

Czech University of Life Sciences Prague

Faculty of Economics and Management

Department of Economics



Diploma Thesis

**Human Capital Investment: Forms and evaluation
(Case study: PJSC Gazprom)**

Anna Orlova

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DIPLOMA THESIS ASSIGNMENT

Anna Orlova

Economics and Management

Thesis title

Human Capital Investment: Forms and evaluation (Case study: PJSC Gazprom)

Objectives of thesis

Objective of this diploma project is to examine the characteristics of human capital, the importance of investment in human capital, as well as to show the importance of assessing the effectiveness of human capital and investment in human capital.

Analyse the structure of the human capital of OAO "Gazprom", identify general directions of investment in human capital in the enterprise. As a result of the carried out researches to evaluate and identify efficient to investment in human capital in OAO "Gazprom".

Methodology

During the research will be applied methods of system and comparative analysis, statistical methods, and methods of sociological and other empirical studies in relation to the problems and assess the effectiveness of investment in human capital.

The proposed extent of the thesis

50-60 pages

Keywords

Human resources, human capital, investment, Return on Investment, OAO "Gazprom".

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Benhabib, J., Spiegel, M.: 1994. "The role of human capital in economic development evidence from aggregate cross-country data," *Journal of Monetary Economics*, Elsevier, vol. 34(2)

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The Diploma Thesis Supervisor

Ing. Bohuslava Boučková, CSc.

Supervising department

Department of Economics

Advisor of thesis

xxx

Electronic approval: 20. 11. 2015

prof. Ing. Miroslav Svatoš, CSc.

Head of department

Electronic approval: 20. 11. 2015

Ing. Martin Pelikán, Ph.D.

Dean

Declaration

I declare that I have worked on my diploma thesis titled “Human Capital Investment: Forms and evaluation (Case study: PJSC Gazprom)” by myself and I have used only the sources mentioned at the end of the thesis. As the author of the diploma thesis, I declare that the thesis does not break copyrights of any their person.

In Prague on 31.03.2016

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I would like to thank Ing. Bohuslava Boučková and Ing. Artem Golovin (SouthWest State University, Russia, Kursk) for their advice and support during my work on this thesis.

Investice v Lidský Kapitál: Formy a hodnocení (Případová studie: Gazprom a.s.)

Souhrn

V této diplomové práci, autor zkoumá koncept lidského kapitálu a investice v lidský kapitál. Teoretická část zahrnuje jak teoretická a praktická východiska vědců v oblasti lidského kapitálu a investic do něj, tak metody a způsoby jejich měření a zhodnocení. Na tomto základě autorka navrhuje vlastní definici vybraných pojmů.

V praktické části autorka hodnotí investice v lidský kapitál společností Gazprom a.s. Autor analyzuje strukturu zaměstnanců, typy výdajů v rámci společnosti, které by mohli být považovány za investice v lidský kapitál a vypočítává návratnost investic v lidský kapitál a přidané hodnoty lidského kapitálu. Autorka rovněž hodnotí získané hodnoty z nezávislého pohledu a ve vztahu k ostatním lídrům průmyslu ropy a zemního plynu v Ruské Federaci.

Na základě teoretické a praktické části, autorka navrhuje nový ukazatel, který umožňuje sledování návratnosti a efektivitu investic v lidský kapitál. Ukazatel byl vypočítán pro společnost Gazprom. Na tomto základě, jakož na základě výzkumu v praktické části autor odvozuje závěry a předkládá doporučení pro společnost Gazprom a.s. v oblasti investic do lidského kapitálu.

Klíčová slova: Lidský Kapitál, Investice do Lidského Kapitálu, Návratnost Využití Lidského Kapitálu (NVLK), Gazprom a.s., Návratnost Investic do Lidského Kapitálu, Přidaná Hodnota do Lidského Kapitálu

Human Capital Investment: Forms and evaluation (Case study: PJSC Gazprom)

Summary

The diploma thesis examines the concept of “Human Capital” and “Human Capital Investment”. The theoretical part contains both theoretical and practical ideas of scientists in the field of Human Capital and Human Capital Investment, as well as the methods for their measurement and evaluation. On this basis, the author provides her own definitions of these concepts.

The practical part is based on the assessment of the Human Capital Investment of the Gazprom. It provides an analysis of the structure of personnel, analyzes the types of expenses within the company, which can be regarded as the expenditures for the Human Capital and calculates the Human Capital Return on Investment and the Human Capital Value Added. The author provides an assessment of the obtained values from the independent point of view, and in relation to the other leaders of the oil and gas industry of the Russian Federation.

On the basis of the theoretical and practical part, the author proposes a new indicator that allows to compute the return and efficiency of Human Capital Investment. This indicator is calculated for the Gazprom Company. On this basis, as well as on the research in the practical part, there are drawn conclusions and made recommendations to the Company in the field of the Human Capital Investment.

Keywords: Human Capital, Human Capital Investment, Return on Use of Human Capital (RUHC), PJSC Gazprom, Human Capital Return on Investment, Human Capital Value Added.

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List of abbreviations

AH – Average Headcount;
CC – Cost of Capital;
CF – Cash Flow;
DPP – Discounted Payback Period;
EBIT – Earnings Before Interest and Taxes;
EBV – Economic Book Value;
EVA – Economic Value Added;
FTE – Full Time Equivalent;
HCMV – Human Capital Market Value;
HCROI - Human Capital Return on Investment;
HCVA – Human Capital Value Added;
HEVA – Human Economic Value Added;
IC – Invest Capital;
IRR– Internal Rate of Return;
LI – Labour Intensity;
NELDY – Number of Employees who Left During the Year;
NPV – Net Present Value;
OJSC – Open Join Stock Company;
PJSC – Public Join Stock Company;
PP – Payback Period;
RUHC – Return on Use of Human Capital;
SNA – System of National Accounts;
VHI – Voluntary Health Insurance;
WACC – Weighted Average Cost of Capital.

1 Introduction

The concept of “Human Capital” acquires at the present time the great importance not only for economists - theorists, but also for individual firms. Sharply increased interest in economics to human creative abilities, to the ways of their formation and development.

Human Capital is the most important resource of post-industrial society. Only highly qualified workforce can do the creation and management of innovative technology. Moreover, in order to successfully carry out the economic reforms, is necessary a clear and deep understanding of the business environment, opportunities and potential of markets, their practical significance, which is also inextricably linked to the quality of the Human Capital of each individual employee, which is used in the production process to create the wealth of society.

Most companies begin to attach great importance to the accumulation of Human Capital as the most valuable of all types of capital. One way of accumulation of Human Capital is to invest in human. Nowadays, the study of problems of increasing efficiency of using the productive forces of people, realized in the current conditions in the form of Human Capital, is not only relevant, but extends into the category of high priority in the structure of the socio - economic studies. This assumes carrying out profound research of the problem.

The theoretical part of this thesis deals with the essence of the Human Capital, its types and features, discusses the concept of investment in the Human Capital of their species, and the effectiveness of investment in Human Capital.

The practical part provides an analysis of Human Capital and Human Capital Investment of the Gazprom Group. Propose a new indicator of the effectiveness of investments in Human Capital, gives an explanation and decoding of the indicator. And also, makes the calculation of indicators of efficiency of investments in Human Capital on the basis of existing indicators and ratios, as well as on the basis of the proposed indicator.

2 Objectives and Methodology

The calculations in the Practical part will be based on a sample of data from 2010-2014. The year 2015 was not used in the calculations and analysis. This is due to economic and political sanctions in 2014 against the Russian Federation, which significantly influenced the *PJSC Gazprom* and conduct proper analysis of the company with 2015 is not possible.

All data presented below and all calculations will be carried out without taking into account the Key management personnel of the *Gazprom Group*, because the separation of investment in Human Capital between them and other employees of the company are very large. If they will be included the analysis will be null and void (invalid).

2.1 Objectives

The main aim of this diploma thesis is to explore the characteristics and specifics of Human Capital and to provide the evaluation of Human Capital Investment within the company.

The first goal is to identify the Human Capital structure taking as an object of the research *PJSC Gazprom*. To identify the types and forms of Human Capital Investment in the company.

The second goal is provide a new indicator “Return on Use of Human Capital” based on combination of Jac Fitz-enz’s Human Economic Value Added (HEVA) and Labour Intensity (LI), and test it on the example of the company Gazprom. The third goal is to offer the opportunities to improve the quality of investment, based on proposed indicator Return on Use of Human Capital.

2.2 Methodology

- *Nonrecurring research:*

Used for the investigation of scientific papers of the world's scientists on the topics “Human Capital” and “Human Capital Investment” from the 18th century to the present day (A. Marshall, T. Schultz, G. Becker, J. Fitz-enz and others).

- *Indicative research:*

The issue of evaluating the effectiveness of Human Capital Investment at present are not well developed (theoretical and practical bases require additional researches), that is why indicative research used to find ways and methodologies to evaluate the Human Capital Investment.

- *System analysis:*

For the consideration the PJSC Gazprom as a system, to identify the main characteristics of the groups of employees (management, specialists, workers etc.) and to study the investments of PJSC Gazprom, to identify all the elements which are related to the Human Capital Investments.

- *Economic analysis and synthesis:*

To determine the economic performance of the company Gazprom (Economic Value Added (EVA)), and the possibility of finding the relationship between economic indicators and investment in Human Capital.

- *Return on Use of Human Capital (RUHC) indicator:*

The proposed indicator, which is calculated on the basis of *EVA* and *Labour Intensity* (LI).

$$RUHC = \frac{EVA}{LI} \quad (1)$$

To evaluate the quality of the current investment in Human Capital of *PJSC Gazprom* and to create recommendations for management of the company on the field of Human Capital Investment.

3 Literature Review

3.1 Human Capital: essence, concept, types

Questions of formation and use of the productive abilities of the person, their role and place in the economic system of society has always aroused great interest of economists and researchers.

In the XVIII century, *Adam Smith* in “The Wealth of Nations” wrote that the main role in the production of wealth in his opinion, belongs to the employee, his skills and abilities. “The improvement in the productive powers of useful labour depends, first, upon the improvement in the ability of the workman; and, secondly, upon that of the machinery with which he works” (Smith, A, 2009).

Into the composition of capital, along with machines and other tools, buildings and land, Adam Smith included all acquired and useful abilities of all the inhabitants of the country. “The acquisition of such talents, by the maintenance of the acquirer during his education, study, or apprenticeship, always costs a real expense, which is a capital fixed and realized, as it were, in his person” (Smith, A, 2009). Adam Smith emphasized the high economic importance of education and relate it to one of the factors contributing to the increase in wealth of the country.

The representative of the British classical economics *David Ricardo* agree with him on this issue. Lagging countries in economic development, he explains, among other reasons “from a want of education in all ranks of the people “ (Ricardo, D, 2009).

Karl Marx believed that a person's ability to perform work, “the main productive force of society”, “real wealth”, and all the material wealth - “fleeting moments of social reproduction” (Marx, K, 2010).

At the end of XIX beginning of XX centuries in world economic science has raised a number trends and schools that are characterized by a wide range of scientific views of human nature and its productive capacity. The most respected of them was the direction, whose members saw the man and his abilities as a capital.

The bulk of the scientists called capital the man himself (J. Thünen, J. McCulloch, L. Walras, H. Macleod, J. M. Clark, I. Fisher).

But some other economists developed the position that capital is inherited and acquired abilities. *J. S. Mill*, for example, noted that a human being is not the capital, but his acquired abilities can justifiably be classified as a capital (Mill, J, 2009). Acquired human ability to work,

education, qualification was defined as the capital by such scholars as Georg Roscher and Franz Liszt.

By the founder of the neoclassical trend in Western economic science *Alfred Marshall* in the scientific revolution was introduced such a concept as “personal capital” (as more acceptable than “Human Capital”). He said: “Wages and other earnings of effort have much in common with interest on capital. For there is a general correspondence between the causes that govern the supply prices of material and of personal capital: the motives which induce a man to accumulate personal capital in his education, are similar to those which control his accumulation of material capital” (Marshall, A, 2012). Nevertheless, the Human Capital theory, Marshall thought unrealistic, that due to the authority of the scientist, a significant impact on its development.

Interest in the theory of Human Capital in the first decades of the XX century was asleep and serious research in this area was not conducted. Insufficiency in the interpretation of human resources as the product of the means of production, as a product of investment, contribute to the conservation of the classical concept of labour as the ability to perform physical work that requires a minimum of knowledge and skills, abilities that workers are allocated equally.

However, the deployment of scientific and technological revolution has caused profound changes in the structure of the productive forces of society, qualitatively changed the nature and content of work, conditions and factors of high economic activity.

Campbell McConnell said that the main resource of the rapid technological development of the modern economy - a new technological ideas, ie, above all, highly qualified and creative activity of people capable of these ideas put into practice (McConnell, C, 2011).

From the end of XX century in industrialized countries have adopted a philosophy of industrial development, which is based on the position that the main resource of the rapid development of a competitive modern industry - a new technological ideas, that is, above all, highly qualified and creative activity people who are capable to implement these ideas.

Therefore already in the 1960s purposeful formation of Labour force of creative type constructed in state policy. The need for constant updating of knowledge and mastering of new specialties were the main principles of work.

In the same years in the major industrialized countries have passed laws to encourage the activities of the state and entrepreneurs to develop the intellectual potential of the workforce, encouraging companies to invest in human by appropriate fiscal measures, concessional loans and public incentives.

Under the influence of the concepts of “investment in people”, foreign economic aid has been regarded not only as a means of capital inflows, but also as a key element in the development of human resources. There has been an increase in the share of foreign investments aimed for training national personnel (McConnell, C, 2011).

One of the first who turned again to this theory in the XX century was *J. R. Walsh*. He found in her a specific application, having carried out calculations of the impact of vocational training on the level of national income in the United States. For the first time were used terms such as “opportunity costs of production” and “wealth time preference”, which are widely used in the tools of modern Human Capital theory (Walsh, J, 1935).

A supporter of the expansion concept an American economist *J. Kendrick* defining the concept of wealth and capital as the ability over time to create a product and income, including non-market forms of income (Kendrick, J, 1967).

The role of the “discoverer” of the concept of Human Capital in its present form is given to American scientists, representatives of the “Chicago School” *Theodore Schultz*. Almost simultaneously with him the concept of Human Capital developed in his writings, his colleague at the University *Gary Becker*.

In his fundamental work, “Human Capital: A Theoretical and Empirical Analysis” (1964) was given the development of micro-economic foundations of this theory, and formulated model has become the basis for all future research in this area.

The main methodological guidelines put forward by G.Becker, is the use of the economic approach to the analysis of a number of the most diverse phenomena of social life. Thus, the starting point for Becker was the idea that investing their money in training and education, students and their parents behave rationally, weighing the relevant costs and benefits. Like ordinary businessmen they correlate the expected marginal rate of return on such investments with a yield of alternative investments. In addition to the theoretical foundation Becker implemented the first practical and statistically valid calculation of the cost-effectiveness of education. One of the main merits of Becker is his calculating the ratio of net income from the education to its costs. On average, it gives profitability on 10-15% higher than the profitability of most companies (Becker, G, 1994).

In contrast to the classical economists, Becker and his followers are not limited to general reasoning about the importance of investing in people. They, with the applying the methods of quantitative analysis, trying to identify the impact on the economic life of these

social processes and institutions that previously no one dared to investigate with the help of economic instruments and categories.

The whole concept of Human Capital is in line with the neoclassical direction, attention to social phenomena brings this theory to institutionalism.

Formation of the concept of Human Capital was in the process of breaking up the traditional attitudes on capital, as a homogeneous phenomenon. From the end of 50-ies of XX century in the western economic science emerged and began to develop the broad interpretation of national wealth and capital.

In 70s the theory of Human Capital was subjected to attacks by the so-called “*filter*” theory (A. Bergh, M. Spence, J. Stiglitz, P. Wiles).

Representatives of this theory believe that higher productivity is associated mainly with personal human abilities, rather than with their education. For society, for the state such a “signaling device” as education is very expensive.

The essence of the “filter” theory lies in the fact that education is treated as a selection tool, as a device, which is sorting students according to their production quality.

Without denying the positive causal relationship between the level of education of the individual worker and his wages, the theory of “filter” at odds with the neoclassical concept of “Human Capital” in the understanding of the mechanism of this relationship and to assess the economic efficiency of education across the economy.

The central idea of this “filter” theory - highlighting not productive but selective (information) education function (Bergh, A, 2008).

However, the “filter” theory is forced to be cautious about the conclusions and recommendations, worked out by the theory of Human Capital. Most researchers agree that they should be regarded not so much as the opposite but as complementary approaches.

Based on this interpretation of capital was the development of Human Capital theory. All elements of national wealth that are accumulated are used in the production and generate income are treated as capital. This, in turn, according to T. Schultz, allows starting to the successive division of the whole into two parts, namely: Human Capital and non-Human Capital (Schultz, T, 1961).

Table 1 - Modified rubrication of production factors

Factors	Revenues		
Natural resources	Traditional rent	Capital in the conventional sense	Capital in the broadest sense
Reproducible tangible assets	Profit		
Financial assets	Interest		
Human Capital	Income on Human Capital	Work in the conventional sense	
Natural ability	The rent on natural ability		
Net work	Net salary		

Source: Dyatlov, S, 2001

Human Capital consists of the acquisition of knowledge, skills, motivation and energy which human beings are endowed with and which can be used within a certain period of time in order to produce goods and services, wrote *H. Bowen* (Bowen, H, 1978).

E. Dolan under the Human Capital understands capital in the form of intelligence obtained through formal training or education, or through practical experience (Dolan, E, 1992).

A. Toffler considers the most important step in the economic development of our time emergence of a new system for creating wealth, not using the human physical strength but his mental abilities. The scientist introduces the concept of “symbolic capital” - knowledge - which, unlike the traditional forms of capital, inexhaustible and available at the same time an infinite number of users with no restrictions (Toffler, A, 1990).

Among Russian researchers the most complete definition of Human Capital as an element of social wealth, given by *S.A.Dyatlov*. Human Capital - is formed as a result of investments and the accumulated stock of human health, knowledge, skills, abilities, motivations, which is advisable to use in this or that sphere of social reproduction, contribute to the growth of labour productivity and production and thus affect the growth of income (earnings) of the person (Dyatlov, S, 2001).

I.V. Ilynskiy identifies the following components of Human Capital: education capital, health capital and the capital of culture. Thus, in his opinion, the formula of Human Capital takes the following form (Ilyinsky, I, 1996):

$$HC = Hc + CC + EC$$

Where,

HC – Human Capital;

Hc – health capital;

CC – cultural capital;

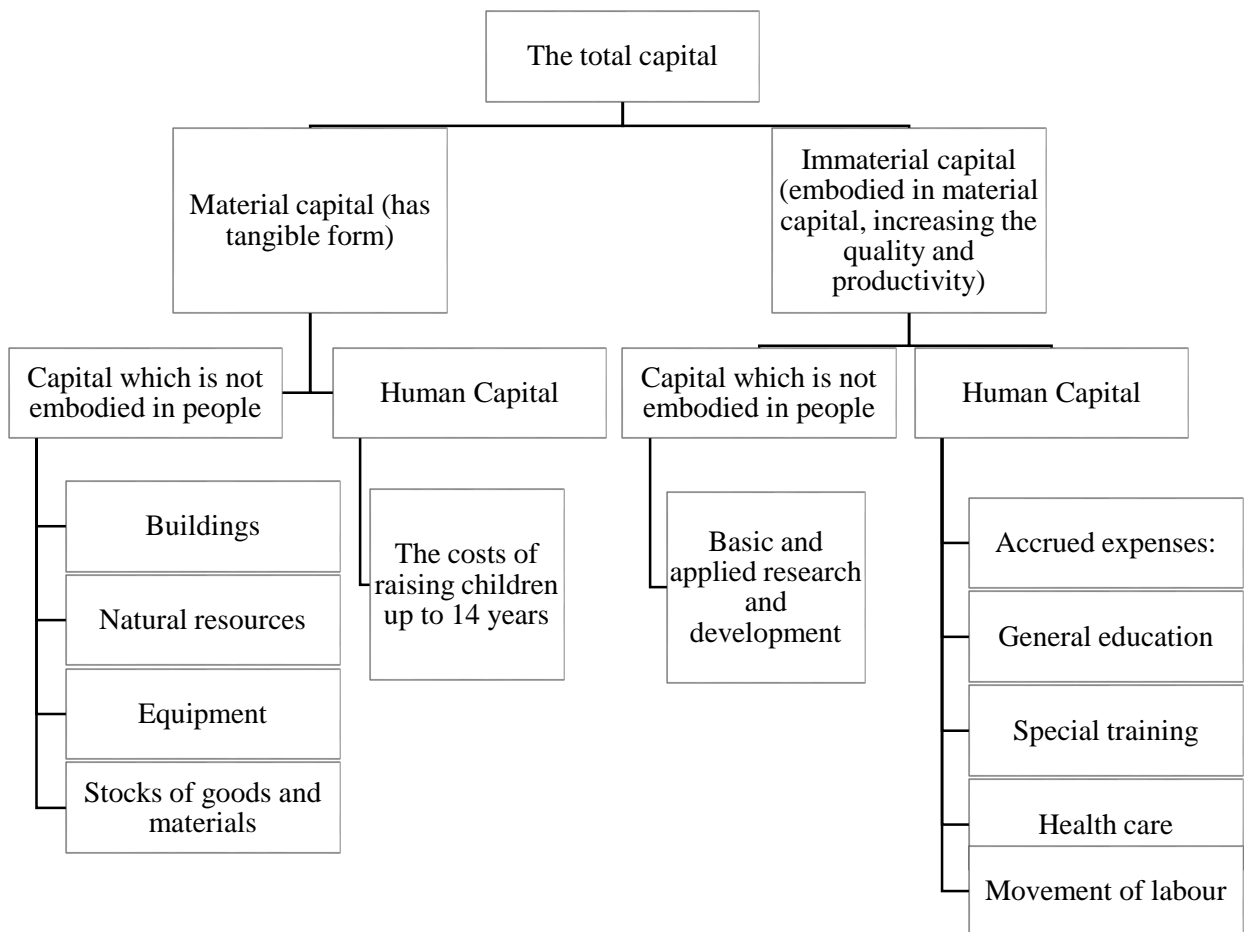
EC – education capital.

The different approaches to the classification of Human Capital

There is no definitive consent among economists on the internal structure of the Human Capital. On this occasion, there were two main points of view. The first is that the capital is not only a person's ability, but also the man himself as a physical being.

J. Kendrick shared the total equity of the material and the immaterial. Material capital has a direct material form; immaterial capital does not have its own material form, it is embodied in a real capital, improving its quality or productivity (*Kendrick, J, 1967*).

Figure 1 - The structure of the total capital from the perspective of J. Kendrick



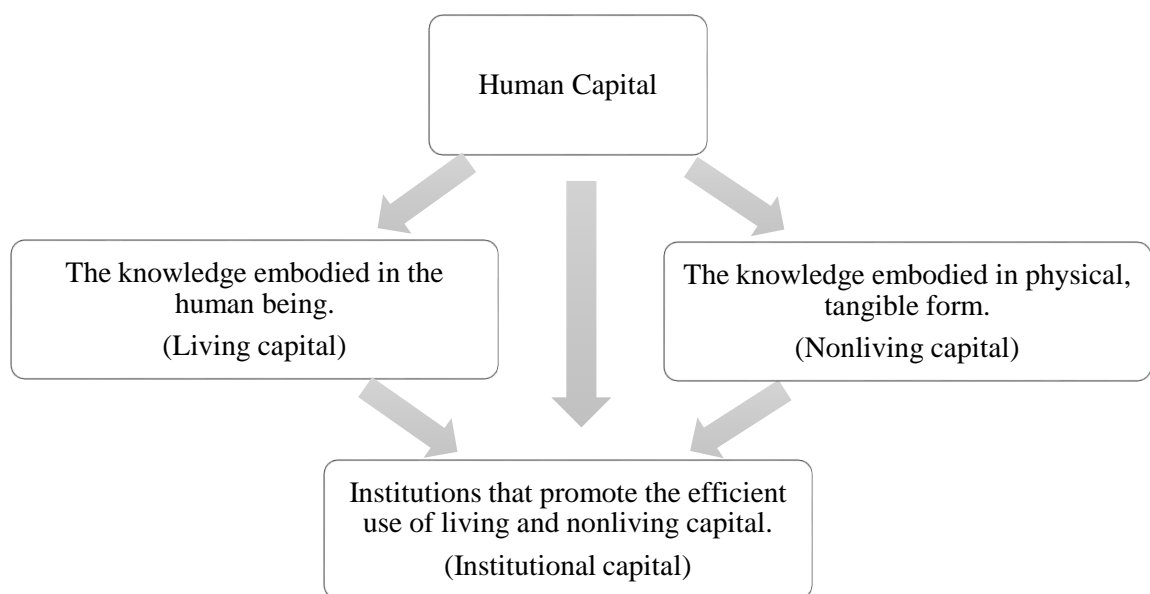
Source: Kendrick, J, 1967

G. Becker in his work “Human Capital: A Theoretical and Empirical Analysis “ introduces the concept of “specific Human Capital” which, in contrast to the general Human Capital include knowledge and skills acquired through special training and have the interest only for that company, where they were obtained (Becker, G, 1994). Thus the degree of restriction on the use of Human Capital can be divided into general and specific.

From the point of view of promoting the economic well-being of the society, there are consumer and productive Human Capital. Consumer capital creates a flow of services consumed directly, and thus contributes to social utility. Productive capital - creates a flow of services, which promotes the consumption of public utility.

Another criterion for classification of Human Capital is the difference between the forms in which it is embodied: living capital, non-living capital, institutional capital (Dobrynin, A, Datlova, S and Tsyrenova, E, 1999).

Figure 2 - Types of Human Capital according to the forms of its realization



Source: Dobrynin, A, Datlova, S and Tsyrenova, E, 1999

Distinguish the following features of Human Capital (Dobrynin, A, Datlova, S and Tsyrenova, E, 1999):

- In modern conditions Human Capital is the main value of the company and the main driver of economic growth;
- Human Capital formation requires from the person and society significant costs;

- Human Capital in the form of skills and abilities is a certain margin, i.e. can be accumulate;

- Human Capital can physically wear out, change its cost and amortized cost;

- Human Capital differs from physical capital in the degree of liquidity;

- Human Capital is inseparable from its carrier - a living human being;

- Irrespective of the sources of which can be state, family, private etc., The use of Human Capital and receiving direct income controlled by the man himself.

Nowadays, many leading firms have made building Human Capital continuous process. Availability of staff of the highest caliber and quality makes them virtually inaccessible to the less affluent of Human Capital competitors who, even with the same advanced equipment and technology, is usually not able to use them with such a high return.

Summary

Analysed all selected sources, the own definition of the term “Human Capital” could be provided.

***Human Capital** - a certain margin of health, knowledge, skills, abilities, motivation which are formed and developed as a result of investment and gained by a man, purposely used in varying areas of economic activity, contributes to the growth of labour productivity and thus affect the growth of income of its owner, business profits and national income.*

The attention should be paid to several important points arising from this definition:

– it is such stock of health, knowledge, skills, abilities, motivation, which is used to obtain the appropriate useful result and contributes to productivity growth labour, i.e. it is realised, the active portion of the labour potential;

– the use of Human Capital naturally leads to the growth of earnings of its owner;

– such income growth will stimulate further investments in Human Capital, which leads to a further increase in earnings.

3.2 Human Capital Investment: concept and forms

The mechanism of the formation of Human Capital is the investment in people that is reasonable investments in the individual in the form of money or in other form, which contribute, on the one hand, to bring income of the individual, and on the other - lead to an

increase in labour productivity. Expenditures that improve the productivity, can be seen as an investment; current expenditure carried out with the expectation that they will be compensated many times higher profits in the future.

Between investments in Human Capital and investment in physical capital, there are similarities and differences due to the similarities and differences between these types of capital.

Noting the common features Bowen wrote that investments in Human Capital such investments in physical capital in several important respects. And the one and the other are accumulated from the application of the economic resources that could be used for production of other goods and services for current consumption; for a long time and the one and other produce profit; finally both of them are limit the term of life: cars wear out, people die (Bowen, H, 1968).

Among the main features of the Human Capital, which distinguish it from the physical, are the following. Human Capital is inseparable from its carrier - a living human being. Investments in him gives quite a long time and integral nature of the effect, both economic and social. The investment period of the Human Capital is much longer than the physical.

For the latter, it is from 1 to 5 years, and such form of investments in people, as education, investment period can be up to 12-20 years. The functioning of the Human Capital, investments and the degree of the impact of its application due to the free expression of the will of the subject, his personal preferences and interests, material and moral interest, the general level of culture, including economic (Meskon, M, Albert, M and Hedouri, F, 2009).

M. Meskon, M. Albert and F. Hedouri determine the investment in Human Capital (human-capital investment) as “any measure taken to improve the productivity of workers (by improving their skills and abilities development) expenditure on improving education, health of workers or to increase labour mobility” (Meskon, M, Albert, M and Hedouri, F, 2009).

C. McConnell and S. Brue in “Economics” gave the following definition of Human Capital Investment: “Any expenditure undertaken to improve the education, skills, health, or mobility of workers, with an expectation of greater productivity and thus a positive return on the investment”, so they allocated *three types of investment in Human Capital* (McConnell, C and Brue, S, 2014):

- ***expenditure on education***, including general and specialized, formal and informal, on the job training;

- ***expenditure on health*** is the sum of expenditure on disease prevention, health care, diet nutrition, improvement of living conditions;

- ***costs of mobility***, because of which employees migrates from a relatively low capacity

places to places with relatively high productivity.

Nowadays, one of the most important components of investment in Human Capital in all countries are *spending on training* in the workplace. In either training up to 80% of knowledge is self-learning (Thurow, L, 1970). This especially applies to professions - researchers, teachers, engineers, computer experts, etc., which need to continually update their skills through individual study of literature, the use of independent learning programs, training on an example of activity, experiences and assessments (opinions) of others.

Together with the education, the most important are *investments in health*. This leads to a reduction in morbidity and mortality, prolonging the life of employable person, and therefore, time of functioning of the Human Capital. The condition of human health - is its natural capital, part of which is hereditary, and the other - acquired as a result of the expenditures of the individual and society. There is a deterioration of Human Capital during the life of man. Investments related to health, are able to slow down this process.

Within the framework of the investment in health care should be raised the health demand model, which was proposed by *M. Grossman*. In it, the individual at the same time is a “consumer” and “producer” of his or her own health. With some level of health, a person can either improve it or impair. Demand for health due to the fact that it is firstly, as other benefits, included in the utility function, and, secondly determines the total number of working hours, which the individual can devote to work in the labour market during the coming life, and hence, his future earnings (Grossman, M, 1972).

The most common form of investment in health of the carrier of Human Capital is a health insurance, both by employees and employers. The expenditures of large companies for keeping working ability of employees are constantly growing. For example, “Volkswagen” factory costs of medical care constitute 40 million euro per year, approximately the same amount constitute the subsidies for meals in the dining room. (Volkswagen: <http://en.volkswagen.com/en.html>).

People quite often change jobs and residence in all countries. In addition to moves from city to city within the same state exists the international migration. Change of working place (*mobility*) is accompanied by certain costs, both material and moral (temporary loss of income, looking for a new job, and sometimes moving in to a new place of residence, etc.). Therefore, the change of place of work involves considerable short-term investments in Human Capital. Benefits may have a long-term nature, if the man will receive a better paying job.

The model of Human Capital considers voluntary mobility as an investment, in which the short-term costs are carried out in order to obtain long-term benefits. If the current value of

the benefits of mobility, more than money, and moral costs, the decision to change the job or move is rational. If the discounted flow of benefits does not compensate the cost, people will refrain from such actions.

To the investments in Human Capital is important to include the costs of fundamental *research and development* (Becker, G, 1994).

After all, in the development of science not only intellectual innovations are created on the basis of which then new technology of production and consumption patterns are formed, but also there is a transformation of the people themselves as entities, which act as the bearers of new abilities and needs. In the information society, science turns into a kind of generator of “Human Capital”.

There are the following *features of investment in Human Capital* (Volgina, H, 2008).

1. inability to unambiguous definition of the range of costs, defined as an investment in Human Capital;
2. the diversity of the results of professional activities of labour resources;
3. the existence of a long period of time between investment funds and benefit from them;
4. the difficulty of determining the results corresponding to a specific investment;
5. the differentiation of return of education, depending on the territory, work experience and other, not directly related to learning factors .

Businesses are investing in Human Capital in order to obtain a higher income. By investing in their employees, organizations try to intensify the impact of their workers, increase productivity, reduce losses of working time and thereby strengthen competitiveness. Moreover, retrain the employee is much more profitable than to replace him (her) with a new one. According to calculations made in the company “General Electric”, the cost of training of an engineer three times less than on search, recruitment and adaptation of a new employee (General Electric: <http://www.ge.com/ru/>).

However, the risk of such investments is big enough.

In fact, increasing the education and qualification at the expense of the organization, the employee may change the place of work, and the organization will not receive the return on investments.

To minimize this risk, companies are investing their money not into the general Human Capital (i.e., general knowledge and skills, which can be used in almost every organization), but in a special (which must be used advantageously the organization). It is difficult for the employee to “sell” this knowledge to another organization. But if this happens, the organization

concludes a contract with an employee that the latter undertakes to work in the organization of a certain period (usually 7-10 years) and do not quit, otherwise the employee reimburses the full amount of investments in him (her) (for example, the cost of training) (Culyer, A and Newhouse, J, 1970).

In addition, the following *risks* can be identified (McConnell, C and Brue, S, 2014):

1. The risk of ineffective teaching. This is the risk that the company will choose not an appropriate training program, which will not bring any competitive advantages or will have only a temporary effect, as well as the risk that the staff who received investments, will not assimilate knowledge, and as a result, will not increase labour productivity.

2. The risk for the development of the program staff inconsistency with the general strategy of the company. This is the risk that the company does not tie its strategic goals with the development plan of personnel, who must reach these goals.

Evaluation of investment in Human Capital and income from its use is usually made in the monetary form. However, it should be noted that not all investments and incomes could be expressed in the monetary form. In addition to cash expenditures on education, health care and etc. aimed at enhancing Human Capital, it is also requires the hard work of the employee. In addition to cash income person who has a great Human Capital, receives moral satisfaction, timesaving, high social prestige, and many other services. Thus, investment in Human Capital as a benefit to society and an individual (**the integral social effect**).

From the society point of view, a qualified producer gives a great GNP; from the perspective of an entrepreneur - provides lower production costs and greater profits; from the point of view of the individual investments in Human Capital provide the opportunity to fully demonstrate the ability of each and as a result generate higher incomes throughout life (Culyer, A and Newhouse, J, 1970).

Human Capital Investments in large enterprises are associated with significant costs: material, time, etc. The goals of investments are dictated by the needs in training and human resources development policy of the organization. At the end of this process it is necessary to assess how well it was organized, how the specified goals are realized. Evaluating the effectiveness of investment is needed as well as the feedback on the adequacy of the process. In accordance with the general definition, the *efficiency is considered as the degree of attainment of the desired objectives as a result of specific, planned process required for its implementation certain expenses of some resources* (Cambridge dictionary).

Taking into account the specifics of the enterprise and Human Capital Investment and adhering to the characteristics above, their place and role in the strategic development of human

resources, is necessary to provide the definition of the *efficiency of Human Capital Investment: the increment of competence of trained employees of the organization, referred to the cost of its realization, which allows the employees in the process of professional activities to ensure the achievement of organizational goals.*

However, it is necessary to consider the economic aspect.

The economic efficiency of Human Capital Investment can be defined as *the ratio of economic effect to the cost of resources, which are the cause of obtaining this effect, primarily due to more productive activities of trained staff.* In addition to direct impact on the financial results of the organization, investing in development of human resources contribute to the creation of a favorable climate in the organization, increase employee motivation and loyalty to the organization, minimize the turnover, provide continuity in the management and continuity of professional knowledge and experience. Increasing the qualification and acquiring new knowledge and skills, employees are becoming more competitive in the labour market and gain additional opportunities for professional growth.

Summary

Summarizing the above information, it is possible to provide own definition of the term “Human Capital Investment”

Human Capital Investment – expenditures on education, health care and other activities of a social nature, contributing to a significant increase in labour productivity and product quality.

The process of investing in Human Capital has a high-risk nature. This circumstance is due to such reasons as:

- long duration of the investment period;
- the illiquidity of Human Capital;
- people in the production process involves only a portion of their Human Capital, while the need is to invest in the whole Human Capital;
- the relative freedom of movement of the person reduces the desire of employers to invest in its development.

3.3 The influence of the Human Capital Investment to the enterprise

3.3.1 Evaluation of the Human Capital Investment in the company

Human Capital is a concept, which falls under the standard definition of capital, worked out by the economic science.

SNA-2008 recognizes that Human Capital Investment is very similar to investments in fixed capital, because they increase the productive capacities of men and they are for them as a source of economic benefits (System of National Accounts, 2008).

However, under the current SNA methodology, Human Capital is not included in the number of capital assets on the grounds that it:

1. is not physical;
2. cannot be assigned (the knowledge and skills embodied in men, are not moveable from one person to another (cannot transferred to others) and cannot be reflected in the balance sheets of the companies for which the man work);
3. is not measurable;
4. incompatible with the conventions and institutions that govern the standard transactions which are reflected in the financial statements.

The conceptual framework for measuring the value of both human and physical capital is the neoclassical theory of investment.

The factors above complicate the ability to calculate the efficiency of investment in Human Capital. Nevertheless, in reason that the Human Capital Investment is kind of investments, it is possible to apply the same methods of evaluating the effectiveness of the investment for the Human Capital, as well as for the physical. But traditional ROI, PP, IRR, NPV and etc. methods, in this case, is impractical to use, because, as opposed to the physical capital for the Human Capital is important the accumulated return for the entire period of working capacity (even including the subsequent non-working period), but not only return during the implementation of investment project. That means that the period to benefit from investment in Human Capital does not coincide with the period of the investment.

In this paper are collected the formulas for calculating the Payback Period on investment (PP), the Net Present Value (NPV) and the Internal Rate of Return (IRR) modified to measure the investment in Human Capital (Mayo, H, 2011).

Payback Period

The most common indicator of investment projects is the payback period. In this case, by the payback period is meant the period elapsed since the investment in Human Capital to the point where the income from it will be equal to the initial investment: Due to the characteristics of Human Capital Investments, is recommended for calculations to use the discounted payback period (DPP).

Discounted Payback Period (DPP) is refund period, taking into account the time value of money (the discount rate). The main difference from a simple formula of the payback period is the discounted cash flow and the reduction of future cash flows to the current time.

$$DPP = \min n, \text{ wherein } \sum_{t=1}^n \frac{CF_t}{(1+r)^t} > IC; \quad (2)$$

Where:

DPP (*Discounted Payback Period*) – discounted payback;

IC (*Invest Capital*) – initial investment in the project;

CF (*Cash Flow*) – cash flow generated by the investment;

r – discount rate;

n – project implementation period.

At the same time, the payback rate is used as an adjunct to other indicators, such as NPV (Net Present Value).

Net Present Value

Net Present Value (NPV) is calculated as the sum of the discounted cash flows generated during the use of Human Capital, as compared to the investment costs. Its value must be positive; the higher the value of NPV, the greater the effectiveness of investment in Human Capital. Since the project of investing in Human Capital usually requires consistent investment of financial resources, in this case the formula is:

$$NPV = \sum_{t=0}^n \frac{B_t}{(1+i)^t} - \sum_{t=0}^n \frac{C_t}{(1+i)^t} \quad (3)$$

Where,

B_t – benefits from HCI at time t;

C_t – costs of HCI at time t;

t – number of periods;

i – interest rate.

Another option is to calculate NPV through expost estimation of income growth caused by investment, with using the econometric models. Based on this assessment (i.e., based on the analysis of previous experience) can be calculated the ex-ante estimates for planned investments.

Thus, it is possible to calculate the net present value for a certain period, based on econometric estimates, adjusted by a turnover rate:

$$NPV = (1 - \alpha) \sum_{t=1}^T \left[\frac{1}{1+r} \right]^{t-1} C_t \quad (4)$$

Where, α - turnover rate (the probability of employee dismissal),

C_t – econometric estimation of net income for the period t as a result of Human Capital Investment;

r – discount rate.

The formula for calculating the turnover rate:

$$\alpha = \frac{NELDY}{AH} * 100 \quad (5)$$

NELDY – Number of Employees who Left During the Year

AH – average headcount (Sappington, 1991).

Internal rate of return

Internal rate of return (IRR) is the discount rate in which the value of the net present value (NPV) is equal to zero.

To determine the IRR indicator is used the formula, which reflects the result of the calculation of the data of financial and economic activities of the facility, as well as costs associated with investment funds. It is determined by solving the following equation:

$$NPV = \sum_{t=1}^T \varphi_t * \frac{1}{(1 + IRR)^t} = 0 \quad (6)$$

Where,

φ_t – the balance of the total cash flow from investing and operating activities in t-step of calculation period;

t – sequence number of the step (from 1 to T);

NPV – net present value;

IRR - Internal rate of return.

On the other hand, since it is known that the IRR is such a discount rate at which NPV is equal to zero, then the equation above can be overwritten:

$$NPV = \sum_{t=0}^n \frac{B_t}{(1 + IRR)^t} - \sum_{t=0}^n \frac{C_t}{(1 + IRR)^t} = 0 \quad (7)$$

Where,

B_t – benefits from HCI at time t;

C_t – costs of HCI at time t;

t – number of periods;

IRR – Internal rate of return.

Table 2 - Decisions based on the results of calculations NPV and IRR (Gold, 1976)

<i>Condition</i>	<i>Decision</i>
$NPV < 0$	<p>$IRR < CC$ The project inexpedient and therefore rejected, because the HCI is unprofitable for investors (company).</p> <p>$IRR \leq r$ The project will not affect the benefit of the investors; considered</p>
$NPV = 0$	<p>$IRR = CC$ direction of investments is exactly equal to the selected rate of</p> <p>$IRR = r$ return, which is equal to the IRR (preferable to reject the project because it will not bring additional income on invested capital).</p>
$NPV > 0$	<p>$IRR > CC$ The project is appropriate and accepted, because the HCI is</p> <p>$IRR \geq r$ profitable for investors (company).</p>

Source: (Mayo, H, 2011)

Where CC – Cost of Capital or WACC;

The complexity of the calculation of IRR is the fact that it is difficult to determine factors such as job satisfaction, workplace safety, and non-monetary benefits for the individual as a

whole. The cost of the formation and improvement of Human Capital in different periods are very heterogeneous which affects its quality and impact, and in the theory are based on the homogeneity of these costs. *J. Mincer*, for example, showed that the impact in the form of earnings reach their peak when a person has worked 33.75 years, and then begins to decline (Mincer, J, 1996).

G. Becker's calculations assert that the rate of return on investment with every higher education level decreases. Thus, according to his calculations, the rate of return of university education is 12%, secondary school - 16% initial - even higher (Becker, G, 1994)

This can be explained by the dynamics of the discount rate. Opportunity costs of people grow with the age. This is due to the acquisition of additional education, which shortens the period to earn additional income from higher skill level. Assessment of economic efficiency of education by using the rates of return has a number of shortcomings and, of course, is limited. So, this kind of assessment does not take into account the impact on the efficiency of the education such factors as the quality of teaching, innate individual abilities, the amount accumulated experience, and also other investments in Human Capital.

As a rule, based on the use of *NPV* and *IRR* makes several **conclusions**:

1. The longer is the expected period of the working-age life, the more likely that the net present value of the investment in Human Capital will be positive. This explains the participation of young people in various training programs.

2. The lower the costs (both direct and indirect), the higher will be the value of NPV.

3. The greater the difference in the wages of employees who have received the different levels of education, the more people will invest in education.

The main regularities:

- the public rate of return is always lower than private;
- any rate of return in primary education is higher than in secondary and tertiary;
- the rate of return from investment in education in developing countries is higher than in developed.

3.3.2 **Jak Fitz-enz's theory (Fitz-enz, J, 2009)**

Fitz-enz's theories show how to manage one of the most difficult, "plastic" and multifaceted "assets" of the company - human resources. Numerous financial statements of companies exclusively demonstrate their economic achievements. However, no one company

cannot do without their main resource - the staff. Nevertheless, when it comes to how profitable this business is and what proportion of total income accounted for human resources, many managers get lost. J. Fitz-enz clearly shows the role of human resources in achieving the goals of the company and reveals the mechanisms of integration of these resources into the overall economic management model.

Managers perceive men as a potential source of income and are working to release this potential. They believe these efforts are an investment, not a cost, which indicates the second side component of income - income that has a lot more opportunities to increase the value. Unfortunately, belief in people as financial leverage occurs extremely rarely.

Sales per employee is a standard measure used by the government and accepted in the business environment. This equation is not only simplistic; it is out of date nowadays. Profit factor, i.e. earnings per full-time equivalent (including employees working full time, part time and non-permanent workforce). *Full-time equivalent* is the substitute for the total time of invested labour. This is the basic measure of human productivity, because it is telling us how much time was spent on the production of a specific amount of profit.

Economic value added

Economic value added, EVA, is defined as net income from operations after taxes minus the cost of capital.

$$EVA = EBIT \cdot (1 - t) - WACC \cdot EBV \quad (8)$$

Where,

EBIT – Earnings Before Interest and Taxes;

t – tax ratio (20% in RF);

WACC – Weighted Average Cost of Capital;

EBV – Economic Book Value.

Human economic value added

Human economic value added = economic value added / Full-time equivalent. (This ratio will be considered in the practical part of this thesis. It will be taken as a methodological basis for the proposed new coefficient).

$$HEVA = \frac{EVA}{FTE} \quad (9)$$

Human Capital Value Added, HCVA.

Human Capital performance issue discussed in simplified form as profit per employee. For moving to profitability on a full-time equivalent, is needed the following formula:

$$\text{HCVA} = \frac{\text{Revenue} - (\text{Expenses} - \text{Pay} - \text{Benefits})}{\text{FTEs}} \quad (10)$$

Human Capital Return on Investment, HCROI

J. Fitz-enz, through research, divided income by the number of employees as the simplest calculations of return on investment in Human Capital. It was the first indicator that appears on the report on the effectiveness of human resources in 1985 year. He also proposed a modified rate of return on investment in Human Capital.

$$\text{HCROI} = \frac{\text{Revenue} - (\text{Expenses} - \text{Pay} - \text{Benefits})}{\text{Pay} + \text{Benefits}} \quad (11)$$

Newly, subtracting the costs (except the pay and benefits), are getting an updated income measure. In fact excluded all costs that are not related to Human Capital. Then, by dividing the adjusted income measure on the Human Capital costs (salaries and benefits), could be find out the amount of revenue received per unit of input invested in the remuneration of Human Capital. (Not including training, etc.) - in fact revenue for salaries and benefits.

Thus, evaluating the activity of HR department is possible to identify the “weak” places, including in the provision of industrial health and safety, and to propose measures for their improvement. (Fitz-enz, 2009)

Human Capital Market Value, HCMV. (Tobin’s Q)

$$\text{Human Capital Market Value} = \frac{(\text{Market value} - \text{Book value})}{\text{FTEs}} \quad (12)$$

Coefficient, which measures the ratio between the market value and the replacement value of fixed assets. Sometimes the authors refer to this figure as in the measurement of the value of Human Capital. This is an interesting figure, but it is exposed to sharp fluctuations in the stock market, which are not related to the volume of capacity of the Human Capital of the

organization or the use of tangible assets. Thus, if is using this number it is need to follow it for a long period to soften the external market shenanigans.

4 Practical Part

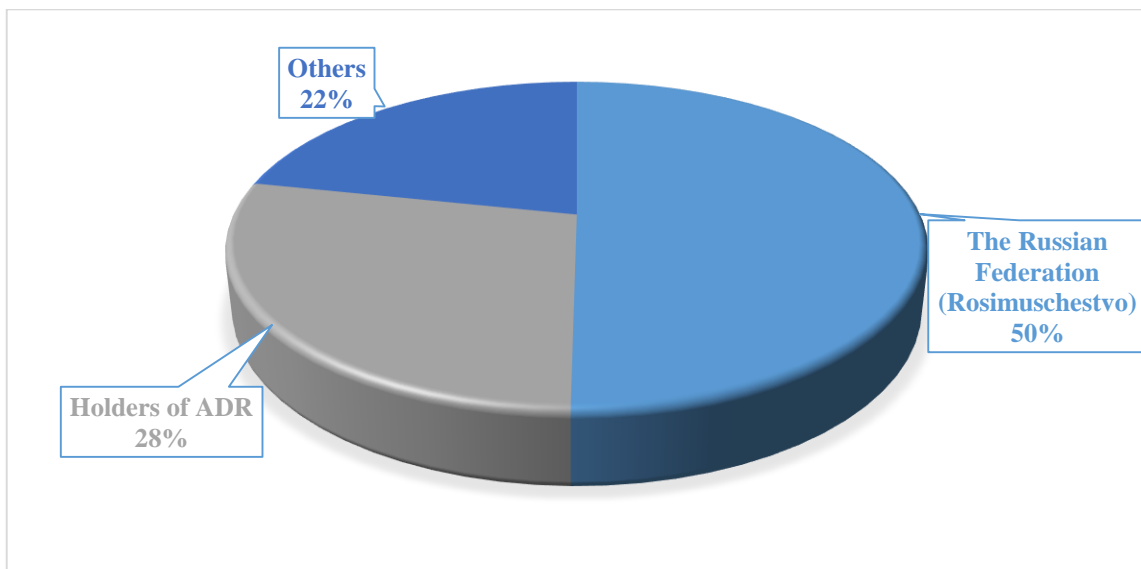
4.1 General characteristics of the Gazprom Group

PJSC Gazprom is the Russian transnational corporation. The main activities are exploration, production, transportation, storage, processing and sale of gas, gas condensate and oil, marketing of gas as a motor fuel, as well as the production and marketing of heat and electric power (Gazprom: <http://www.gazprom.com/>).

The company is among the five largest producers of oil in the Russian Federation, and is also the largest owner of generating assets on its territory. The total installed capacity is 17% of the total installed capacity of Russian power. (Gazprom: <http://www.gazprom.com/>)

Gazprom is the largest joint stock company in Russia. The total number of shareholders of the company are more than 500 thousand people. The state controls 50.23% of the company. Of these, 38.37% owned by the Russian Federation represented by the Federal Agency for State Property Management, 10.97% are owned by JSC “Rosneftegas” and 0.89% - JSC “Rosgazifikatsiya”. For ADR holders accounted 26.23% of the shares and 23.54% are in other physical and legal persons (Gazprom: <http://www.gazprom.com/>).

Figure 3 - The structure of Gazprom’s shareholders (2016)



Source: Gazprom: <http://www.gazprom.com>

The supreme Gazprom governing body is the shareholders' meeting. Directly meeting of shareholders obeys the Board of Directors, which is responsible for general management and the board, which has executive body's functions.

4.2 The level of Human Capital in PJSC Gazprom

The personnel structure

Gazprom Group is one of the largest employers in the territory of Russia. As of December 31, 2014 the Group's payroll number of employees amounted to 459.6 thousand people, which corresponds to the level as of December 31, 2013.

Table 3 - The personnel structure PJSC Gazprom , in thousands

	2010	2011	2012	2013	2014	2014 in % to 2010
<i>Number of employees, including:</i>	400.8	404.4	431.2	459.5	459.6	114.7
<i> OAO Gazprom</i>	20.7	22.1	23.3	24.1	23.0	111.1
<i> Gas production, transportation, etc.</i>	217.1	219.3	222.5	228.6	234.4	108.0
<i> Gazprom Neft Group</i>	62.5	57.6	58.6	62.8	68.9	110.2
<i> Gazprom Energoholding Group</i>	25.9	27.7	26.5	50.8	46.0	177.6
<i> OAO Gazprom Salavat</i>	0	0	15.6	16.2	13.8	-
<i> Other subsidiaries</i>	74.4	77.7	84.7	77.0	73.5	98.8
<i>by categories:</i>						
<i> management</i>	48.9	51.8	56.1	61.6	64.3	131.5
<i> specialists</i>	97.4	102.7	111.2	120.8	119.5	122.7
<i> workers</i>	238.1	232.9	245.4	256.4	252.8	106.2
<i> other employees</i>	16.4	17.0	18.5	20.7	23.0	140.2
<i>by age:</i>						
<i> under 30 years</i>	73.3	75.6	82.8	87.3	82.7	112.8
<i> 30-40 years</i>	109.4	110.8	119.9	130.0	133.3	121.8
<i> 40-50 years</i>	119.4	117.3	119.9	124.1	124.1	103.9
<i> 50 years and over</i>	98.6	100.7	108.7	118.1	119.5	121.2

Source: Gazprom: <http://www.gazprom.com>, own calculations

For 5 years there has been growth in all categories of employees of all ages and in all sub-companies of *the Group*. *Gazprom Group's* growth in number of employees is due to

increase in the number of companies included in the *Gazprom* energy holding, and number of employees of Gazprom Neft. The growth and development takes place evenly over the entire company and at every level.

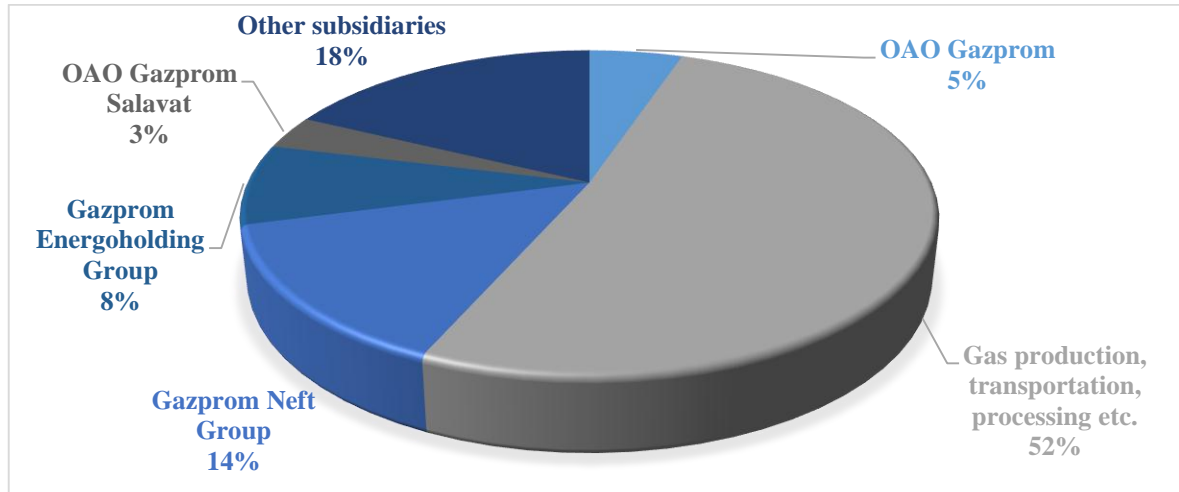
Thus, the turnover in the affiliated companies engaged in production, transportation, processing and storage of gas, accounted for 2% in 2010 and 2011 and about 2.4% in 2014.

Youth and middle age workers accounted for 47% of the total number of employees, and 82.7 thousand people (18% of total employees) are under 30 years. (For this category of workers Gazprom provides special support, it will be considered further).

In the personnel reserve for promotion to senior positions at all levels of the company in the year 2014 is about 14 thousand people, in the year 2013 from the personnel reserve the candidates amounted to more than 65% of all appointments to executive positions.

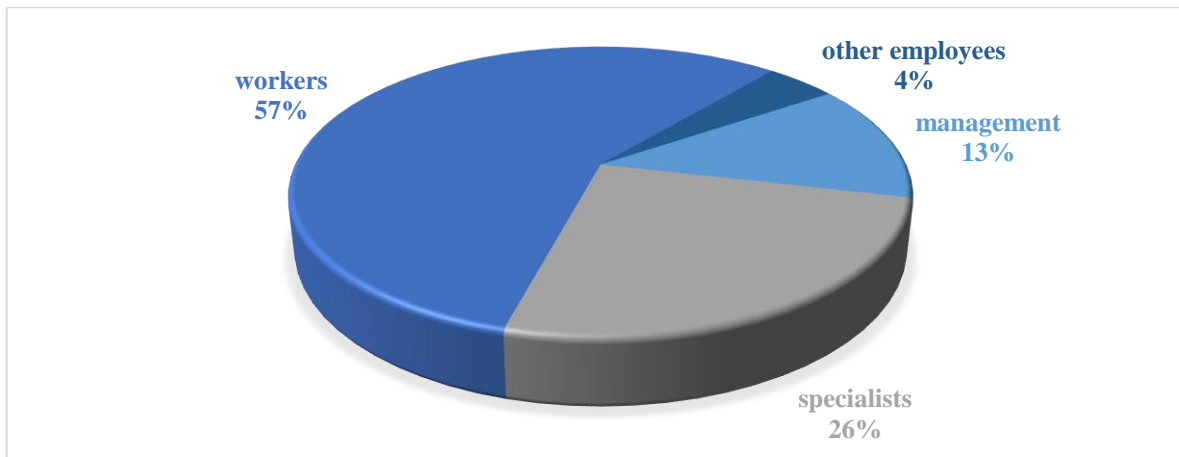
At the end of 2014 fly-in fly-out method was used in 33 companies of the Group. The number of fly-in fly-out personnel was 31.2 thousand people, of which 93.3% were employed at facilities located in the Far North and equivalent areas. The structure of the fly-in fly-out personnel consists of workers, 22.3 thousand people by the end of 2014, or 71.4%.

Figure 4- PJSC Gazprom’s average structure by subsidiaries 2014



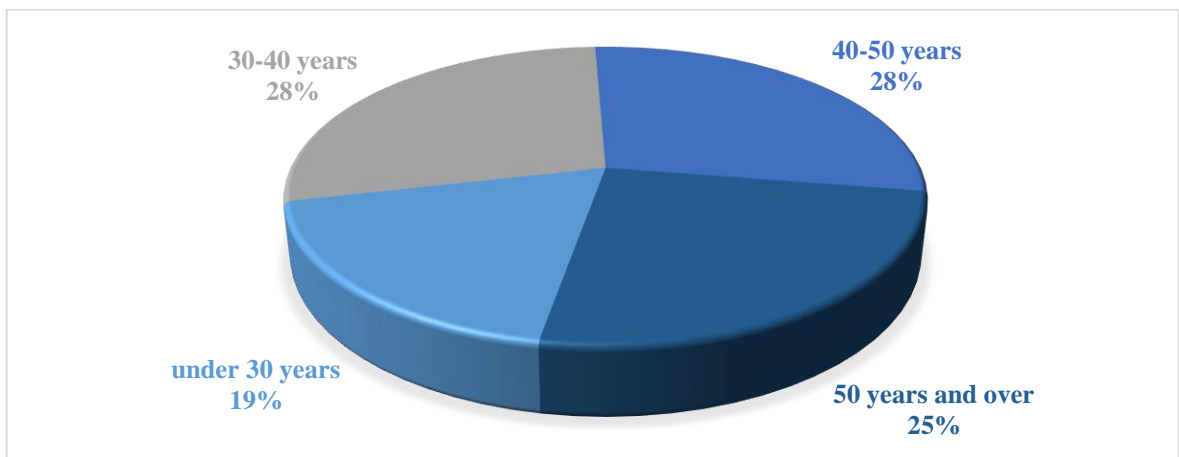
Source: Gazprom: <http://www.gazprom.com>, own calculations

Figure 5 - PJSC Gazprom's average structure by categories of workers 2014



Source: Gazprom: <http://www.gazprom.com>, own calculations

Figure 6 - PJSC Gazprom's average structure by the workers' age 2014



Source: Gazprom: <http://www.gazprom.com>, own calculations

During the study period, the structure of the Group's personnel has not changed. The team of Gazprom Group companies are characterized by high stability. The charts below shows the structure in 2014.

The Human Recourse policy of the PJSC Gazprom is based on the concept of human resource management, in terms of which is essential to improve the efficiency of Human Capital Investment of the company in order to ensure continuous professional growth and high performance staff. Thus, the company's HR policy is focused primarily on the development of personnel, not only at bringing its membership into line with the availability of working seats.

Human Resource Management of the energy company is organized, focused and continuous impact on the stuff, as well as the implementation of systematic control over its

activities in order to make the most efficient use of human resources (human resource capacity) in the interest of the company while maintaining a professional efficiency and health of workers.

The Company's HR management policy is based on:

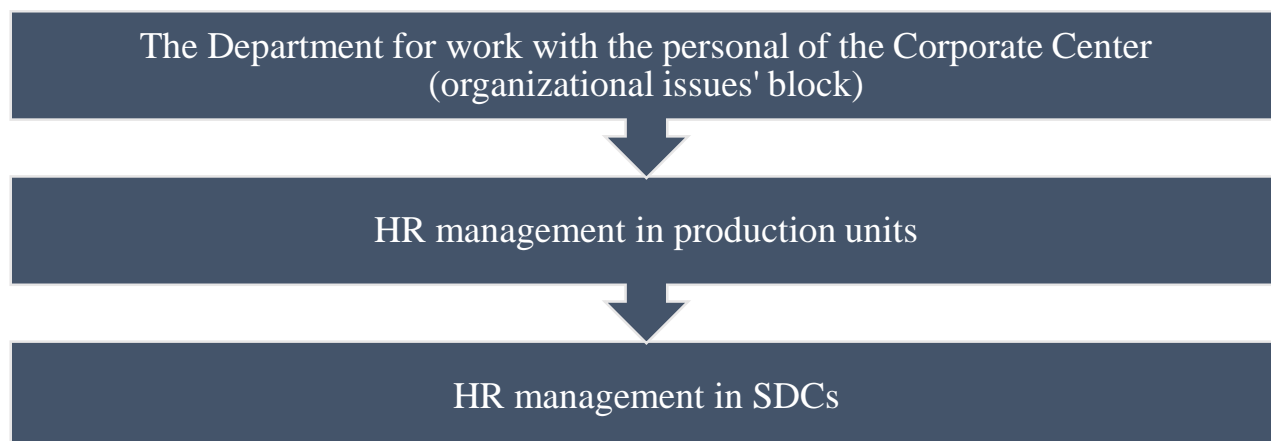
- Russian Constitution,
- Russian Labour Code,
- Regulations on the system of continuous corporate professional education of personnel of JSC "Gazprom" (Gazprom's order dated 11/19/2010, no. 295)
- and other regulations

HR regulatory documents and the Collective Agreement have been drawn up in strict compliance with these laws and regulations (Gazprom: <http://www.gazprom.com>).

In "Gazprom" is well aware that the staff of the company is its main value. In 2013, the Company began implementation of a new system of interaction between the units of human resources management structure - HR-business partner system. Within its framework, each sub-company will be "fixed" by the specialist of the Department for Work with the personal of the Corporate Center. His task is the organization of operational cooperation between the Corporate Center and its SDCs within the HR function.

In addition, the Company developed an Employee Value Proposition. This is a complex of material, professional and social benefits that the company offers to its employees.

Figure 7 - The organizational structure of personnel management, Gazprom



Source: Gazprom: <http://www.gazprom.com>, own work

The Group maintains the average industrial wage of the labour market. The wages of the employees is reviewed annually, taking into account individual performance. The results of

each employee are evaluated on the basis of management by objectives system adopted in *the Company*.

The table below contains data about wages, bonus payments and other benefits, which *Gazprom* provide for the employees.

Table 4 - Wages, bonus payments and benefits to employees in *Gazprom*, million rubles

	2010	2011	2012	2013	2014	2014 in % to 2010
<i>Wages and salaries</i>	246,243	263,981	292,454	337,960	378,371	153.66
<i>Estimated expenses for bonus payments at the year end</i>	19,520	21,745	24,306	28,547	34,530	176.90
<i>Expenses for vacation pay</i>	16,156	17,931	20,156	23,940	25,704	159.10
<i>Expenses for retirement benefits payable as a lump sum</i>	10,735	14,276	16,669	15,027	19,101	177.93
<i>Total</i>	292,654	317,933	353,585	405,474	457,706	156.40

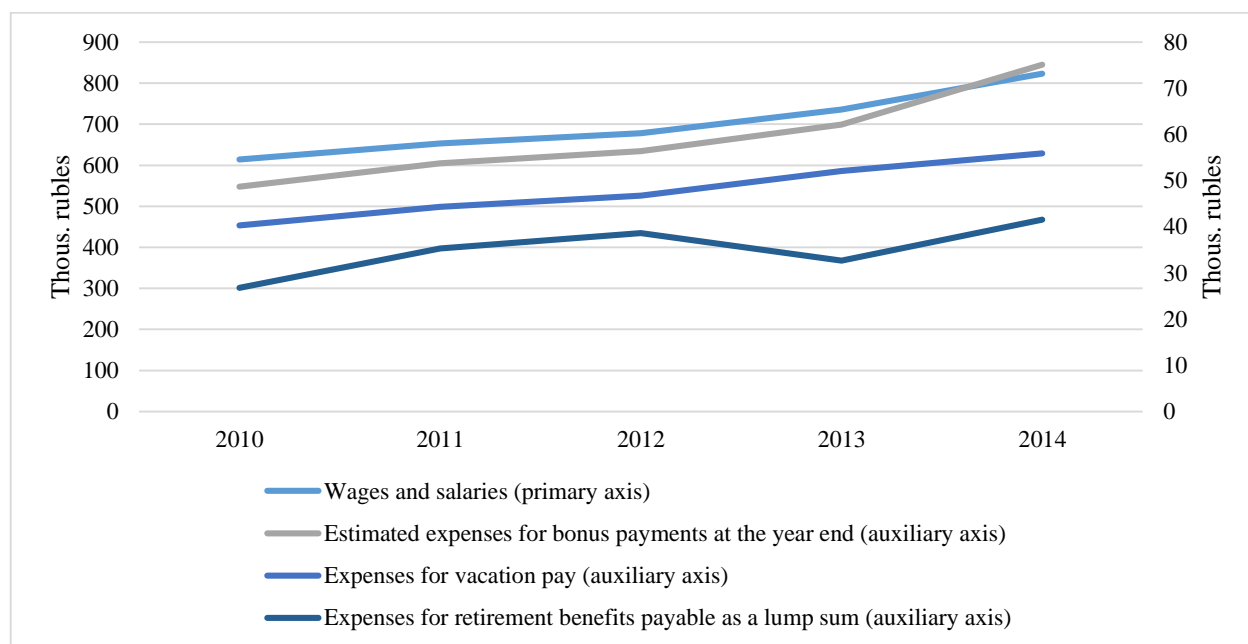
Source: *Gazprom*: <http://www.gazprom.com>, own calculations

In the analyzed period there is a significant growth in all indicators.

Since 2012 a unified form of corporate statistical reporting № 161 gas “Indicators of the cost of human resources” with the use of automated personnel management system put into operation. Unified form allows to analyze the data about the costs of human resources, including the assessment of labour costs of employees of the Group.

The remuneration of employees in the areas with specific climatic conditions is provided a higher rate of wages in accordance with the labour legislation of the Russian Federation. Depending on the region of work performance to the wage of workers apply the district coefficients (up to 1.8) and interest allowances for work in the far North and equivalent areas (up to 80%). In order to strengthen the competitive position in the labour market, the Company regularly compares wages of *Gazprom* Group with other companies of the fuel and energy complex, as well as the level of wages in the regions of its presence. Wages of employees of *Gazprom* Group is comparable with the market level.

Graph 1- Wages, bonus payments and benefits per 1 employee in Gazprom, thousand rubles



Source: Gazprom: <http://www.gazprom.com>, own calculations

After analyzing the above table and graph the following can be concluded that: workers' wages benefits fund for the 2010 - 2014 year increased 2.2 times, bonuses and benefits fund - by 1.7 times, which is a positive for the company's employees. The graph clearly shows that in 5 years takes place the growth of all parameters.

The average annual growth of average wages for the period 2010-2014 years amounted to approximately 17.8%. The average salary of employees of the Company in 2014 amounted to 74,208 rubles, which is 19% higher than in 2013 and 1.2 times higher than the average wage in the Russian Federation in the energy field in 2013 (www.gazprom.com / www.gks.ru).

The growth of the average monthly wage in 2012-2013 was provided by indexation of salaries and wage rates of employees of the Company by 6.0% from 1 January, 2012, and by 7.1% - from 1 January 2013.

The company provides employees a higher level of benefits, guarantees and compensations in comparison with the established laws, regulations and the industry agreement.

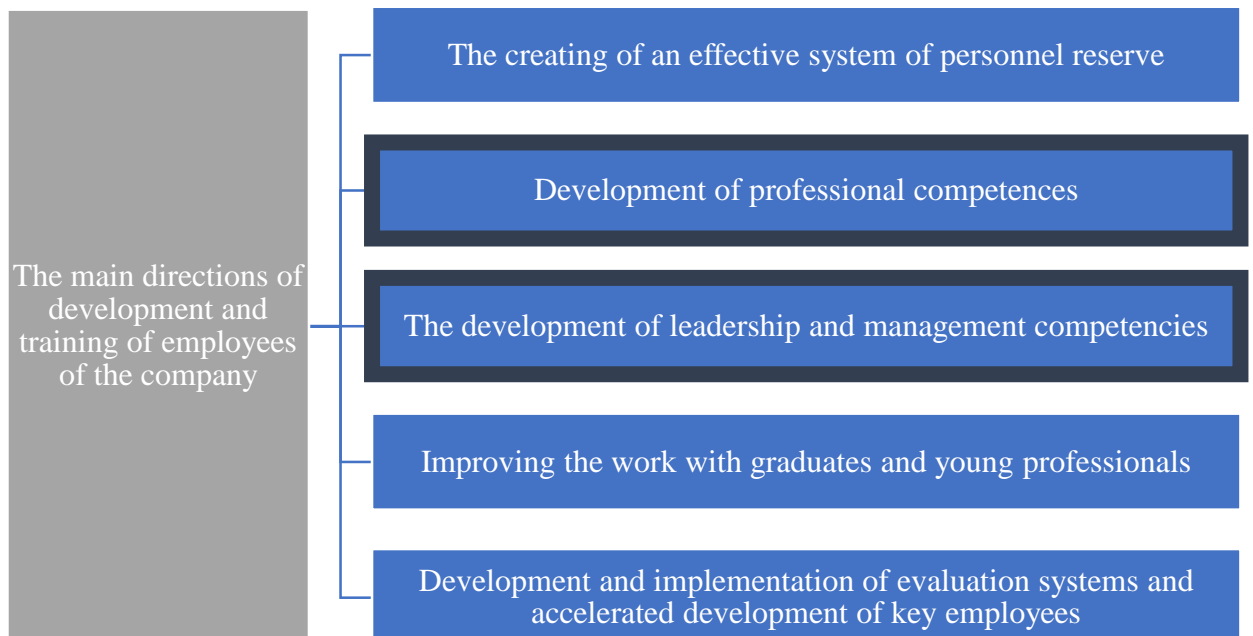
The Company applied the same for all companies standards of training and staff development. Corporate staff development programs are formed taking into account the strategic objectives of the Company and the results of the assessment of management and professional staff competence.

Human Resources Management Strategy of PJSC “Gazprom” is focused on the supporting the achievement of the Company's strategic goals. In 2013, the Company's personnel strategy was updated in accordance with the new strategy of Gazprom until 2025. (The following is a sample, which corresponds to the definition of “Human Capital Investment”, which was proposed in the theoretical part of this study)

Fields of work and implementation of the initiative:

1. System selection and movement of staff.
2. Talent management, competence development and training:
 - Development and implementation of target programs for the development and training of staff on the basis of professional / technical / managerial / leadership competencies;
 - Improvement of work with graduates and young professionals;
3. The development of labour productivity and the organizational effectiveness
 - Implementation of tools for planning the staffing levels and labour productivity;

Figure 8 - The main directions of development of employees



Source: Gazprom: <http://www.gazprom.com>

4.3 Human Capital Investment in PJSC Gazprom

Based on theoretical studies in chapter 3, as well as on the data collected about the Group, could be said that investing in Human Capital in the PJSC “Gazprom” is performed by the following methods (ways):

1. Investing in education, training and retraining of personnel (Gazprom Training centers, ex “Gazprom international training”.);
2. Payments for medical support of staff, including voluntary medical insurance (OJSC “SOGAZ”). (Also, payment of sanatorium treatment of workers, subscriptions to health groups and corporate discounts for the purchase of subscriptions to sports clubs);
3. Payments for the correct, balanced diet of workers at the workplace (JSC “Gazprom torgservis”);
4. Housing provision for employees with using the mechanism of mortgage lending. (OJSC “Gazprombank”, “Gazpromipoteka” Found)
5. The Company also provides social benefits (social support for different categories of staff by providing financial assistance, benefits and compensation) and private pension provision (NPF “Gazfond”). (Not fully include into the definition of HCI).

For the implementation of the process of determining the necessity and amount of investments in Human Capital, Gazprom passes through a series of mandatory steps. These steps reflect the complex heterogeneous and multi-process structure. Their goal is to take into account all relevant key moments in the organization of the learning process, insurance, etc. in which the process can change its direction (bifurcation points).

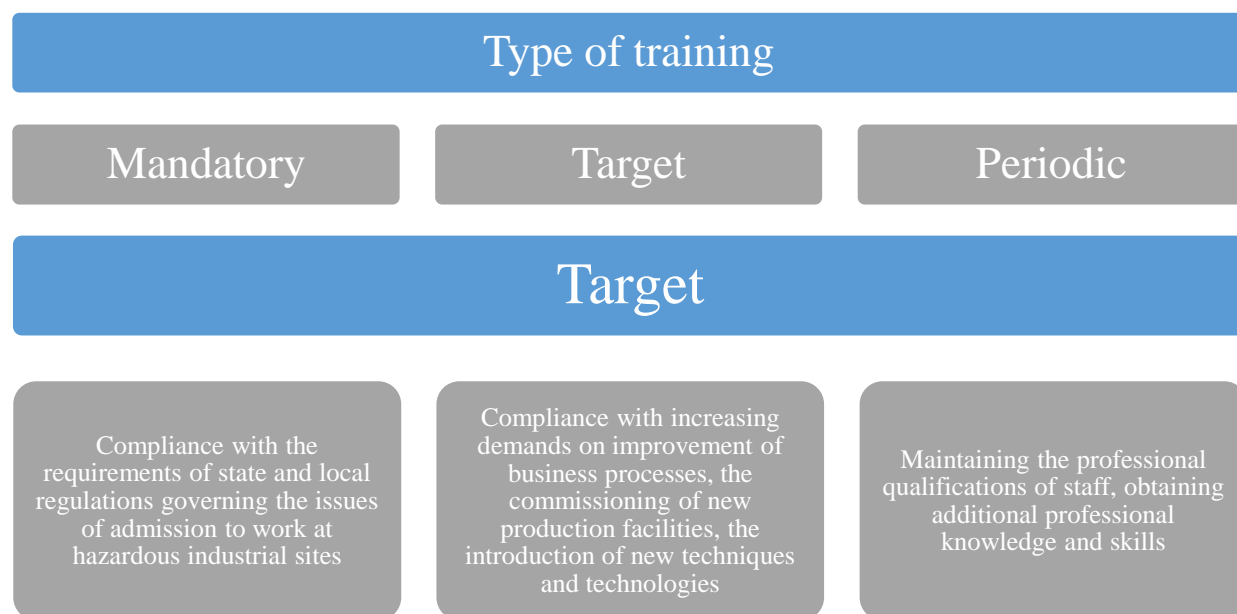
This concept consists of seven stages:

- the identification of the need in investment;
- forming of budget;
- the identification of the investment objectives and assessment criteria of its effectiveness;
- the identification of program content and a selection of forms and methods of implementation of the investment process;
- the investment process;
- realization of professional skills and knowledge;
- evaluation of investment efficiency.

Investment in education, training and retraining of personnel

The company management welcomes the commitment of employees to raise their level of professional competence and invest heavily in the professional development of staff in order to increase the value of the company's Human Capital.

Figure 9 - Forms of education, training and retraining of personnel of the Group



Source: Gazprom: <http://www.gazprom.com>

The most important is the Provision on Continuous Vocational Education and Training System for PJSC Gazprom Employees. In addition, Gazprom adopted the Provision on Psychological Support to Personnel Management in the Company, the Provision on Health Care Services for PJSC Gazprom Employees, Non-Working Pensioners and their Family Members, etc. A crucial social guarantee is the payment of extra pensions by Gazfond Non-State Pension Fund.

Gazprom cooperates with the following leading educational institutions of Russia (Gazprom: <http://www.gazprom.com>):

- Gubkin Russian State University of Oil and Gas;
- Saint-Petersburg University of Economics;
- Tomsk Polytechnic University;
- National Mineral Resources University;
- Kazan National Research Technological University;
- Ukhta State Technical University;

- Lomonosov Moscow State University;
- Bauman Moscow State Technical University;
- National Research University Higher School of Economics.

Medical support for employees

Gazprom implements a set of measures to improve the health and prevention of diseases of employees and their families. If an employee has a medical condition, which provide their sanatorium and rehabilitation treatment, it is carried out under direct contracts with medical institutions and through voluntary health insurance system. Health centers and medical facilities used for medical support. They are on the balance of the subsidiaries, as well as third-party medical facilities used by the voluntary health insurance contracts.

The organization of a balanced nutrition for employees

Catering service is carried out with taking into account the specifics of the employees. During the formation of the daily menu are used the dishes whose production is regulated by acting on the territory of the Russian Federation of technological documents. In *Gazprom* are using the recipes that have been developed in the company for the production of healthy, functional, sparing and preventive nutrition. In the Group is used the departmental collection of recipes of dishes developed with the support of the Scientific Research Institute of Nutrition of the Russian Academy of Medical Sciences.

Housing provision for employees

An important part of the investment policy of PJSC “*Gazprom*” is solving the housing problems of employees. Assistance in addressing these issues enables the Group to create a competitive advantage in the labour market, to attract and retain highly qualified employees. In 2012-2013 years benefits for the acquisition of housing were given to 11.5 thousand employees and retirees, which is two times higher than in 2010-2011 years.

The reason for this increase in numbers is the transition of JSC “*Gazprom*” for a new mechanism for implementing the housing policy in the form of bank mortgage lending with the provision of subsidies to certain categories of workers in mortgage lending at the expense of the employer.

Table 5 - The investment costs of Human Capital in the Gazprom Group (2010-2014)
million rubles

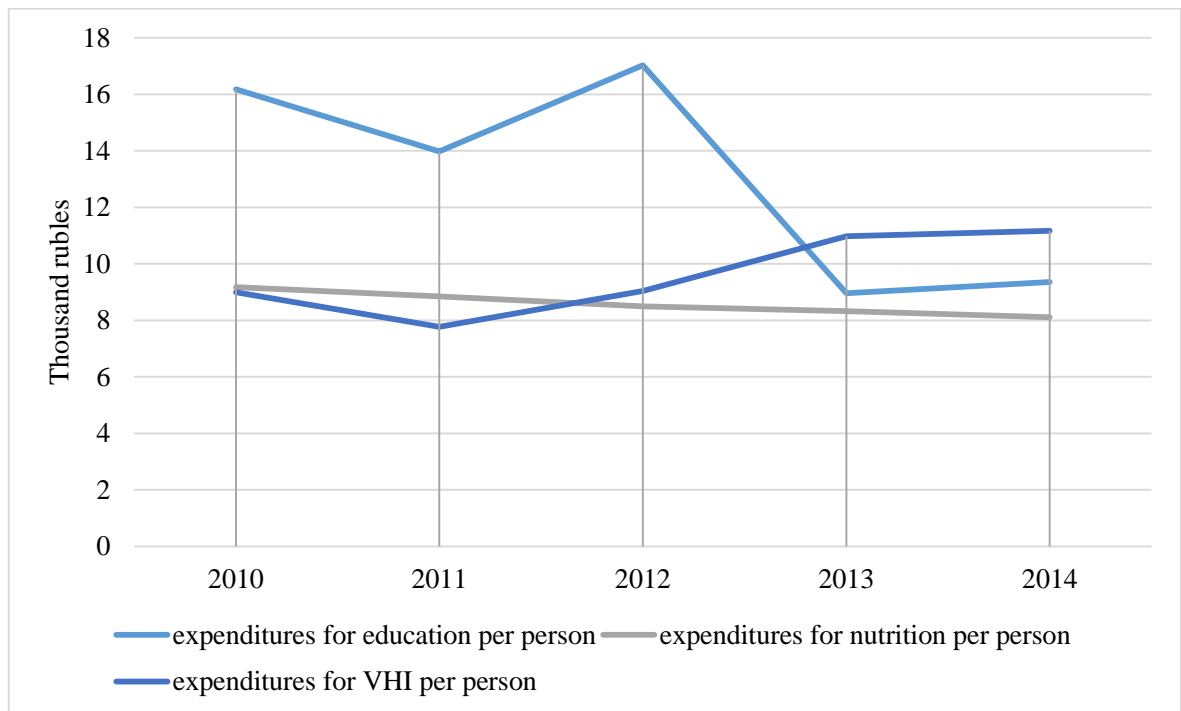
	2010	2011	2012	2013	2014	2014 in % to 2010
Number of employees who received corporate training, people	151,826	165,786	178,928	261,780	265,100	174.61
<i>Including:</i>						
<i>Managers</i>	92,879	99,420	87,085	106,011	100,738	114.67
<i>Workers</i>	58,947	66,366	91,843	155,769	164,362	278.83
Total training time, hours	21,673,509	21,861,710	11,838,301	22,641,954	23,484,430	108.36
<i>Managers</i>	3,860,810	4,286,430	3,030,558	4,494,866	4,640,001	120.18
<i>Workers</i>	17,812,699	17,575,280	8,807,743	18,147,088	18,844,429	105.79
Spending on the educational programs	2,456.25	2,318.4	3,047.2	2,345.58	2,480.4	100.98
Expenses for the VHI	3,604.00	3,142.80	3,897.16	5,046.83	5,135.85	101.31
Expenses for employees nutrition	3,678.04	3,579.67	3,664.34	3,825.07	3,726.21	142.50
Total HCI	9,738.29	9,040.87	10,608.70	11,217.48	11,342.46	116.47

Source: Gazprom: <http://www.gazprom.com>, own calculations

Expenses in vocational training (teaching) of personnel of the company in 2014 amounted to 2,480.4 million rubles, that almost 140 million rubles more than was spent on training and skills development in 2013. Expenditure on social benefits in 2014 totaled on average 36.5 thousand rubles per employee. Professional training in 2014 passed 265.100 people, which is almost 2 times more than in 2010. About 80% of managers and more than 60% of specialists and employees improved their professional competence.

The chart below illustrates the changes in the expenditure for education, insurance and nutrition per worker during 5 years.

Graph 2 - Changes in in the expenditure for education, insurance and nutrition per 1 worker in PJSC Gazprom (2010-2014)



Source: <http://www.gazprom.com>, own calculations

It could be noted that there is a tendency to decrease the education spending. This is due to the increase in the number of employees which are involved in the processes of training and retraining. Expenditures on nutrition remain virtually unchanged during 5 years. Insurance payments per person grew every 5 years and in 2014 amounted to 11.2 thousand rubles.

4.4 Calculation of coefficient HCROI and HCVA of PJSC Gazprom

The level of return on investment can give a fairly complete picture of the economic impact of investment in Human Capital. One of the difficulties of accurately counting of the real level of payback is that the productivity of a certain amount and type of investment in Human Capital can be quite different, that essentially distinguishes it from physical capital. The main problem is to determine the economic impact of investment in Human Capital. Numerous empirical studies have shown that levels of return on investment in it and in physical capital are comparable, although various forms of investment in Human Capital can define different levels of return (Fitz-enz, J, 2009).

The impact of service personnel is determined by the evaluation of the effectiveness of investment in Human Capital, i.e. return on investment (ROI). It is calculated by the following formula:

$$HCROI = \frac{\text{Revenue} - (\text{Expenses} - (\text{Pay} + \text{Benefits}))}{\text{Pay} + \text{Benefits}} \quad (13)$$

In calculating the HCVA in case of Gazprom could be changed the basic formula, because of the impossibility to calculate the FTE for the Company; modified formula:

$$HCVA = \frac{\text{Revenue} - (\text{Expenses} - \text{Pay} - \text{Benefits})}{\text{Number of employees}} \quad (14)$$

Table 6 - Calculation of HCROI and HCVA PJSC Gazprom (2010-2014), million rubles

	2010	2011	2012	2013	2014
<i>Revenue</i>	3,661,699	4,735,822	5,002,902	5,247,300	5,660,975
<i>Expenses</i>	2,499,867	3,111,062	3,646,298	3,817,626	4,317,233
<i>Pay + Benefits</i>	292,654	317,933	353,585	405,474	457,706
<i>HCROI</i>	4.97	6.11	4.84	4.53	3.94
<i>HCVA</i>	4.03	5.31	4.47	4.46	4.52

Source: Gazprom: <http://www.gazprom.com>, own calculations

The value of HCROI indicator can only be assessed in comparison with other companies, ie using the benchmarking process. (The process of study and evaluation of products, services, management and experience of those companies that are recognized leaders in the segment). To evaluate the obtained indices of the company Gazprom, they should be compared with other leading oil and gas companies of the Russian Federation (Tatneft and Rosneft (the main competitors of Gazprom)).

Table 7 - Calculation of HCROI and HCVA PJSC Rosneft (2010-2014), million rubles

	2010	2011	2012	2013	2014
<i>Number of employees</i>	167,854	168,400	166,100	228,000	248,900
<i>Revenue</i>	1,919,000	2,718,000	3,078,000	4,624,000	5,503,000
<i>Expenses</i>	1,535,000	2,269,000	2,696,000	4,139,000	4,910,000

<i>Pay + Benefits</i>	90,000	97,000	123,000	185,000	231,000
<i>HCROI</i>	5.27	5.63	4.11	3.62	3.57
<i>HCVA</i>	2.82	3.24	3.04	2.94	3.31

Source: Rosneft: <http://www.rosneft.com/>, own calculation

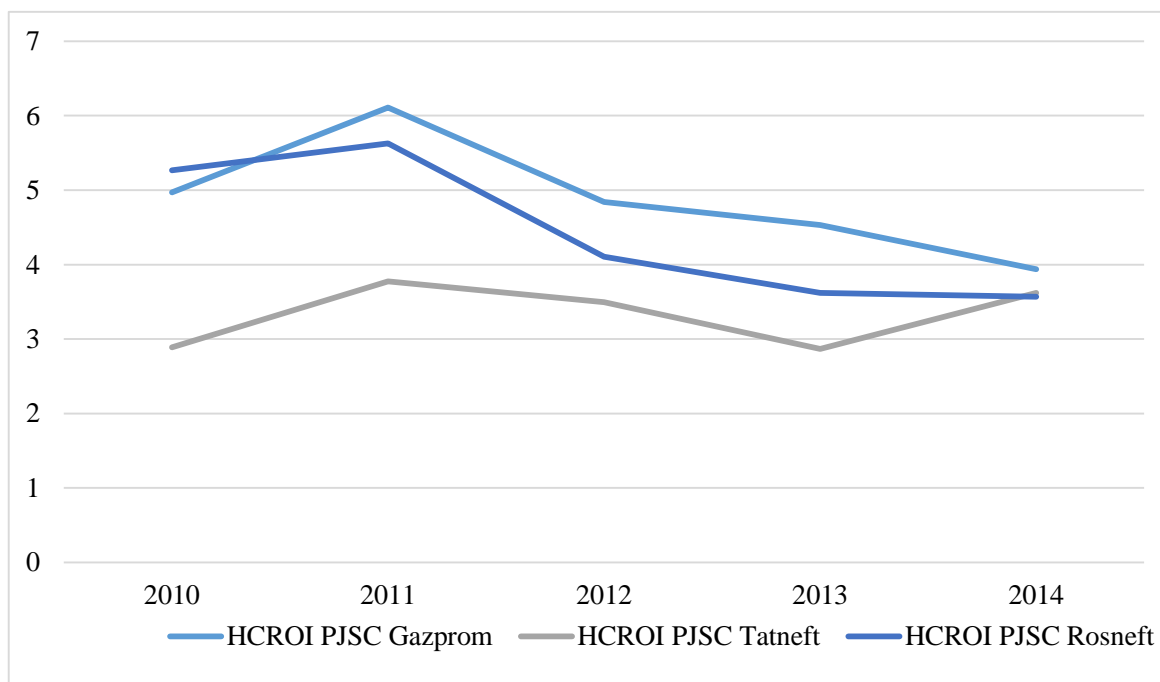
Table 8 - Calculation of HCROI and HCVA PJSC Tatneft (2010-2014), million rubles

	2010	2011	2012	2013	2014
<i>Number of employees</i>	73,700	74,200	77,000	77,000	76,000
<i>Revenue</i>	468,032	417,586	444,099	454,983	479,360
<i>Expenses</i>	403,935	323,004	342,424	369,827	350,574
<i>Pay + Benefits</i>	33,960	34,083	40,750	45,589	49,151
<i>HCROI</i>	2.89	3.78	3.50	2.87	3.62
<i>HCVA</i>	1.33	1.73	1.85	1.70	2.34

Source: Tatneft: <http://www.tatneft.ru/?lang=en>, own calculation

For illustration purposes, the data could be present in a graphical form

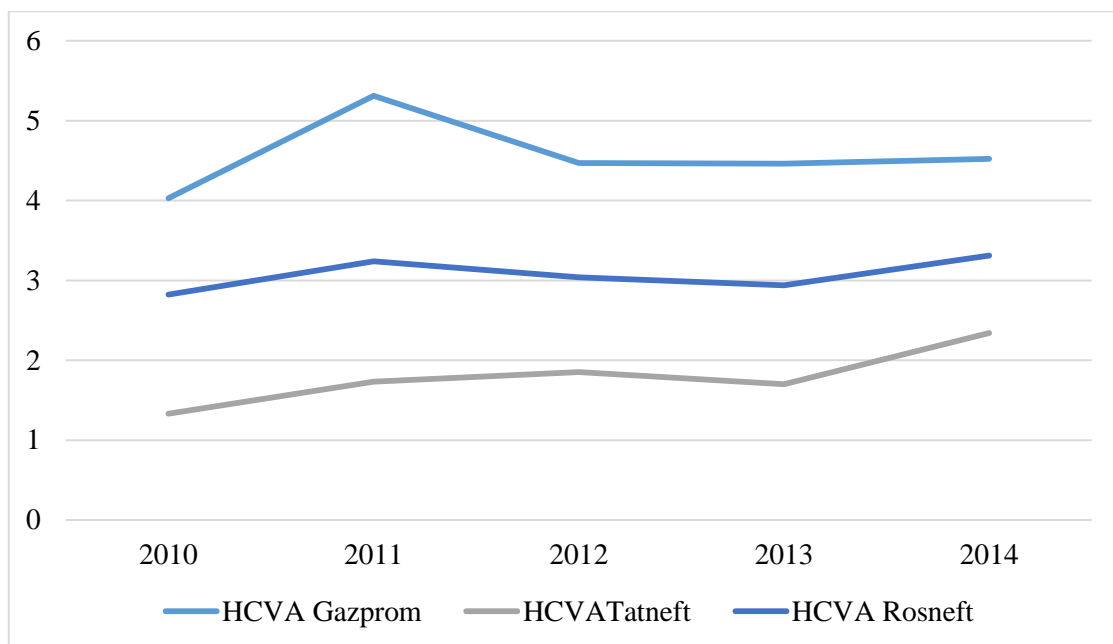
Graph 3 - HCROI: PJSC Gazprom, PJSC Tatneft, PJSC Rosneft (2010-2014)



Source: Gazprom: <http://www.gazprom.com>, Rosneft: <http://www.rosneft.com>, Tatneft: <http://www.tatneft.ru/?lang=en>, own calculation

The graph shows that for 5 years, Gazprom has been the leader in the industry by the HCROI indicator. In case of Gazprom's the rate of return on Human Capital Investment is equal to 1 unit of investment: 3.94 units of return in 2014. This is almost 8% higher than in Rosneft and 9% more than in 2014 in Tatneft. From this, can be concluded that Gazprom has a significant competitive advantage in the market of jobs. However, it should be noted that the HCROI indicator in Gazprom, though higher than in the rest companies in the industry, but it has a tendency to decrease (unlike Tatneft). This suggests that the management of the Company and its HR department operate inefficiently and their actions lead to a decrease in the return on investment in Human Capital per 1 unit of investment, but this, also lead to the opportunity of improving their actions on the field of human resource management. It should be noted that the decrease in HCROI indicator comes with an increase in monetary investments of Gazprom in Human Capital. (This problem will be described in more detail in next chapters)

Graph 4 - HCVA: PJSC Gazprom, PJSC Tatneft, PJSC Rosneft (2010-2014)



Source: Gazprom: <http://www.gazprom.com>, Rosneft: <http://www.rosneft.com>, Tatneft: <http://www.tatneft.ru/?lang=en>, own calculation

HCVA is an indicator that shows the profitability of the “average” employee of the organization. It is assumed that the effective use of all types of expenses for the staff should influence the value of this ratio. The Human Economic Value Added is the adjusted indicator of return on investment.

Analyzing the data received in the calculation, is possible to see that unlike HCROI HCVA indicator has no downward trend. However, in Gazprom, in contrast to two other companies, this figure is not growing. This confirms the results obtained from the analysis of the HCROI.

4.5 Proposed indicator Return on Use of Human Capital

The central place in theory of Human Capital is the research of approaches to evaluate the effectiveness of investment in it, that is the most problematic and controversial topic in the field of Human Capital management. Especially actual task is to build the concepts and methods of evaluating the effectiveness of investments in the personnel of the company.

In spite of the numerous works that explore the Human Capital and the diversity of approaches to the evaluation of investments in it, in practice, the measurement of the value of this type of capital are still unsolved problem. The main difficulty lies in the fact that some of the assets of Human Capital cannot be directly estimate, for example, there is no direct way to measure any amount or price of human abilities. That is why it is necessary to resort to all sorts of indirect methods of evaluation, use not only quantitative but also qualitative approaches, as well as indirect indicators. Besides, the calculation of cost value is, in itself, very time-consuming process, a much greater difficult is collecting, processing and evaluation of the reliability of the necessary information, and this applies to any level of study (macro-economic, regional, corporate).

Analyzed different approaches to the definition of economic efficiency of investment projects in Human Capital, it was concluded that almost all of these approaches are reduced to the determination of the effectiveness of investments in education. But, to judge the effectiveness of investments in Human Capital only on the basis of investment in the education component is impossible, because the investment in Human Capital can be investments in health, culture, science, motivation and so on.

From author's point of view, the method of determining the efficiency of investments, turned to investments in education, does not fully reflect the effectiveness of investments in Human Capital; it cannot be taken as a basis in determining the effectiveness of investment in Human Capital. This issue has become central to microeconomic researches, as investment in Human Capital can be profitable for both the employee and for the company itself.

Due to the fact that there is no developed base of analysis for assessing the efficiency of investment in Human Capital author would like to provide a new coefficient based on:

- Jac Fitz-enz ideas (**HEVA**), (Fitz-enz, J, 2009)

$$HEVA = \frac{EVA}{FTE} \quad (15)$$

- **Labour Intensity.**

$$LI = \frac{\text{Number of work hours in a year (man/hour)}}{\text{Volume of production (in monetary terms)}} \quad (16)$$

In the nominator was suggested to use EVA and in the denominator - the labour intensity:

$$RUHC = \frac{EVA}{LI} \quad (17)$$

Where:

EVA – economic value added;

LI – Labour intensity.

Economic Value Added

Of all existing indicators to evaluate the process of creating the enterprise value, the most famous and common is Economic Value Added. This figure is an indicator of the quality of management decisions, as his constant positive value indicates about creating the added value of the enterprise, negative value indicates about decrease in value.

Economic value added characterizes the economic profit, which is extremely important in the context of a market economy, because it characterizes the performance of enterprises.

- is an instrument for measuring the “surplus” of the value created by the Investment;
- it is an indicator of the quality of management decisions: a constant positive value of this index indicates about the increase in the company's value, negative - about the decrease;
- serves as a tool to determine the rate of return on capital (ROC), allocating a part of the cash flow earned by the investment;
- based on the cost of capital as a weighted average of the various types of financial instruments used for financing investments;
- allows to determine the value of the company, and also allows to evaluate the performance of individual business units.

Labour intensity

The labour intensity belongs to the key economic indicators and allows to evaluate the efficiency of use of working time in the production of goods or services, as well as in the performance of any work. This ratio tells how much labour must be expended for the manufacture of a product unit.

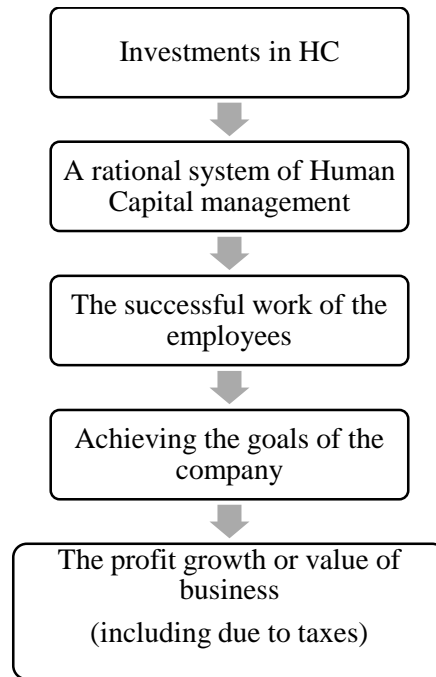
The calculation of the coefficient of the labour intensity is done mainly in the preparation of the plans for the next reporting period to substantiate the business plan, as well as to analyze how effectively the labour force is used. Many different reasons affect the value of the labour intensity, but among of them are the main ones: the level of qualification of personnel, number of trained personnel, the degree of automation, working conditions and etc. The main point is that *Labour Intensity* shows us exactly the efficiency of Human Capital Investment. I.e. not the amount of expenditures on Human Capital of the Company, but how investments affect the work of employees.

It could be assumed that in case of successful investing in Human Capital, this will entail a reduction in labour input, in labour intensity (in other words, to increase in labour productivity).

Reason to use the RUHC

Using the indicator “Return on Use of Human Capital” (RUHC) to evaluate the efficiency of investments in Human Capital is justified as follows. As is known in the basis of a favorable long-term financial position of the company is the successful management of the organization from the top management. This is connected to the fact that the activity is successful enough when disparate business areas, diverse processes inside and outside, as well as the disparate interests of the owners of the company, the top management and employees turned into one mechanism. This is possible only through controlled processes and system integration activities. As a result, rationalized and activates the direction of each link of the organizational chain to achieve the main goal - profit, and formed the following chain:

Figure 10 - Economic dependency in management of the company



Source: (Copeland, T, Koller, T and Murrin, J, 2014), own work

Other words profit in the company created not by itself, but it has a very real and quantifiable value. In fact, the profit arises only when consumers value of goods (works and services) higher than the cost of creating the products. This means that the staff of the organization found a way to use the resources (including the cost of investment in Human Capital), which is more beneficial from the economic point of view.

This process can be controlled, which led to the formation of the foundations of the concept of management focused on cost (the concept of VBM). This value is understood by those economic values which are formed as a result of the company (Copeland, T, Koller, T and Murrin, J, 2014).

The main criterion of efficiency of activity in the concept of cost management VBM (From all set of alternative objective functions under the concept of VBM is chosen to maximize the company's value.) is the indicator “economic value added”, which characterizes the economic benefits of the company and allows to find out if the company earns enough compared to alternative investments. (This approach is more economic than accounting.)

The advantage of using the proposed indicator is that the denominator consists the main incentives of productivity growth.

In this case, it could be assumed that the main value of purposed indicator is that it shows the efficiency of Human Capital Investment. Not the return on investment in monetary term, but the quality of investment.

Jac Fitz-enz offered to calculate the indicator “Human Economic Value Added» (HEVA) on the basis of indicator EVA. But from author’s point of view, this indicator cannot be applied fully, as in the understanding of Jac Fitz-enz, to calculate the index HEVA need to relate to the economic profit ratio to coefficient of full employment. Under the specified ratio is the ratio of actual and the project (estimated) employment. (Fitz-enz, J, 2009) Fully the indicator Jac Fitz-enz’s HEVA cannot be used, because of various reasons; the actual indicators and the project employment do not have direct relation.

$$RUHC = \frac{EVA}{LI} \quad (18)$$

Consider the following three options of the relationships between values of the indicator RUHC (according to the formula) with the behavior of the owners

1) **$RUHC = 0$, $WACC = ROI$** , market value of the company equal to the book value of the net assets. In this case, the market gain of the owner by investing in a company is equal to zero, so it still wins, continuing operations of investment in the enterprise or investing in bank deposits;

2) **$RUHC > 0$** indicates the growth in market value of the company over book value of net assets, which stimulates the owners for further investment in the company. Other words Human Capital management system is built in the most successful manner;

3) **$RUHC < 0$; $EVA < 0$** , this means that there is the process of reducing the market value of the company. In this case, the owners are losing invested in company capital due to the loss of profitability of alternative. So the system of Human Capital management is based the least successful way.

Because of the relationship between the market value of the company and the value RUHC it implies that the company has to plan for future the value of RUHC and EVA to direct actions of owners for investing their funds. Thus, the indicator RUHC can play a great role in shaping the long-term plans of financial development, especially if take it as a target indicator. Therefore, the task of planning RUHC with the planning the structure of the company's management, are the priorities tasks of management of the enterprise. The more professional

management of the company is, the more, *ceteris paribus*, the value of the indicator RUHC and accuracy of management are higher. In this regard, the value of RUHC can also be as a basis for motivation.

Considering the components, which are included in the proposed formula it can be, concluded that *the higher the value of this indicator is, the better*. This is due to the fact that the effective work of managers and specialists (which is achieved in the process of investing in them) and overall efficient to the Company as a whole, should increase the EVA figure, and decrease the LI. What, follow mathematical rules, should lead to the increasing in RUHA value (This is illustrated in the figure below).

$$\uparrow \text{RUHC} = \frac{\text{EVA}}{\frac{\text{Number of work hours in a year (man/hour)}}{\text{Volume of production (in monetary terms)}} \downarrow \quad (19)$$

As well as the HCROI this indicator should be compared with the values of the industry leaders and competitors of the company. The theory of benchmarking also must be applied.

4.6 Calculation of indicator RUHC for PJSC Gazprom

Based on previous subchapter the RUHC for PJSC Gazprom will be calculated.

Number of work hours in a year was calculated based on PJSC “Gazprom” working standard for each categories of worker, General Collective Agreement of PJSC Gazprom and The Labour Code of the Russian Federation.

Economic value added:

The basis for calculating the Economic Value Added is the methodology proposed by Damodaran. According to this method EVA index is defined as the difference between profit, free of taxes, and invested capital, adjusted to its weighted average cost (Damodaran, A, 2012).

$$\text{EVA} = \text{EBIT} \cdot (1 - t) - \text{WACC} \cdot \text{EBV} \quad (20)$$

where,

EBIT – Earnings Before Interest and Taxes;

t – tax ratio (20% in RF);

WACC – Weighted Average Cost of Capital;

EBV – Economic Book Value.

The amount of earnings before interest and taxes, as well as the amount of capital invested were obtained from external sources. A weighted average cost of capital (*WACC*) demanded an independent calculation by the following formula:

$$\begin{aligned} \mathbf{WACC} &= \mathbf{Cost\ of\ Equity \cdot Proportion\ of\ Equity} & (21) \\ &+ \mathbf{After\ tax\ Cost\ of\ Debt \cdot Proportion\ of\ Debt} \end{aligned}$$

The model of CAPM determines the cost of equity. To do this, must be calculated the risk-free interest rate, the risk premium and beta. And the cost of borrowed funds is the sum of the risk-free rate and extra charges to this rate because of the risk of default. Moreover, the cost of capital should be calculated taking into account the income tax rate. Thus, there is the following formula:

$$\mathbf{Cost\ of\ Equity = Riskfree\ Rate - Beta \cdot Risk\ Premium} \quad (22)$$

and

$$\mathbf{After\ tax\ Cost\ of\ Debt = (Riskfree\ Rate + Default\ Spread) \cdot (1 - t)} \quad (23)$$

Where,

Beta – coefficient of sensitivity to changes in asset market returns (H. Markowitz);

Risk Premium – it is the difference of the market and the risk-free rate of return;

In this example, the *risk-free rate* is the average annual yield on the bonds of the GKO-OFZ (Central bank RF: www.cbr.ru).

The beta was found by calculating the coefficient of linear regression between the yields of Gazprom shares and profitability of the MICEX index (2010-2014).

$$\mathbf{The\ market\ rate\ of\ return = \frac{1}{P/E}} \quad (24)$$

P/E ratio available on www.gazprom.ru

Default Spread available on www.moody.com

Table 9 - Calculation of index RUHC for PJSC Gazprom (2010-2014), million rubles

<i>Indicator</i>	<i>2010</i>	<i>2011</i>	<i>2012</i>	<i>2013</i>	<i>2014</i>
<i>EBIT</i>	1,166,353	1,624,760	1,356,604	1,429,674	1,343,742
<i>EBIT (1-t)</i>	933,082	1,299,808	1,085,283	1,143,739	1,074,994
<i>WACC</i>	1.69%	1.12%	5.45%	2.77%	0.94%
<i>Cost of Equity</i>	0.23%	-0.17%	5.14%	1.73%	-1.82%
<i>Riskfree Rate</i>	6.88%	5.55%	6.63%	6.18%	8.43%
<i>Beta</i>	0.92	0.69	0.19	0.60	1.19
<i>Risk Premium</i>	7.25%	8.25%	8.05%	7.40%	8.60%
<i>Proportion of Equity</i>	77.43%	77.77%	77.32%	76.82%	72.66%
<i>After-tax Cost of Debt</i>	6.70%	5.64%	6.50%	6.22%	8.26%
<i>Tax Rate</i>	0.20	0.20	0.20	0.20	0.20
<i>Default Spread</i>	1.50%	1.50%	1.50%	1.60%	1.90%
<i>Proportion of Debt</i>	22.57%	22.23%	22.68%	23.18%	27.34%
<i>EBV</i>	10,731,326	12,700,102	13,528,588	14,749,223	16,905,192
<i>EVA</i>	751,271	1,157,834	348,327	735,284	916,844
<i>LI</i>	214.54	166.84	168.79	170.03	157.55
<i>RUHC</i>	3,501.80	6,939.76	2,063.72	4,324.42	5,819.55

Source: Gazprom: <http://www.gazprom.com>, Moody's: <https://www.moody.com/>, Moscow Stock Exchange: <http://moex.com/>, The Central Bank of the Russian Federation: <http://www.cbr.ru>, own calculation

The calculated indicator RUHC shows how the efficiency of the staff is reflected the economic value of the company.

For a complete evaluation of the developed and the calculated index, author will consider it on the example of two more companies of the oil and gas industry of the Russian Federation.

Table 10 - Calculation of index RUHC for PJSC Tatneft (2010-2014), million rubles

<i>Indicator</i>	<i>2010</i>	<i>2011</i>	<i>2012</i>	<i>2013</i>	<i>2014</i>
<i>EVA, million rubles</i>	35,935	63,820	46,423	64,238	85,782
<i>Revenue, million rubles</i>	468,032	417,586	444,099	454,983	479,360

<i>Pay + Benefits+HCI, million rubles</i>	33,960	34,083	40,750	45,589	49,151
<i>Number of employees, people</i>	73,700	74,200	77,000	77,000	76,000
<i>LI</i>	306.39	344.70	337.19	326.47	305.85
<i>RUHC, million rubles</i>	117.28	185.15	137.68	196.76	280.48

Source: Tatneft: <http://www.tatneft.ru/?lang=en>, Moody's: <https://www.moody.com/>,
Moscow Stock Exchange: <http://moex.com/>, The Central Bank of the Russian Federation:
<http://www.cbr.ru>, own calculation

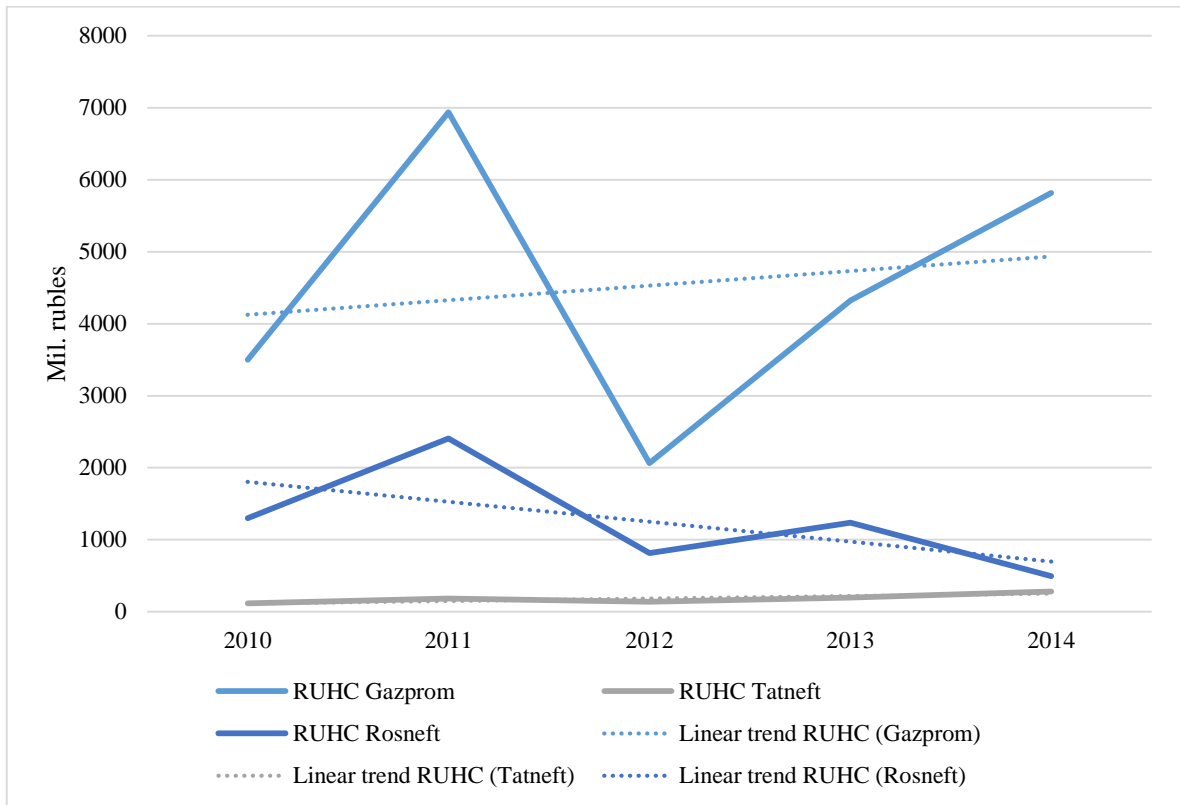
Table 11 - Calculation of index RUHC for PJSC Rosneft (2010-2014), million rubles

<i>Indicator</i>	<i>2010</i>	<i>2011</i>	<i>2012</i>	<i>2013</i>	<i>2014</i>
<i>EVA, million rubles</i>	221,018	289,043	85,640	117,791	43,036
<i>Revenue, million rubles</i>	1,919,000	2,718,000	3,078,000	4,694,000	5,503,000
<i>Pay + Benefits+HCI, million rubles</i>	90,000	97,000	123,000	185,000	231,000
<i>Number of employees, people</i>	167,854	168,400	166,100	228,000	248,900
<i>LI</i>	170.19	120.19	104.95	95.12	87.25
<i>RUHC, million rubles</i>	1298.62	2404.84	816.04	1238.35	493.24

Source: Rosneft: <http://www.rosneft.com/>, Moody's: <https://www.moody.com/>,
Moscow Stock Exchange: <http://moex.com/>, The Central Bank of the Russian Federation:
<http://www.cbr.ru>, own calculation

As well as in the case of indicators HCROI and HCVA, for the evaluation of the results author compare the dynamics of these indicators for companies PJSC Gazprom, PJSC Rosneft and PJSC Tatneft.

Graph 5 - The indicator RUHC in the dynamics for companies PJSC Gazprom, PJSC Rosneft and PJSC Tatneft (2010-2014) and the trend lines



Source: Gazprom: <http://www.gazprom.com>, Rosneft: <http://www.rosneft.com>, Tatneft: <http://www.tatneft.ru/?lang=en>, own calculation

Compared to other oil and gas companies in Russian Federation, it is possible to notice that the most significant increase is observed in PJSC Gazprom. (If analyzed companies trend lines).

This indicates about improving the efficiency of investment in Human Capital in Gazprom. In the case of the investigated Enterprise, it can be observed, that there is a growth of the RUHC indicator, also occurs the EVA growth. This shows that the investment in Human Capital has a positive effect both on the managers of the company, as well as for specialists. (This is expressed in the improvement of the quality of decisions of management, and the remaining workers improve their productivity, so in 2013, labour productivity was 0.0067 units per man-hour, 2014 - 0.0073 units per man-hour).

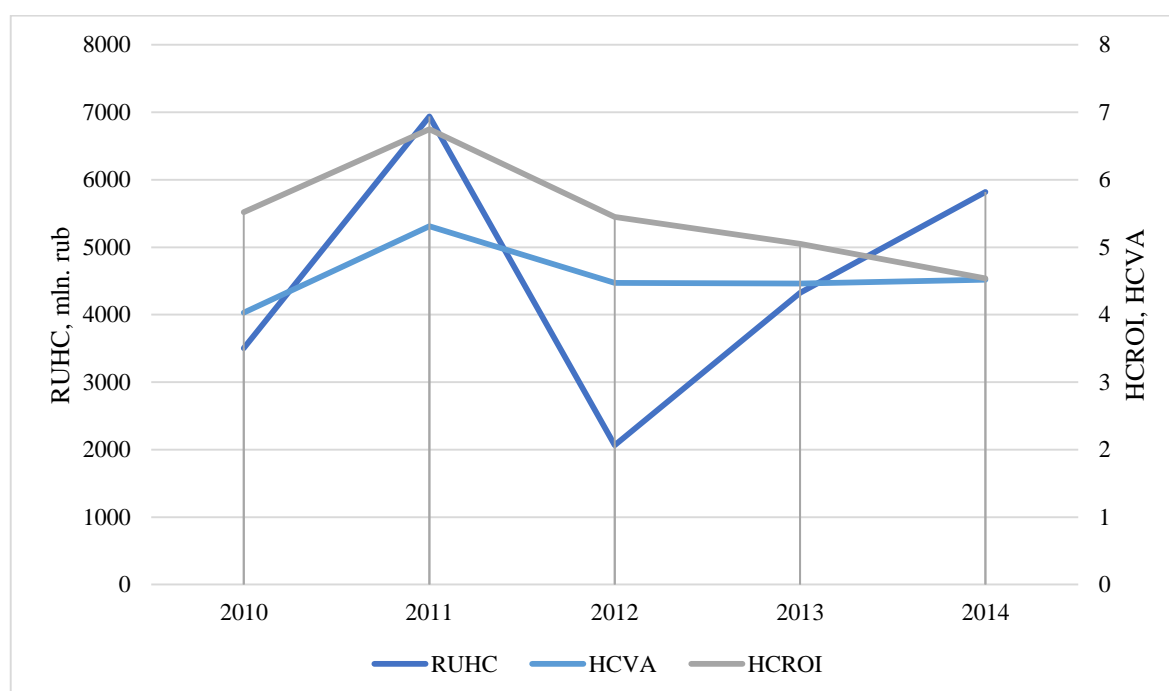
4.7 Comparison of indicators HCROI, HCVA and RUHC

Table 12 - PJSC Gazprom's indicators (2010-2014)

<i>Indicator</i>	<i>2010</i>	<i>2011</i>	<i>2012</i>	<i>2013</i>	<i>2014</i>
<i>HCVA</i>	4.03	5.31	4.47	4.46	4.52
<i>HCROI</i>	5.52	6.75	5.45	5.05	4.54
<i>RUHC, million rubles</i>	3,501.8	6,939.76	2,063.72	4,324.42	5,819.55

Source: <http://www.gazprom.com>, own calculation

Graph 6 - PJSC Gazprom's indicators (2010-2014)



Source: <http://www.gazprom.com>, own calculation

Based on the graph, which was built on the basis of the calculated of indicators, could be noted that the values of RUHC are not fully repeat the trend of indicators HCROI and HCVA. The reason for this may be the fact that the indicators HCROI and HCVA depend on the revenues of the Company. And in the case of oil and gas enterprises, must also be taking into account that the company's revenues depend on the market conditions (international prices for oil and gas, as well as, depending on the export policy, even currency exchange rates).

RUHC more shows the “real” situation in the Group. The indicator is growing, while decreasing the labour intensity up to 157.55 men-hours. Considering the number of factors in

the aggregate (growth in EVA, HCI, RUHC, decay in labour intensity), could be pointed about the efficient use of resources for the HCI in the Company.

5 Results and Recommendations

5.1 Results

The main results of the practical part are: proposed new indicator Return on Use of Human Capital and the analysis of HCI of the Gazprom Company.

1. Proposed indicator

The topic “HCI” itself, as well as methods for its evaluation are not developed until the end. In spite of this, it is possible to allocate a number of advantages of the proposed indicator over the existing:

- It allows to provide more accurate assessment of the effect from investment, namely to show how much they affect the Company (more accurate assessment of the effectiveness of integrated management of HCI).

In order to manage it is necessary to evaluate the impact of human resources for the results. Best of all in this is methods of economic evaluation of Human Capital. The proposed indicator is provided in the direct indicators of evaluation of the results of the investment policy and its dynamics in the best way helps to measure the effectiveness of the use of labour resources and to correct the actions of the investment strategy;

- RUHC includes indicators, which reflect both the efficiency of managers (as EVA), and ordinary employees (as LI), i.e. it shows the whole situation in the enterprise. In the case of the large companies, this is a significant plus.

2. The main results on PJSC Gazprom:

- HCI in Gazprom carried out on 4 main directions: investing in education, payments for medical support, payments for the nutrition and housing provision for employees;
- Expenses for the personnel in the Company increases;
- HCROI tends to decrease;
- HCVA almost unchanged;
- RUHC increases. Based on that, could be assumed that in Gazprom exist the efficient use of resources for the HCI.

Different trends, which show the calculated indicators can be explained as follows:

Indicators HCROI and HCVA depend on the revenues and expenditures of the Company. And in the case of oil and gas enterprise, this numbers depend on the market conditions (international prices for oil and gas, as well as, depending on the export policy, even currency exchange rates).

From 2013, there was a decrease in the world oil and gas prices, which, in the case of Russia, led to a decrease in the ruble exchange rate, which started to affect the profit of the Company Gazprom from 2014. Also worth mentioning about the Ukrainian crisis and the problems of Gazprom with gas supplies in the Ukraine, which is also a factor that significantly affected the company's operations.

5.2 Recommendations

- Based on the results of the HCROI may be prompted to carry out a redistribution of investment flows between the existing directions in the Company;
- As a recommendation for education investment is proposed to introduce the methodology of expenditures planning, which will be built on the use of normative (average) indicators, which will be calculated on the basis of reports of the Parent Company and its subsidiaries. These guidelines may be intended for the implementation for planning the training costs when budgeting subsidiary companies and organizations of Gazprom;
- In the case of the Nutrition and Health Care, they are presented and developed at a very good level in the Company. Thus, it is necessary to stay at the same level and sometimes implement some new services for employees;
- It is also proposed to implement the development of working groups, which implies the establishment and development of ties and relations between the employees of the organization, reinforcing the effect of joint professional activity as well as explanation to the employees and acceptance by them the organization's mission and values that define its strategy;
- Development and planning of career of employees in accordance with the development plans of the organization. This direction includes the creation of a personnel reserve;
- Regularly use the indicators for evaluation of investment in Human Capital, to monitor changes and trends in this area, and at this point may be recommended to use the RUHC.

6 Conclusion

In the conclusion could be noted the following: the well-being and sustainable development of any company depends on the Human Capital and therefore is needed the robust and consistent development policy of human resources and balanced investment in Human Capital, both at the level of the individual firm and at the state level.

In this regard, there is a particular need to develop methods of a complex estimation of Human Capital Investment at a particular moment and in dynamics.

During the research, all the objectives have been achieved, namely:

- The concepts of Human Capital and Human Capital Investment was investigated and own definitions were given. On this basis the analysis in the practical part of this study was built.
- Human Capital structure was estimated at Gazprom, as well as identified and evaluated the investment activities of the company in the field of Human Capital.
- RUHC indicator was introduced, and was tested on the example of Gazprom. Based on all the research recommendations for improving the Human Capital Investment system have been done.

Analysis of efficiency of Human Capital Investment showed how meaningful it becomes for companies to spend huge amounts of money on health and education of employees, as in the future it provides more revenue for the entire company.

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