficiency of interaction with industrial enterprises.

According to the World Bank, the world capital system is being restructured. Thus, physical capital, which can be reproduced by manual labor, accounts for only 19% of the national wealth of the United States and 23% of the national wealth of Europe. The natural factor accounts for even less – this figure is 5% for the United States and only 2% for Europe. At the same time, human capital is 79% for the United States and 74% for Europe. That is, the basis of the national wealth of highly developed countries is the accumulated knowledge, skills and abilities used to find more effective solutions and, accordingly, increase the efficiency of the national economy.

Researchers have shown a direct proportional relationship between the economic development of the country and the quality of capital, both human and physical. For example, E. Denison calculated that for the period from 1970 to 1985 due to education, the annual economic growth of Germany increased by 2%, Japan – by 3.3%, the Netherlands – 5%, France – 6%, Italy – 7%, the United Kingdom – 12%, and for Argentina the growth was as much as 16.5% (Developing..., 2014).

At the same time, the idea of the exceptional importance of labor skills in the formation of national income was expressed in the XVII century by W. Petty (Petty, 1940). This idea is developed in the works of A. Smith, who included in the fixed capital of society knowledge and skills (Smith, 1962). He argued that the cost of human education can be seen as an investment in real capital as an investment in the future.

In the nineteenth and early twentieth centuries, it was widely believed among scholars that the ability to work acquired by man should be considered as capital (J.B. Sei, N. Senior). Well-known economists such as J. Mill and I. Fischer understand human capital as the ability to perform work and its intellectual component, ie the set of knowledge and skills that enable them to perform a certain job and provide a certain level of income. According to this view, time and work invested in education can be seen as a kind of investment.

A logical continuation of further research was the emergence of the concept of human capital, which was reflected in the works of J. Mintzer, T. Schultz, G. Becker in the 50-60s of the twentieth century. Human capital, which is a necessary prerequisite for the functioning of the knowledge society, is formed by a whole range of factors, but the role of education is difficult to overestimate. The influence of the level of education on the national economy at the macro level is studied in the models of T. Schultz, E. Jenison.

In the early 60's T. Schultz expressed the view that for underdeveloped countries, the cost of education and agriculture is much more important and effective than the cost of industrial development, construction of plants and machinery. In his view, "investment in man increases not only the level of productivity, but also the economic value of his time" (Shultz, 1975). Already in the early 70's T. Schultz argues that the ability to use information for economic growth is due to the level of education. According to his models, the total value of output is used for the accumulation of the human factor, while earlier theories of reproduction provided only ½ part.

A significant contribution to the study of economic efficiency of education was made by G. Becker. According to his calculations, the return on investment in education is at the level of 12-14% of annual income. These calculations were made on the basis of income from higher education and direct costs and lost earnings. In his works, G. Becker defined the principles of the theory of investment in human capital and human development:

- the higher the level of education, the lower the unemployment rate;
- for developing countries more paternalistic attitudes towards workers. This, in turn, is less common in developed countries;
- young people are more mobile and change jobs more often, receive higher education, better training than the elderly;
- the level of wages becomes higher with age, but its growth rate is related to the level of education;
- talented employees reach the highest level of education and training;
- the division of labor is limited by the size of the market;
- the wage distribution curve has a positive slope, especially for specialists and skilled workers;
- when investing in human capital, impulsivity and emotions play a greater role than when investing in physical capital, which leads to an increase in errors (Becker, 2003).

At the same time Becker identified the need to invest in self-education. Such self-investments are designed to compensate for the lack of public funding for education.

The importance of education for economic development is difficult to overestimate in our time. Modern scientists define knowledge and science as the most influential factor

in development (R. Lucas, P. Romer, G. Mankiv, D. Romer, D. Weil, D. Scrim). Scientists agree that the main trend will be a surplus of resources, not a shortage, but the role of factors of production will decrease. They focus on the focus on human resources and their knowledge.

The development of the theory of human capital as the basis for the formation of the knowledge economy and post-industrial society continues in the XXI century in the works of M. Castells, P. Drucker, D. Bell, E. Toffler and others. One of the first models where human capital is seen as the basis of economic growth belongs to Robert Lucas. In it, the economy is divided into two main sectors, in one of which goods are produced, and in the other human capital is formed.

P. Romer developed another model of the impact of the level of education on national income, which identifies three sectors: research, production of intermediate products and production of final products. Thus, the thesis is added that raising the level of education affects economic growth and the national economy not only directly but also indirectly – through increasing the efficiency and effectiveness of research and development. This to some extent can explain the existence and further increase of global disparities in development between developed and developing countries.

It should be noted that there are systems for assessing the impact of human and physical capital on per capita income. Thus, according to Solow's extended model, it was determined that the degree of impact of human capital on per capita income for different groups of countries is different. Thus, for developed countries (22 at the time of model development) the characteristic degree of influence of human capital (β) is defined at the level of 0.37, and physical capital (α) – at the level of 0.14. For countries with an average level of development (75 at the time of model formation) the indicators are at the level of $\beta = 0.30$, and $\alpha = 0.29$, and for countries with a low level of development the indicators have the following values $\beta = 0.31$, $\alpha = 0.28$. Thus, the dependence of the impact of capital on per capita income depends largely on human capital for the group of most developed countries. And for middle- and low-income countries, the dependency ratios are extremely close. This is due to the quality of physical capital, which significantly affects the use of human capital and its efficiency. According to some researchers, workers with higher education create about 56% of gross domestic product (Beskid, 2003).

The top ten countries in terms of investment in intellectual capital include countries with GDP dominated by science-intensive economic activities – the United States, Switzerland, Ireland, the Netherlands, Hungary, Canada, Belgium, Great Britain, and South Korea. The main characteristics of these countries are defined as:

- increasing the role of science-intensive activities in the formation of GDP;
- growth in the share of intangible assets, which include patents, information systems, know-how;
- redistribution of capital of leading international companies, increasing the share of expenditures on research and development;
- growth of expenditures on health care, environment, education, science;
- increasing the share of high-tech exports. Thus, for low-income countries, the share of high-tech exports averages 7%, while for high-income countries, this figure is above 22%.

According to the World Bank, the growth of value added in science-intensive industries of most OECD countries over the past 10-15 years is on average at 3%, while the overall economic growth rate was at 2.3%. Thus, we can talk about the advanced development of science-intensive industries in countries with developed economies. Thus, the share of these industries in the total value added of countries has increased: in Germany from 51% to 60%, in the UK, respectively, from 45% to 51%, and in Finland – from 34% to 42%. According to the World Bank, the largest amount of total global investment in science is made by OECD member countries – about 85%, China, India, Brazil and other newly developed countries in East Asia – about 11%, and other countries, including Ukraine provide only 4%.

At the same time, the idea is spreading that the educational process should not involve only young people, but it becomes a lifelong process. This in turn leads to increased spending on education, although the level of education funding varies significantly from country to country.

Researchers confirm the direct relationship between the quality of human and physical capital and economic development, which is characteristic of highly developed countries (Laranja, 2008). A significant predominance of human capital in the economy was noted in the early 90's. Thus, according to the calculations of Yu.A. Vasilchuk for each employed in US production accounted for 15-16 thousand dollars worth of equipment. At the same time, the total cost of training and education of the employee was about 400 thousand dollars, and the training of scientific and technical worker – about 800 thousand (Vasilchuk, 1991).

The crucial role of education is also confirmed by research by New Zealand scholars, who argue that economic growth is influenced by spending on education and educational attainment, and insufficient funding for education is one of the main reasons for the development of the poorest countries. At the same time, they claim that the quality of education is measured by the level of teacher training, their salaries and the ratio of the number of students per teacher, and this, in turn, affects the level of future income of the student. One of the important factors in the competitiveness of workers in the labor market was the need for lifelong learning. The influence of human capital migration on the development of regions is also proved. Thus, the outflow of human capital can lead to a prolonged decline of the country of emigration and the emergence of an economic crisis. The level of migration of human capital is determined by the level of demand for it, ie migration is carried out from places where there is no high demand for it in places of its concentration.

Thus, there is no alternative to the opinion of scientists about the important role of human capital in social development. However, if earlier research focused on the general importance of education for the development of society and increase national income, then – increasingly – to determine the quantitative parameters of the impact of education on national income. The conditions of the market at the present stage of development of society determine the need for constant improvement of education and production not only of knowledge in the general sense, but also their generation, new understanding, search for new forms and methods of application and implementation. This view is confirmed in the functioning of the economies of

developed countries through funding and public spending on education. Analysis of public finances indicates a change in the cost structure in the information economy. Public expenditures can be divided into two groups: the first includes expenditures on law enforcement agencies and public administration, the second – includes expenditures on education, culture, health care. It is in developed countries that the ratio of the first and second groups of expenditures is 1:6 (Chen, 2004).

Understanding the impact of human capital on economic development has led to the emergence of the concept of externalities or externalities. Such positive externalities include the dissemination of knowledge throughout the economy and the formation of conditions for the dissemination and use of the latest advanced technologies. The possibility of such effects was foreseen by E. Denison, who attributed to them not only the presence of education, but also personal qualities. In his writings, he noted that only 60% of the difference in people's earnings depends on the level of education, and 40% is determined by a person's ability to apply acquired knowledge and skills (Denison, 1962).

There is probably no country or government that does not understand the importance of education and science for its development and global leadership. However, achieving intellectual leadership as a concentrated expression of their implementation is a very difficult task that not everyone can cope with. With this in mind, it is important to find out the factors that contribute to or create the conditions for intellectual leadership.

Of course, first of all, the availability of financial and production resources should be mentioned as a necessary prerequisite for the functioning of any enterprise, region or country. Secondary resources are the result of the development of primary and in turn become a factor in the further provision of intellectual leadership.

Factors influencing the achievement of leadership, experts of the European Commission also include a specific environment (for example, a unique regional environment). Thus, regional competitiveness, in their view, is "the region's ability to produce (in international competition) such goods and services that are in demand in international markets and at the same time provide a stable and high level of income and employment of the local population" (Van Ark Bart, 2002). However, in our opinion, this definition does not indicate the qualitative parameters of profits. In this case, a country with a raw materials economy can be considered competitive, as it provides an opportunity to provide a certain level of income and employment. However, such growth does not mean innovative development, effective realization of the intellectual potential of the region or country.

This position is taken by I. Begg, who notes that the standard of living of the local population is only a characteristic or indicator of the result of activities. In fact, the basis of competitiveness is the effective use and combination of factors of production, the ability to learn and innovate.

The factors of leadership in the modern environment should include the ability of the entity to realize its own or involved opportunities, options for their combination for the production of modern goods using modern technology. Innovation, entrepreneurial talent is defined as the basis of competitiveness. A competitiveness tree has been identified that illustrates the relationship between competitiveness

factors and preconditions. This system of factors includes: innovation and entrepreneurial capital (defined as dominant), the ability to use existing benefits and form new ones, labor productivity and industrial structure, employment, profits and taxes (Tsymbal, 2018). Innovation, high technology, intelligence are considered the basis of competitiveness in a significant number of scientific papers (TOR-50..., 2011; Van Ark Bart, 2002).

Factors such as the complexity of business, the complexity of the market, opportunities for knowledge exchange are very important for strengthening the participation of the economy in global processes. Moreover, such activity can be produced both by the state itself through its institutions and by private economic entities. Thus, within corporations there is a transfer of technology in the framework of internal corporate exchange. The creation of venture companies within multinational corporations is the most common form of activity to stimulate the creative potential of employees and opportunities to innovate in various fields. For example, General Electric (USA) has more than 30 such companies, with total funding of more than \$ 100 million, which indicates a high level of attention to this type of activity.

Stimulation of innovative and scientific activity of small enterprises can be intensified at the state level, through the provision of tax benefits for innovative enterprises, support for high-risk businesses, support for strategic small global enterprises. In addition, small companies often have lower organizational costs, higher mobility and the ability to respond to market changes (because in small firms the chain of decision-making and response is usually shorter than in large corporations). That is why large companies create such specific units, using all opportunities in the market environment. Such a company can be dependent, quasi-independent and autonomous, determined by the level and structure of financing and management.

Public policy can promote the development of an innovative enterprise and form the basis for its further spread. Thus, the United States has a specific policy to support the activities of such enterprises, which promotes the involvement of foreign innovative companies (for example, in the United States are the most successful venture companies owned by Microsoft (USA), Hewlett-Packard (USA), "Vodafone (UK), AT&T (USA) and Samsung (South Korea) (Tichy, 2002), which in turn has a positive impact on the economy of the United States itself through the formation of infrastructure, the development of an innovation base, industrial development (What role..., 2016).

Another factor that contributes to the leadership of corporations or countries is the growth of funding for research, especially in the high-tech sector, including pharmaceuticals. According to research, since 1980 in the United States alone, the costs of large pharmaceutical companies have doubled every five years, and profitability has reached 500% (The Innovation 2020, 2020). The tangible result of such activities is often patents and licenses, which already form their own flows and the market of intellectual property rights. In turn, such results of intellectual activity become generators of further development, influence the country's participation in global processes and its opportunities for knowledge exchange.

Individual opportunities for the development of intellectual potential are quite specific, as they are determined by very subjective factors and depend on the

activity of the individual. However, within the state, such activity can be stimulated through the availability and access to specific opportunities for personal development and its implementation. Thus, the formation of individual intellectual potential occurs in the system of family upbringing, education and science, and its implementation – occurs in the context of specific professional activities. For example, in the United States there is a network of scientific hubs that allow individual users to conduct research on their own equipment for a certain period of time ("1864", etc.).

Examining the development of intellectual resources in the world, we can note that their scale and quality have significant differences between countries and regions of the world, due to many factors: the availability of resources, environmental conditions, public policy, cultural and mental characteristics, which generally determine opportunities for their implementation. The paradoxes of development are that countries rich in intellectual resources become even richer by increasing them, while the poor need to make a significant effort only for their initial development.

4 Conclusions

Thus, the development of opportunities and the achievement of intellectual leadership is influenced by a huge number of factors, each of which is not decisive, but the combination of which provides the economy with its position in the world economic arena. As can be noted, the greatest influence on the formation of these factors is exerted by the state and its institutions, as well as large corporations as key market players. In this case, it can be noted that different factors have different effects on the final result. Thus, the state has the greatest influence on resource and environmental factors (creating conditions for the development of non-profit sectors of the economy, infrastructure, education, science, culture, access to them, etc.), while business significantly affects the achievement of intellectual activity (patent activity, the formation of flows of royalties and royalties, high-tech production, etc.) and their practical implementation.

References

- [1] Chen, H., & Lin, K. (2004). The role of human capital cost in accounting. *Journal of Intellectual Capital*, 5(1), 116–130.
- [2] Denison, E. (1962). *The Sources of economic Growth in the United States and the Alternatives before us*. New York, 306 p.
- [3] Developing a Global Leadership Mindset (2014). E-source: <http://www.iedp.com/articles/developing-a-global-leadership-mindset/>
- [4] Laranja, M., Uyarra, E., & Flanagan, K. (2008). Policies for science, technology and innovation: Translating rationales into regional policies in a multi-level setting. *Research Policy*, 37(5), 823–835.
- [5] Lukas, R. E. (1988). On the Mechanics of Economic Development. *Journal of Monetary Economics*, 22, 3–42.
- [6] Romer, P. (1990). Endogenous Technological Change. *Journal of Political Economy*, 98, 71–102.
- [7] Shultz, T. W. (1975). Human capital: Policy issues and research opportunities. Human resources. Fifteen Anniversary Colloquium: In 2 v. N.Y. P. 5.
- [8] The Innovation Imperative. Contributing to productivity, growth and well-being. E-source: <http://ifuturo.org/documentacion/the%20innovation%20imperative.pdf>
- [9] Tichy, N., & Cohen, E. (2002). *The leadership engine: How winning companies build leaders at every level*. New York: Harper business, 452 p.
- [10] Tsymbal, L. (2018). Key aspects of innovative-technological model of global development. Modern Technologies, Socio-Economic Development Problems and ways of solving them: 4th international scientific-practical conference, June 24, Batumi-Georgia, p. 45.
- [11] TOP-50 venture – funded companies. Dr. Diane Hamilton. Improving your lifetime potential. E-source: <http://drdianehamilton.wordpress.com/2011/03/10/top-50-venture-funded-companies-for-2011/>
- [12] Van Ark, Bart (2002). Measuring the New Economy: An International Comparative Perspective. *Review of Income and Wealth, International Association for Research in Income and Wealth*, 48(1), 1–14.
- [13] What role will education play in the Fourth Industrial Revolution? WEF. 2016. E-source: <https://www.weforum.org/agenda/2016/01/what-role-will-education-play-in-the-fourth-industrial-revolution/>
- [14] Becker, G. (2003). *Chelovecheskoye povedeniye: ekopoliticheskiy pokhod* [Human behavior: an eco-political campaign]. Moscow: GUVSHE, 632 p.
- [15] Beskid, J. (2003). Finansovyy mekhanizm vyshchoyi shkoly v umovakh rynku [The financial mechanism of higher education in market conditions]. *Finance of Ukraine*, 8, 103–106.
- [16] Vasylichuk, Yu. A. (1991). «Dorogoy chelovek» yepokhi NTR [«Dear man» of the era of scientific and technological revolution]. *World economy and international relations*, 11, 14–15.
- [17] Petty, W. (1940). *Ekonomicheskiye i statisticheskiye raboty* [Economic and statistical work]. Moscow.
- [18] Smith, A. (1962). *Issledovaniye o prirode i prichinakh bogatstva narodov* [Research on the nature and causes of the wealth of peoples]. Moscow.