

**HUMAN CAPITAL MANAGEMENT TRENDS IN THE
INNOVATIVE ECONOMY OF KAZAKHSTAN****Ramzan Es. Janshanlo, Oksana Yu. Kogut, Katarzyna Czerewacz-Filipowicz***

Abstract: In modern conditions, the competitive advantages of the economy of Kazakhstan and the possibility of its modernization, which is inextricably linked with innovative activity, are largely determined by the accumulated and realized human capital. In a knowledge-based economy, the generation of high-quality human capital, necessary for sustainable economic, social, cultural and natural development, is vital, which requires both research and assessment of the state of human capital. The purpose of this study is to analyze the state, dynamics of management and development of human capital in Kazakhstan, and also presents a methodology for its calculation. The article considers the influence of various factors on the human development index using a multivariate correlation and regression model, which allows you to effectively analyze the available data and predict their value for the next period under consideration. A comparative study of the development of human capital in Kazakhstan and abroad is given.

Keywords: human capital, trends, prospects, index and indicators of human development

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Introduction

The modern world is characterized by a steady trend towards a fundamental change in the role and importance of the human factor in the economy and society. Human capital is becoming the most important factor of economic growth and determines the future of the country. The development of the leading countries of the world has led to the formation of a new economy - an economy of knowledge, innovation, the latest technologies, global information systems, and a venture business (Wasiluk, 2017). The basis of such a new economy is human capital, which is the main driving force of social and economic development of modern society. The need to form a new development paradigm has been brought about by the change in the role of human capital, its transformation from a cost factor into a main productive and social factor of development. Human capital has taken a leading place in the national wealth within the framework of the new development para-development of the countries and the world community (up to 80% of the developed countries).

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The innovation development factor is one of the factors that contributes to making the human capital development process more efficient in nature and which implies the interconnected development of scientific, technical, industrial, financial and social activities in the new environment. Education is becoming the most important factor in the formation of human capital in the conditions of ensuring the competitiveness of the national economy. The role of education in ensuring sustainable socio-economic development, increasing the competitiveness of states and strengthening their positions in the world market and in the world economic community is growing. At the same time, the economic potential of the education system can be called a measurer of innovations, reflecting the influence of the functioning of educational institutions on the development of the economy.

Innovation can be considered an economy in which knowledge allows us to continuously implement innovations that correspond to rapidly changing needs, often forming such needs. Innovations have become the most important factor of economic development, the basis of competitiveness of firms, industries, national economies (Kot S., et al., 2018).

At present, it has become generally accepted in the advanced countries of the world to consider human capital as the basis of the state, society and economy. In the modern post-industrial society of the leading states of the world, the life and creative potential, human abilities are the core of all socio-economic processes.

The future of the modern economy will be determined by the level of human capital development of society. These are interdependent factors. That is, the growth of the knowledge-intensive production will lead to the need for the development of human capital.

Thus, the development of human capital can be viewed as measures aimed at the growth of a person's creative potential. And creativity is at the heart of innovation. Kazakhstan has chosen industrial-innovative development as one of the state-building strategies. And this involves the development and implementation of high technologies, industrial facilities. Which in turn requires investment in the development of human capital, not only at the state level, but also at the level of private business.

Today there is a fairly clear definition of innovation, by which is meant the end result of innovation activity, which has been realized in the form of a new or improved product, as well as an improved technological or organizational process used in practical activities. In this case, innovation is a materialized result obtained from investing capital in a new technique or technology, in new forms of organization of production, labor, management and maintenance, including new forms of accounting, methods of planning, control, analysis techniques, etc.

Literature review

Currently, human capital is increasingly becoming a source of vitality and development of any organization and society as a whole. It is human capital, and

not equipment and production stocks, that is the determining factor in increasing the competitiveness of an organization, economic growth and efficiency of the economy as a whole. Nevertheless, the concept of human capital as a scientific issue is still being clarified in economic literature, issues of priority of investments in human capital, the impact of human capital on sustainable and competitive development are discussed. The relevance of these scientific issues in a market economy is due to the increased interest in the creative abilities of a person, their activation, intellectual activity, which coincides with the general pattern of development of modern science.

In the economic literature there are many approaches to the definition of the concept of "human capital". The main hypotheses about the formation of human capital and its components were identified by A. Smith, but they got their design and development in the second half of the twentieth century in the works of T. Schulz, G. Becker, J. Mintzer and others. So, for example, G. Becker's monograph "Human Capital" is considered a classic work in this area, in which the author formulated a hypothesis about the components of human capital (knowledge, production skills and motivation), introduced the concepts of "general" and "specific" investments, and also substantiated the need for investment in people as the main resource of the organization (Becker, 1975).

The theoretical development of the Nobel Prize in economics A. Sen, who published in 1989 the paper "Development as Empowerment" (Sen, 1989), had a fundamental impact on the modern understanding of the development of human potential. A. Sen considered the development process not as an increase in material or economic well-being, but as a process of expanding a person's "capabilities" opportunities to live a long and healthy life, opportunities to have access to knowledge, opportunities to do more things, etc.

Human capital in a broad sense is an intensive productive factor of economic development, development of society and family, including the educated part of labor resources, knowledge, tools of intellectual and managerial labor, living environment and labor activity, ensuring the effective and rational functioning of human capital as a productive factor of development (Hayrapetyan, 2018).

K.S. Konkova, human capital is the stock of knowledge, skills, and motivations that each person has. Investments in it can be education, the accumulation of professional experience, health protection, geographical mobility, information retrieval. The initial interests of the researcher were to assess the economic return from education (Konkova, 2018).

Gennaioli N et al uses a combination of regional and institution-level data to explore some of the key channels through which human capital works, including worker education, entrepreneurial / managerial education, and externalities. The channels through which human capital affects productivity (Gennaioli N.et al., 2013).

In the 2010 Human Development Report, the definition of "human development" was substantially complemented. The organization's experts proposed a new, more

refined definition, consistent with practice and research on human development issues: “Human development is the process of expanding the freedom of people to live a long, healthy and creative life, to achieve other goals, which, in their opinion, have value; actively participate in ensuring justice and sustainability of development on the planet.”

The development of human capital contributes to improving production capabilities in the economy. Ignoring the development of human capital does not contribute to improving domestic production opportunities (Zhu S., et al., 2017).

The main strategic tool for the concept of human capital development is the Human Development Index (HDI), which was developed in 1990 by Pakistani economist Mahbub ul-Haq. The original hypothesis of the study, which at that time was considered radical, was fairly simple: social development should be assessed not only by national income, as has been practiced for a long time, but also by achievements in health and education, which are measurable in most countries. The high level of trust in the UN and its specialized structures, including UNDP, as well as methodological foundations made HDI one of the most authoritative classifications characterizing social development (Human Development Index, 2016).

According to the World Bank, based on the study of the economies of 192 countries, only 16% of economic growth is due to physical capital, 20% - natural, 64% - human capital (Orazbekov, 2018). The industrial and innovative development of any country, including Kazakhstan, requires tremendous costs and resources in the qualitative preparation and development of its own human capital. Human capital is the foundation of sustainable economic development and the main engine of innovation, and from these positions a sovereign state policy is built. The difference between this factor and other factors (natural resources, labor itself and ordinary capital) is the need to attract investments and their growth over a long time period. In the developed countries of the world in the late 1990s. About 70% of all funds were invested in human capital, and only about 30% in physical capital (Kuzmenko, 2013).

Research method

The human development index measures the country's achievements in terms of health status, education and the actual income of its citizens, in three main areas for which their indices are evaluated:

1. *The index of life expectancy*: health and longevity, measured by the indicator of the average life expectancy at birth:

- based on sources (Human Development Report, 2014; Human Development Index, 2016)

$$LEI = (LE - 20) / (85 - 20) \quad (1)$$

where LEI is the life expectancy index.

- based on sources (Life Expectancy Index, 2016)

$$LEI = (LE - 25) / (85 - 25) \quad (2)$$

2. *Education index*: access to education, measured by the average expected duration of education for children of school age and the average duration of education for adults:

$$EI = (MYSI + EYSI) / 2 \quad (3)$$

Where:

EI - education index;

MYS - the average duration of education in years;

MYSI = $MYS / 15$ - index of the average duration of training;

EYS - the expected duration of education of the population still receiving education, in years;

EYSI = $EYS / 18$ - index of expected duration of study.

3. *Income index*: a decent standard of living, measured by gross national income (GNI) per capita in US dollars at purchasing power parity (PPP):

$$II = [\ln(GNIpc) - \ln(100)] / [\ln(7500) - \ln(100)], \quad (4)$$

where: LE - life expectancy;

MYS - average duration of population training in years;

EYS - the expected duration of training of the population still receiving education, in years;

GNIpc - gross national income (GNI) per capita.

These three dimensions are standardized as numerical values from 0 to 1, the geometric mean of which is a cumulative Human Development Index in the range from 0 to 1. States are then ranked based on this indicator.

Human Development Index (HDI):

- based on sources (Life Expectancy Index, 2016; Human Development Index, 2009) there is an arithmetic mean

$$HDI = (Ii + Ie + IGDP) / 3 \quad (5)$$

- based on sources (Human Development Report, 2014; Baganov, 2013) there is a mean geometric

$$HDI = (LEI \cdot EI \cdot II)^{1/3} \quad (6)$$

where LEI is the index of life expectancy;

EI - education index;

II - GNI per capita.

Formulas (1) and (6) more correspond to the essence of the considered indicators.

Results

One of the vectors of development of Kazakhstan will be investing in human capital. This situation is caused by the requirement of the XXI century, where the decisive factor in the development of countries is not so much their material and production base, as human resources. First of all, the level of education of the population, skills and knowledge of people.

It can be noted that investing in human capital has a peculiarity. Unlike other investment tools, it does not immediately generate income. It takes a lot of time to train high level specialists, but the result is worth it. Thus, according to experts, an increase in the period of study by one year increases Gross domestic product growth by 1–2%. In addition, the country's economy is entering a trajectory of sustainable growth and, in a crisis, demonstrates good resiliency (Konkova, 2018).

If we compare by the Human Development Index Rating for 2017, in which 189 countries are represented, Kazakhstan is included in the group “Countries with a very high level of human development” (line in the rating from 1 to 60). So, Norway takes 1 line with a human development index of 0.953; Denmark 11 line with a human development index of 0.929; Luxembourg - 21st line - 0.904; Greece - 31 line - 0.870; Latvia, Portugal - 41 lines - 0.847; Bulgaria - 51 lines - 0.813; Kazakhstan - 58th line - 0,800; Niger - line 189 - 0.354 (Human Development Report, 2018).

According to reports of UNDP human development reports for 2010–2017. In Kazakhstan, there was a positive trend in the development of human capital, as evidenced by the human development index (Table 1). It is important to note that if in 2008 Kazakhstan was in the group of countries with an average level of human development, then from 2009 it moved to the group with a high level of development, successfully maintaining its position until today.

Table 1. Dynamics of indices and human development indicators in Kazakhstan

Years	LEI (life expectancy)	EI	MYS	EYS	II (GNI per caput)	HDI (place in the ranking of countries on the Human Development Index)
2010	0,766 (65,4)	0,795	10,3	15,1	0,699 (10234)	0,714 (66 of 169)
2011	0,775 (67,0)	0,799	10,4	15,1	0,704 (10585)	0,745 (68 of 187)
2012	0,775 (67,4)	0,799	10,4	15,3	0702 (10451)	0,754 (69 of 186)
2013	0,715 (66,5)	0,763	10,4	15,0	0,796 (19441)	0,757 (70 of 187)
2014	0,633 (69,4)	0,751	11,4	15,0	0,807 (20867)	0,788 (56 of 188)
2015	0,763 (69,4)	0,807	11,7	15,0	0,815 (20876)	0,794 (56 of 188)

2016	0,806 (69,6)	0,807	11,7	15,0	0,821 (22093)	0,788 (56 of 185)
2017	0,815 (72,4)	0,813	11,8	15,1	0,824 (22900)	0,800 (58 of 189))
<i>Note:</i> Developed from sources (Human Development Report, 2010-2018)						

The article discusses the dynamics of indices and human development indicators in Kazakhstan in the period from 2010 to 2017 inclusive.

The human development index in Kazakhstan in 2010 is equal to 0.714 and the republic is ranked 66 out of 169 countries. Compared with 2009 (82 place), Kazakhstan has risen by 16 steps. But here it is worth considering that some countries were not included in the general list. So, if in the general list earlier there were 182 countries, then in 2010 there were 169 of them. During this period, the republic's HDI increased from 0.650 to 0.714, i.e. by 10% or by an average of 0.5% per year.

In 2017, Kazakhstan ranked 58th in the list of countries in terms of human development. A total of 189 countries were included in the rating. The group of countries with a very high level of human development consisted of 59 states. From the countries of the near abroad in their number were also Estonia (30th place), Poland (33rd place), Lithuania (35th place), Latvia (41st place), Russia (49th place), Belarus (53rd place). Headed rating Norway. The top three also includes Switzerland and Australia.

Further, in order to objectively analyze the dynamics of HDI, it is necessary to consider its indicators.

Life expectancy index at birth, which is a generalized indicator characterizing the possibility of a long and healthy life of the population of the country. This indicator is an integral expression of a number of factors determining human development, including the effectiveness of the health care system, the nature of the psychological stresses of the population, etc.

In Kazakhstan, in 2010, life expectancy was 65.4 years, and the corresponding index was 0.766.

According to the UNDP, in the period from 2012 to 2017, there is an increase in life expectancy by 5.5 years, from 67.4 years to 72.9. In 2013, there is a slight decrease to 66.5 years. After 2013, there is a positive trend of increasing life expectancy to date.

In 2012, the overall education level index is 0.799, which is significantly higher than most countries of the middle group and close to the level of France and the United Kingdom, which indicates the advantages of the education system of the Republic of Kazakhstan.

The next important indicator characterizing the development of the country is GNI per capita.

In recent years, the growth of the economy of Kazakhstan has allowed to raise the standard of living of the population of the country. This significantly affected the human development - HDI for the period from 2010 - 2017. increased from 0.714 to 0.800, or 12%. At the same time, we can note the progress in terms of life

expectancy at birth, which increased by 7.5 years. The average number of years of schooling has increased by 1.5 years, and the expected duration of study has not changed. GNI per capita increased 2.3 times.

Summing up, human capital has all the properties and indicators of the intensive factor of development, but there are certain problems with accurate measurement of its cost and performance. These problems are associated with the vagueness of the very definition of multi-element, composite and complex human capital, as well as the dependence of its quality and, accordingly, productivity, on many parameters and indicators that can characterize a particular country.

Next, consider the influence of various factors on the human development index using a multifactor correlation-regression model, which allows you to effectively analyze the available data and predict their value for the next period under consideration. Correlation and regression analysis makes it possible to quantify the influence of selected factors on the performance indicator. In addition, knowing the equation of multiple regression and, given certain values of the factors, you can predict the value of the function and, consequently, control the analyzed indicator.

In the process of the study, a regression model was constructed, which allows to draw conclusions about the change in the human development index HDI(Y) under the influence of various factors. The factors were selected as the life expectancy index LEI(x_1), the formation index EI(x_2) and the income index II(x_3) (Table 2).

Table 2. Human Development Index and the factors affecting it

No p/o	Years	HDI (Y)	Expected life expectancy, years (x_1)	Average duration of study, years (x_2)	GNI per capita population, dollars (x_3)
1	2010	0,714	65,4	10,3	10234
2	2011	0,745	67,0	10,4	10585
3	2012	0,754	67,4	10,4	10451
4	2013	0,757	66,5	10,4	19441
5	2014	0,788	69,4	11,7	20867
6	2015	0,794	69,4	11,4	20876
7	2016	0,788	69,6	11,7	22093
8	2017	0,800	72,4	11,8	22900

Note: Developed from sources (Human Development Report, 2010-2017)

Calculations of regression coefficients a_0 , a_1 , a_2 , a_3 and multiple correlation R were performed using MS Excel software. The resulting multifactorial regression model is:

$$Y = 0,2199 + 0,0064x_1 + 0,0071x_2 + 1,9554x_3; \quad (7)$$

multiple correlation coefficient $R = 0,9549$.

According to the data obtained, the value of human development index Y at 0,0064 is explained by the influence of life expectancy (x_1), 0,0071 - the average duration

of training (x_2) and 1,9554 - GNI per capita (x_3), and the rest 0,2199 - factors not included in this analysis.

Conclusion

The development of human capital in Kazakhstan should be aimed at achieving a new quality of human capital. This means, along with improving the quality characteristics - improving health, increasing life expectancy, reducing poverty - providing modern education through education and training and retraining of every citizen throughout life, so that it can be in demand not only in the domestic labor market, but in any other country.

The last decades are characterized by significant transformational changes in the international economic environment. That fact has significantly changed the point of view of economists concerning the structure of factors forming and ensuring national competitiveness, their economic substance and interrelationships. Human capital including intellectual capital, human potential, human resources and management has become a key factor in increasing international economic competitiveness. Meanwhile, human capital accumulation is the basis for sustainable economic growth and prosperity of the country (Onyusheva, 2017).

Observation and measurement of human capital today is possible only in the management system and managerial accounting of the organization. But management accounting has not yet created the conceptual basis of the financial assessment of human capital, which would be widely used to manage it: there is no unambiguous judgment on approaches to financial assessment of human capital, disclosure of financial indicators of intellectual and business qualities, work results. It is necessary that the theoretical results be used in the development of methods and specific recommendations, the practical implementation of which will contribute to the effective implementation and development of the management system and managerial accounting of human capital in the innovative economy. This situation suggests that there is a need for accumulating experience in accounting and disclosing economic information in management reporting on the basis of cardinal modifications in the field of receiving, exchanging and processing economic information in an innovative economy.

Thus, we can conclude that the modern economy imposes higher requirements on the quality of human capital, namely, on the individual characteristics, knowledge and professional skills, competence and mobility. An analysis of the values of the human development index clearly shows that for the economic development of states it is necessary to pay more attention to such indicators as education level, namely, access to education for all segments of the population, as well as for a decent standard of living for every citizen.

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TENDENCJE ZARZĄDZANIA KAPITAŁEM LUDZKIM W INNOWACYJNEJ GOSPODARCE KAZACHSTANU

Streszczenie: We współczesnych warunkach o przewadze konkurencyjnej gospodarki Kazachstanu i możliwości jej modernizacji, nierozzerwalnie związanej z działalnością innowacyjną, w dużej mierze decyduje zgromadzony i zrealizowany kapitał ludzki. W gospodarce opartej na wiedzy kluczowe znaczenie ma generowanie wysokiej jakości kapitału ludzkiego, niezbędnego do zrównoważonego rozwoju gospodarczego, społecznego, kulturalnego i przyrodniczego, który wymaga zarówno badań, jak i oceny stanu kapitału ludzkiego. Celem tego opracowania jest analiza stanu, dynamiki zarządzania i rozwoju kapitału ludzkiego w Kazachstanie, a także przedstawienie metodologii jego obliczania. W artykule uwzględniono wpływ różnych czynników na wskaźnik rozwoju społecznego przy użyciu wielowymiarowego modelu korelacji i regresji, który pozwala skutecznie analizować dostępne dane i przewidywać ich wartość na następny rozważany okres. Podano badanie porównawcze dotyczące rozwoju kapitału ludzkiego w Kazachstanie i za granicą.

Słowa kluczowe: kapitał ludzki, trendy, perspektywy, indeks i wskaźniki rozwoju człowieka. Zarządzanie

哈萨克斯坦创新经济中的人力资本管理趋势

摘要:在现代条件下, 哈萨克斯坦经济的竞争优势及其现代化的可能性与创新活动密不可分, 很大程度上取决于积累和实现的人力资本。在知识型经济中, 为可持续的经济, 社会, 文化和自然发展所必需的高质量人力资本的产生至关重要, 这需要研究和评估人力资本的状况。这项研究的目的是分析哈萨克斯坦的人力资本的状况, 管理动态和发展, 并提出一种计算方法。本文使用多元相关和回归模型考虑了各种因素对人类发展指数的影响, 该模型使您可以有效地分析可用数据并预测所考虑的下一个时期的价值。对哈萨克斯坦和国外的人力资本发展进行了比较研究。

关键词:人力资本, 趋势, 前景, 人类发展指数和指标。管理