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# Problems and Prospects of Human Capital Development in Post-Industrial Society

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**Abstract:** In a post-industrial society, the analysis of human abilities to work, their formation, reproduction and effective functioning is becoming increasingly important for achieving social and economic well-being. In the realities of globalization and total informatization, the figure of a person with his knowledge, creative and intellectual abilities comes to the fore. There is a reorientation of economics from the use of labor resources to the problems of creating a qualitatively new workforce, which takes the form of human capital.

The concept of human capital testifies not only to the crucial role of man in the socio-economic system of post-industrial society, but also the need to invest in man, his education, training, health and livelihood, which are now priorities not only for individuals but also various government projects and programs. The state of human capital development is measured using the human capital index, which is calculated for each country separately.

In contrast to other studies, the article focuses on the development and importance of human capital in the realities of post-industrial society. Namely, the concept of human capital in the realities of post-industrial society is considered, the state of human capital development in modern conditions is analyzed, the influence and challenges of post-industrial society on human capital development are studied and the method of comparative analysis is applied.

**Keywords:** *Concept of human capital, informatization, knowledge, human capital index, investment in people, components of human capital.*

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## Introduction

The evolutionary development of society became a prerequisite for the expansion of the vision of human capital. For the present postmodern conditions, the analysis of human abilities to work, their formation, reproduction and effective functioning is becoming increasingly important for achieving social and economic well-being.

Contemporary transformational processes, which are taking place at an increasing pace, are associated with globalization and total informatization, which leads to the integration and migration of capital, raising living standards, intensifying competition and comprehensive application of technological progress. There is a development and penetration of information technology in all areas of activity, the transformation of information into the most important product on the market, increased attention is paid to knowledge management (Zhavoronkova & Chigasova, 2010). In these realities, the human figure comes to the fore and his knowledge, creative and intellectual abilities become especially important.

Increased attention to human capital is primarily due to the development of the theory of human capital, which proves Benko (2020).

The formation and augmenting of human capital ideas are studied in the works of economists Becker (1964), Naval, Silva, & Vázquez-Grenno (2020), Campbell & Üngör (2020). Shkoda (2021) analyzes the place of methodology in modern theory of human capital and its connection with the methodology of strategic management of human capital. Golovko (2014) considers human capital as a resource of economic development.

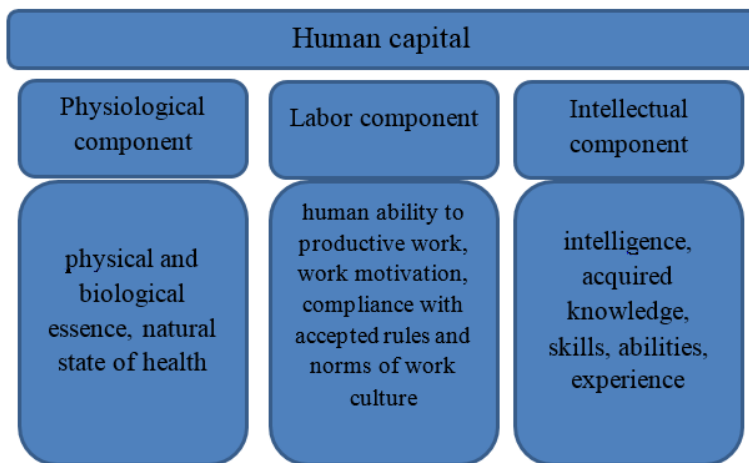
The works of Adams (2018), Voynarenko, Vedernikov, Volianska-Savchuk, Zelena, Bazaliyska & Baksalova (2020), Korotkevich (2019). As noted by Savelchuk, Bybyk, Zhytynska, Ivzhenko, Mikheiva, & Kunytsia (2021) a characteristic feature of contemporary society is that it is a multilevel system in which a huge number of people coexist with their values and problems.

Despite the constant development of the concept of human capital in economics, it should be noted the unresolved many problems associated with human capital in the development of post-industrial society, which indicates the need for in-depth study of human capital in this direction. Thus, the purpose of this article is to study the problems and prospects of human capital development in a post-industrial society.

## The concept of human capital in the realities of post-industrial society

The concept of human capital includes multifaceted aspects of human development and society, according to which the individual acquires significance as a factor of economic growth and is perceived as a source of economic dynamics.

Human capital means that everyone has a stock of acquired knowledge, skills, experience, health, abilities, motivations and energy that can be used for a certain period to produce goods and services, while this capital is an integral part of man and therefore is future source of its income. According to Becker (1964), human capital is a stock of knowledge, skills, motivations that everyone has. The main feature of human capital is its inseparability from the personality of its bearer. The sources of human capital formation are investments in schooling, coaching and getting knowledge, preparation for work and improvement of working skills, mobility opportunities, health care and high standard of living.



**Fig. 1.** Basic components of human capital

The concept of human capital has changed the approach to investing in education, training, health and livelihoods, which have traditionally been considered a social factor of development, and in the economic sense were treated as unproductive costs. Considering the basic components of human capital should be distinguished such as physiological, labor and intellectual. From the point of view of today's post-industrial society state, the central factor of human capital, which contributes to the achievement of high

economic results and ensures the efficiency of innovation processes, is the intellectual component of human capital.

As noted by Krushnitska (2014), conceptual approaches to the definition of human capital are largely determined by the qualitative features of the post-industrial economy. Considering the qualitative features of the current level of post-industrial economy, we can determine their impact on the development of human capital, the possible change in its nature, which causes the objective need to create a new concept of human capital. Contemporary evolution of the populace and the economy system is characterized by the principal part of headway implementing science and technology advance in economic development. One of the qualitative features of the economy of post-industrial society is a significant promotion in the pace and scale of scientific and technological progress compared to the rate of change in the quality of labor. Technology, on the one hand, and man with their abilities to work, on the other hand, act as two sides of the same process of development of the productive forces of society.

The economic and society conversion totaled by the scientific and information revolutions causes the demand for the incomparable and particular type of worker. In this context, such present employee characteristics as originality, expressiveness, resourcefulness, creative power and skills, elasticity, ingeniousness, innovativeness, introspection and high professionalism are in demand (Kostetska, Gordiichuk, Movchaniuk, Vdovenko, Nahornyi, & Koval, 2021). The twenty-first-century worker will achieve high results if he has the ability to quickly and effectively respond to constantly changing external and internal working conditions.

### **The state of development of human capital in contemporary conditions**

Since ancient times, human development has been closely connected with the social environment, the evolution of which contributed to the formation of human capital. In a post-industrial society, the importance of human capital is growing.

It is a natural question about the mechanisms of use and the state of development of human capital in the period of globalization of post-industrial society (Nerubasska & Maksymchuk, 2020; Nerubasska, Palshkov, & Maksymchuk, 2020).

Prushkivska & Pereverzeva (2008) note the following properties of human capital:

- human capital is inalienable and, accordingly, illiquid. If a person has unused material resources at his disposal, he can rent them out, take a

loan secured by these material values, and, in the end, keep them until better times, which is impossible with regard to intellectual abilities and knowledge;

- human capital is not saved. It exists only in the present, and the time during which it was not used is lost forever. For a non-professional, the cost of education is a proportion of the implicit costs of his or her current activities;

- intellectual resources are dual-use resources. They are used not only in production (economic) activities, but also in everyday life that goes beyond working hours. Therefore, investments in the formation of intellectual resources, as well as human capital in general, are not separated from consumption costs;

- intellectual resources of a person are double in terms of their market value. The basic value of human capital is considered as the discounted market value of future income, which focuses on the individual, determining the feasibility of investing in education. The potential value of human capital is the value that the entrepreneur who hires an individual, ie renting his human, in particular intellectual capital, focuses on. When forming the price of labor in the labor market, it depends on the profitability of the labor resource and the costs of the entrepreneur to pay for it;

- in the process of formation of intellectual resources were involved hereditary and formed in the process of educating the ability of the individual.

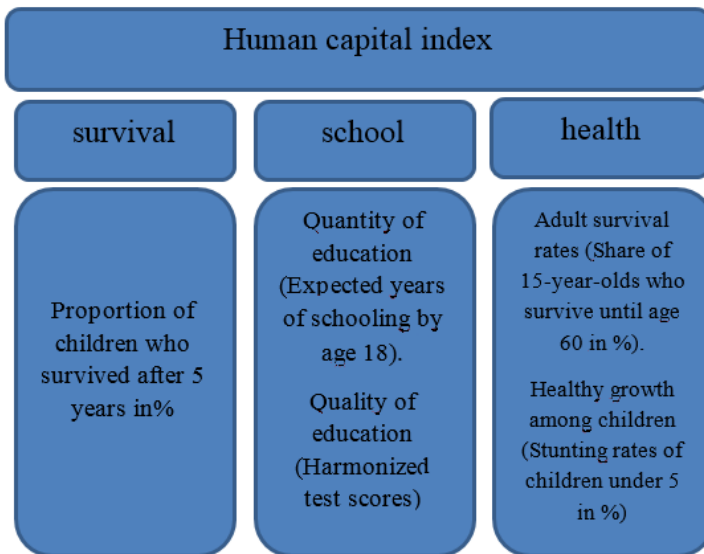
Golovko (2014) emphasizes that in contemporary conditions the problem of resource provision of socio-economic development of the country is becoming increasingly important. It's not just about financial and logistical resources, it's about the kind of resources that come with people. Human capital as a potential resource for economic development of countries affects the quality and standard of living of the population and social and labor relations. In the structure of various types of capital, the accumulation of human capital, its rational use becomes a strategic resource of social development, a key factor in creating competitive advantages and increasing the welfare of society. An important aspect is the level of unemployment, which has for society not only economic but also social and political consequences. Therefore, as noted by Heyets, Voynarenko, Kholodenko, & Stepanok (2019), the state, from the height of its point of view, must control the actions of economic forces that oppose each other, to the best point of optimum. In this regard, the issue of human capital development should be on the agenda of public policy.

Many dysfunctional families understand the need and are eager to improve the health status and education level of their children, but a variety

of reasons prevent them. Even with human capital investment availability, individual decisions may be shaped by a lack of information or limited by widespread social norms. Individuals also cannot consider broader social benefits for others. This shows the urgent need on the part of the state to educate people and gain human capital (World Bank, 2019).

The World Bank report (2019) notes that measuring human capital raises politicians' recognizing the priority of investing in human capital, thus forming an impetus for their action. An index of human capital has been developed, shows the direction from birth to adulthood of a child born in a given year, and allows to study the state of development of human capital in each country under study. The index makes it possible to compare and rank depending on the mobilization of the country's human, economic and social potential, as well as to determine their losses associated with a low level of education and health care. The human capital index ranges from 0 to 1, and 1 means reaching the maximum potential.

In the poorest countries, there is a significant risk that a child will not even live to see his or her fifth birthday. The poorest countries have high under-five mortality rates, and many school-age children are either not fully or completely educated, unlike in developed countries where 12th grade is the norm. The human capital index is based on the following three pillars: survival, school, health (Figure 2).



**Fig. 2.** Components of the human capital index

The Human Capital Project: Year 3 Progress Report (2021) notes that the third year of the World Bank Human Capital Project was the year when countries tried to stop their losses. COVID-19 (coronavirus) both disrupted and caused devastating failures in life and livelihoods. Globally, about a decade of human capital gains has been lost (Table 1). With more than 255 million job equivalents destroyed and 1.6 billion children out of school at the peak of school closures, poverty will rise significantly for the first time in 20 years, especially in low-income countries and sub-Saharan Africa. The poor and vulnerable have also experienced the hardships of natural disasters and conflicts. In the face of these challenges, countries need help to invest optimally in their people, to prevent the further destruction of hard-earned human capital and to develop better to ensure environmental, sustainable and inclusive development.

**Tab. 1.** The human capital index

Country	2018 year	2020 year	Country	2018 year	2020 year
<i>Singapore</i>	0,88	0,88	<i>Ukraine</i>	0,65	0,63
<i>Canada</i>	0,80	0,80	<i>Peru</i>	0,59	0,61
<i>Germany</i>	0,75	0,79	<i>Brazil</i>	0,56	0,55
<i>Finland</i>	0,81	0,80	<i>Bangladesh</i>	0,48	0,46
<i>Netherlands</i>	0,80	0,79	<i>India</i>	0,44	0,49
<i>Norway</i>	0,77	0,77	<i>Ghana</i>	0,44	0,45
<i>Italy</i>	0,77	0,73	<i>Iraq</i>	0,40	0,41
<i>United States</i>	0,76	0,70	<i>Cameroon</i>	0,39	0,40
<i>Poland</i>	0,75	0,75	<i>Nigeria</i>	0,34	0,36
<i>Spain</i>	0,74	0,73	<i>Chad</i>	0,29	0,30
<i>China</i>	0,67	0,65	<i>South Sudan</i>	0,30	0,31

Source: World Bank (2019) and Human Capital Project: Year 3 Progress Report (2021).

### **The impact and challenges of post-industrial society on human capital development**

The post-industrial society basis is intelligence, brainpower, science and information. Man and his mind become the engine of progress, growth and wealth. Kornienko (2015) compares the research possibilities of the concepts of instrumental mind and communicative mind. Societal

metamorphosis is caused and measured by expanding use of science, technologies and information which are treated as kea and vital assets of a new civilization. The knowledge performance is shaping in person`s growth and is developing the world around.

Authors Rost & Smith (1992) expose the failure of the old industrial view, which emphasizes the periphery of leadership. Opposite that conception they come up with post-industrial approach when leaders and followers are jointed by common goals. Collaborated processes and well-established interaction allows to achieve that goals that shows effectiveness of post-industrial conception instead of old the power-oriented.

The human capital of the leader and his subordinates can affect the reward a leader receives. Harris & Brown (2020) analyze data that includes the maximum potential bonus that a leader can receive and the bonus actually received, which allows a closer look at the performance of the leader and the impact of human capital both of the leader and his subordinates on the bonus received by the leader. The role of each individual in contemporary society is growing.

In the realities of post-industrial society, where knowledge, intellectual abilities and human talents are of paramount importance, the question of comprehension and redistribution of wealth arises. Managi, Jimichi, & Saka (2021) present a link between the unfair distribution of income and the ratio of human capital to inclusive wealth.

Countries in which production aimed at the improvement of human capital is widely developed are characterized by a higher level of income and living standards among the population. It is the improvement of human capital that contributes to the well-being of society, which confirms the prospects of its investment. The goal of achieving sustainable development of the national economy is closely interconnected with the country's population, labor productivity improvement and consumer demand.

The trend of deepening human capital in a post-industrial society is its removal from agriculture, breakthrough in the role and time of education and training. The current state of education is characterized by the boost in its productivity, due to which human capital becomes more capacious and rich. As a result, investing in people becomes more attractive, and enterprises with a high share of investments in human capital reduce costs, which will allow them to optimize output and prices.

Gillman (2021) predicts that along with the productivity of education, new industries will emerge. It is assumed that each new industry has a relatively higher share of the human capital factor. As human capital deepens, labor moves into a new industry and moves away from traditional



industry. Expansion singles out sectors of production that differ in the factor of participation of human capital in them.

Technologies also penetrate into the sphere of communication of post-industrial society, the Internet connects people, allows them to exchange opinions and disseminate ideas, regardless of their location and time zone. The form of interaction between society and the government is changing, which makes it easier for citizens to access government information and data, control government decisions and their implementation. The development of computer networks and the Internet are important factors in the development of human capital, at the same time, unequal access to information due to problems in the level of technical equipment or education is a serious problem for some sections of society.

Hładkiewicz & Gawłowicz (2013) note the need for new hardware, software and telecommunications solutions that can bring together a large number of actors, from the individual level of entities to communities, organizations, companies, government into one global network. Thus, Mergel, Edelmann & Haug (2019) note that today the spread of digitalization in the household and work areas has forced the government services sector to also change in a new way. Citizens are getting used to the comfort of electronic services in the commercial sphere and, accordingly, their expectations for a similar comfort of interaction with the government contribute to the digitalization of the methods of work of the public sector. As a result, the activities of government agencies have become more transparent, decisive, dynamic, comfortable and faster.

Digital transformation and comprehensive informatization affect society, in general, and each individual in it, as well as the development of human capital. The spread of information and communication technologies has a positive effect on the level of education due to the availability of information and educational programs. At the same time, the digital transformation in post-industrial society improves human capital and expands living standards.

New opportunities are emerging in the labor market that contribute to the development of human capital. Authors Yashchyk, Shevchenko, Kiptenko, Razumova, Khilchevska, & Yermolaieva (2021) note that the transition to a post-industrial society, the knowledge economy has led to the emergence of modernized forms of interaction between the employer and employees. The use of digitalization opportunities and various technologies contributes to the spread and popularization of remote forms of work, which allow the employer to reduce the cost of maintaining offices, and employees to save time. The advantage of remote work is also the mobility

of the workforce and the possibility of the employer to hire employees regardless of their location. It opens up opportunities for workers to combine multiple work contracts and participate in multiple projects. Employers are moving away from the tradition of keeping full-time employees, and workers are refusing to work on a fixed schedule. The labor market becomes more flexible, which increases the efficiency of both the recruitment process and the work process and their results.

## **Conclusions**

The concept of human capital contains multifaceted aspects of human development and society, according to which the individual acquires significance as a factor of economic growth and is perceived as a source of economic dynamics. The level of human capital is influenced by the knowledge, skills, experience acquired during a person's life, as well as such integral personal and internal characteristics of a person as health, abilities, motivation and energy. The sources of human capital formation are investments in schooling, coaching and getting knowledge, preparation for work and improvement of working skills, mobility opportunities, health care and high standard of living.

The development of human capital has changed the approach to investing in education, training, health and livelihoods, which are now a priority not only for individuals but also for various government projects and programs. The state of human capital development is measured using the human capital index, which is calculated for each country separately.

In the evolution post-industrial society evolution, the most important factor is human capital, which contributes to the achievement of high economic performance and ensures the efficiency of innovation processes due to the intellectual component of human capital. Technology, technology, on the one hand, and man with their abilities to work, on the other hand, act as two sides of the same process of development of the productive forces of modern society.

The contemporary transformation of society and the economic system leads to the need to form such type of employee whose characteristics are originality, expressiveness, resourcefulness, creative power and skills, elasticity, ingeniousness, innovativeness, introspection and high professionalism. The twenty-first-century worker will achieve high results if he has the ability to quickly and effectively respond to constantly changing external and internal working conditions.

Thus, the article, in contrast to other studies, emphasizes the development and importance of human capital in the realities of post-

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