

2. Development of human capital and its components in conditions of after-war renovation of Ukraine

2.1 The essence, structure and importance of human capital for economic development

In the modern world, the term human capital is understood as a special form of wealth - general and special knowledge, skills, abilities and abilities for productive work materialized in a person. By analogy with material capital, human capital can be invested in through education, health care, and raising the general cultural level. At the same time, there is an economic mechanism that stimulates investments in human capital: the use of a stock of knowledge and skills increases labor productivity, which in turn increases the size of wages and materially motivates the employee to further increase the stock of knowledge and skills through training and advanced training.

The development of the concept of human capital in economic science acts as a process of accumulation of knowledge and scientific views that consider the past of economic thought as a process of evolution, synthesis of the achievements of different scientific schools, accumulation of ideas and views on man, on the importance of his role in the economy. The concept of human capital is a natural development and generalization of the concepts of the human factor and human resource, but is a more complex and broad economic category.

It is possible to define human capital in a broad and narrow sense. Human capital in a broad sense is an intensive production factor of economic development, the development of society and family, which includes the educated part of labor resources, knowledge, tools of intellectual and managerial labor, the place of existence and labor activity, which ensures the effective and rational functioning of human capital as a production factor of development.

Human capital in a narrow sense, in our opinion, is intelligence, health, knowledge, high-quality and productive labor and quality of life.

Definition of human capital as a certain stock of knowledge, as well as the possibility of using this stock of knowledge, allows us to understand human capital as a "stock" of knowledge and professional experience accumulated by a person as a result of training, self-education and socialization, which a person can use if he is included in the capital turnover process. Also, based on the above, human capital is presented as a "flow" and is a "stock" of knowledge and skills of an employee included in labor relations, which he uses in his professional activity. In other words, human capital is a set of professional knowledge, skills and abilities, thanks to which a person can receive income in the form of rent.

These definitions explicitly or implicitly indicate that until a person realizes his professional skills and abilities through the beginning of active labor activity, the entire stock of knowledge and skills formed and accumulated during studies at school, college and university is a quickly outdated liability. It is quite appropriate to say that as soon as, due to one reason or another (for example, bankruptcy of an enterprise), the opportunity to implement in practice the knowledge and skills obtained as a result of training or creative activity disappears, the value of human capital of a specific individual or an entire group of individuals, begins to fall rapidly. Human capital actually ceases to be capital as soon as it ceases to be involved in the production of goods or services. But among the reasons for which the depreciation of human capital also occurs especially quickly, one can single out the lack of innovations implemented in practice. In the modern world, a company that does not regularly update its portfolio of products and services, releasing morally obsolete product samples, will sooner or later go bankrupt. State support for such companies is only able to delay this process, but in no way stop it. Investments in human capital (if any), carried out by the management of the enterprise, will be ineffective if they are not carried out in parallel with innovation processes.

Along with the category of "human capital", the terms "human potential" and "labor resources" are widely used in economic science. However, the Human Potential Index of a country is calculated based on three indicators: GDP, life expectancy and literacy of the population. That is, it is a narrower concept than human capital. The

latter includes the concept of human potential as its own enlarged component. Labor resources are people themselves, educated and uneducated, who perform skilled and unskilled labor. Consequently, human capital is a broader concept and includes, in addition to labor resources, accumulated investments (taking into account depreciation) in education, science, health, safety, quality of life, in the tools of intellectual labor and in the environment that ensures the effective functioning of human capital

Speaking about human capital, researchers to one degree or another distinguish the following levels of study and assessment of human capital:

- a) micro level - implies an assessment of the human capital of individuals and organizations;
- b) meso level – implies the study and assessment of human capital of large corporations and regions;
- c) macro level – implies the assessment of human capital on the scale of the country's economy;
- d) mega level – assessment of human capital on a global scale.

Such a diversity of human capital research areas is determined by the areas of activity of human capital theory researchers and their interests

It is worth noting that even the use of the entire available set of skills and abilities in the work process cannot ensure the protection of human capital from rapid obsolescence. It is no secret that one of the reasons for the increasingly rapid obsolescence of existing technologies in the field of mechanical engineering is moral depreciation. Therefore, if an organization does not conduct regular technological innovations in order to maintain its competitive advantage in the market, backing them up with investments in human capital, training its specialists or attracting additional personnel from outside, then it risks quickly losing its competitive position.

Since investments of any kind imply receiving a certain return on them in the future, it is logical to assume that an enterprise, investing in its human capital, pursues the goals of increasing the productivity of employees in the implementation of current business processes and technological operations or the successful mastery of new

advanced production technologies by personnel. Speaking about the target orientation of investments in human capital, it would be appropriate to mention that if the staff, having received new knowledge and skills as a result of training, does not apply them in their work, the meaning and return on such investments will be zero or the achieved result will differ from the planned result.

If the company's personnel are not involved in any activities related to innovation, in processes related to the development and production of new improved product samples or new services for clients, the share of the company's human potential involved as capital is small. Accordingly, the cost of human capital will be low, since in this case human potential is used as a consumable. Conversely, if the company's personnel are actively involved in the process of implementing innovations and producing new, technically more advanced and commercially successful types of products and services, acquiring unique experience and skills in the process of work, then the cost of human capital will be high.

In a simplified form, the investment development of an organization using human capital can be represented as the following cycle of three interrelated elements:

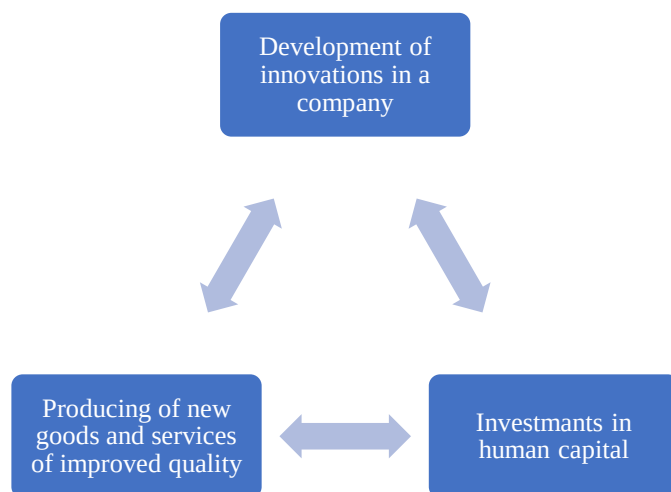


Fig. 1. Cycle of using human capital in development of organization

Negative changes in one element will inevitably entail negative consequences in the other two. For example, it is difficult to imagine the innovative development of a company without new goods or services, the production of which in turn is impossible

without targeted investments in the technology and personnel of the organization. With a certain degree of certainty, it can be stated that the return on investment in human capital is possible only in the context of the innovation process.

Human capital has various forms, which is due to the multi-aspect nature of the content of this interdisciplinary category. The form of an object or process is the "internal construction, structure, determined order of the object or the order of the flow of the process". The forms of human capital are its interconnected structural elements (components), the allocation of which is based on the definition and application of certain structuring criteria. The most common approaches to determining the forms of an individual's human capital as interconnected elements of its structure are investment and resource. Based on the investment approach, we can distinguish the following main forms of individual human capital: educational capital and capital of professional training (investments in a person's education, professional training, on-the-job training), health capital (investments in medical care and health care), mobility capital (investments in a person's ability to perceive and implement changes), information capital, which is formed by investments in the search for information and its transformation into useful knowledge, capital of family education (investments of a family in the development of its members).

In the modern period, scientists have significantly expanded the list of types of investments in human capital by their directions, objects and goals. Thus, in the specified list they supplement investments in the formation and development of a person's ability to study, master knowledge and skills, transform information into useful knowledge, which form the capital of "trainability" (educability). In the conditions of the knowledge economy, this component of human capital is acquiring great importance, since the effectiveness of any activity increasingly depends on a person's ability not only to find information, but also to transform it into their own knowledge.

An individual's human capital is considered as an investment that creates the necessary conditions and environment for human development. Based on the resource approach, human capital is defined as a stock of certain human abilities and skills, that

is, his resources (assets), which are the basis for productive activity and the receipt of various forms of income and benefits.

Derivative forms of human capital in a narrow sense are interpreted as a reflection of the specifics of the object of investment in a person or its special resource (intellectual, labor, entrepreneurial, social), in a broad sense - as a component of human capital, the reproduction of which is ensured by a set of investments in various objects - health, education, professional training, culture, mobility, awareness, social conditions and the environment for the development of a person.

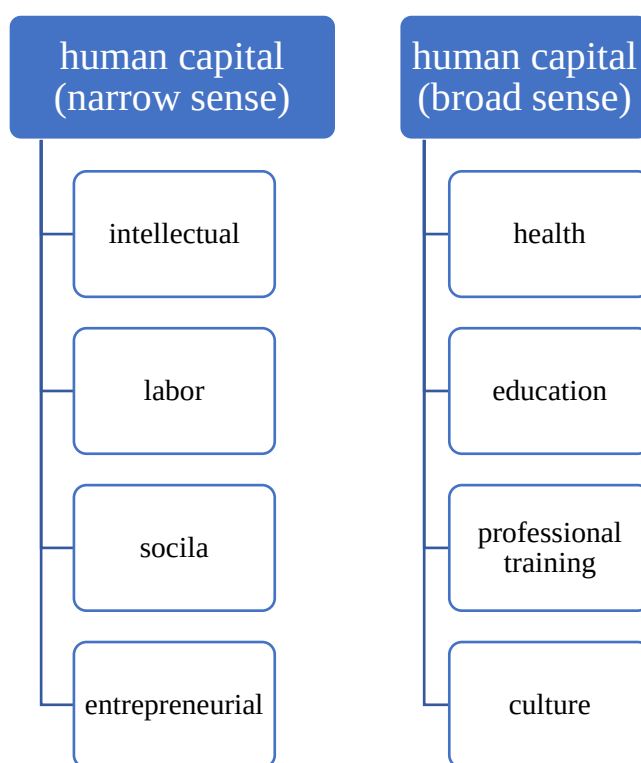


Fig. 2 Derivative forms of human capital

That is, according to the criteria of the object of direct investment and the type of resource of a person, the content of the derivative form of human capital in a narrow sense is determined, and according to the criterion of the resulting various investments in a person - in a broad sense. In accordance with this approach, intellectual capital in a narrow sense is a set of mental abilities of a person, which are created by investments in his intellectual development, form his intellectual resources and ensure productive intellectual activity and income from it. Intellectual capital in a broad sense, based on

the fact that the intellectual development of a person is ensured by a complex of investments in a person, is a derivative form of human capital, the level of recreation of which is the result of the influence of basic forms on intellectual resources, characteristics and intellectual development of a person.

Social capital, according to P. Bourdieu, “is the totality of real or potential resources associated with the possession of a stable network (durable networks) of more or less institutionalized relations of mutual acquaintance and recognition – in other words, with membership in a group”. The core of a person's social capital is trust. The sign of social capital as a derivative (complex) form of human capital of an individual is its determination by both basic forms (the source of which are direct investments in a person) and institutional-social (indirect) investments in human development. Consequently, based on the investment and resource approaches, in the structure of an individual's human capital, basic forms are distinguished, which constitute its core, and derivative forms, which are the result of investments in a person.

Thus, the human capital of an individual is an integrated integrity of its basic and derivative forms, the reproduction of which is carried out on the basis of direct and institutional-social investments in a person.

2.2 Intellectual capital as an endogen factor of innovative development in conditions of after war renovation of Ukraine

The world development is now characterized by the growing economic stratification (differentiation, stratification) of the countries of the world, which formed the basis of the new economic order of the world. The attitude towards assessing the role of thought, the value of intelligence both in economic processes and in social transformations of leading countries changed dramatically. As a result, the world was divided into three parts:

1. Developed post-industrial states, dominating in the field of high technologies and controlling the main investment flows.

2. Industrial countries, importing technologies and capital and those exporting mass-produced products.

3. Third countries, specializing in the extraction of raw materials and the supply of agricultural goods, are completely dependent on the demand for their products and, therefore, are completely controlled by post-industrial society.

Intellectual capital played a significant role in the innovative development of Western countries. The justly appreciated idea, embodied in the results of science and technology in all spheres of public life, led to a significant increase in the well-being of the population of Western countries. The application of the achievements of scientific and technological progress changed the structure of production and employment. The growth of well-being caused a revision of traditional materialistic values. It was realized that a developed personality is a source of productive thoughts. This determined the priority place of a person, his thoughts, abilities, potential opportunities in the system of public administration.

A new society, a new economy, a new quality of social progress were created within the framework of the so-called socially oriented market economy. In all developed countries, such a model of an economic system with national characteristics was built. This model provided for a certain form of organization of the economy, which was based on market methods of management, but was able to simultaneously ensure social security and social justice. A functioning state ensured a fairly high degree of state regulation and forecasting of the economy, international specialization of labor, the presence of a modern market and social infrastructure, a system of social protection of the population. In a socially oriented market economy, the highest possible standard of living of the population was achieved, an economically efficient and socially fair monetary mechanism was created, which ensured price stability, and environmental safety was constantly taken care of. Thanks to this, all segments of the population felt socially protected, which gave impetus to the fullest development of intellectual capital and innovative development of the economy.

At present, Ukraine's strategic guidelines in conditions of after war renovation are characterized by the increased importance of innovation priorities, on the one hand,

and the awareness of the lack of alternatives to the gradual transition to a socially oriented model of the economic system, on the other. It is clear that on this path the main role belongs to intellectual capital. The presence of intellectual capital in a certain economy and the level of its development are key factors in ensuring long-term intensive economic growth. It is intellectual capital that is currently able to force the economy to develop innovatively, accelerate the transition of backward industries to a higher technological structure. Intellectualization of the economic environment, new scientific knowledge, innovative business, informatization, and the degree of mastery of information resources should now become the necessary foundations for the existence of a highly efficient and competitive market economy.

The country's competitiveness can be increased through the innovation component by ensuring the activation of the processes of obtaining, transferring and using knowledge. To do this, it is necessary to create a powerful and flexible system for managing intellectual capital as the main resource for development.

The concept of “intellectual capital” is quite general and usually means the sum of knowledge of employees of a company that ensures its competitiveness. This concept may also include organizational capabilities and information channels that can be used to create wealth.

Intellectual capital is a component of the concept of “human capital”, which also includes health capital (biophysical capital), labor capital (professional knowledge, skills and work experience of a person), organizational and entrepreneurial capital (realization of potential in business, entrepreneurship), cultural and spiritual capital (the dominant system of values and norms of business ethics), social capital (the social status of an employee or firm in a specific system of social relations), brand (the capital of a firm, which characterizes its market position, the degree of customer trust, the business reputation of the firm), structural capital (the ability of a firm to manage its organizational structure), as well as organizational capital (a portfolio of innovations for competitive renewal of the product range and business processes that form the added value of products at a competitive level).

Intellectual capital is the form in which the features and essence of human capital are most clearly manifested. Intellectual capital is determined by the level of education, competence and creativity of specialists, the development of intellectual abilities in solving various problems.

Intellectual capital is a type of human capital that, along with biophysical, labor, organizational-entrepreneurial and cultural-moral types of human capital, is not alienated from the employee's personality, is his knowledge, abilities and experience. Other types of human capital are alienated and belong to the company. At the state level, this means that if conditions are not created for the free development of the employee, his security and well-being are not ensured, he may wish to change the conditions of his residence and activity, which will lead to the outflow of intellectual capital in his person.

The intellectual capital management system is a set of strategically coordinated and interconnected methods and tools for managing intellectual capital, aimed at increasing the value and effectiveness of intellectual capital and business as a whole. The development and implementation of an intellectual capital management system will provide an opportunity to create additional intellectual property objects, involve them in economic turnover, effectively use them as a resource, and also protect them from unauthorized use to obtain additional income. All this will help ensure the investment attractiveness and competitive advantages of the country.

Scientists identify four main problems in mastering the mechanism of effective management of intellectual resources and creating new intellectual property objects at the organizational level. By analogy, the main problems in developing mechanisms for managing intellectual resources at the state level can be identified. These include the following problems:

- creating a clear understanding of the nature of the phenomenon of intellectual capital among state officials, which will allow it to be used as an effective resource for economic development and to obtain a high level of added value;
- creating a strategy and system for managing intellectual capital, which would be an integral part of the country's overall development strategy;

- fair assessment of intellectual capital and intellectual property;
- creating an effective system for protecting intellectual property rights.

The state policy on the development of intellectual capital in conditions of after war renovation should have as its fundamental basis the strategic guideline of Ukraine - the construction of information society (knowledge economy), which involves the simultaneous achievement of economic and social goals, as well as goals for environmental protection. The knowledge economy is essentially a society of increased well-being, and a society of increased well-being is today, first of all, a society with increased intellectual activity.

So far, intellectual potential in Ukraine has almost no effect on the pace of economic growth, coexisting with over-expensive and inefficient production. It becomes clear that increasing the role of intellectual potential requires fundamental changes in the system of economic relations, simultaneous strengthening of both the innovative nature of entrepreneurship and the activation of the human factor, its direction for continuous self-improvement, updating of knowledge and professional skills. The basis for these processes can be new motives of activity, the content of which is human self-improvement.

Intellectual capital can become a leading endogenous factor of economic growth. To do this, it is necessary to create conditions in which it (intellectual capital) will be combined, first of all, with innovative entrepreneurship. It is entrepreneurial interest that should form the basis of economic motivation for intellectualization of production, and the entrepreneur should become the main driving force of this process.

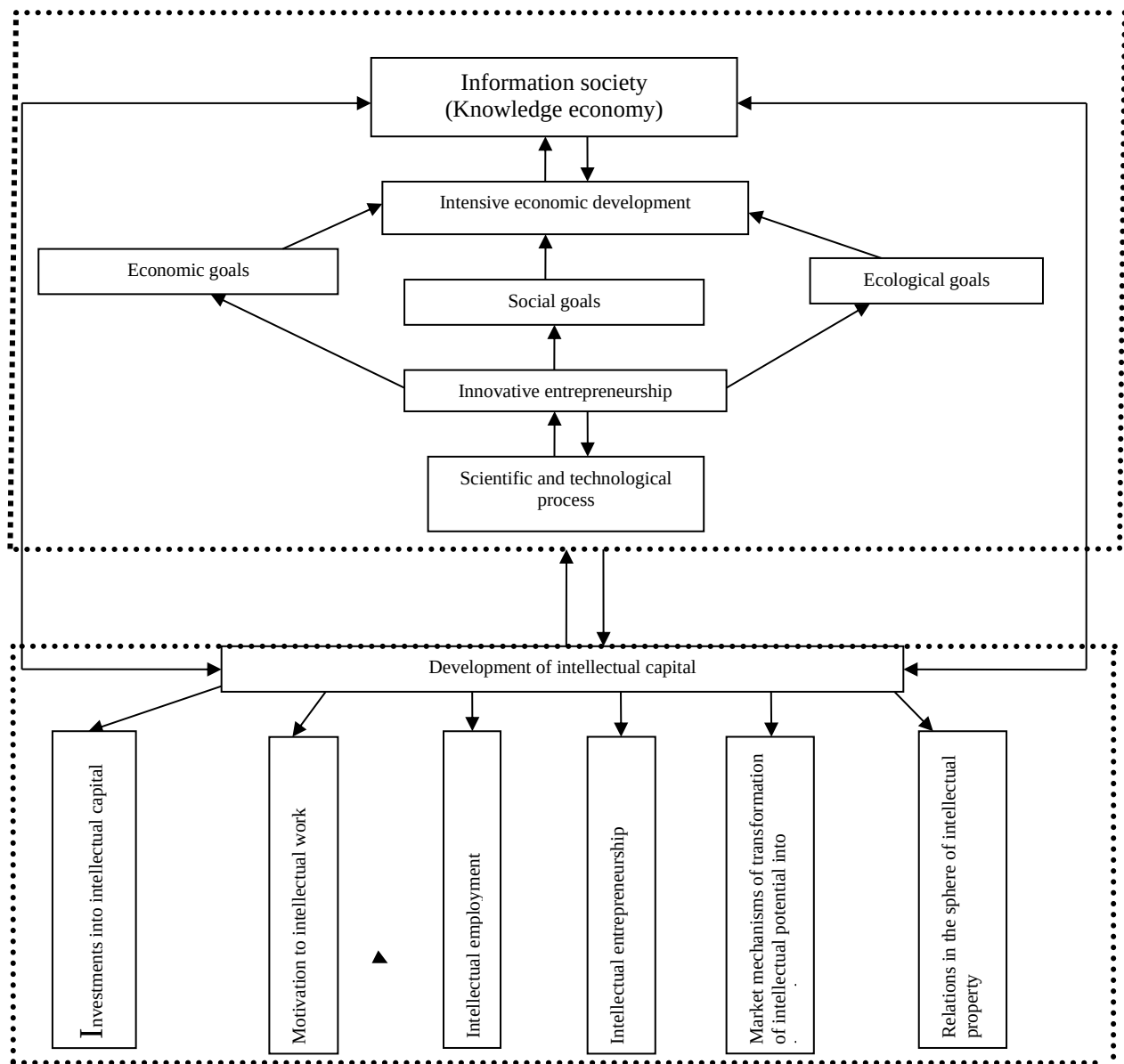


Fig.3. Interconnection between development of innovative entrepreneurship and development of the intellectual capital for constructing knowledge economy

*Source: [14]

At present, it is necessary to create real market mechanisms for transforming new knowledge into product or technological innovations. This, combined with state support for fundamental innovations, will become, on the one hand, a powerful motivation for intellectual labor of capable individuals, and, on the other, will attract additional solvent subjects to the innovation process.

Improving relations in the field of intellectual property is one of the strategic directions in the process of developing intellectual capital and building an innovative society. In a market economy, the relationship between the owner and the state is built

on the principle of a higher legal status of the owner's right than the state's. The ongoing transformations are aimed primarily at transferring rights to intellectual property results to their authors. This is a positive moment in the process of improving relations in the field of intellectual property.

A negative point in this process and the reason why intellectual property is not being implemented effectively enough in the domestic economy is the lack of regulation of the problems of introducing intellectual property objects into economic circulation. Relations between various research institutes and enterprises are not well-established enough, which leads to a situation where scientific institutions, having a large number of their own developments, are deprived of customers, and the innovation infrastructure is underdeveloped.

The radical transformation that is taking place in the means and objects of labor, energy, production technology and management fundamentally changes the way of work, the way of interaction of production factors. If in pre-industrial and industrial economies the objectification of the physical functions of the employee in production took place, then the information economy requires the objectification of his mental functions.

The strategic goal of the knowledge economy policy of the state, which seeks to achieve the signs of a post-industrial society, should be to achieve flexibility in the labor market. Under the influence of scientific and technological progress, the role of a person in the labor process is changing. The list of professions where professional skills, level of education, and ability to innovate determine the success of entrepreneurship is constantly growing. This is especially true for those areas of activity that determine the level of competitiveness in the global market.

In such conditions, the state policy of full and productive employment is aimed, first of all, at retraining workers in the system of “continuous learning throughout life”, which should ensure an increase in labor productivity. Such a policy of training and the use of new technologies will correspond to the principles of macroeconomic policy, which emphasizes the gradual increase in stability.

The supply of intellectual capital on the market largely depends on investments. Investments directly in intellectual capital differ from investments in human capital as a whole. Investments in human capital include investments in the system of educational, health and migration measures that are tied to specific conditions of activity, contribute to improving the skills, improving health, and the ability to mobility of workers, in accordance with their potential, solving the tasks of enterprises and national interests. Investments in intellectual capital should be understood only as investments in the knowledge of employees of each specific company, the formation of their creative skills, which ensures the competitiveness of these companies. Realizing the importance of investments in health and education, it is worth noting the key value of investments in the development of creative skills of employees. Investments in intellectual capital can significantly increase production efficiency. Employees trained using advanced methodology and modern equipment, using the latest technologies and achievements of scientific and technological progress, can eventually turn into valuable capital for their country, will bring dividends not only with their professional skills, developments and research, but will also become the intellectual wealth of society.

In modern conditions, the role of individual enterprises in investing in intellectual capital is increasingly growing. Often, they become the most effective producers of this capital, since they train employees in strict accordance with the needs of production. At the same time, at the level of individual enterprises, there is a divergence between the interests of society and individual business entities: enterprises invest in intellectual capital only as long as it is profitable. In view of this, the state must use economic methods to encourage enterprises to invest in intellectual capital.

Given the above, in our opinion, in order to accelerate the development of intellectual capital in the context of building a socially oriented market economy, it is necessary to:

- try to increase the size of investments in intellectual capital along various vectors;
- take measures to increase motivation for intellectual work;

- form innovative employment;
- develop innovative entrepreneurship;
- create real market mechanisms for transforming new knowledge into product or technical innovations;
- continue to reform relations in the field of intellectual property in the direction of fixing the results of intellectual activity with the authors.

In such conditions, the state policy of full and productive employment is aimed, first of all, at retraining workers in the system of “continuous learning throughout life”, which should ensure an increase in labor productivity. Such a policy of training and the use of new technologies will correspond to the principles of macroeconomic policy, which emphasizes the gradual increase in stability.

The supply of intellectual capital on the market largely depends on investments. Investments directly in intellectual capital differ from investments in human capital as a whole. Investments in human capital include investments in the system of educational, health and migration measures that are tied to specific conditions of activity, contribute to improving the skills, improving health, and the ability to mobility of workers, in accordance with their potential, solving the tasks of enterprises and national interests. Investments in intellectual capital should be understood only as investments in the knowledge of employees of each specific company, the formation of their creative skills, which ensures the competitiveness of these companies. Realizing the importance of investments in health and education, it is worth noting the key value of investments in the development of creative skills of employees. Investments in intellectual capital can significantly increase production efficiency. Employees trained using advanced methodology and modern equipment, using the latest technologies and achievements of scientific and technological progress, can eventually turn into valuable capital for their country, will bring dividends not only with their professional skills, developments and research, but will also become the intellectual wealth of society.

In modern conditions, the role of individual enterprises in investing in intellectual capital is increasingly growing. Often, they become the most effective producers of

this capital, since they train employees in strict accordance with the needs of production. At the same time, at the level of individual enterprises, there is a divergence between the interests of society and individual business entities: enterprises invest in intellectual capital only as long as it is profitable. In view of this, the state must use economic methods to encourage enterprises to invest in intellectual capital.

Given the above, in our opinion, in order to accelerate the development of intellectual capital in the context of building a socially oriented market economy, it is necessary to:

- try to increase the size of investments in intellectual capital along various vectors;
- take measures to increase motivation for intellectual work;
- form innovative employment;
- develop innovative entrepreneurship;
- create real market mechanisms for transforming new knowledge into product or technical innovations;
- continue to reform relations in the field of intellectual property in the direction of fixing the results of intellectual activity with the authors.

Thus, innovative development (formation of knowledge economy) of the Ukrainian economy in conditions of after war renovation is possible in case of increase of intellectual component in social production. Intellectual capital can become an endogenous factor of economic growth if at the state level it is possible to correct existing relations in the sphere of intellectual property, to increase motivation for intellectual work, and also to accelerate development of innovative entrepreneurship. In the conditions of such model of knowledge economy the necessary conditions for the most complete development of intellectual capital are created. On the other hand, intellectualization of production itself, accelerating scientific and technological progress and intensive growth of economy, ensures simultaneous achievement of economic and social goals, as well as goals of environmental protection, that is, construction of socially oriented market economy.

2.3 Ways of assessment of intellectual capital

Currently, leading Western countries companies have already developed a number of methods for calculating the intellectual capital of organizations.

The intellectual capital of an organization is calculated mainly as the difference between revenue and tangible assets of the company

$$\text{IC} = \text{Equity Capital} - \text{Material Assets}$$

or the market value of the company and financial capital

$$\text{IC} = \text{Market Value of the Company} - \text{Financial Capital}$$

For the integral valuation of intellectual capital, the *Tobin coefficient* is used:

$$\text{Tobin coefficient} = \text{Market price of the company} / \text{Replacement cost of real assets (buildings, equipment and inventories)}$$

If **Tobin coefficient** < 1, then it is considered that the intellectual capital of the company is so underdeveloped that it makes no sense to invest in this company.

Scientific firms have a high Tobin coefficient of up to **10**.

There are methods for calculating intellectual capital by value added, as well as methods for calculating intellectual capital by summing its constituent elements.

Currently, there are practically no proposed methods for calculating intellectual capital at the state level.

In our opinion, the intellectual capital of a certain country could be quantitatively calculated in a similar way to calculating the intellectual capital of an organization, that is, subtracting everything material from the total. Therefore, the intellectual capital of

a country could be equal to the difference between GDP and the total material assets of the country.

$$\text{IC} = \text{GDP} - \text{Fixed assets}$$

However, this methodology is unacceptable for the countries with structural imperfection of the economy, i.e. when some branches or sectors of economy (for instance, military sector) are overdeveloped whereas the others suffer lack of resources.

The third way to give a value assessment of intellectual capital at the macroeconomic level is to present it (intellectual capital) as the sum of two components - human capital and intellectual property. Intellectual property is the rights to the results of human intellectual activity in scientific, artistic, industrial and other spheres, which are the object of civil law relations in terms of the right of everyone to own, use and dispose of the results of their intellectual, creative activity, which, being an intangible asset, are retained by their creators and can be used by other persons only in agreement with them, except for cases specified in the law.

$$\text{IC} = \text{Human capital} + \text{Intellectual property}$$

It is also possible to calculate the index of human resource intellectualization of the economy

Index of human resource intellectualization of the economy = human capital engaged in scientific and scientific and technical work / total human capital of the country

Currently, Ukrainian scientists are conducting research to identify those qualitative features of employees that would best meet the needs of innovative development. However, the problem of forming and using personnel for innovation has not yet been studied in sufficient depth and complexity. The limited range of statistical data on the qualitative characteristics of employees does not allow us to sufficiently assess the compliance of the workforce with the needs of innovative development.

Despite the high educational level of the population, at the present stage Ukraine is not sufficiently provided with personnel for innovative activities, as evidenced by the results of an expert survey. The experts' assessment of the suitability and sufficiency of personnel for the innovative development of the Ukrainian economy, as well as the level of their training and interest in innovative activities were quite low.

The majority of experts (43.8%) gave low ratings to the personnel component of innovative activity and only 1/3 of them rated it at an average level. Even worse, experts assessed the level of personnel preparedness for innovative activity and their interest in it - almost 6% of respondents consider them low or very low.

Thus, the human resource component of the intellectual capital of the Ukrainian economy decreased throughout the study period. This is a negative phenomenon in the context of innovative development.

Let us analyze the second component of intellectual capital - intellectual property.

Improving relations in the field of intellectual property is one of the strategic directions in the process of developing intellectual capital and building an innovative society. In a market economy, the relationship between the owner and the state is built on the principle that the rights of the owner have a higher legal status than the rights of the state. The transformations that continue to occur are aimed, first of all, at transferring the rights to the result of intellectual property to their authors. This is a positive moment in the process of improving relations in the field of intellectual property.

A negative moment in this process and the reason that so far in the domestic economy intellectual property is not implemented effectively enough is the lack of regulation of the problems of introducing intellectual property objects into economic circulation. Relations between various research institutes and enterprises are not well-established enough, which leads to a situation where scientific institutions, having a large number of their own developments, are deprived of customers, and the innovation infrastructure is underdeveloped.

In Ukraine, the situation regarding the introduction of scientific results into economic activity is unstable. The unstable situation regarding patents is primarily due

to changes in legislation. For example, to obtain a patent for an invention the invention must meet three criteria for protection: inventive step, world novelty, industrial applicability. However, not every development has an inventive step. Many improvements are obvious. For the legal protection of these improvements, such a form of protection document as a declarative patent was proposed.

At a certain stage, declarative patents for inventions with a validity period of six years from the date of filing the application became widely used in Ukraine, which were issued to protect developments based on the results of an analysis of their novelty in the country, taking the applicant's word that the development is truly industrially applicable. Thus, it became possible to copy a certain American patent and protect it as your own. At that time, in Ukraine, declarative patents for inventions accounted for up to 44% of the current protection documents, declarative patents for utility models - 22%, and only 33% of the current patents underwent a qualification examination, that is, the expert was convinced that they really meet the criteria for protection. Then the acceptance of applications for declarative patents for inventions ceased drastically.

Thus, the instability of the index of patent applications in Ukraine is associated with the instability of state policy in this area in general, and the instability of legislation in particular.

In view of the above, the following actions are required from the state administration in the context of after war renovation to accelerate the development of intellectual capital:

- try to increase the amount of direct financing for intellectual capital in various vectors, among which it is worth highlighting health improvement, medical care, meaningful recreation, cultural and educational programs, provision of housing and communal services;
- take measures to create appropriate conditions for intellectual work;
- form innovative employment, create new jobs with a high proportion of jobs for highly qualified specialists;
- develop innovative entrepreneurship;

- introduce real market mechanisms for transforming new knowledge into product or technical innovations;
- continue to reform relations in the field of intellectual property in the direction of fixing the results of intellectual activity with authors.

These actions will contribute to the development of intellectual capital in modern conditions in Ukraine, which will lead to the acceleration of intellectualization of production. The increase in the intellectual component in social production will push forward scientific and technological progress. Scientific and technological progress is, as already noted in Section I, a powerful driving force for development, a Schumpeterian “source of energy capable of independently disrupting any equilibrium that can be achieved”.

For Ukraine, this will mean the possibility of implementing an endogenous model of economic growth, with the dominant growth of production and creative potential being the development of the latest achievements of science and technology, the production of modern information technologies. All this will accelerate intensive economic growth and structural restructuring of the economy in favor of knowledge-intensive industries. Sustainable development will take place. Production capacities will gradually, evolutionary, and conflict-free expand, and a turn will occur from “man for the economy” to “economy for man”.

It is then that there will be a potential opportunity to reform economic relations in such a way as to simultaneously achieve economic, social and environmental goals, i.e. to build a socially oriented market economy.

In terms of the dominance of a specific type of management, a further increase in the intellectual component in production will lead to the transition of the economy to a new qualitative level - an information society or a knowledge economy, which will create new and new inexhaustible opportunities for development.

In our opinion, these actions can be implemented in practice if the rule of law is strengthened in Ukraine, which can be ensured by improving the mechanism for implementing existing legislation, thoughtful and effective management, further development of all forms of ownership, state support for the real sector of the economy,

thoughtful social policy, and environmental protection. It is worth noting that Ukraine currently has all the necessary prerequisites for achieving these goals and fulfilling the listed tasks. A balanced state policy to support and increase the already existing intellectual potential of the nation is able to accelerate self-development in conditions of after war renovation.

Thus, the after war renovation of Ukraine should be accompanied with rising of the volume of intellectual component in production. Intellectual capital can become an endogenous factor of economic growth if the system of state support for intellectual capital is improved.

2.4 The essence of social capital as a component of human capital

The category of "social capital" is actively studied in science and used in the practice of empirical research. However, many researchers, studying the problem of social capital, encounter certain difficulties. On the one hand, there are different approaches to understanding the concept of "social capital", and on the other hand, doubts arise: can this category be an independent subject of analysis? In order to organize existing views on social capital, a comprehensive analysis of the most prominent foreign approaches to using this definition is necessary.

The micro-level understanding of social capital assumes that an individual can make investments in own his social capital. This approach continues the tradition proposed by the Nobel laureate in 1992. G.S. Becker, who introduced the term "human capital", defining it as a set of skills, knowledge and abilities of employees, the costs of which over time can bring tangible profits to both the employee himself and his employer.

The concept of "social capital" was introduced into scientific discourse by P. Bourdieu. He defined it "as a set of actual or potential resources that are associated with the possession of long-term network ties of more or less institutionalized relations of mutual acquaintance and recognition. In other words, social capital is membership in a group that provides each of its members with support in the form of collective

capital (collectively owned capital)". U. Baker believed that "social capital is the resources that actors obtain from specific structures and use based on their interests". Representative of the formalist network direction R. Barth defines social capital as "friendly contacts between colleagues and wider contacts, thanks to which you can use your financial and human capital". A. Portes interprets social capital as "...the ability of individuals to manage limited resources based on their membership in a certain social structure ...". At the same time, he notes that the ability to accumulate social capital is not an individual characteristic of the personality, but a feature of the network of relationships that the individual builds. In other words, social capital is a product of the individual's embeddedness in the social structure.

Based on the above definitions, it can be concluded that the phenomenon of social capital at the micro level is understood as a set of actually and potentially available resources that a person can use based on his membership in a certain social network. This understanding is characteristic of the tradition of studying this definition, which was formed in Western science in the early 1970s. Supporters of the macro-level understanding define social capital in a slightly different way. M. Peldem calls it "...glue that allows you to mobilize additional resources of relationships based on people's trust in each other."

F. Fukuyama identifies such mechanisms of reproduction of social capital as religion and tradition, and believes that social capital differs from other forms of capital in that it is usually created and transmitted through religion, traditions or historical tradition. The most important component of social capital, in his opinion, is spontaneous communication, which serves as the basis for the ability to create new associations, the inherent characteristics of which are horizontality and informality. R. Putnam defines social capital as the characteristics of social life (networks, norms and trust) that encourage participants to more effective joint action to achieve common goals. According to the scientist, social networks are a skeleton, a structural (and therefore, stable) element of the reproduction of social capital. Thanks to the norms, values, and trust supported by social networks, certain patterns of interaction are

established in society, among which a specific type of political participation plays an important role.

The definition of social capital at this level includes the following components: horizontal and informal networks, values and norms, horizontal diffuse (or vertical, one-sided), and trust.

The sources of social capital formation were reflected in the definition by J. Turner. Social capital is the forces that increase the potential for economic development of society by creating and maintaining social ties and models of social organizations. These forces operate at three levels (macro-, meso- and micro-levels). In other words, social capital is formed in communities connected by relationships of different levels:

1) in associations of individuals that arise to solve fundamental issues related to production, reproduction, regulation and coordination of basic needs (macro-institutional level).

2) corporate elements of human capital that generate social differences that affect the attitude towards them in society (meso-level).

3) in personal relationships that can be formed within corporate and social centers (micro-level).

Social capital of each level allows us to judge the degree of social activity of individual and collective actors. At each level, a specific picture of the formation of social capital is revealed. J. Turner constructs an “ideal type” of each level of analysis, showing the nature of social capital that can be generated. On the one hand, such an “ideal type” is utopian, but on the other hand, it allows for any analytical comparison of existing communities. The first level is based on the study of informal and local horizontal associations, the second adds vertical associations, and the third builds on the first two and is supplemented by studies of formal, national structures, such as government and law. All three levels have several common characteristics. First, all studies link the economic, political and social spheres. Analytical approaches are based on the assertion that, on the one hand, social relations affect economic results, and on the other, they themselves depend on these results. Secondly, the focus of scientists is

on the relations of economic agents and the ways in which formal and informal organizations can achieve greater efficiency from economic activity. Thirdly, social relations and institutions are endowed with specific forms.

Analysis of existing sources allows us to judge the purposes of using social capital. First of all, it is necessary to note three analytical directions that proceed from the above levels (micro-, meso-, and macro-). Supporters of the first direction consider social capital as a resource that simplifies the relationships of an individual within a social network (internal social capital, operating at the micro- and meso-levels). This idea is based on the fact that the actions of individuals and individual groups within the same social structure can be simplified in the form of direct and indirect connections. For representatives of the second direction, social capital is a resource that contributes to the vertical mobility of the individual (external social capital, operating at the meso-level). Finally, the third direction incorporates the first two, considering social capital as a source of economic growth that arises due to the formation of a specific local institutional environment (mixed social capital, operating at the macro-level).

Thus, it can be concluded that domestic economic science widely studies the issues of formation and reproduction of social capital in its various spheres, however, the variability of the economic environment necessitates its consideration in modern conditions. Despite the significant number of diverse definitions of the category of social capital, there is a certain consensus among researchers in its understanding as a resource based on stable social ties and used to obtain additional income. These ties are not directly related to the economic activity of the subject, but can be used by him to obtain certain preferences in various spheres of activity. A sign, an integral part of social capital is considered to be trust between interconnected subjects, which implies certain mutual obligations.

At the same time, it is necessary to dwell in more detail on the development of social capital in modern changing conditions, which are dynamic, entail increased risks for various participants in relationships, which to some extent makes adjustments to the interpretation of its definition. First of all, it is important to the influence of various networks, which are actively formed especially in foreign countries, on the expansion

of social capital. Thus, studies by foreign researchers show an increase in value in various relationships as a result of the transfer of skills, knowledge and professional connections to other participants. Therefore, social capital belongs to resources obtained from the knowledge of others. This is clearly seen in the academic environment, where leading scientists can positively influence the increase in social capital through communication in professional networks. Communication in networks provides quick access to useful resources and can promote change due to common customs, norms, vision and trust. Understanding the nature of (virtual or personal) relationships in our professional communities, it is possible to identify various needs and appropriate mechanisms for change and support. Therefore, today, professional, specialist and other networks, as platforms for forming relationships, should become an important tool for increasing the value of social capital.

Summarizing the above, we can conclude that social capital is a set of relationships based on trust and mutual obligations that are not directly related to the main activities of economic entities and form and strengthen competitive advantages for them.

Obviously, these relationships will positively affect the economic growth of any economic system, as well as restrain it. The primary subject-individual, or rather the bearer of social capital is the individual, because each person has friends, a professional circle of like-minded people, relatives whom he can trust. Personal connections form a small breadth of coverage of the social network. Other carriers of social capital are business entities, state, regional and local authorities and management, public and religious communities that conduct economic activities, including informal ones. It has been proven that the formation of social capital occurs under the influence of numerous changes in the external and internal environment of its functioning, and the requirements for the quality of social capital are also increasing. This is not only the level of trust, commitment and strength, reliability of social ties, but also the integration characteristics of social capital. In social groups with a high level of integration, a positive effect is observed, which can manifest itself through various types of economic effect. It should be noted that as soon as stakeholders involved in the relevant social

networks cease to receive an economic effect, this immediately leads to the destruction of the community and the manifestation of various negative phenomena. Thus, social capital is oriented towards the formation of high-quality components of relations necessary for agents to achieve economic results and coordinate their interests. It has been established that high quality social capital will be achieved provided that an appropriate institutional environment for the formation and reproduction of social capital is provided, which corresponds to the strategic priorities of the development of the national economy.

The formation and improvement of the institutional environment for the development of social capital is a long-term process of reforming all spheres of social life, which is carried out on the basis of the targeted influence of economic, informational and regulatory measures at the level of society as a whole, individual regions, and united territorial communities.

So that, the category of "social capital" is defined as a network of more or less stable social contacts of an individual, including acquaintances (weak ties) and kinship, close friends (strong ties).

The volume of an individual's social capital is determined in two ways:

- a) as the equivalent of the number of participants in the network of contacts that supports the individual;
- b) as the resource potential of the subject's social ties (the ability of the subject's social contacts to provide him with information about potential jobs, influence the person who makes the hiring decision, and give recommendations to a potential employer about hiring the subject).

The functions of social capital are:

- social capital is able to provide an individual with access to information. Social connections in a certain environment are able to provide the individual with the necessary information about the opportunities and options for successful employment, which are not available from other sources;
- the social connections of the subject can influence those who make personnel decisions in a particular organization. Social connections with those who have various

resources at their disposal, including power, can contribute to resolving the issue of hiring and career development;

- social capital increases the possibility of access to better quality jobs - in terms of employment status and wage level;

- social capital is able to influence the speed of job search: subjects who have the necessary social connections, on average, find suitable jobs faster.

There are three main forms of social capital: “chain” ties, “bridge” ties, and “link” ties. “Chain” ties usually refer to relationships within families and ethnic groups, “bridge” ties characterize relationships with less close friends, acquaintances, and work colleagues, and “link” ties determine relationships between different social strata in a hierarchy where power, social status, and well-being are available only to certain groups. The latter form includes, for example, the ability of individuals or groups to use resources, ideas, or information from formal institutions that are directly part of the group.

Although strong “chain ties” give certain societies or groups a sense of unity and common purpose, without “bridge ties” that transcend various social divisions (e.g., religious, ethnic, socioeconomic status), “chain ties” can become the basis for the realization of very narrow interests and the rejection of all outsiders. Homogeneous groups can be characterized by very high trust and cooperation within the group, but low trust and cooperation with the rest of society. Then “chain ties” become a barrier to social unity and personal development, that is, strong “chains” and weak “bridges” occur.

A limited radius of trust within a tightly knit group, such as family members or a narrow circle of friends, promotes social interaction that is directed within the group and less oriented towards trust and cooperation in the wider community. Such a focus on group interests to the detriment of public interests can provoke socially destructive activities. In work groups, too strong relationships of trust and mutual obligations can block any information from the outside and hinder innovation. For example, while ethnic ties certainly help adaptation when immigrants first arrive in a new country, ties exclusively in the immigrant environment prevent the expansion of communication

beyond this environment. Accordingly, the importance of social capital as a source of “bridge ties” is especially emphasized when it comes to a multitude of coexisting ethnic groups. At the same time, for the sake of justice, it should be noted the positive role of family and ethnic capital in maintaining health and especially in solving the problem of finding a job, which indirectly has a positive effect on the situation in society as a whole.

Under certain circumstances, specific forms of social capital ties can potentially hinder social cohesion. In this respect, social capital is no different from other forms of capital, the use of which may pursue different goals that are not necessarily approved and welcomed by the community as a whole. Some closely connected groups, for example, drug cartels, illegal immigrant communities, mafia and terrorist associations, may have the highest degree of internal trust and mutual responsibility. Similarly, members of these groups may have the highest human capital and use financial and other types of capital for socially destructive and socially undesirable purposes. But “bridge ties”, especially if they manifest themselves in the form of totalitarian or extreme ideologies, can also have extremely negative social consequences. These examples do not diminish, but rather highlight the potential of human and social capital to create benefits for the whole of society or the majority of its members, such benefits from most types of social ties – “chains” and “bridges” – certainly outweigh the destructive consequences.

The value of the concept of social capital lies in the fact that it identifies certain aspects of social structures through their functions, namely, through the importance of these aspects for actors as resources that they can use to achieve their interests. Moreover, certain goals can be achieved both at the individual level and at the level of transition from the micro to the macro level.

Of course, for some other purposes it is necessary to consider these organizational resources in detail in order to understand which elements of them are most essential as resources for achieving a specific goal and to understand how they became so. But the concept of social capital allows us to take these resources and see how they can, in

combination with other resources, create new behavior at the system level, that is, different outcomes for individuals.

The concept of social capital acts as a signal that some value is created for those actors who have this resource, and this value depends on the social organization.

In many social structures it is believed that people always do something to each other, that is, there are always certain obligations between people, although they may not be fully compensated for each other. In other social structures, where people are more self-sufficient and less dependent on each other, there are fewer such mutual obligations.

Therefore, we can conclude that in society it is typical for an individual to invest part of their personal resources in the development and support of various social networks. These networks are formed at the workplace in the work team. They are built on reciprocity and trust. In other words, employees help their colleagues because they are confident that if necessary, they will also be provided with assistance. Communication and mutual assistance of workers are factors that directly affect the accumulation of social capital in the process of work.

2.5 The foreign experience of development of human capital via higher education system

Today, the world economy is constantly undergoing changes associated with the emergence and development of new technologies and production processes. These changes lead to a high dependence of each individual country on its ability to acquire, transfer and assimilate knowledge for work and everyday life. Under such conditions, the role of human capital, intellectual capital and education is increasing and becoming key to the socio-economic evolution of countries. This means that at present, human capital and education have already become a significant factors in economic growth, and spending for intellectual capital development should be viewed as long-term investments.

The economic development of some countries in the world is taking place at an accelerated pace, but other countries are developing slowly, having difficulty adapting to the new conditions of the information globalized society. Virtually all economists recognize the direct impact of intellectual capital in the general structure of education on the economic growth of a particular country. However, it is necessary to recognize the fact that there are countries and regions (and there are many of them) with a well-developed higher education system, which, unfortunately, lag behind in their economic development. The reason for this is, first of all, a general imbalance in the economy, when the training of specialists is not carried out in accordance with the needs of the market. This causes an outflow to more developed countries of those qualified labor resources who cannot find employment in the domestic market according to their level of theoretical knowledge and practical skills.

Capital is all the resources used to produce goods and services. Capital is most often understood as buildings, structures, machinery, technical equipment, raw materials, and invested monetary resources. In the modern economy, human capital, which encompasses all human knowledge and skills, is important for the production of goods and services. In year the United States income from physical capital (fixed and circulating) is 14 times less than income from human capital. This phenomenon has forced economists to pay increased attention to human capital.

The formation of human capital as such occurs through the education and training system. These actions increase the productivity of each individual, giving them the opportunity to receive more income. The government, employees, and employers invest in human capital, investing them primarily in education. The government invests public funds in human capital, expecting to accelerate economic development; employers invest in education, wanting to increase labor productivity; individual citizens spend their savings on education, taking care of their own future and hoping for better earnings.

Improving the level of education accelerates economic growth, and investments in education play a significant role in reducing poverty, thus paying for themselves.

This thesis should become key to political actions aimed at supporting investment in education.

The growth of labor productivity and real wages is one of the ways in which education can affect the economy of a country as a whole. Reporting on the rates of return on investment in education provides information on differences in labor productivity and wages for people with different levels of education. This reporting also sheds light on the problem of how much money should be spent on education in conditions of general resource constraints.

At present, higher education as a sector of the economy is one of the largest employers, producers of human capital, and also a center of research. Some scholars believe that these functions of higher education should be expanded, because, in their opinion, higher education directly affects the development of both key sectors of the economy and specific economic opportunities of a local nature. For example, in the United Kingdom, higher education is endowed with a “third source” mission, that is, colleges and universities officially play an important role in economic development. “Application” is the next task of British higher education institutions after teaching and scientific research. Explaining this new function, Ernest Boyer, former president of the Carnegie Foundation, wrote that scientific discovery and the application of certain knowledge have a two-way relationship, that is, new scientific understanding can come precisely at the moment of applying certain theoretical knowledge in practice. By applying knowledge for economic growth and for social purposes, universities are able to play a leading role in accelerating economic growth and in structural shifts in the economy in favor of knowledge-intensive industries. However, it takes many years to measure the costs and benefits of any educational intervention.

The classic approach to measuring the impact of education in general and higher education separately on economic development was developed by the American economist Minser in 1974. He studied individual earnings of citizens as a function of years spent on education, age, and work experience. It was concluded that by investing in the higher education of an individual worker (white, male, non-farmer), the state receives the following benefits: a year of education increases the income of this worker

by about 7%. This figure is clearly overestimated, since it does not consider the own costs of education of a particular worker, the time spent on education, as well as the fact that all the benefits of education can be lost at once if the worker quits his job. In addition, the benefits of higher education vary depending on the personality of the subject in whom the investment is made.

In year 1994, another American scientist, Psacharopoulos, conducted an analysis of the rates of return on higher education at the international level. The efficiency of higher education in seventy-two countries of the world was considered. Table 1. presents data calculated by Psacharopoulos on the rates of return on higher education in countries with different income levels.

Table 1

Rates of Return on Higher Education

Types of countries by the income level	Норма прибутку від вищої освіти (у %)
Low-income countries	10.6
Lower-middle-income countries	11.4
Upper middle income countries	9.5
High-income countries	8.2
World	10.7

American scientists Samuelson and Swome developed a formula for “accounting for growth”. The formula they proposed can be used to determine the impact of the data given in Table 1 on economic growth. If a country increases the average number of years spent on higher education of workers by one year, assuming that skilled and unskilled labor are excellent substitutes for each other, then it does not matter whether the overall level of education has increased by the same amount, or whether individual subjects have continued their studies for more than a year, and others have studied for less than a year, because labor efficiency (productivity and intensity) will increase by the same amount. The overall increase in labor productivity will be equal to the labor of skilled workers multiplied by the share of their participation in the production of the

total social product. It is clear that countries with a high level of higher education will have more capital per worker. If the amount of capital per skilled worker is the same before and after the increase in years of schooling, the result will be an overall increase in labor productivity equal to the overall increase in the number of skilled workers.

Focusing on the role of higher education in driving economic transformations, it is worth giving the example of the American Midwest, as the birthplace of the new industrial paradigm. According to this paradigm, scientific institutions such as universities, research laboratories, corporate R&D laboratories, national research centers, and innovative entrepreneurship are gaining great value today.

To strengthen the impact of such a specific productive force of society as science, regions should develop strategic plans. An example of such a plan is the Michigan “Roadmap”. Michigan’s economy is the poorest in the United States. Michigan’s largest city, Detroit, is one of the poorest in the country, and the main industry of this region, the automotive industry, is suffering huge losses. A quarter of the state's adults do not have a high school diploma, and only a third of those who do have a high school diploma have enrolled in college. However, the state has a higher education system that is considered one of the best in the country.

The concentration of strong research universities in the Midwest is a unique lever that US policymakers and business leaders should use. The Big Ten universities, together with the University of Chicago, invest about \$6 billion a year in research; they enroll 300,000 students and graduate 76,000. 20% of doctors in engineering, mathematics and information sciences work at Midwestern universities.

Universities and other research centers can lead the Midwest of the United States out of the crisis. To do this, it is necessary to put the further development of the scientific and educational sectors of the economy at the center of the state’s strategic economic transformation plan. In this way, it may be possible to transform the Midwest from an industrial region into the scientific center of the country.

An example of the impact of higher education on economic growth can also be a panel study conducted by a group of American scientists in North Dakota. In 1998, North Dakota's economy was in a state of crisis compared to other states, cooperation

between universities, government and the private sector was absent, and the state itself was dominated by the opinion that higher education was a financial burden. A new program to support the quality of education and attract external financial support, which was introduced in 1999, allowed to focus both on controlling the use of financial resources and on controlling the knowledge of students, whose abilities were now put in first place. Enrollment in universities immediately increased from 9,700 in 1999 to 12,000 in 2005; the number of doctoral programs increased from 150 to 500; the number of scientific researches changed positively from 44 million to 102 million. Thanks to the implementation of such a program, the state's economic growth was ensured. The impact of higher education on the state economy has been so significant that budget revenues have increased from \$14 million in 1999 to \$105 million in 2005.

Unfortunately, the economic benefits of higher education are not always the same. Higher education cannot guarantee accelerated economic development if:

1. the quality of higher education is low or the knowledge and skills acquired do not meet market needs. The result of an inefficient higher education system is a quantitative and qualitative decrease in human capital and lower incomes for both the state and citizens;
2. insufficient demand for human capital is caused by the slow economic development of society;
3. approximately the same level of earnings of unskilled and skilled workers is centrally maintained, for example, in countries with a command-administrative model of development.

Thus, although investment in higher education is an extremely important determinant of economic growth, it must be accompanied by a well-thought-out economic strategy.

For example, countries such as Vietnam and the Philippines have a more developed higher education system than other countries in Southeast Asia, but economic growth in both countries is relatively slow. This is due to an unsuccessfully chosen economic development strategy: in Vietnam, centralized planning slows down

the development of economic processes, and the Philippines has long remained an economically isolated country.

It should be noted that overall spending on higher education (relative to the GDP of each individual country) over the past 15 years has tended to increase in both developed and developing countries, as awareness of the impact of this factor of progress has increased. However, an acute problem for higher education has been its adaptation to the conditions of an information-based globalized society. The importance of specialized skills such as foreign languages and computer skills has increased. According to tests, students from the former Soviet Union, Hungary, and Slovenia showed better knowledge of facts than their counterparts from Canada, France, and the United Kingdom, but were worse at using existing knowledge in new situations.

Thus, to ensure accelerated economic growth, higher education must now be not only of high quality, but also adapted to the conditions of the information society. This also requires an increase in financial revenues to higher education.

The problem of financing the higher education sector and higher educational institutions in economically developed countries of the world using the example of the USA

The special nature of education as a social good, its significant importance for society determines the fact that its financing is provided by the state. On the other hand, providing education with financial resources can occur not only from the state budget.

The future of higher education in its connection with economic growth was the topic of a scientific conference in Chicago in November 2005. At this forum, it was noted that despite the fact that the connection between education, labor productivity and economic growth is clearer than ever, financing of education in the USA has decreased, and costs continue to grow. A situation has arisen where private universities have been able to raise tuition fees, while public educational institutions have faced financial problems.

According to one participant at the Chicago conference, the underfunding of higher education was caused by the fact that the current understanding of higher

education as an important public good has transformed and higher education has now begun to be. According to the conclusions of the Chicago conference as of 2005, even in the most developed countries of the world (the USA), family income and educational training of parents still remain one of the determining factors of a child's academic achievements.

In the USA, universities currently provide education to students for \$25,000. The state allocates from \$8,000 to \$10,000 for each student. It is clear that universities must find additional funding channels, in addition to state ones. These channels include increasing tuition fees, searching for external financial support by individual faculties for specific research, and attracting sponsors. In addition, to increase labor productivity and reduce costs in universities, a successful leader in the person of the rector is needed.

The largest research universities today operate as enterprises that produce a wide range of goods: from their own education to research work, as well as providing services such as medical, physical education, and public catering. In addition, universities in developed countries often take advantage of equity contributions to businesses. Since universities often now operate as firms, administrative activities often entail increased administrative costs.

First, running a university as a business cannot be considered a solution. Such an approach would lead to an increase in tuition fees to a level that would create an insurmountable barrier for many students. Second, it would lead to the reduction and closure of financially unviable activities.

It is necessary to clearly understand that universities are not profit-maximizing firms, but rather organizations that try to maximize the value of scientific knowledge.

In the context of the listed problems, the question arises of how to apply successful state management to universities. Tuition fees in higher education institutions in developed countries are currently growing faster than the Consumer Price Indexes of these countries. In addition to the reduction in government spending on higher education, this fact can be explained by the so-called “Baumol disease”.[14]

William Baumol used this term when trying to explain the increase in costs in theaters, referring to the fact that in some specific sectors of the economy (for example,

in theaters or in higher education) technical progress has little effect on increasing labor productivity. This is explained by the fact that the key contribution of actors or teachers is difficult to replace with the use of new technologies. Therefore, given the fact that the salaries of teachers of higher educational institutions in developed countries of the world, as well as theater actors, tend to grow in parallel with the increase in earnings in other sectors of the economy, the costs of these institutions grow in accordance with the inflation rate of a particular country and the productivity of workers is taken into account. In addition, we must not forget about the so-called "conservative" role of universities, which implies the fact that universities cannot be fully modernized, innovatively updated by replacing old knowledge with new ones. Former, even outdated in certain contexts, knowledge should be preserved precisely on the basis of higher education institutions. This is also a factor in the growth of general university costs.

The third factor in the increase in costs is considered to be the increase in technological costs caused by the general growth in the number of higher education institutions, which for each specific higher education institution means increased competitive pressure. The desire to remain a prestigious higher education institution or even a prestigious faculty requires certain marketing actions on the part of management, including advertising, public relations, the use of thoughtful pricing strategies, etc.

For example, to increase cash receipts, universities today widely use the strategy of price discrimination, which is based on conscious management of demand by management. This means that tuition fees are different for different groups of students (for example, foreigners pay more). When such a strategy is applied successfully, the total cash receipts of the university can be significantly increased.

Thus, in the context of decreasing public spending on higher education in developed countries, tuition fees remain the only source of income for higher education institutions that the administration of a particular educational institution can regulate. The basic principle for increasing tuition fees should remain to increase them by as little as possible, but enough to maintain the quality of education.

Another concept of university costs in the United States was proposed by Richard Vedder, a professor at Ohio University and the American Enterprise Institute. He drew attention to the fact that university costs (measured as the tuition fee index by the US Department of Labor) have grown faster since 1980 than even the health care cost index, and have doubled in value in real terms since then. In the United States, the growth in education costs has exceeded the growth in family perceived as a private good with benefits for a particular student in the form of better future earnings and quality of life.

The conference proposed several strategies for restoring the social significance of higher education. First of all, universities should be more transparent in their actions. This means more clearly defining the university's mission and the multi-vector goals of education and research. It is necessary to establish exactly how a particular educational institution has spent certain funds, as well as to determine which of the available resources can be used to ensure the accessibility of higher education to talented students regardless of their financial situation.

The problem of how public funds should be distributed between rich and poor students, as well as between different universities, in order to achieve an optimal result for society, is also important. The question is what is more effective: investing primarily in the most talented students and in the best higher education institutions, or does the economy benefit more when funding is increased for all educational institutions and students equally?

Despite the constant increase in tuition fees, the main trend in the developed countries of the world at the moment is the growth of demand for higher education and the general increase in the number of students. In part, students take advantage of both public and private sponsorship and other financial assistance to obtain funds for their education. Due to the fact that a significant part of tuition fees is often covered by third parties in developed countries, primary consumers (students) often remain insensitive to changes in the price of tuition.

Another factor, according to Richard Vedder, is that the increase in university costs not only does not increase labor productivity, but also partially suppresses it.

Most public universities are now managed in the same way as they were several generations ago. Richard Vedder points out that even with unchanged labor productivity indicators, they have still decreased relatively to other sectors of the economy. In addition, in the USA, the number of non-teaching staff has doubled compared to 1970.

According to Richard Vedder, in measuring the impact of higher education on economic growth, one should focus on private education, not public education. The scientist gives an example of profit-maximizing private universities in Phoenix and Strayer University. The author points to the fact that these higher education institutions provide quality education, but also pay attention to the rate of profit from their activities. The advantages of such educational institutions are that, firstly, all income from them is equal to the costs of providing education itself, since other financial revenues, including state revenues, are absent; secondly, these educational institutions receive profits, and therefore pay taxes; thirdly, in the case of a private higher education institution, it is impossible to increase tuition fees without losing part of its marketing share.

The success of the University of Phoenix and Strayer University can be considered as:

1. free enrollment of students, among whom there are large minority groups, regardless of the grades in their high school diplomas;
2. the program is academically rigorous;
3. these universities are accredited and offer BA, MBA and various technological degrees;
4. students' knowledge is constantly tested. From 5% to 10% of students at such universities are expelled from the educational institution for failure every semester.

Thus, the success of the University of Phoenix and Strayer University is based on the effective use of available financial resources for providing education and a differentiated approach to each individual student. According to statistics, graduates of these universities are able to earn about \$ 57,000 per year two years after receiving a diploma.

However, it should not be forgotten that, firstly, these educational institutions do not spend their funds on scientific research at all; secondly, not all students are able to pay for education at such a higher educational institution; thirdly, the development of the private sector of higher education is at different levels in different countries of the world.

Thus, it is advisable to use both public and private funds in accordance with a certain economic, social, ethnic, etc. situation for the development of higher education.