

We can dare to say that human capital is today one of the most important driving forces of socio-economic condition in the modern world. Nowadays, the economy and the functioning of its operators must contend with a variety of challenges and problems. The most important may include advancing all the time globalization processes as well as migration, social and political tensions, increased competition, changing expectations of the population, or environmental degradation. To persevere in such a turbulent environment, the individual and the economy must show some kind of flexibility in relation to emerging threats and opportunities. That flexibility is determined, among others, by human capital. The aim of this publication is to highlight the essence of human capital as determinants of socio-economic development and improvement of its quality in the light of different approaches.

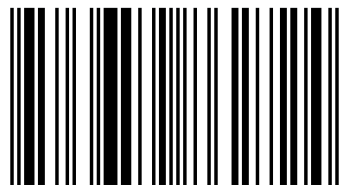
Human Capital in Socio-economic Condition



Joanna Prystrom (Ed.)
Artur Horbovy (Ed.)

Human capital as a determinant of socio-economic condition

The authors of this publication are the scientific and teaching employees from various research centers in Europe. The range of other diverse research interests comes in part and with a different approach to the essence of human capital as a determinant of socio-economic development in the region.



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HUMAN CAPITAL AS A DETERMINANT OF SOCIO-ECONOMIC CONDITION

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Introduction

Nowadays, the economy and the functioning of its operators must contend with a variety of challenges and problems. The most important may include advancing all the time globalization processes as well as migration, social and political tensions, increased competition, changing expectations of the population, or environmental degradation. To persevere in such a turbulent environment, the individual and the economy must show some kind of flexibility in relation to emerging threats and opportunities. That flexibility is determined, among others, by human capital. This is what people are authors of many valuable ideas and studies and contractors specified courses of action. It is therefore extremely important turns out to be constant care about the quality of that capital and carrying it continuous investment. What's more, the weight of caring about the quality of capital should be noticed already from the youngest to the oldest citizens.

The aim of this publication is to highlight the essence of human capital as determinants of socio-economic development and improvement of its quality, taking into account such aspects as the European Union's approach and MSCA. This approach the first chapter of the publication has been devoted to.

Human capital is also one of the most important factors determining the ability of the economy based on knowledge. This issue is addressed in the second chapter, which included among other transformational phenomenon of the knowledge economy and human capital or problems and prospects of the educational sphere in context of the knowledge economy. The third part is a discussion of human capital issues - knowledge paradigm for non-formal education in EU and Ukraine in particular. More specifically it is discussed some issues of Human Capital vs. Human Development in knowledge paradigm for education, as well as formal vs. non-formal education, i.e. pros' and contras' for good Governments and prospects for innovative Human Capital innovative paradigm.

The fourth chapter publication focuses on human capital in ageing society. More specifically, there is some kind of „roadmap” for Ukraine in conditions of its integration into EU. There are lots of issues are to be taken into consideration in particular: dynamics of population ageing in Ukraine, threats and challenges for social inclusion, creation of ageing-friendly economy, i.e. labor markets for senior people, Human Capital for ageing-integrated non-formal education and comprehensive national policy plan for human capital.

The last chapter is devoted to a very important from the point of view of the condition of the global economy issues, namely - human capital as the object of accounting. More specifically raised there are accounting and analytical support of Human Capital Management, and it is presented a model of Accounting of Human Capital as the Primary Basis of Crisis Management, or Anti-Crisis Management.

Chapter 1

INVESTMENT IN HUMAN CAPITAL AS A FACTOR OF SOCIO-ECONOMIC DEVELOPMENT. MSCA AS A CHANCE FOR STRENGTHENING SOCIO-ECONOMIC CONDITION

Introduction

Modern socio-economic realities, progressing globalization processes, changing situation on the market, fluctuating political climate or developing natural environment degradation are only few, out of many, challenges to be faced by today's economies.

Willing to survive in the turbulent surrounding, subjects shall display relative flexibility in order to adjust to ongoing problems and obstacles appearing.

It seems legitimate to claim that without properly prepared human capital, changes would not be possible to execute. It is the human work and abilities that allow facing challenges. Unfortunately, it is rather difficult to ensure qualified labour force.

Worth presenting seems to be the fact that the above issues were raised by the European Union which embraced the issues in the assumptions of the union's programme - Europe 2020. It stipulates construction of intelligent and sustainable economies, counteracting social exclusion. What is more, the aims shall be implemented within the range of the member countries as well as countries outside the European Union. The tool implementing the union's aims is the programme - Horizon 2020, which seems to be greatest in the history programme financing scientific researches and innovations. Beside the social issues, as the most important are perceived: development of social, economic and art science, cross-disciplinary and cross-sectorial scientific researches and innovations as well as development of international mobility of scientific workers, with the particular attention paid to cooperation with the third countries.

The purpose of this chapter is to present the essence of investment in human capital, which is one of the most important driving forces in modern economies. Moreover, the aim of the study shall be presentation of the strategy Europe 2020 and Horizon 2020 programme, as well as presentation of the phenomenon of human capital and Marie Skłodowska-Curie Actions, as factors conditioning socio-economic development.

1.1 The essence of human capital in the modern economy¹. The possibilities and directions of development of human capital

Global competition forces the economies and functioning in these entities continually being innovative. Business innovation, and thereby, and the economy is determined by continuous improvement through employee's level of education, skills and creativity. For this reason, knowledge is the most precious resource, determining the development of the economy.²

With the knowledge and innovative capacity inevitably raises the issue of human capital, which was considered one of the most important determinants of innovation. Through human capital can be understood as the knowledge and skills that are acquired by people through education and training.³

Human capital is an economical knowledge, skills, health and vital energy contained in man and in society as a whole determining the capacity to work, to adapt due to changes in the environment and creating new solutions.⁴

The concept of human capital boils down to knowledge and skills acquired specific individuals in the education system and professional continuing education programs.⁵

Therefore, human capital is the knowledge and capabilities contained a man who is determined genetically determined potential, undergoing larger investment in the human way.⁶

For this reason, it turns out to be an extremely important investment and continuous development of human capital, which is one of the determinants of the innovative capacity, and thus the driving force of economic growth and competitive advantage.⁷

More specifically, human capital can be described as the driving force of a well-functioning labor market, and thus determinant of the economic condition of the country.⁸ Importantly, in addition to human resources, also it plays an important issue mentioned innovation that allows the state to gain a competitive advantage in the international arena.⁹

¹ Much of this is discussed and included in the publication: Prystrom J., *Innowacje w procesie rozwoju gospodarczego. Istota i uwarunkowania*, Difin, Warsaw 2012, 146 p.

² Kuźniar K., *Znaczenie kapitału ludzkiego dla realizacji koncepcji gospodarki opartej na wiedzy w Polsce*, [in:] Poteralski P., *Przemiany rynku pracy w kontekście procesów społecznych i gospodarczych*, Wydawnictwo: Katedra Mikroekonomii Uniwersytetu Szczecińskiego, Szczecin 2007, pp. 236 – 237.

³ Shultz T. W., *Investment in Human Capital*, [in:] *American Economic Review*, nr 1/1961, p. 2.

⁴ Oleksiuk A., *Investowanie w kapitał ludzki w Polsce*, ECONOMICUS, Szczecin 2009, p. 9.

⁵ Welfe W., Sabanty L., Florczak W., *Szacunek kapitału ludzkiego*, [in:] *Wiadomości Statystyczne* 2001, nr 5, p. 16.

⁶ Romański S. R., *Kapitał ludzki i wzrost gospodarczy*, PWN, Warszawa 1993, p. 35.

⁷ Stenberg L., Gustafsson E., Marklund G., *Use of human resource data for analysis of the structure and dynamics of the Swedish innovation system*, Research evaluation, vol. 6, No. 2, August 1996, pp. 121 - 132.

⁸ Denison E. F., *The sources of Economic Growth in the United States and the Alternatives Before Us*, *American Economic Review*, vol. 52, no. 4, New York 1962, pp. 762 – 782.

⁹ Prystrom, *Innowacje ...*, op. cit., p. 54.

For this reason, we should seek to develop knowledge and skills in order to create economies where innovation is one of the most important drivers of economic mechanism. Therefore, aiming to obtain a higher level of innovation, we should take actions to develop and utilize the skills and expertise of its citizens.¹⁰

Constantly advancing the processes of globalization and growing competition evoke the need to invest in human capital. Investment in human can be defined as all activities that affect the future financial and physical income and aim to increase the resource in people.¹¹

Investment in human capital relate to such elements as job training, education at all levels of education, postgraduate, research, migration for better work and search for information about the economic situation of the company and career prospects.¹²

Stephen Black and L. Lynch said that investment in human capital through training during operation and direct training are the driving force behind productivity growth and competitiveness at the level of the organization.¹³

On the other hand, Adam Smith proclaimed that education and learning should be defined as investment in people. He also noticed that the productivity of employees with skills is higher than those without such skills. however, only A. Marshall emphasized that the most valuable of all capital is that invested in human beings.¹⁴

Investment in human capital can take the form of spending on health, affecting the life, vitality and vigor of the human. Investment is also training during work, education from the earliest years of life, continuing education, or research.¹⁵

Investing in human should be treated by the employer with the same care as investing in research and development. Because people have the ability to learn and constantly improve themselves and to a much greater extent than other resources contribute to the creation of added value of the company. Especially in the enterprise information where development factor is information, knowledge and creativity.¹⁶

Operators are investing in training to equip the team with the skills necessary to implement the company's strategic goals, take responsibility for their results,

¹⁰ Ederer P., *Innovation at Work: The European Human Capital Index*, Lisbon Council Policy Brief, Deutschland Denken! eVZeppelin University gGmbH, Friedrichshafen 2006, p. 2, http://www.lisboncouncil.net/media/lisbon_council_european_human_capital_index.pdf, 14.10.2008.

¹¹ Domański S., *Kapitał ludzki i wzrost gospodarczy*, PWN, Warszawa 1993, p. 56.

¹² Schultz, *Investment...*, op. cit., p. 1.

¹³ Szczepanik E., Arendt Ł., *Inwestycje w kapitał ludzki w strategii rozwoju przedsiębiorstwa*, Instytut Pracy i Spraw Socjalnych, Łódź 2006, p. 18, <http://equal.wsb-nlu.edu.pl/uploadedFiles/file/Inwestycje%20w%20kapitał%20ludzki%20ITqual.pdf>, 25.05.2009.

¹⁴ Dobija D., *Pomiar i sprawozdawczość kapitału intelektualnego przedsiębiorstwa*, Wydawnictwo Wyższej Szkoły Przedsiębiorczości i Zarządzania, Warszawa 2003, p. 118.

¹⁵ Łukasiewicz G., *Kapitał ludzki organizacji. Pomiar i sprawozdawczość*, PWN, Warszawa 2009, p. 23.

¹⁶ Rybak M., *Kapitał ludzki a konkurencyjność przedsiębiorstw*, Poltext, Warszawa 2003, p. 40.

the search for innovative solutions and effective value creation and competitiveness of the company.¹⁷

The demand for knowledgeable and skilled workers results in the increasingly important role of human capital is gaining importance and any measures to raise its level. Constantly increasing competition and market requirements which bind to innovate, causing requiring people constantly improve the level of education, skills and the creation and use of new knowledge.¹⁸

It may be noted that recently Europe at a rapid pace transforms into an industrial economy to a global, knowledge and services. It is the inevitability of changes in both economies, as well as in all institutions and systems. Emphasis on the very important role of education and long-term training, makes it necessary to stimulate and recognize them as determinants thriving knowledge-based economy.¹⁹

Investment in human are defined as all activities that affect the future financial and physical income by increasing human resources. The main types of these investments are:²⁰

- spending on healthcare increase life expectancy and to raise the level of health;
- spending on education within the education system (also for adults);
- spending on apprenticeships and acquisition practice in enterprises;
- expenses related to the migration of people to adapt to new employment opportunities;
- expenditure on acquiring vocational information;
- spending on research.

In order to raise the level of knowledge necessary to constantly strengthen the scientific base. For this reason, the European Union has decided to take steps to strengthen the scientific and technological bases by:²¹

- implementation of programs of research, technological development and experience by promoting cooperation between undertakings, research centers and universities;
- promoting cooperation in the field of Community research, technological development and experience with third countries and international organizations;
- dissemination and optimization of results of activities in Community research, technological development and experience;

¹⁷ Kwiatkiewicz A., Mikołajczak J., *Najlepsze praktyki inwestycji w kapitał ludzki przedsiębiorstwa. Raport*, BPI Polska 2006, p. 13, <http://www.bpi-group.com/publications/pdf/raport.pdf>, 25.01.2009.

¹⁸ Prystrom, *Immowacje* ..., op. cit.

¹⁹ *Knowledge Economy*,

http://www.lisboncouncil.net/index.php?option=com_content&task=view&id=13&Itemid=61, 22.11.2008.

²⁰ Jarecki W., *Koncepcja kapitału ludzkiego*, p. 32, <http://mikro.univ.szczecin.pl/bp/pdf/4/2.pdf>, 25.03.2009.

²¹ Czaja S., *Znaczenie kapitału ludzkiego i wiedzy w funkcjonowaniu społeczeństwa Unii Europejskiej*, [w:] Czaja S., Zielińska A., *Jak żyć w Unii Europejskiej*, Bimart s. c., Wałbrzych 2004, p. 72.

- stimulation of the training and mobility of researchers within the EU.

P. Romer²² and R. Lucas²³ stated that subject to successful implementation activities R&D is the accumulation of human capital which enables better utilization of physical resources and eliminates barriers to economic development.

The accumulation of human capital is an important part of the development process is largely dependent on public programs for education and health. In addition, an important issue is the approach the government and implemented by its policy. Successful is the fact that the Swedish government understands the need for constant investment in human capital.²⁴

Therefore, it is very important issue which plays a cumulative value of capital. Moreover, it is worth emphasizing the obligation of continuous investment in order to improve the qualifications and skills of the active labor force.²⁵

Improvement and development of our employees have a strong impact on the performance of the company, are beneficial both for her and for the employee. This process must, however, be deeply thought out and executed according to a predetermined strategy, it should also support the main directions and goals of the company. Employee training occupies an important place in human resource management in a well-organized institution. Human resource management is aimed primarily that employees contribute to the success of the organization, and at the same time develop their own skills and abilities.²⁶

With the constant necessity of taking care of proper employment policy in all member states and the development of human capital counts, the European Union, which established the special purpose of the Directive. The EU employment guidelines are divided into three main parts.²⁷

1. Attract and retain more people in employment and reforming the welfare system.

2. Increasing adaptability of workers and enterprises and the flexibility of labor markets.

3. Increase of investment in human capital through better education and skills.

The exact list of EU guidelines on employment issues, along with the main objectives presented in table 1.1.

²² Romer P., *Endogenous Technological Change*, Journal of Political Economy, Vol. 98, 1990.

²³ Lucas R., *On the Mechanisms of Economic Development*, Journal of Monetary Economics, No. 22, 1988.

²⁴ Barro R. J., *Human capital and growth in cross - country regressions*, [w:] *Can Education Foster Growth?*, Swedish Economic Policy Review 6 (1999), Ministry of Finance, Economic Council, Stockholm 1999, pp. 239 – 240, <http://www.sweden.gov.se/content/1/c6/09/54/38/fbdea90d.pdf>, 26.03.2009.

²⁵ Prystrom, *Innowacje ...*, op. cit.

²⁶ Szczepanik, Arendt, *Inwestycje ...*, op. cit., p. 50,

<http://equal.wsb-nlu.edu.pl/uploadedFiles/file/Inwestycje%20w%20kapita%20ludzki%20ITqual.pdf>, 27.01.2009.

²⁷ Program Operacyjny Kapitał Ludzki. Narodowa Strategia Spójności 2007 – 2013, projekt przyjęty przez Radę Ministrów w dniu 31.05.2006, MINISTERSTWO ROZWOJU REGIONALNEGO, Warszawa 2006, p. 83, http://www.splot.ngo.pl/files/splot.ngo.pl/public/pokl_porm_310506r1.pdf, 14.10.2008.

Table 1.1 The EU employment guidelines and their main assumptions

Guideline	The main objectives
<p>1. Increasing adaptability of workers and enterprises and the flexibility of labor markets.</p>	<ul style="list-style-type: none"> • The legislation adapted to changes in the labor market, encouraging changes in employee status (training, self-employment, mobility) • The promotion of innovative forms of work organization (improving safety at work, flexible working time), while increasing quality and productivity at work, better use of modern technologies. • Ensuring the development of wages and other labor costs, favorable employment.
<p>2. Attracting and retaining more people in employment and reforming the welfare system.</p>	<ul style="list-style-type: none"> • Striving to achieve full employment, improving quality and productivity at work, and strengthening social and territorial cohesion. • EU member states should achieve in the employment rate²⁸ of 70%. • Increase of social inclusion, reduce regional variations in employment rates, unemployment and labor productivity. • Adherence to the principles of equal opportunities and anti-discrimination.
<p>2. Attracting and retaining more people in employment and reforming the welfare system.</p>	<ul style="list-style-type: none"> • Increasing productivity and quality of work that are necessary in building a knowledge-based economy. • Employment's promote in accordance with the cycle of human life. • Bridging the gap in employment between women and men. • The promotion of active aging and reforming social security systems. • Reconciling professional and private life, which may help in the organization of care for children and other dependents of the employee. • Ensure inclusion in the labor market of job seekers and people who are disadvantaged. • The fight against discrimination people with disabilities, immigrants and other minorities in the labor market. • Better match labor market needs. For this purpose, it is necessary to raise the level of labor market infrastructure at national and EU level. It plays an important issue in this case EURES²⁹. <p>Better adaptation to changes in the labor market must also be supported by the removal of barriers to geographical mobility of workers. In this context, Member States should also pay attention to immigration from third countries.</p>

²⁸ The employment rate shows how many people are working in a group capable of work.

²⁹ EURES (European Employment Services - European Employment Services) is a cooperation network of public employment services and their partners in the labor market, supporting mobility in the field of employment at international level and cross-border in the EU countries plus Norway, Iceland and Switzerland. The EURES network was established by the European Commission to facilitate the free movement of workers within the European Economic Area through international employment agency, information on living and working conditions in member countries and identify and tackling obstacles to mobility.

Table 1.1 Continued

Guideline	The main objectives
<p>3. Increase investment in human capital through better education and skills</p>	<ul style="list-style-type: none"> • Expanding the range and increasing the size of the investment in human capital (creation of lifelong learning strategies to increase access to vocational, secondary and higher education, including the training of entrepreneurship, the emphasis on participation in training and further education throughout life, especially for low-skilled and older workers.) • Ensuring adapting education and training systems to new requirements in terms of competencies and skills. • Matching labor market supply and demand, eg. The education system should have the ability to rapidly adapt to the knowledge-based economy. For this purpose, you can use information and communication technologies (ICT) and increase the mobility of workers. Therefore, existing barriers should be abolished freedom of movement, especially those related the acceptance of educational and professional qualifications. • Adjusting education and training systems to new competence requirements requires: better identify needs for skills and forecasting future requirements, increasing the supply of instruments of education and training, development of systems of mutual recognition of qualifications, ensuring the attractiveness, openness and high standards of education and training systems.

Source: Own elaboration on the basis of: *Europejska Polityka Zatrudnienia*, [http://www.mps.gov.pl/index.php?gid=444, 16.09.2008](http://www.mps.gov.pl/index.php?gid=444,16.09.2008) and [http://www.eures.praca.gov.pl/?module=Default&action=Index&id=236&parent=234, 30.10.2015](http://www.eures.praca.gov.pl/?module=Default&action=Index&id=236&parent=234,30.10.2015).

Needs arising from the strategy of economic entities are the consequence chosen by the mode of action, and above all associated with folded their objectives, whose realization requires the specific skills of their employees. It is important to timely anticipate such needs and the rapid modification of development programs in response to changes of strategy. An example would be the decision resulting from the strategy of new product development, to implement the new technology requires new competencies, in which employees need to equip or the necessity to fulfill the formal requirements before the law eg. Training of OSH. Training programs satisfying the individual needs of the employee are very important incentive. An example of an employee's individual needs may be to develop competence in postgraduate MBA type^{30 31}.

³⁰ Master of Business Administration, MBA - two-year post-graduate studies (often required here also possess a specific professional experience), most often in absentia, which first began to be organized in the US in the early Fifties. (Although the first attempt to train professionals in the management of specially for the needs of businesses already appeared with the rise of the first American business school in 1881. which he was the Wharton School of the University

Table 1.2 The knowledge and the skills necessary and required in the modern economy

The knowledge, skills and competencies	Explanation of demand
Knowledge	
Theoretical knowledge	Working to solve all sorts of problems
Technical knowledge (digital)	Introduction of modern communication technologies - ICTs information
Practical knowledge	Constantly advancing globalization processes require rapid response of operators and the practical skills to meet the innovation and use of technology, etc.
Skills and competencies	
Professional skills and their wide range	Integration tasks unspecialization work, group work.
International skills	The globalization of markets and production
Social skills	Direct interaction between groups and work habits, direct cooperation with suppliers
Management skills	The flat management structure, decentralization of power, increased exchange of information.
The knowledge, skills and competencies	Explanation of demand
Orientation on work	
Awareness of quality, reliability	Quality and time as key aspects of global competition.
Creativity, entrepreneurship	Innovation as a key element in global competition.
Leadership	Coordination of autonomous groups of employees.
“Modern virtues of work”	Commitment, trust, devotion to the job.

Source: Politis A. E., *Human capital development and competence structures in changing media production environments*, KTH, Royal Institute of Technology, Stockholm 2004, p. 77, <http://www.nada.kth.se/utbildning/forsk.utb/avhandlingar/dokt/AnastasiosPolitis.pdf>, 25.05.2009.

Simplistically it can be assumed that the needs of the above-mentioned three sources (strategic, individual and current) are the sum of the developmental needs of the company. The sum of these needs must be confronted with the

of Pennsylvania, on the European continent its counterpart was the Ecole des Hautes Etudes Commerciales founded by the Paris Chamber of Industry - Commerce also in 1881). Poland programs of this kind emerged in the early nineties the twentieth century. The MBA courses very great importance is attached to practical skills, which is why there is no shortage of basic information on economics and quantitative analysis, but there are also classes on driving skills negotiation and presentation of decision-making capacity. The program of study is very wide and includes areas such as accounting, finance, marketing, business management and use of information systems, law, and so-called. human resources management or human resources. Studies of this kind underway in the US from 2 to 3 years, in Europe it is a period of one to two years (in Poland usually 2 years). MBA courses can be distinguished: basic, executives (for professional managers); Global executives (for managers working in international institutions); theme, addressed to managers of particular discipline (eg. financiers, HR, IT and others.).

³¹ Kwiatkiewicz, Mikołajczak, *Najlepsze ...*, op. cit., pp. 9–10.

priorities and budget for investment in human resource development. This confrontation allows you to define development policy, which is then strengthened and takes the form of concrete projects.³²

Training needs of business entities associated with the needs of the people they employ and the needs arising from the management systems of the company. Both types of training needs - human and systemic - remain together in close association. Employees' needs for improving the functioning of the organization often lead to the development and implementation of appropriate systems. On the other hand, the emergence of new systems frequently results in the need to train employees in their use. The needs of the system (eg. SAP accounting software), defined here as the development of competencies of communication, teamwork, leadership, self-presentation, etc.³³

Learning organizations and lifelong learning are some of the most important factors determining the proper improving the quality of human capital. Table 1.2 summarizes the most required skills and their knowledge of modern economic entities, seeking to meet the exigencies of globalization.³⁴

McLagan said that the development of human resources related issues are broadly defined development such as training and development, organizational development and career development.³⁵

Human resources development relates to the activation and development of knowledge and upgrade skills in enterprises. In this case emphasized is also active working life, continuing education and various training sessions on strict field of work or cultural aspects.³⁶

Kennedy and Reid recognized that education and training are seen as one the most important elements for the development of industrial sector employees, which cover a wide range of activities and were divided into five main groups. Among these measures were training at work, planned to raise the experience of the organization, internal courses and home tuition, scheduled lifting of experience outside of the organization and external courses.³⁷

Moving the issue of directions of development capital in places of employment, it should be noted that in the market there is a huge number of available training, both open, where everyone willing can participate and closed, which is organized for a limited group of participants, usually from one company. Among them, inter alia, corporate training, functional, soft and hard, or the corporate library.³⁸ (table 1.3)

³² Ibidem.

³³ Ibidem, p. 11.

³⁴ Prystrom, *Innowacje ...*, op. cit.

³⁵ McLagan P., *Models on human resource development practice*, ASTD Press USA, Alexandria 1989, pp. 65 - 85.

³⁶ Descy P., Tessaring M., *Training and learning for competence*, Cedefop, reference series 31, Cedefop, Luxemburg 2002, pp. 1 - 4.

³⁷ Kenney J., Reid M.A., *Training Interventions*, IPM, London 1988, pp. 207 - 222.

³⁸ Kwiatkiewicz, Mikołajczak, *Najlepsze ...*, op. cit., pp. 26 - 27.

Table 1.3 The possibility of development of human capital in the workplace

Type of training	Characteristics
<p>mini – MBA, training from a strategic understanding of the business, training of building a competitive advantage</p> <p>training in change management</p>	<p>These are usually targeted corporate training for managerial staff middle and senior managers. Many times, these programs are implemented in companies where there are significant changes.</p>
<p>training in the areas of soft (communication skills, managerial, etc.).</p> <p>hard training areas (knowledge of markets, products, etc.).</p> <p>disposable training</p> <p>all training packages</p>	<p>These are the functional training that meet the needs of current, which is designed to supplement staff competency gaps. This group training is the largest and most diverse.</p>
<p>e - learning module</p>	<p>Its use as accompanies the introduction of new requirements for employees makes it possible to simultaneously reach out with the message to a large group of people in a modern and interesting form. Additionally, in a simple and efficient way, you can check the results of training, eg. Through tests, for the fulfillment of which the employee is asked after passing the course. E - learning can accompany introduced changes that require employees to master in a short time, new knowledge and new skills. It is also used as a way to update their knowledge and reference material that can be quickly completed in the event of changes. It is a training technique that uses all available electronic media, including the Internet, intranet, extranet, satellite broadcasting, tapes, audio / video, interactive TV and CD - ROMs. E - learning is most often associated with teaching, in which the party transferring the knowledge and the examining a computer, so adopted called this form of learning "distance learning" (distance learning), in which the lack of physical contact with the teacher. Recent years show that many companies, institutions and schools more often introduces education based on web technologies.</p>

Tabela 1.3 Continued

Type of training	Characteristics
company library	<p>Its content determined employees - are purchased the items ordered by them. This library is particularly effective center of information, especially if it is enriched with interactive programs or e-learning programs. In modern bookcases are also corporate training materials of the courses held by employees, often supplemented with materials developed by them during these programs.</p>
internal training	<p>The advantage of using internal training is typical for companies that approach to develop their human resources in a systematic way. Internal training is used for training new employees ("induction training"), or combined with internal coaching, and his organization usually is the responsibility of the immediate supervisor. Internal training is also used to integrate employees and programs meeting employee with specific solutions for companies such as. Training sales system or with the scope of products and procedures. The role of internal training is also improving relations between different departments of the company. They take this type of training, eg. A form of training for sales and purchasing department. Their collective goal is to improve product awareness and brand. To conduct internal training companies use employees who are experts in their field. They may take the form of training programs "Sales for no sales" led by prominent retailers or programs "Finance for non-finance", implemented by a very good financier. Internal trainers in most cases employees with extensive experience working in various departments of the company for which the role of a coach is an additional task. Companies largely manifested its concern in relation to the creation of a separate internal coach position because they are afraid that the coach interior do not carry every day another job loses reference the actual tasks.</p>
mixed programs	<p>The most common type of training is mixed internal training - imparting specific knowledge of organizational ("The way we do things here") through external experts. Those of proper coaching workshop, with the help of the most effective training methods transmit this knowledge. Often mixed programs are part of the training "Train the Trainer" carried out by an external company to prepare employees to act as an internal coach.</p>
training in the form of teractive workshops	<p>This type of training programs are enriched by the practical part, which is science based on case studies and practical exercises. This allows for an increasing share of the contribution of employee training during the program and building training programs based on specific knowledge of corporate, modular solutions and teamwork. In modern interpersonal and sales training participants take part in simulations. They allow maximum telephoto training situation to the actual work situation. More and more often it used as a camera and records training. This allows the participant to return to the archived material, more accurately analyze their behavior and look at yourself from a different perspective. Such training organization based on the belief that only by practicing the desired behavior of the employee may be perpetuated. He was also easier to apply skills in real work. It happens that archived material is used to develop training materials.</p>

Table 1.3 Continued

Type of training	Characteristics
refresher training	They are organized in some companies for newly arrived workers during every 3 months. It is a functional training related to the duties of his office work. They have exceptional importance, because they have to prepare employees to take an independent position and achieve as soon as possible operational efficiency. Subsequent training will never be so comprehensive and so long. This type of training consist mainly of service companies in the industry research - development and advisory services.
"induction" training	It is one of the most important training, used by most companies. Companies believe that such training provides a solid foundation to work and carry out further development activities. Sometimes such training takes the form of an informal introduction, and sometimes a formal, detailed scheduled, multi-step program. If companies are taking regularly for new employees to work, the initial training are conducted at regular intervals. Training materials are handed out in the final binders, as part of the training plan is the implementation of a new job, and the meetings in Chapters are used not only to present a new employee, but also an opportunity to obtain information particularly relevant for the job.
Coaching	This is an increasingly popular tool for development because its efficacy is much higher than any other widely used methods of development. Coaching refers to one of the oldest in the history of development methods, since it is based on the relation master - disciple. Its high efficiency comes from the fact that it is typically the specific situations and is aimed at concrete results. Coaching is also effective because it is very strongly committed and the person concerned has a cause, that he, through knowledge and skills, cope with the situation, the coaching concerns. Coaching can be divided the interior (trainer / coach comes from the company) and external (trainer / coach is a person outside), you can also distinguish executive coaching (coaching run for the top managers).
software development managers	They have an exceptional character. They differ from the rank and file of training programs for employees primarily horizon and scope. There are usually annual programs, rarely several months or several years. The focus is not only on the skills of the individual, but also on competence education group. Therefore, often one of the objectives of such programs is to learn together managers from different units and countries to create a network where participants will jointly improve their skills and share experiences in the future to create good team best capable of meeting the challenges of a modern organization rapidly responding to the needs market. Comprehensive development programs distinguished by the inclusion of the module on knowledge of the organization and ability to move around her and modules aimed at broadening the horizons of managers. This helps the persons covered by this program to better understand the environment in which the company operates or group. Increasingly also, the programs are aimed at making practical benefits for the company. Participants get from the organization development opportunities, the best coaches and the support of a coach, but they give in exchange ideas, knowledge and work, which has resulted measurable effects in the form of a ready to implement the project.

Table 1.3 Continued

Type of training	Characteristics
programs for promising employees with potential for development ("High Potentials")	Among the entities making investments in promising employees also stands out training of a "Talent Management Programme". This is an informal system development for people with potential. Under this system they use open training market, enrichment of work content, access to knowledge or enhancing corporate responsibility.
reference centers	Another way of highlighting the best and then use their knowledge is the establishment of the branch office "Centre paradigmatic" - these centers are sometimes referred to as "test centers" or "centers of pilots". The use of such a center is twofold: it can serve as an internal training center - the show or can it be a mission to test new products and gather information from the market. Employees of the center are divided into business forum later on his experience and proposing modifications become co-authors of new products. (often found in the automotive industry).
rotary programs	In order to develop your company's employees increasingly use the grant within each job, and even different departments of the company. Employees are given the opportunity to move within the different departments of the company, and then the temporary secondment to branch offices located in different countries, so as to allow movement between different companies within the same group. In some companies, such programs are associated with the creation of individual career paths enriched with mentoring programs. An interesting form of mobility are a few months international projects, eg. Send staff to the foreign branch. It does not necessarily have to be programs for people working in specialist positions, and are often addressed to the rank and file employees. These types of trips are designed to enable observable way of performing work in a foreign branch office and adopting best practices. In addition to such a formula internships for employees, the same company uses a "temporary internal rotation" and thus "pushing" employee between work stations in order to have a chance to see the work done by them in a broader perspective. The rotation also prevents boredom and falling into a rut and strengthens relationships between employees. Internal mobility is a common method of staff development in large international corporations.
casual meeting of staff	More and more companies see the importance of informal meetings of staff and appreciates that occur during the exchange of information and experiences. In this context, very popular all training away. Often it happens that this type of training is made a presentation of new products. The training is co-organized by the suppliers of the products sold, which in addition to providing opportunities for integration, has a substantial financial dimension: allows you to split the cost of training between the company and supplier products. For suppliers, this is a unique opportunity to obtain "on-site" opinions about their products and possible suggestions for improvements. In the case of a group study tours allow for the exchange of experiences between those working in similar positions in different departments of the company. This allows you to gather knowledge about regional differences

	essential for the effective operation of the company.
expert teams	In some cases, companies are beginning to cooperate with their competitors in the industry and create between companies expert teams. Such cooperation allows them to use the experience in the sector: usually operate it similar management systems, and companies face similar problems in specific areas. It is possible so a reflection on the development of joint solutions, but then they will be adapted to the specifics of the company.
higher education, postgraduate, MBA, PhD	In many entities who are aware of ever increasing competition and the need to improve the skills and qualifications of employees, operates the sphere of development activities are important for the employee to which access is not regulated in a formal way. These include initiatives such as higher education, postgraduate, MBA or PhD. Decisions on the financing of the programs shall be made individually for each case. Any decision to support the company further education employee always heavily dependent on cyclical fluctuations.

Source: Kwiatkiewicz, Mikołajczak, *Najlepsze...*, op. cit., pp. 27 - 35, 40 – 45, 48 – 57.

Offer available training to upgrade their skills and human capital skills, applies to both executives, as well as lower positions. The possibility of development refers to employees with long seniority and newly employed people need to be properly introduced the theme of his position and related duties. An important issue also play various courses and training, higher education, postgraduate or MBA, which will significantly improve the quality of human capital in a business entity.³⁹

1.2 Europe 2020 and Horizon 2020 as determinants of socio-economic growth

Europe 2020⁴⁰ is the union's growth strategy for the following ten years. „In the changing world, the EU needs intelligent and sustainable economy attracting social inclusion. Parallel work on the three priorities shall help the European Union and the member countries to acquire employment growth rate, productivity and social coherence growth. The European Union has indicated another specific plan covering five aims in terms of employment, innovation, education, social inclusion and changes of climate/energy which shall be gained until the 2020. In each of the areas, the member countries set own national objectives. Specific activities both on the union's and the national level strengthen implementation of the strategy.” (*José Manuel Barroso*).⁴¹

The European Union endeavour to overcome the crisis and create conditions for more competitive economy with the higher rate of employment. The target

³⁹ Prystrom, *Immowacje w procesie ...*, op. cit., p. 62.

⁴⁰ Elaborated on the basis of: *Europa 2020*, http://ec.europa.eu/europe2020/index_pl.htm, 17.06.2014

⁴¹ Ibidem.

of the „Europe 2020” strategy is the achievement of economic growth which shall be: intelligent - more effective investment in education, scientific research and innovations; sustainable - more explicit movement into low carbon economy; as well as facilitating social inclusion with an emphasis on creation of new work places and reduction of poverty. Strategy is focused on five headline targets in the range of employment, innovativeness, education, fighting poverty as well as climate change and energy sustainability.⁴²

In order to guarantee the strategy „Europe 2020” bring expected results, the solid and effective system of economic management has been established, facilitating coordination of political actions on the union and the national level.⁴³

One of the tools helping to implement strategy assumptions is Horizon 2020 programme. Horizon 2020⁴⁴ is the biggest EU Research and Innovation programme ever developed, with nearly €80 billion of funding available within 7 years (2014 to 2020) – in addition to the private investment that this money will attract. It pledges more breakthroughs, discoveries and world-firsts by transferring great ideas from the laboratories to the markets.

Horizon 2020 is the financial instrument implementing the Innovation Union. Europe 2020 major initiative aimed at securing Europe's global competitiveness. Perceived as a means to drive economic growth and create jobs. Horizon 2020 has the political endorsement of Europe's leaders and the Members of the European Parliament. They agreed that research is an investment in better future and therefore, put it at the centre of the EU's plan for intelligent, sustainable and inclusive growth and jobs.

By joining research and innovation, Horizon 2020 programme is helping to achieve this with its emphasis put on superb science, industrial leadership and facing societal challenges. The aim is to ensure Europe produces world-class science, removes barriers to innovation, overcome obstacles and makes it easier for the public and private sectors to cooperate in producing innovation.

Horizon 2020 is open to everyone, with a simple structure that reduces red tape and time so the participants can focus on really important issues. This approach ensures new projects start quickly – and achieve results faster.

Framework of the European Union's Programme - Horizon 2020 is the greatest programme in the history of the European Union in respect of scientific research and innovation. It covers by its range three, so far separate programmes for supporting research on the union's level. These are the following:

7. Framework Programme of the EU in respect of researches, technological development and demonstration, dedicated to innovativeness, part of the Framework Programme due to Competitiveness and Innovativeness Programme (CIP) executed by the European Institute of Innovation and Technology (EIT).

⁴² *Priorytety*, http://ec.europa.eu/europe2020/europe-2020-in-a-nutshell/priorities/index_pl.htm, 17.06.2014.

⁴³ *Ibidem*.

⁴⁴ Elaborated on the basis of: *What is HORIZON 2020?*, <http://ec.europa.eu/programmes/horizon2020/en/what-horizon-2020>, 17.06.2014 and *Horizon 2020*, http://www.kpk.gov.pl/?page_id=59, 23.09.2014

Within 7 years (2014-2020) for the innovative researches and solutions shall be intended in overall € 77 028.3 m. The structure of the Horizon 2020 programme is based on three fundamental, mutually supporting each other priorities:

1. Excellent scientific and technical base,
2. Leadership position in industry,
3. Social challenges supplemented by additional specific aims.

The specific assumptions include:

- Spread of excellence and ensure of wider participation
- Science with participation of society and for the society, as well as operation of the Joint Research Centre and the European Institute of Innovations and Technologies.

Examples of cross-cutting issues in the H202:

- Facilitating the path „from the idea to industry”
- Interdisciplinary and cross-sectorial scientific researches and innovations
- Social, economic and art science
- Supporting functioning and implementation of the European Research Area and Union Innovations
- Spread of participation in scientific researches and innovativeness in the EU
- Cooperation with the third countries
- Engagement of SME in scientific research and innovations as well as greater participation of the private sector
- Increase of attractiveness of the profession of scientist
- Facilitation of cross-border and cross-sector scientists mobility.

The EU Framework Programme for Research and Innovation will be complemented by further measures to complete and develop the European Research Area. These measures aim at removal of barriers to create a homogenous market for knowledge, research and innovation.

Activities under this Pillar aim at reinforce and extension of the excellence of the Union's science base and to consolidate the European Research Area so as to make the Union's research and innovation system more competitive on a global scene.

The European Research Council (ERC) shall provide attractive and flexible financing to enable creative individual scholars and their teams to pursue the most promising paths at the frontier of science, on the basis of Union-wide competition.

Future and emerging technologies shall support cooperative research so as to extend Europe's capacity for sophisticated and paradigm-changing innovation. They shall foster scientific cooperation across disciplines based on new, high-risk ideas and speed up the development of the most promising areas of

technology and science as well as the Union-wide structuring of the respective scientific communities.

Marie Skłodowska-Curie Actions shall provide superb and innovative research training, attractive career as well as knowledge-exchange opportunities through cross-border and cross-sector mobility of researchers to prepare them to meet contemporary, emerging and future societal challenges.

Research infrastructure (including e-infrastructures) shall increase European research infrastructure for 2020 and further, care about their innovation potential and human capital, and complete this with the related Union policy and cross-border cooperation.

Coupling, these objectives create a powerful and balanced set of activities which, together with activities at national and regional levels, span the wide range of Europe's needs concerning advanced science and technology. Putting them together in a single programme shall enable them to collaborate with greater coherence, in a rationalised, simplified and more focused way, while maintaining the continuity and integrity which is vital to obtain their effectiveness.⁴⁵

The activities are by nature far-reaching, constructing skills in the long term, focusing on the next generation of science, technology, researchers and innovations and providing support for emerging talent from the whole of the Union and associated countries, as well as worldwide. In view of their science-driven nature and largely 'bottom-up', investigator-driven financing arrangements, the European scientific community will play a dominant role in determining the paths of research followed under the programme.⁴⁶

1.3 Human capital and MSCA as socio-economic growth factors

Global competition forces on economies and functioning within them subjects, being innovative. Enterprises innovativeness and simultaneously economy innovativeness is conditioned by constant increase of education level, rise of qualifications and creativity by employees. Therefore, the most precious source deciding on the development of economy is knowledge.⁴⁷

Knowledge and innovative abilities are closely related to the issue of human capital which is perceived as one of the most significant factors conditioning innovativeness. Human capital can be understood as knowledge and abilities acquired by people through education and trainings.⁴⁸

⁴⁵ *Excellent Science*, <http://ec.europa.eu/programmes/horizon2020/en/h2020-section/excellent-science>, 17.06.2014.

⁴⁶ *Ibidem*.

⁴⁷ Kuźniar K., *Znaczenie kapitału ludzkiego dla realizacji koncepcji gospodarki opartej na wiedzy w Polsce*, [in:] Poteralski P., *Przemiany rynku pracy w kontekście procesów społecznych i gospodarczych*, Publisher: Department of Microeconomics at the University of Szczecin, Szczecin 2007, pp. 236 – 237.

⁴⁸ Shultz T. W., *Investment in Human Capital*, [in:] *American Economic Review*, no 1/1961, p. 2.

Human capital is the economical source of knowledge, abilities, health and vital energy in people and societies as a whole, defining ability to work, adapt to changes in the surrounding and create new solutions.⁴⁹

The notion of human capital comes down to knowledge and abilities of specific people acquired through the education system and vocational development.⁵⁰

Therefore, human capital is also understood as the source of knowledge and abilities within people that constitute genetically conditioned, defined potential getting bigger through the investments in human.⁵¹

That is why, of significant importance seems to be the investment and perpetual development of human capital which constitutes one of the determinants of innovative abilities and therefore driving force of economic development and competitive edge.⁵²

More precisely, human capital can be defined as driving force of well-functioning labour market and simultaneously determinant of economic condition of a country.⁵³

Moreover, investments in human capital can profit in various achievements. Adequately equipped employees frequently become authors of many valuable and significant discoveries and compilations which reinforce position of a company on the particular market and also – properly used – can be reflected in the economic situation.

That is why, knowledge and abilities shall be developed in order to create economies where the innovations constitute one of the most important forces accelerating economic mechanism. Aiming at innovation growth, the activities developing and using abilities and knowledge of own citizens shall be undertaken.⁵⁴

One of the means of investing are various types of trainings and courses. The European Union also remembers about the development of society and embraces those types of targets in own strategies – such as Horizon 2020.

From January 2014, the Marie Curie Actions is renamed the Marie Skłodowska-Curie actions (MSCA)⁵⁵. They come under the “Excellent Science” pillar of Horizon 2020 and will grant 6,162 million euro over the period 2014-2020.

⁴⁹ Oleksiuk A., *Investowanie w kapital ludzki w Polsce*, ECONOMICUS, Szczecin 2009, p. 9.

⁵⁰ Welfe W., Sabanty L., Florczak W., *Szacunek kapitału ludzkiego*, [in:] *Wiadomości Statystyczne* 2001, no 5, p. 16.

⁵¹ Romański S. R., *Kapitał ludzki i wzrost gospodarczy*, PWN, Warszawa 1993, p. 35.

⁵² Stenberg L., Gustafsson E., Marklund G., *Use of human resource data for analysis of the structure and dynamics of the Swedish innovation system*, Research evaluation, vol. 6, No. 2, August 1996, pp. 121 - 132.

⁵³ Denison E. F., *The sources of Economic Growth in the United States and the Alternatives Before Us*, American Economic Review, vol. 52, no. 4, New York 1962, pp. 762 – 782.

⁵⁴ Ederer P., *Innovation at Work: The European Human Capital Index*, Lisbon Council Policy Brief, Deutschland Denken! eVZeppelin University gGmbH, Friedrichshafen 2006, p. 2, http://www.lisboncouncil.net/media/lisbon_council_european_human_capital_index.pdf, 14.10.2008.

⁵⁵ Elaborated on the basis of: *Marie Skłodowska-Curie action*, <http://ec.europa.eu/programmes/horizon2020/en/h2020-section/marie-sklodowska-curie-actions>, 17.06.2014 .

The aim of the MSCA is to support the career development and training of scholars – with the focal issue on innovation skills – in all scientific fields through international and cross-sector mobility. The MSCA provide grants at all phases of researchers' careers, from PhD candidates to highly experienced researchers, and encourage transnational, inter-sectorial and interdisciplinary mobility. The MSCA will become the major EU programme for doctoral training, funding estimated number of 25 000 PhDs.

Funding researchers with skills and a wider range of competences, while offering them attractive working conditions, is a significant aspect of the MSCA. Beside the mobility between countries, the MSCA also pursue to break the real and potential barriers between academic and other sectors, especially business. The MSCA follow a "bottom-up" approach, that means individuals and organizations working in any area of research may apply for endowing. Several MSCA initiatives promote the involvement of industry etc. in doctoral and post-doctoral research.

There are numerous types of MSCA:

1. Research networks (ITN): support for Innovative Training Networks. ITNs support competitively selected research training and/or doctoral programmes, deployed by European partnerships of universities, research institutions, and non-academic organizations. The research training schemes provide experience outside academia, therefore developing innovation and employability skills. ITNs will include industrial doctorates, in which non-academic organizations have similar role to universities in terms of the researcher's time and supervision, and joint doctoral degrees produced by several universities. Moreover, non-European organizations can participate as supplemental partners in ITNs, enabling doctoral-level candidates to achieve experience beyond Europe during their training.
2. Individual fellowships (IF): support for experienced researchers taking up international mobility, optionally to the non-academic sector Individual Fellowships will support the mobility of researchers within and outside Europe - as well as facilitating to attract the outstanding overseas researchers to work in the EU. The grant usually covers two years' salary, a mobility allowance, research costs and overheads for the host institution. Individual researchers submit proposals for financing in cooperation with their supposed host organization. Proposals are examined on the basis of their research quality, the researcher's future career prospects, and the support offered by the host organization. Fellows can also spend part of the fellowship anywhere else in Europe if this would increase an impact, and those restarting their career in Europe profit from special eligibility conditions.
3. International and inter-sectorial collaboration through the Research and Innovation Staff Exchanges (RISE). RISE will support short-term mobility of

researchers and innovation staff at all career stages, from junior (post-graduate) to senior (management), also including administrative and technical staff. It will be open to partnerships of universities, research institutions, and non-academic organisations both within and outside Europe. In worldwide partnerships, academia-academia exchanges will be allowed.

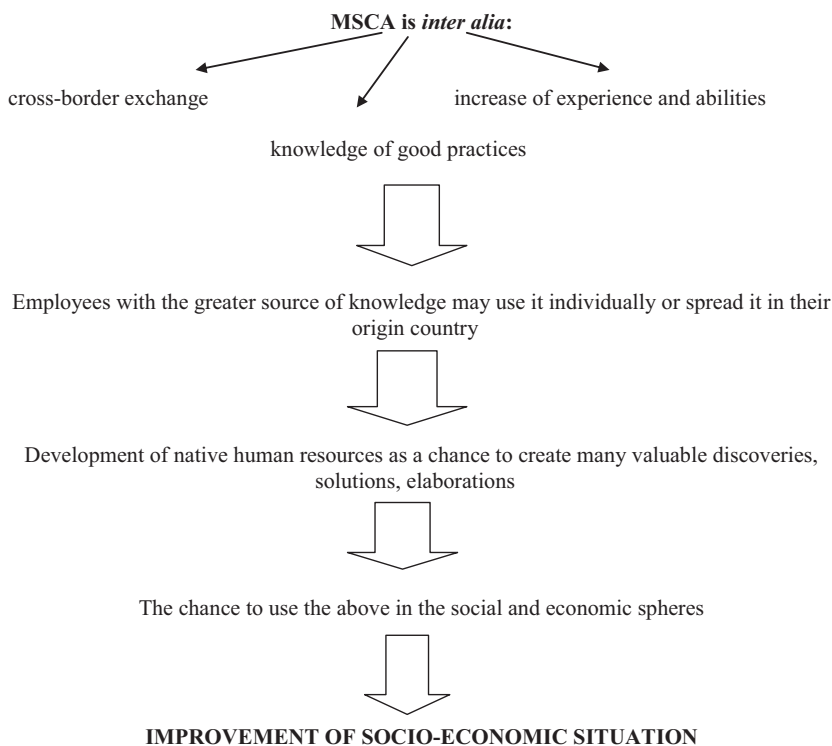


Figure 1.1 What may result MSCA and improving the quality of human capital

Source: own elaboration.

Co-funding of regional, national and international programmes that finance fellowships, including international. The MSCA offers additional funding to regional, national and international programmes for research/scientific trainings and career development. COFUND programmes encourage the movement of researchers/scientists across borders and provide excellent working conditions. The programme can support doctoral and fellowship programmes.

The European Researchers' Night (NIGHT) is the Europe-wide public event to promote interest in research careers, especially among young people. The activities are aimed at the general public and may take various forms such as hands-on experiments, science shows, debates, competitions or quizzes. The NIGHT takes place every year, typically on the last Friday in September.⁵⁶

Nowadays, the present socio-economic situation to a great extent is caused by innovativeness of economy and authorities significantly conditioning quality of human capital. It derives from the fact that adequate qualifications and high abilities may create authors of innovative advance and activities. In the effect, it may be reflected in the increase of national economy.

Investing in innovative activities and related level of education and abilities of work forces, mark the level and increase the quality of human potential, at the same time determining effects of conducted work, including significant in the contemporary world, innovative abilities.

It seems obvious that the quality of human capital in various countries is disposed non-evenly. Table 1.4 presents competitiveness of particular countries in respect of factors determining ability to increase sources of human capital and innovativeness of national economies.

It can be noticed that one country stands out on the international arena and it is characterized by high level of education and development of professional qualification, whereas other emphasizes the level of outlays and R&D activity as well as cooperation implemented between the sphere of science and industry which also enriches knowledge and abilities of both parties.

Moreover, quality of human capital and factors raising innovative abilities are diverse in the cross-section of the grid system. Once, the group of countries being highly competitive constitute the European Union member countries, and next overseas economies.

Therefore, the significance of the MSCA programme increases, since as it was mentioned, it facilitates cooperation between countries, not only within the European Union member countries. The European Union countries can acquire the lacking knowledge from the rest of the world and reverse, which will have a positive effect on the socio-economic dimension, in the global embrace.

Innovations may carry the possibilities of introduction of innovative solutions in the wide panel of fields and spheres of life. Simultaneously, the chance of increased demand and consumption emerges and therefore, the increased production phenomenon appears in this situation, the opportunity places appears, decreasing

⁵⁶ *Marie Skłodowska-Curie action*, <http://ec.europa.eu/programmes/horizon2020/en/h2020-section/marie-skłodowska-curie-actions>, 17.06.2014.

Table 1.4 Most competitive economies in the world in terms of selected factors increasing quality of human capital and innovative abilities according to GCI 2014-2015 (the first 30 ranks in 144 countries around the world)

Rank/ Country	Competitiveness of the economy in terms of selected factors					
	Innovation and sophistication factors	Institution surrounding	Higher education and training	Quality of the education system	Availability of research and training services	Extent of staff training
1	Switzerland	New Zealand	Finland	Switzerland	Switzerland	Switzerland
2	Japan	Finland	Singapore	Finland	Netherlands	Japan
3	Finland	Singapore	Netherlands	Qatar	Germany	Luxembourg
4	Germany	Rwanda	Switzerland	Singapore	Belgium	Malaysia
5	USA	Norway	Belgium	Ireland	Austria	Finland
6	Netherlands	Luxembourg	United Arab Emirates	Belgium	Finland	Qatar
7	Sweden	United Arab Emirates	USA	New Zealand	United Kingdom	Singapore
8	United Kingdom	Hong Kong SAR	Norway	Netherlands	USA	Norway
9	Denmark	Switzerland	New Zealand	United Arab Emirates	Japan	Belgium
10	Israel	Netherlands	Denmark	Malaysia	Puerto Rico	Sweden
11	Singapore	Japan	Australia	Canada	Norway	United Arab Emirates
12	Belgium	United Kingdom	Taiwan, China	Germany	Singapore	Netherlands
13	Taiwan, China	Sweden	Iceland	Cyprus	Malaysia	Germany
14	Austria	Canada	Sweden	Norway	Taiwan, China	USA
15	Qatar	Ireland	Austria	Barbados	Sweden	Denmark
16	Norway	Denmark	Germany	Malta	Hong Kong SAR	Puerto Rico
17	Malaysia	Germany	Ireland	Iceland	United Arab Emirates	New Zealand
18	Luxembourg	Rwanda	Canada	Denmark	Denmark	South Africa
19	France	Australia	United Kingdom	Australia	Qatar	Austria
20	Ireland	Malaysia	Estonia	Hong Kong SAR	Canada	Ireland
21	United Arab Emirates	Iceland	Japan	Costa Rica	France	Costa Rica
22	Korea, Rep.	Austria	Hong Kong SAR	Sri Lanka	Luxembourg	Canada
23	Hong Kong SAR	Belgium	Korea, Rep.	United Kingdom	Australia	United Kingdom
24	Canada	Oman	Portugal	Jordan	Portugal	Indonesia
25	New Zealand	Saudi Arabia	Slovenia	Luxembourg	Ireland	Iceland
26	Australia	Estonia	Lithuania	Sweden	New Zealand	Hong Kong SAR
27	Puerto Rico	Taiwan, China	Puerto Rico	USA	Czech Republic	Philippines
28	Iceland	Chile	France	Lebanon	Costa Rica	Guatemala
29	Italy	Bahrain	Spain	Philippines	Estonia	Bahrain
30	Indonesia	USA	Barbados	Kenya	Italy	Australia

Table 1.4 Continued

Rank / Country	Competitiveness of the economy in terms of selected factors					
	Quality of scientific research institutions	Technological readiness	Company spending on R&D	University-industry collaboration in R&D	Availability of latest Technologies	Availability of scientists and engineers
1	Switzerland	Luxembourg	Switzerland	Finland	Finland	Finland
2	United Kingdom	United Kingdom	Japan	USA	USA	Qatar
3	Israel	Sweden	Finland	Switzerland	Norway	Japan
4	USA	Norway	USA	United Kingdom	United Kingdom	Greece
5	Belgium	Hong Kong SAR	Germany	Singapore	Iceland	USA
6	Netherlands	Denmark	Sweden	Belgium	Switzerland	Puerto Rico
7	Japan	Singapore	Israel	Israel	Sweden	United Arab Emirates
8	Germany	Iceland	Qatar	Qatar	United Arab Emirates	Portugal
9	Australia	Netherlands	Malaysia	Netherlands	Netherlands	Malaysia
10	Finland	Switzerland	Singapore	Germany	Israel	Israel
11	Singapore	Finland	Belgium	Sweden	Portugal	Spain
12	France	Ireland	Austria	Malaysia	Belgium	Canada
13	Ireland	Germany	Denmark	Ireland	Luxembourg	Jordan
14	Sweden	Belgium	United Kingdom	Taiwan, China	Japan	Taiwan, China
15	Canada	Israel	France	Norway	Singapore	Ireland
16	Qatar	USA	Luxembourg	Japan	Canada	Singapore
17	Denmark	France	Netherlands	New Zealand	Germany	Cyprus
18	Portugal	Austria	Taiwan, China	Luxembourg	Hong Kong SAR	Germany
19	New Zealand	Australia	Ireland	Canada	France	Sweden
20	Malaysia	Japan	Korea, Rep.	Korea, Rep.	Puerto Rico	Sri Lanka
21	Norway	Malta	Norway	Australia	New Zealand	France
22	Taiwan, China	Canada	United Arab Emirates	United Arab Emirates	Ireland	United Kingdom
23	Hungary	New Zealand	China	Portugal	Austria	Italy
24	Austria	United Arab Emirates	Indonesia	Austria	Australia	Switzerland
25	Estonia	Korea, Rep.	El Salvador	Iceland	Qatar	Costa Rica
26	Luxembourg	Portugal	Hong Kong SAR	Korea, Rep.	Qatar Bahrain	Tunisia
27	Korea, Rep.	Spain	Canada	Lithuania	Estonia	Australia
28	Lithuania	Lithuania	Kenya	Hong Kong SAR	Denmark	Lebanon
29	Iceland	Estonia	New Zealand	France	Barbados	Chile
30	United Arab Emirates	Taiwan, China	India	Indonesia	Korea, Rep.	Netherlands

Source: own elaboration on the basis of: http://www3.weforum.org/docs/WEF_GlobalCompetitivenessReport_2014-15.pdf, 19.11.2014

the problem of unemployment and consequently improves social situation and accelerates economy.

Innovativeness and benefits resulting may become an incentive for the economic entities. Therefore, it seems obvious that when the more innovative units function in a particular region there is a greater chance for improvement of socio-economic situation.

Conclusions

The objective of the modern economies is the provision of socio-economic development. The driving force, allowing to achieve the assumptions is human capital. As it was earlier underlined, these are people equipped in proper abilities who may condition effective functioning of the economic entities.

The European Union strategy considers the role of human being in the implementation of pro-developing assumptions therefore, the issue of continuous development of the quality of human capital is present in the offer of the union's programmes, with the illustrious example of MSCA programme.

The flagship goal of the programme is to support career, acquire new abilities and develop competences of scientists/researchers as well as offer them attractive work conditions. It shall promote not only mobility among the countries but also eliminate real and perceived barriers between academic and other sectors, in particular enterprises. Few initiatives support industry's involvement and other groups in doctoral and post-doctoral research.⁵⁷

In case of citizens of countries not being members of the European Union, the case also has a chance of realization. Within the frames of Marie Curie Actions it is possible to find competitions where the citizens of other countries can arrive to main unit base on the territory of the European Union which becomes a host unit. The basis is the commencement of cooperation with the unit functioning on the territory of the European Union which in the modern realities is the case possible for implementation. That is why, citizens of the countries not being members of the European Union have the chance of developing qualifications and abilities. In consequence, they can use acquired knowledge in their parent units and in effect in native economy.

Willing to emphasize the role of investing in human capital, the ranking of most competitive economies in the respect of training quality or availability of courses and trainings raising qualifications has been prepared. It has been stated that the significant issue is the state of cooperation between research-development sphere and industry, as well as availability of scientists and engineers.

⁵⁷ „*„Maria Skłodowska-Curie” Actions – the most significant information,*
http://ec.europa.eu/research/mariecurieactions/about-msca/actions/index_pl.htm, 17.10.2014.

Table 1.5 Competitiveness of European economies in terms of quality of human capital and innovativeness in 2013

Country	Human capital*	Overall index/rank		
		Innovativeness**	Innovativeness and sophistication factors***	Competitiveness
Switzerland	1	-	1	1
Finland	2	4	2	3
Netherlands	4	5	7	8
Sweden	5	1	5	6
Germany	6	2	4	4
Norway	7	-	16	11
United Kingdom	8	8	10	10
Denmark	9	3	11	15
Belgium	11	7	15	17
Austria	13	9	12	16
Luxembourg	17	6	17	22
Ireland	20	10	21	28
France	21	11	18	23
Estonia	27	14	35	32
Italy	37	15	30	49
Latvia	38	24	68	52
Kazakhstan	45	-	87	50
Croatia	46	-	80	75
Slovak Republic	-	20	77	78
Poland	49	-	65	42
Hungary	54	21	71	63
Greece	55	19	81	91
Bulgaria	56	26	108	57
Ukraine	63	-	95	84
Macedonia	65	-	94	73
Romania	69	25	103	76
Albania	72	-	119	95
Moldova	83	-	133	89
Serbia	85	-	125	101

Source: own elaboration on the basis of: * *The Human Capital Report 2014*, World Economic Forum & Mercer, Geneva 2013, pp. 12-13, http://www3.weforum.org/docs/WEF_HumanCapitalReport_2013.pdf, 23.10.2014, ** *Innovation Union Scoreboard 2013*, European Union 2013, p. 5, http://ec.europa.eu/enterprise/policies/innovation/files/ius-2013_en.pdf, 24.10.2014

Analysing table 1.5 it can be clearly stated that countries with the high level of quality of native human capital are included to the group of most innovative and competitive in the world. Unfortunately, among the European countries there are also countries which occupy one of the last positions in the ranking.

It can be noticed that countries included in the group of most competitive and well developed in the world belong to the group of countries with the great condition of national education system, wide offer and availability of courses

and trainings, perfectly well established cooperation of R&D and industry, as well as highly qualified staff for the realization of such activities.

Bearing in mind condition of human capital in well-developed and most competitive countries in the world, all remaining countries shall aim at investment in education and raise of qualifications and abilities of own citizens. It seems obvious that frequent obstacle in realization of those targets is the lack of financing sources for such an enterprise. The valuable help here seems to be offered by the European Union.

Table 1.6 The Human Capital Competiveness 2015 – first 50 of 124 classified countries

Country	Rank	Country	Rank
Finland	1	Austria	11
Norway	2	Ireland	12
Switzerland	3	Australia	13
Canada	4	France	14
Japan	5	Slovenia	15
Sweden	6	Estonia	16
Denmark	7	USA	17
Netherlands	8	Lithuania	18
New Zealand	9	United Kingdom	19
Belgium	10	Iceland	20
Lexembourg	21	Ukraine	31
Germany	22	Hungary	32
Latvia	23	Malta	33
Singapore	24	Slovak Republic	34
Czech Republic	25	Italy	35
Russia Federation	26	Croatia	36
Cyprus	27	Kazakhstan	37
Poland	28	Portugal	38
Israel	29	Romania	39
Korea Rep	30	Greece	40
Spain	41		
Bulgaria	42		
Armenia	43		
Kyrgyz Republic	44		
Chile	45		
Philippines	46		
Uruguay	47		
Argentina	48		
Panama	49		
Serbia	50		

Source: Own elaboration on the basis: *The Human Capital Report 2015*, World Economic Forum 2015, p.10, http://www3.weforum.org/docs/WEF_Human_Capital_Report_2015.pdf, 24.11.2015.

The European Union programmes offer citizens of countries not being members of the European Union acquiring knowledge and experience from foreign colleagues. However, it shall be stated that presented ranking covered 148 countries, therefore some positions should be underlined. Ukraine occupies

place in the first 50. These are the higher education and trainings raising qualifications and availability of scientific workers. Ukrainians can also boost themselves with the number of submitted patents, taking 52 place in the ranking. It means that many countries can use the knowledge sources of Ukrainian employees and at the same time contribute to the improvement of socio-economic situation in their own country.

Table 1.6 supports the above statement that some countries can support each other. Included in the ranking table of competitiveness human capital takes into account such factors as primary, secondary and tertiary education attainment rate, staff training services, economic complexity, labourforce and unemployment participation rate, high- and medium-skilled employment share.

It is quite comforting that the European Union and its pro-development initiatives bear the possibility of development for countries not being its members. MSCA serves only as an illustrious example of the possibilities to use such an opportunity.

Undeniable application seems to be a necessity to spread international cooperation and use of appearing chances which in effect may result in the upgrade of the quality of human capital and improvement of socio-economic situation.

Chapter 2

THEORETICAL AND POSTERIORI ANALYSIS OF HUMAN CAPITAL IN THE «KNOWLEDGE ECONOMY»

Introduction

At present the problems regarding economic growth take one of the leading positions both in theoretical studies of the economists and practical activities, foremost on the macroeconomic level.

The 2009 global economic crisis and recent events damaged the economy of Ukraine to a large extent by reducing its GDP, affected its competitiveness, social and economic development, diminished real earnings of the population and intensified social tension in the society. Thus, the primary issues to be solved at the current stage of Ukraine's economic development are to overcome these negative consequences and direct the country at the steady economic growth. Taking into consideration the present conditions it should be noted that the research focused on the conceptual bases of the national economic growth as well as theoretical and practical approaches to ensure the development processes in the changeable current conditions is getting more and more relevant.

There are several key issues regarding research into economic growth and development. Selection of the most influential growth factors for the particular national economy and implementation of the economic policies which are growth-oriented still cause difficulties.

How significant is the role of human capital and investment in human capital in these processes? What is the role of the state in encouraging human capital development in the conditions of the "knowledge economy" formation? These are the questions to be discussed in this chapter.

2.1 Human capital in growth theory

Considering the evolutionary and factual trend of development of the economic growth theory and evolution of views and key issues of economic growth in particular it is obvious that theoretic potential demonstrated in the economic growth and development theory is significant. Various economic growth theories dominating in the certain periods of the world economy were formed. The laws of economic dynamics of certain national economies were found out and factors and conditions of their economic growth were defined.

The foundations of the modern growth and development theories were laid down in the end of the XVII century and at the start of the XVIII century in the works of W. Petty and F. Quesnay. In the further research of the economists and E. Domar, J. M. Keynes, T. Malthus, K. Marx, A. Marshall, J. S. Mill, W. Petty, D. Ricardo, P. Samuelson, A. Smith, R. Solow, F. Hayek, R. Harrod and J.

Schumpeter in particular the general theoretic foundations of economic growth were laid.

Historically Keynesian models are considered to be the first theoretic concepts of economic growth, neoclassical ones are thought to be the second generation and institutional models of growth and development are regarded as the third generation. Contemporary authors also define evolutionary, post-Keynesian, neo-institutional approaches and theories of endogenous growth.

It is reasonable to analyze the methodological approaches to the above-mentioned theories that allows for defining the role given to human capital by representatives of each of these theories.

The issue of economic growth as an independent theory was determined in the late 1930s. During this period people's attention was drawn to the consequences of the Great Depression (1929–1933). J. M. Keynes⁵⁸ emphasized the role of the state as the main regulator of the economic system for ensuring the continuous production process in the society covering this issue in his works. Effective demand became the main factor of the Keynesian model. According to J. M. Keynes, increase in aggregate demand has to enhance economic growth. The important component of the economic growth theory of J. M. Keynes was the multiplication principle characterizing the influence of investment growth on total revenue rise.

The key factors of the Keynesian model are the ones which influence aggregate demand and promote economic growth through the level, dynamics and distribution of national income. According to J. M. Keynes⁵⁹, they are immediately transformed into effective demand, that is, a certain level of aggregate demand which ensures a macroeconomic balance at the certain employment rate.

Hence, Keynes suggested the following directions to impact on economic growth within the state fiscal policy:

- the progressive scale used in taxation of income for income distribution in favour of the individuals who do not tend to save up;
- the multiplication effect applied due to manipulation of state expenses to ensure the necessary rate of aggregate demand.

The Keynesians considered interest rate manipulation with the view to increasing investment attractiveness as the main tool used to stimulate growth in the monetary and credit sphere.

J. M. Keynes's successors E. Domar, R. Harrod and A. Hansen developed his ideas and suggested the neo-Keynesian theory of economic growth. The Harrod-Domar model focuses on investment. The Leontief production function which has constant limiting capital productivity is also used. The output depends only on capital because labour is not a limited resource.

⁵⁸ Keynes J. M., *General theory of employment, interest and money* / J.M. Keynes. – Moscow: Gelios ARV, 2002. - 352 p. (Russian)

⁵⁹ Ibidem.

The Harrod-Domar model is based on three factors of economic growth including:

- population growth;
- labour productivity increase;
- capital stock.

In the middle of the XX century most of the researchers underlined dependence of economic growth on capital stock under the influence of the Harrod-Domar model. Therefore, long-term fund raising growth was also considered to be important.

The main conclusion of the Harrod-Domar model lies in the fact that full employment of labour resources and production facilities working at full capacity can be achieved simultaneously only by accident. Such a coincidence is stipulated by the coincidence of the ensured growth rate which means the growth rate at full capacity of production facilities and the natural growth rate or the growth rate under conditions of full employment.

The equation is actually another interpretation of Keynes's equation of investment and savings. But in contrast to dependence of investment on limiting efficiency of capital and the interest rate assumed by Keynes, Harrods suggests that investment is connected with population growth, technological progress and necessary capital coefficient.

Other Keynes's successor A. Hansen uses the category of autonomous investment as a basic one to build the growth model under the influence of exogenous scientific and technical potential. According to A. Hansen, the growth mechanism is the following: at the first stage appears exogenous autonomous investment which influences the national income growth as a result of multiplication and it causes investment stimulation through the accelerating mechanism. All these factors lead to economic growth and the combined action of accelerator and multiplier causes the overcumulative growth process.

At the same time the overcumulative process cannot be constant in the economy. A. Hansen explains it by exhaustion of autonomous investment (innovative ideas), reduction of limiting efficiency of investment and respective rise of the interest rate and prices for investment products. On the other hand, as a result of the main psychological law, limiting propensity to consume decreases which reduces the value of multiplier.

It can be assumed that the main advantage of the neo-Keynesian approach is emphasis on the shortcomings of the market mechanism. The drawback of the neo-Keynesian theory is its focus on capital stock and savings without consideration of institutions and country specifics.

Neoclassical models are an alternative approach to the growth issues. The main thesis of the neoclassical growth theories is a statement of market self-regulation. Robert Solow, Trevor Swan and Edmund Phelps developed the economic growth theory in the neoclassical direction.

The neoclassical economic theory is based on the principle of the self-regulating market mechanism that allows allocating resources in the economic system as a whole in an effective way.

The key element of economic growth in the neoclassical Solow model is capital stock as well. In accordance with the economic growth model developed by Robert Solow, economic growth depends on savings and stock capital. It is a simple monosector model of economic dynamics with merely households and firms represented in it.⁶⁰

Robert Solow developed a model of factor analysis of the economic growth sources adding one more factor to the functional dependence. It was the level of technological development set exogenously. To calculate it one needs to apply the Solow residual. This indicator corresponds with the part of growth which is not connected with the production factor growth.

Neoclassical economists also researched the issues of the ratio between balanced economic growth and different savings levels. Edmund Phelps formulated the so-called Golden rule savings rate according to which the optimum norm of savings must be such at which the level of savings provides economic growth if the consumption level is at its maximum value.

According to the Solow model and the Golden rule savings rate the neoclassical theory suggests three ways of economic growth:

- influence on capital supply;
- impact on efficiency of labour resources;
- encouragement of the technological progress.

If the economy is characterized by capital stock which is greater than by the Golden rule, it is necessary to conduct the policy directed at reduction of the savings norm. If capital stock is lower than at the steady position, it is necessary to conduct the policy directed at growth of the savings norm.

At the same time efficiency growth of labour resources will be ensured by growth of the employable population, which is equivalent to the total population growth according to the Solow model, because of the increased birth rate or attraction of migrants. High population growth rates influence acceleration of the economic dynamic pace, although GDP per capita can decrease in equilibrium.

Therefore, according to R. Solow, the only factor ensuring economic growth is technological progress. It leads to the respective increase in income per capita in equilibrium, though the model does not consider the mechanism to ensure such growth.

According to R. Solow, the possibility of the economy to be in equilibrium of growth is defined by exogenous determinants that leads to criticisms of the model by the proponents of other directions of the economic theory and attempts

⁶⁰ Solow R.M., *Growth theory: an exposition*, econpapers.repec.org

to apply the endogenous approach to the indicators of the technological progress growth rate and savings norm.

The third direction called evolutionary is considered as alternative to the mentioned theories. It is based on the ideas of such economists as K. Marx , J. Schumpeter and J. S. Mill.

The issue of economic dynamics is in the heart of the evolutionary theory. The main aim of the evolutionary theory was to develop the macroeconomic model with the microeconomic data used as a basis for generating the macroeconomic indicators but without using the production function.

The proponents of the evolutionary theory questioned the exogenous character of the technological progress in the Solow model, residual nature of defining the contribution into economic growth and unreality of assumptions about available technologies and also criticized incompatibility with microeconomic data.

The evolutionary theory of economic changes suggests its own vision of technological changes. According to this theory, a certain business has a certain technology at the set period of time that is why two conditions are critical for its updating: research and development and a certain time lag.

Another approach to the economic growth theory is institutional which is rather common in modern economics. The institutional views regarding economic growth and development were formed under the impact of J. Schumpeter's ideas.⁶¹

The institutional methodology emphasized the political, psychological and social factors influencing economic growth and development.

According to the proponents of neo-institutionalism, two aspects can be defined which need to be taken into account while analyzing economic growth. Ronald H. Coase analysed the first aspect in his works. It refers to transaction costs which result from interaction of economic entities and are not connected with the production process, in contrast to transformation costs caused by involvement of production factors in the production process. Transaction costs can affect economic growth rates preventing the production-possibility curve from moving right. Only the minimal level of transaction costs will promote economic growth and national wealth maximization.

Another component of the neo-institutional analysis is based on Douglass North's research.⁶² According to his theory, economic growth is stimulated by effective institutions which are constraints and sets of rules which ensure effective interaction of economic agents. At the same time the transaction-possibility curve is close to the production-possibility curve of the society. However, the position of the social possibility curve is defined by institutional improvement. Thus, the countries with an insufficient level of institutional system development have a possibility to grow at a faster pace by improving the

⁶¹ Shumpeter Y., *Economic development theory*, Progress, Moscow, 1982, 401 p. (Russian)

⁶² North D., *Institutes, institutional changed a functioning economy*, North. D., Moscow: Beginning, 1997, p. 17. (Russian)

institutional structure which will bring the social possibility curve nearer to the transaction-possibility curve. The main constituents of this system are legal and regulatory framework, the educational system, protection of owners' rights, the level of corruption, the shadow economy, etc.

This approach considers accumulation process and exchange of knowledge as driving forces of development. Economic growth is stimulated by the transformation mechanism of these constituents. On the one hand, it can be regarded as combination of the Keynesian and neoclassical theories with consideration of the scientific and technological advance. On the other hand, it is combination of the institutional approach and human capital issues.⁶³

Another direction of endogeneity of the technological progress in the economic growth theories relates to the role definition of human capital accumulation which enhances growth of the Solow residual.

Post Keynesian economists such as *Nicholas Kaldor*, Joseph E. *Stiglitz*, Joan V. *Robinson* and Luigi *Pasinetti* researched endogeneity of the savings norm.

The idea of the endogenous growth theories is based on the thesis that dynamics of the social product change can be considered as a function of the national income distribution which, in turn, depends on the capital stock. The rate of capital stock, in its turn, influences the profit norm and defines the share of profit in the national income.

The main problem of this approach lies in the fact that exogenous technical progress is considered as one of the factors and the state does not influence it. Therefore, it is impossible to formulate the mechanism of the state economic growth stimulation.

An option of technical progress endogeneity was suggested by Paul M. Romer who relies on the significant role of positive externalities in the operations of economic entities and conditions of competition. Appearance of externalities hinders effective resource allocation in the national economy. Thus, Paul M. Romer along with Robert J. Barro substantiates the need for applying state investment for internationalization of externalities which will influence the economic growth rates.

Impact on the human capital value is possible due to investment which can be made by direct expenses and imputed cost. The Lucas model deals with the influence of imputed cost on the human capital accumulation. According to this approach, decisions on imputed cost consumption are a component of rational individual decisions including decisions on current and pent-up consumption and decisions on the choice of investment made in human capital or other investment types.

Another important conclusion of the endogenous growth theories is the thesis about intensive nature of investment in educational activities due to the

⁶³ Manasenko K. A., *Economic development: the theory unity problem.* / Moscow University "Vestnik". 6th series. Economy. № 5, pp. 15-23, p.17. (Russian)

transformation of academics' human capital into students' human capital as recipients of this investment.

In the context of influence on the human capital value Paul M. Romer, Michael Grossman and Elhanan Helpman presented the three-sector model (research and development, production of noncapital items and final goods) where redistribution of human capital is allowed between countries due to technology diffusion within the framework of the open economy.

The state promotes technology diffusion and enhances human capital growth using the following tools: direct funding of research activities; application of tariff and tax incentives to create favourable conditions for innovative activities; development of legislation to copyright and grant patents; promotion of foreign direct investment in innovative activities and investment in foreign technologies; and investment in education.

2.2 Transformational phenomenon of the «knowledge economy» and human capital

The most common of modern economic growth theories is endogenous growth theory. It is based on proving endogeneity of the technological progress factor. According to this theory endogeneity of technical changes is associated with human capital (it describes the amount of knowledge and practical experience of people). The endogenous nature of the technological progress factor is determined by the development of the educational system and policy to stimulate research. The main conclusion of these theories is a direct correlation of economic growth and growth of human capital.

Therefore global economy development and the focus upon human capital theoretical concepts show how significant the human factor is for the contemporary economy. All over the world governments apply maximum efforts to improve people living standards and to enlarge their knowledge. The highest priority issue is to upgrade the citizens' skills to such a level, when they could control cutting-edge technology and progress. Developed economies invest huge sums of money into human capital. According to World Bank human capital exceeds 80% of all productive wealth in Japan and 60% in the US. In Australia and Canada, which are rich in mineral resources and population of which is characterized by educated people, the share of human capital makes up 20% of all productive wealth⁶⁴.

Many Ukrainian and overseas scientists contributed greatly to the study of human capital theory: M. Azhazhi, O.Borodyna, N.Golikova, O.Golovninov,

⁶⁴ Chekan I. A., *Investments into the human capital during Ukraine's transitional period*, <http://mev.lac.lviv.ua/downloads/vyklad/chekan/10.pdf> (Ukrainian)

T.Gordeeva, O. Zakharova, O.Levchuk, T. Lekh, N. Perepelytza, G.Proshak, Yu. Rusyna, I. Taranenko, Yu. Khainatska, I.Chekan.

The most important for us is to analyze the human capital essence on the conditions of existing of knowledge economy, to work upon ways to invest into human capital and to look at the main trends of human capital development in Ukraine with regards to economic growth.

To clearly understand what the human capital is we should refer to the works of Gary Becker, who was awardee Nobel Memorial Prize in Economic Sciences in 1992. The model represented by Becker served as the basis for other works in this field.

Human capital is amount of skills, knowledge, motives that each person has. There are different types of investments into human capital. Firstly, investment into education (secondary and higher one, formal and informal, specific training to fulfill the requirements at the working place and so on). These are the most widely spread and most important types of investment. Education is the specialty of qualified and productive employee. Not less important is health maintenance investment. To attain good health it is worth investing into prevention of diseases, medical services, better diets and living standards improvement. This leads to the increase of life expectancy, working efficiency. Investment into mobility is worth paying attention too as to improve productivity it is necessary to move employees from places, where their efficiency is low to places, where it is high. Investment into human capital is also the search of valuable in economic terms information, children upbringing (investment into the future) etc. Those areas which receive investments are called human capital assets.

There exist such assets as knowledge (secondary education, vocational training, self-improving), health, motivation, features that might be in handy while doing business or communicating in society (emotional equilibrium or intellectual superiority which enables person to collect, analyze and use considerable informational flow (informational mobility)) and having in possession important economic data.

Ukraine is the country with huge human capital potential, which should be developed and rationally used. As all other equipment human capital wears off and needs restoration with the help of corresponding investments. On the micro level such investments are the measures to improve employees' competence and qualification; enterprise payment for the sick leave; medical insurance on the voluntary basis, however paid by employer; other medical services at the enterprise expense; charity etc. As for the macro level we can speak of such investments as the measures undertaken by households to maintain and restore human capital, social benefits given to people.

Another classification is based on the allocation of fixed assets of human capital. Elements of investments are the main assets of human capital. There are following assets of human capital: knowledge (general education, professional

training, self-improvement); health; motivation; business and social features (spiritual stability and intellectual mobility of people, ability to collect, analyze and use large flows of information); possession of economically important information⁶⁵. In our opinion, this list should be added by research which is an important engine of technological progress.

Thus, for analyzing the human capital the expenditure on education (general and specialized, formal and informal education and training, etc.) should be considered separately. The expenditure on education is the most common and important form of human capital investment. Education is the foundation of skilled and productive employees. The health care costs are also important. Good health is the result of spending on disease prevention, health care, diet and improving living conditions. Good health is a factor of life expectancy, increasing efficiency and productivity. Equally important are the costs of research. According to the main asset of human capital the human capital investments also include the costs of mobility, the costs for searching significant information, parenting (investment in future human capital) and others. Mobility is the reason of increasing the results of human capital productivity. Employees migrate from places with low productivity of labor to places with high productivity of labor.

The funding of education and health in Ukraine is lower than in countries with high levels of human capital development. Since 2006 in Ukraine the part of cost of total budget expenditures on social protection and social security has been 21%, on health - 3.1%, on the needs of housing and utilities - 0.2%. The total amount of expenditures for social needs in Ukraine is less than 40%. However, this part in the most countries with the developed market economies is about 60% of state budget expenditures⁶⁶.

If we take into account countries with high level of human capital development we can state that investments into education and medical care in Ukraine are pretty low. According to official statistics in 2009-2010 the share of GDP aimed at medical care improvement was lower than in other EU countries by 1.5-2.3 times. And general investments into medicine were tens of times lower than in the member-states of the bloc. If we count benefits given to each person for medical care in Ukraine in 2010 it will be 1850.3 hryvnas or 199.3 USD (according to NBU exchange rate). To compare in Denmark per person they have 6422\$, in Sweden – 4710, France – 4691\$, Germany – 4668\$, Czech Republic – 1480\$, Poland – 917\$). Among the CIS countries the first was Russia (525\$), then Kazakhstan (393\$), Azerbaijan (332\$), Belarus (320\$), Georgia (272\$). In terms of PPP the cost of medical care per person is 519\$ and state allocates 294\$. And this rate is lower than in EU (2241\$ and 1674\$

⁶⁵ Taranenko I. V., *Institutional transformation as the prerequisite to provide Ukraine's global competitiveness* http://www.nbu.gov.ua/portal/natural/Nvuu/Ekon/2009_28_2/statti/31.htm (Ukrainian)

⁶⁶ Pavlyuk, T. I., *Social and economic development trends: micro and macroeconomic aspect VNAU Economic sciences series*, Vinnitsa, vol. 3(69), pp.162-169. (Ukrainian)

correspondingly). However this indicator is really important. According to the scientific research results its change leads to longer or shorter life expectancy⁶⁷.

Despite the fact that in 2012 Ukraine allocated 55.2 billion hryvnas for healthcare purposes which is 12.9% more than in 2011 and 51.2% exceeds the amount of investments into this sphere in 2009 it is still not sufficient to fill all the gaps that exist in the modern healthcare system of Ukraine⁶⁸.

As for the budget allocations into education that in 2009 made up 65.831 billion hryvnas or 6.29%, in 2010 – 77.323 billion hryvnas or 6.56%, 2011 – 79 billion or 6.76%, 2012 – 92.1 billion hryvnas or 6.99% we can say that state gradually increases its assistance to the system of education. However all this efforts have only the nominal value, as firstly the invested sums are not so considerable with regards to GDP and secondly, we shouldn't forget about inflation.⁶⁹

Table 2.1 Partial analysis of human capital investment in Ukraine, % of GDP

Period	Share of health care costs	Share of education spending	Share of spending on research and development
1995	7.7	- *	- *
1996	7.0	- *	- *
1997	6.9	5.5	1.2
1998	6.6	4.4	1.1
1999	5.9	3.6	1.0
2000	5.6	4.2	1.0
2001	5.7	4.7	1.0
2002	6.3	5.4	1.0
2003	6.9	5.6	1.1
2004	6.6	5.3	1.1
2005	6.4	6.1	1.3
2006	6.4	6.2	0.9
2007	6.4	6.2	0.9
2008	6.6	6.4	0.8
2009	7.8	7.3	0.9
2010	7.8	- *	0.8
2011	7.3	6.2	0.7
2012	7.6	- *	- *

* available data

Source: *The World Bank. World Development indicators* [web source]. [http:// data.worldbank.org/ data-catalog/ world-development-indicators](http://data.worldbank.org/data-catalog/world-development-indicators)

⁶⁷ Ministry of Health of Ukraine plan of action for 2013 and corresponding plans for 2 budget periods (2014-2015). Ratified November, 1.

⁶⁸ *Healthcare expenditures grow up every year* [web materials] (2013) - link http://www.minfin.gov.ua/control/uk/publish/article?art_id=353252&cat_id=326268

⁶⁹ Khainatska Yu.Yu. *Ukraine's education expenditures analysis*. [web source] / Khainatska Yu.Yu., Gordeeva T.A. - link <http://intkonf.org/haynatska-yuyu-gordeeva-ta-analiz-finansuvannya-vidatkov-na-osvitu-v-ukrayini> (Ukrainian)

Table 2.1 shows data on size of health care costs, education spending and spending on research and development in GDP from 1995 to 2012.

It should be noted that the size of health care costs, education spending and spending on research and development in GDP is still lower in Ukraine than in the countries with high levels of education and health care funding. However, this figure is very important. The results of research of the world tendencies shows that the level of those expenditures affects the life expectancy of the population and other important demographics indicators. Those indicators also influence social and economic development.

Social sphere areas serve as the mechanism to restore human capital, which in its turn is a prerequisite for national welfare and is a major condition for state economic sustainable development. The person who invests always counts for some benefits that he or she gets as the result. For the employee to get better healthcare and improve his living standards and qualification, firstly it is important to get higher income. This is his or her motivation. And if the employer invests money he wants it to result in better productivity on the enterprise. Within the country people are definitely interested to support competitiveness of national economy and to increase GDP rate, and so investments into human capital bring not only benefits for business, but for the country as the whole.

Today we cannot state that Ukrainian population is fully aware of the person's role in production. We face many problems: unemployment, low living standards, neglecting qualified staff, which has skills and experience and moreover we still cannot provide any social guarantees to employees. As the result there is no opportunity to use all our labor possibilities and motivation is simply not present. Yet we can observe some positive changes if we look at human potential development index rate in Ukraine.

This index compares living standards, education rate, and life expectancy with corresponding rates in other countries. The ways to measure that index changed in 2010 and now it comprises such categories:

- 1) life expectancy rate;
- 2) average time spent by the adult to obtain higher education and time spent by children to get secondary education;
- 3) Gross national income per capita in PPP terms.

According to UN report in 2011 there are 42 countries with high human capital development. These are the countries where average life span makes 78-83 years, GDP per capita – 17-80 thousand dollars, time spent for education – 13-20 years. The leaders here are Norway, Australia, and New Zealand. Countries that conclude the list are Poland, Hungary, Slovakia, Czech Republic, Estonia, Greece, and Barbados. In 2011 Ukraine was regarded as the country with high human capital development and took 76th place among 187 countries. To compare in 1995 Ukraine was 102 among 172 countries, in 2000 it took 80th place; in 2003 – 75th place among 175 countries; in 2004 it was 70th among 177,

in 2010 – 69th among 169 countries. Other CIS countries have shown better results, for instance Belarus was 61st, Russia – 65th, Kazakhstan – 66th, and Azerbaijan was 67th⁷⁰.

The fact that Ukraine belongs to the group of states with high human capital development can be described by the rate of highly educated people which makes up 99.7%. In 2011 average life expectancy in Ukraine made 68.5 years, poverty rate – 2.2%. However Ukraine is still far behind other countries on the rate of investments into medical sphere.⁷¹

According to the World Bank report in 2012 Ukraine was 56th (or had the index rate of 5.73) among 146 countries when the Knowledge Economy Index was calculated. As for the population education rate Ukraine took 21st place. Developed economies have the index rate more than 8. Sweden, Finland, Denmark, The Netherlands and Norway are top 5 countries here⁷²

The attention is paid in world economy to the Knowledge Economy Index and other indicators related to the social sphere shows that human capital is an important factor in economic development. Ukraine is the country with huge human potential. But this potential must be used rationally.

In addition we decline that indicators of demographic situation in Ukraine are worse than indicators of developed countries⁷³. So, in 2013 population of Ukraine is amounted to 45,486.4 thousand, in 2014 - 45,419.8 thousand. We can see long-term trend of reducing the population in Ukraine. The urban population at the beginning of 2014 is amounted to 69.0% of the present population⁷⁴. In the context of this demographic situation the tendency to increase the birth rate of the population is positive: in 2010 per 1000 population it was 10.8%, in 2011 - 11.0%, in 2012 – 11.5%.

If we want to estimate level of develop of human capital sphere we also should take into account the following parameters:

- quality of existing and new knowledge to stimulate economy;
- the use of innovative solutions and new technologies to most efficiently solve the existing problems;
- telecommunications and informational structure development.

⁷⁰ Rusina Yu. O. *Human potential development index as the strategic element of human development concept* / Yu. O. Rusina // Kyiv: Vysnik, Kyiv National University of technology and Design, 2012, #2, p. 133-37 (Ukrainian)

⁷¹ Rusina Yu. O. *Human potential development index as the strategic element of human development concept* / Yu. O. Rusina // Kyiv: Vysnik, Kyiv National University of technology and Design, 2012, #2, p. 133-37 (Ukrainian)

⁷² Drobovytych A. *Ukraine within 100 countries in terms of Knowledge Economy Index* [web source] <http://www.nagolos.com.ua/ua/news/9427-ukrayina-uviyshla-do-sotni-krayin-za-indeksom-ekonomiki-znan> (Ukrainian)

⁷³ Pavlyuk, T.I. *Social and economic development trends: micro and macroeconomic aspect* VNAU Economic sciences series, Vinnitsa, vol. 3(69), pp.162-169. (Ukrainian)

⁷⁴ *Ukrainian State Statistic Service. Express series published 24.12.2013p. №10.2–54/ 691* [web source]. www.ukrstat.gov.ua

With regards to the concept of Ukraine's humanitarian development up to 2020 the share of Ukraine's science consuming production on the world market makes up 0.1% of Ukraine's GDP, scientific research share makes up 1%, innovative processes proceed slowly, equipment gradually becomes obsolete [Ukraine's humanitarian development concept for the period up to 2020 2012].

The highest priority issue for each state is to provide sustainable economic development, to improve national economy competitiveness on the world market. We should aim to uphold human development rates that in future might lead to Ukraine's prosperity. If to choose the reverse way and not to provide sufficient investment into the sphere of human capital development we may come to the point when it will be extremely hard to resort to innovations and when the technological progress will be deadlocked.

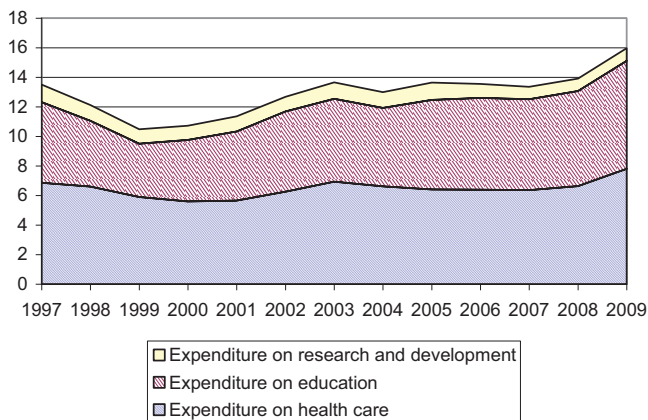


Figure 2.1 The ratio of components in human capital investment to GDP of Ukraine, %

Source: *The World Bank. World Development indicators*, [http:// data.worldbank.org/ data-catalog/ world-development-indicators](http://data.worldbank.org/data-catalog/world-development-indicators)

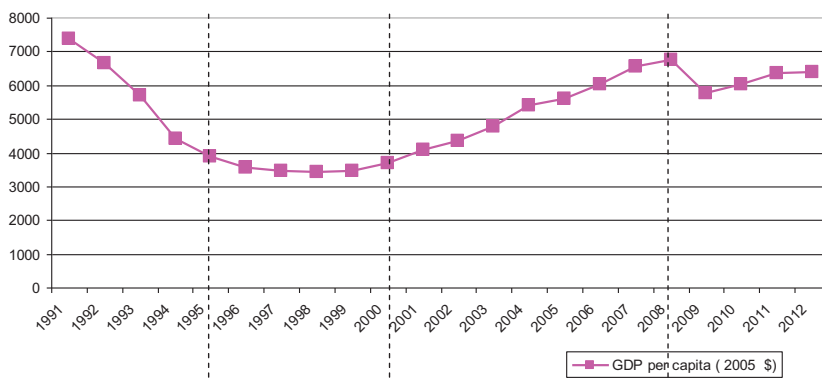
We have analyzed the dynamics of investment in human capital in Ukraine to clarify the role of human capital in economic growth. The ratio of components of investment in human capital to GDP of Ukraine is shown in figure 2.1.

The investment in human capital is calculated as the product of dividing by expenditure on health care, expenditure on education and expenditure on research and development.

Correlation of cyclical changes of investments in human capital and GDP per capita in Ukraine at different stages of development is shown in figure 2.2.

We have considered the period from 1995 to 2013, because we did not have official data on many indicators of the Ukrainian economy over the period from 1991 to 1994. We have determined the correlation coefficient between the

dynamics of GDP per capita in Ukraine and the ratio of investment in human capital in GDP. It is 0.72. The highest rate of correlation (0.82) is the ratio of education spending to GDP.



Period	1995-2001	2002-2007	2008-2013
GDP per capita	→	↑	↓
The ratio of investment in human capital to GDP	↓ ↑ 3 1999	↑ → 3 2003	↑
The ratio of health expenditure to GDP	↓ ↑ 3 2000	↑ → 3 2003	↑
The ratio of education spending to GDP	↓ ↑ 3 1999	→ ↑ 3 2005	↑
The ratio of spending on research and development to GDP	→	→	→

Figure 2.2 Ratio between cyclical changes in investment in human capital and GDP per capita in Ukraine

The lag between ratio of health care spending to GDP and the value of GDP per capita has been determined. Time lag is 3 years. Changes in GDP per capita for three years have been delayed compared with investments in health (correlation coefficient is 0.77). We have calculated the correlation with the ratio of education spending to GDP and GDP per capita that increases with a time lag. It reaches a maximum (0.90) in the three-year delay interval (Table 2.1). Any correlation with the ratio of spending on research and development in relation to GDP of Ukraine has not been found.

Table 2.1 Results of correlation analysis of ratio of spending on health and education to GDP and GDP per capita in Ukraine (calculated by the World Bank)

Time lag	Correlation coefficient between the ratio of investments in health to GDP and GDP per capita	Correlation coefficient between the ratio of education spending to GDP and GDP per capita
5	-0.01	0.54
4	0.44	0.82
3	0.77	0.91
2	0.70	0.90
1	0.56	0.79
0	0.34	0.63

Source: *The World Bank. World Development indicators*, [http:// data.worldbank.org/ data-catalog/ world-development-indicators](http://data.worldbank.org/data-catalog/world-development-indicators)

The most important prerequisite for sustainable economic development is to assist all the citizens to realize their potential and contribute their skills and qualification into corresponding fields. So, the person nowadays is not only the labor force, the expenses for which should be reduced: it is a valuable resource that due to investments into him or her will bring proper benefits. To fully utilize the human capital potential the state should provide corresponding framework in the form of better healthcare, living standards, good education and other social benefits. If done right in future, this investment will bring positive results, sustainable economic development in particular.

2.3. Problems and prospects of the educational sphere in context of the «knowledge economy»

Ukraine is often thought of as a country that has a good education system and, more importantly, good access to education. It looks true on the surface, but there is trouble brewing underneath. And to solve the problems that are coming, a joint effort is needed from the state, business and society.

Only a joint effort can bring the change that will make Ukraine competitive in the globalized world. Education is the only force that is capable of driving the nation's break through to eventually join the club of the most dynamically growing economies.

It goes without saying that the quality of education defines the quality of life in future.

Philosophy defines education as social and cultural phenomenon with the elements of the integral system: human with his or her interests, society with its economy, science, ideology and morality.

The UNECE strategy for sustainable development states that ‘education for sustainable development should strengthen the potential of definite persons, groups, communities, organizations and countries that have their own thoughts

and are capable of choosing the sustainable development. It changes person's views making them more environmentally friendly. This enables to build safer, healthier and prosperous world resulting in the raise of the life quality on the Earth⁷⁵.

The United Nations Development Program ranks Ukraine's education system on the par with large European Union countries like the United Kingdom or Poland. But unfortunately, those impressive achievements are explained by the resources the nation inherited from the Soviet era.

Describing the performance of education in Ukraine, it is necessary to state that Ukraine as a whole corresponds to the criteria identified as targets by 2020 by the European institutions. These targets include the following criteria:⁷⁶

- at least 95% of children over four years old should participate in pre-school education before primary education;
- the share of 15-year-olds with insufficient abilities in reading, mathematics and science should be less than 15% (in Ukraine it is 99.74%);
- the share of early school leavers should be less than 10%;
- the share of 30-34-year-olds with higher education should be at least 40%;
- an average of at least 15% of adults (age group 25-64) should participate in lifelong learning.

In society in general and in high-tech sectors of the economy in particular the demand for highly-qualified universal specialists is growing. These specialists are not only professionally trained but also successfully master innovative, entrepreneurial and management skills. They use the individual abilities to the maximum extent.

To improve the graduates' knowledge quality in 1999 the European leaders initiated the Bologna process, the aim of which is to integrate the world educational achievements in different countries.

To confirm the link of the education quality and the competitiveness of the definite country it is necessary to mention that top 10 world states according to the general competitiveness index are those countries 7 of which are the Bologna process states participants. These seven states are also among those, which provide the highest quality education in the world. This demonstrates the Bologna process efficiency which encourages the national educational system reforming and developing and its integration into the world and European educational services market.

In the conditions of the formation of the knowledge economy we must recognize the need for radical social changes towards European integration and innovative development of higher education.

⁷⁵ UNECE strategy for sustainable development.

⁷⁶ *Lifelong Learning Policy* [web source]. link: [http:// ec.europa.eu/ education/ lifelong-learning-policy/ framework_en.htm](http://ec.europa.eu/education/lifelong-learning-policy/framework_en.htm)

Ukraine joined the process in 2005. It tries to follow the trends of the leading European countries. However in the field of university education the state shows 10 years ambiguous results.

Activities that meet Bologna requirements have been implemented in Ukraine as a matter of priority. It should be noted, however, other requirements have not been fulfilled. This situation creates many problems which must be solved both at the state level and the level of higher education.

The Global Competitiveness Report 2014-2015 which was published in the result of the last World Economic forum in Davos puts Ukraine on the 76 place.⁷⁷ Comparing with the 2011-2012 report we lost 14 positions. The question is what shall we do to improve the situation?

Table 2.3 The results of Ukraine's rating on the Global Competitiveness Index (according to The Global Competitiveness Report 2014–2015)

Subindex name	2011-2012	2014-2015
Basic requirements		
Government & Public Services	131	130
Infrastructure	74	68
Macroeconomic stability	112	105
Health and primary education	74	43
Efficiency factors		
Secondary, higher and vocational education	51	40
Commodity market efficiency	129	112
Labor market efficiency	61	80
The level of financial market development	116	107
Technological readiness	82	85
Market size	38	38
Innovation and improvement factors		
Improving business	103	99
Innovations	71	81

Source: *The Global Competitiveness Report 2014–2015*, <http://reports.weforum.org/global-competitiveness-report-2014-2015/downloads/>

As we know, the Global Competitiveness Index consists of 12 subindexes. We can see from the table 3 that Ukraine improved its rating position in 2014-2105 compared to 2011-2012 in such parameters as “Health and primary education”, “Commodity market efficiency”, “Secondary, higher and vocational education”, “The level of development of the financial market”, “Macroeconomic stability”, “Infrastructure”, “Improving business”, “State and social institutions”.

Ukraine takes its highest position in the rating by “Market size” (38 th place). The following indicators deteriorated: “Technological readiness”, “Labor market efficiency”, “Innovations”.

⁷⁷ *The Global Competitiveness Report 2014–2015*, <http://reports.weforum.org/global-competitiveness-report-2014-2015/downloads/>

The trend of deterioration of the level of innovation development confirms the conclusion about the lack of attention paid to the economic policy to stimulate innovation at the enterprises in Ukraine. However, technological change in international environment in the context of globalization is crucial.

Despite the fact that education is one of the strong positions of Ukraine in the ranking of global competitiveness the Ukrainian education system can lose its position in the modern system of the emerging knowledge economy and changing the axis system. The negative factor of development of the education system is demographic situation in Ukraine.

In accordance with the Bologna process Ukraine had made the following steps by 2014:

- it established the educational process credit system that keeps records of the educational services received by the students;
- now students spend less time in the university, although the time for individual work has increased;
- 100 point knowledge evaluation system was introduced.

Provided that some of the requirements have not been fulfilled this caused certain problems, which were not solved:

1. It was necessary to optimize the amount of the higher educational establishments on the territory of Ukraine (there are more than 300 with the III-IV accreditation level, 76 courses and 584 majors). At the same time this indicator in France is 78.⁷⁸

The situation was worsened by the students' contingent. 2007 saw the beginning of its decline that will reach its peak in 2020. According to optimistic scenario in 2020 there will be 1280.47 thousand students, which is only 54 per cent of the student's contingent in 2007. Thus the minimum of birth rate in 2001 will determine the contingent minimum in 2020. Moreover this is not the short term decrease, as from 2017 to 2024 the students' contingent will hardly be 1.5 million.

It should be said that due to the establishment of large amount of higher educational institutions in Ukraine throughout last 20 years and crisis in country's demography the number of places in national universities exceeds the quantity of school leavers. Thereby some of these universities ease the entrance requirements for applicants. No one foresees that in future this will damage national economy.

Such considerable decrease of the students' contingent directly influences other quantitative indicators of educational system in Ukraine. We speak of necessary and sufficient amount of higher educational establishments, beds in hostels, the number of teaching staff and its structure, the amount of scholarship and salaries

⁷⁸ Lugoviy V.I. *Economic and organizational principles of education in Ukraine and in the world: comparative analysis*/ Lugoviy V, Talanova Zh. /Pedagogy and psychology, 2012 – No.1.- 64-70p. (Ukrainian).

of universities personnel. Table 2.4 compares the educational sphere indicators in Ukraine and in other EU countries.

1. Making the prognosis for the quantitative educational indicators it is possible to correctly formulate the development strategy.

2. Bachelor's degree is not widely renowned in Ukraine. As a rule the applicant chooses the major, but not the qualification level.

3. There is a problem with students' mobility. Ukraine has also signed the Lisbon convention. However, it does not mean that the diploma issued by Ukrainian university is considered legitimate abroad. Each person and in each particular case should move through the procedure of validation of foreign studies degrees. This is the real obstacle on the way of Ukrainian educational system to European integration.

4. We have a rather intricate scientific degrees system comparing with European countries, which complicates the academic mobility.

5. Ukrainian universities are not much attractive for foreign students. As Ukrainian diplomas are not considered legitimate in economically developed countries foreign students see no sense spending time in Ukrainian universities.⁷⁹

Table 2.4 Compares the educational sphere indicators in Ukraine and in other EU countries

Indicator	Calculation formula	EU countries (27)	Ukraine
Population		502623021	45633600
The number of higher educational establishments		4000	823
Students (persons)		19000000	2170100
Teaching staff (persons)		1500000	119400
Population per university	Population/universities number	12655	55448
The amount of students per population, %	Students/population *100	3.8%	4.8%
The average quantity of teachers in universities (persons)	Teachers/universities	375	145
The average amount of students in universities	Students/universities	4750	2637
Teachers to students ratio	Students/teachers	12.7	18.2

* according to Eurostat (http://ec.europa.eu/education/lifelong-learning-policy/higher_en.htm) and Ukraine national statistic committee data.

The new Law of Ukraine "On Higher Education" was adopted in 2014.

⁷⁹ Ponomarenko V. S., *Forecasting measures process in system of high education in Ukraine* http://archive.nbuv.gov.ua/portal/soc_gum/Ecoroz/2011_2/u112pono.pdf (Ukrainian).

The current education system is in a state of significant transformation under the influence of both internal and external factors. Directions of transformation are regulated by Bologna Declaration and European standards of higher education. Our internal factors that lead to reforms in education are the following:

- a radical change in the legal field and new licensing conditions,
- the requirements of all stakeholder groups interested in improving the quality of education in Ukraine.

One of the main methodological principles of the new Law of Ukraine “On Higher Education” is the autonomy of higher educational institutions. This means in particular that universities themselves have to take care of the content of education and ensuring its quality. The new law provides that the normative content of higher education must be formulated in terms of learning outcomes and the list of subjects determined by educational institutions.

The current problems of higher educational establishments:

1. The gap between getting education in universities and future employment.
2. Students in universities are not fluent foreign languages speakers, which prevents them from academic mobility.
3. Nowadays Ukrainian educational system can not be characterized with regards to European principle: education for life.
4. Most universities are not pioneers and innovators. European universities are quite different. National universities which must lead the country to the new horizons are not like that. Despite the fact that the amount of such universities makes up 40% of all the universities.

The majority of these problems are solved by private universities. These institutions are innovative and progressive.

During the transformational period education and its financing also witnessed the wave of diversification (not only governmental resources were spent, but external ones and also private funds). The world experience shows that this process can bring certain results such as to create competitive terms in the educational sphere. This improves the quality of services given.

As for 2013 there were 103 private universities in Ukraine (total number in Ukraine – 334). They took up 30.8 % share on the educational market. 186994 students studied here (total in Ukraine – 1 824 906). This was 10.2%. Kyiv region had 30 private universities, Kharkiv – 8, Donetsk – 10 and Dnipropetrovsk – 5. And this was understandable as these regions are rich in qualified teaching staff, private capital, corresponding infrastructures and solvent population.

The leading British, American and Australian universities experience shows that academic capitalism is one of the ways to improve educational and scientific quality and efficiency.

The strategic priorities to improve higher education referring to the innovative development concept are:⁸⁰

- a) innovations in the system of education
- b) modernization – new programs, educational technologies, management and marketing strategies.
- c) efficiency increase in the sphere of scientific research to stimulate development of national economy
- d) integration of higher educational institutions
- e) globalization – to transform Ukrainian educational system to meet the international academic requirements.

It goes without saying that to implement all these ideas it is necessary to establish long term program to adapt the Ukrainian educational system to the international standards. The most important for Ukraine is to join the Bologna process.

We should understand that Bologna process also takes into account the peculiarities of educational system in its each state participant. Its aim is to combine the efficiency in specialists training and to organize education properly according to EHEA standards.

The long-term strategic objectives of EU education and training policies are:⁸¹

- Making lifelong training and mobility a reality;
- Improving the quality and efficiency of education and training;
- Promoting equity, social cohesion and active citizenship;
- Enhancing creativity and innovation, including entrepreneurship, at all levels of education and training.

Conclusion

Taking into account these words we can state that the most important for us is monitoring, which must be full, transparent; quality and accreditation, which are interconnected. All these things define new tasks for our licensing and accreditation systems and so our participation in ENQA should be obligatory. We should supervise not only educational process itself, staff, scientific bases and investments, but first of all we have to carefully monitor graduates knowledge levels, defining their competence and ability to meet the labor market requirements. Not only majors and institutions should be accredited, so the new programs must be too. It is something we have never heard of, external and internal evaluation is inevitable. These are the ENQA requirements and they enable us to estimate the educational programs abroad applying generally accepted criteria.

⁸⁰ Dombrov's'ka S.N. *About state development of Bologna process in system of high education in Ukraine* <http://archive.nbu.gov.ua/e-journals/debu/2009-2/doc/2/15.pdf> (Ukrainian).

⁸¹ *Lifelong Learning Policy*http://ec.europa.eu/education/lifelong-learning-policy/framework_en.htm

Chapter 3

HUMAN CAPITAL ISSUES: KNOWLEDGE PARADIGM FOR NON-FORMAL EDUCATION IN UKRAINE

Introduction

The methodology of human capital can be logically explained and further research in such fundamental issues as human development, economic growth, income distribution, the role and importance of education and training in social reproduction, age dynamics of earnings, motivation, etc. In particular, the theory of human capital is to determine the feasibility of spending, such as education or career change depending on the level of future revenue growth and the duration of their receipt, that is not only for learning and education, but also for motivational value in economics. This theory was the ideology of significant investments in education (formal and non-formal) and development of people (at micro and macro levels), as they are seen as an effective source of economic growth.

In this abstract we could not say that only non-formal education is able to accumulate human capital and play a decisive role in the structure of the knowledge economy. Otherwise, on a historical scale we can prove that today the formal and non-formal education have not maintained the integrity for the system due to the lack of effective communication between them. At the same time, their modern forms of interaction precede the formation of a new system of education in a global context. Therefore, in this paper, the non-formal education is considered, first of all, not depending on its form and even the content, but in the context of its role in human development in the knowledge economy. In our opinion, the challenges for transformation of education to holistic system (formal and non-formal) are closely connected with good governance performance. This aforementioned links are generated with the external socio-economic environment and inner motivation of system of education to new institutionalization. Therefore the non-formal education can serve to persuasive package for the target citizens and makes investments into human development. Viewed in this study approach is due to the fact that the formation of a link between formal and non-formal education as sustainable institution is a response to the socio-economic needs of society. The aim of this part is to explain the socio-economic development of the concept of human capital, specificity of investment in human capital, methods for determining the costs and benefits of investing in education and calculation of efficiency of investment in human capital.

There are some theoretical approaches to definitions “human capital” and broader concept “human development” as defined in knowledge paradigm as well as practical solutions for innovative education in Ukraine.

Particularly in Ukraine there is a need for public policy of good governance that will be more efficient and effective to solve the socio-economic consequences of ageing population, and one that takes the complexity characteristics in a broad and long term for the purpose of investment in human capital. Proposed tools accumulation of human capital based on the development of non-formal education and implementation of educational programs form partnerships within the knowledge paradigm explained the actual issue for for all education contractors.

3.1 Human capital vs human development in knowledge paradigm for education

Human Capital concept is the most influential theory in Western economic literature reflected in government policies in the early 1960's of XX century. There are two main causes of interest in this concept. First, this general pattern of development of modern science in general, which is manifested in concentration of scientists to study the problems of ‘human’ through economic metaphors such as ‘innovation’, ‘productivity’, ‘education’, and ‘competitiveness’ and others. Secondly, a recognition of the fact that the creative potential activation of human development of skilled labor is the most effective way to achieve economic growth⁸².

Historically in *The Wealth of Nations* (1776) Adam Smith formulated the basis of what was later to become the science of human capital. In modern Human Capital Theory all human behaviour is based on the economic self-interest of individuals operating within freely competitive markets. Other forms of behaviour are excluded or treated as distortions of the model⁸³.

Human capital is recognized as the most valuable resource, much more important than natural resources or accumulated wealth. It is human capital, not the material means of production, is the cornerstone of competitiveness, economic growth and efficiency⁸⁴.

Human capital is intangible collective resources: all the knowledge, talents, skills, abilities, experience, intelligence, training, judgment, and wisdom possessed individually and collectively within a given population. The term human capital is recognition that people in organisations and businesses are an important and essential asset who contribute to development and growth, in a

⁸² Ritzer G., *Modern sociological theories*, G. Ritzer – 5-th edit. – StP.: Piter, 2002. – 688 p.

⁸³ Smith A., *The Wealth of Nations*, Source: The Modern Library, Online Version: <https://www.marxists.org/reference/archive/smith-adam/works/wealth-of-nations>, 29.01.2016.

⁸⁴ Zaslavskaya T., *Human potential in the modern transformation process*, [in:] Zaslavskaya T., *Social studies and the present*, 2005, # 3, pp. 5-16.

similar way as physical assets such as machines and money. The collective attitudes, skills and abilities of people contribute to organisational performance and productivity. Any expenditure in training, development, health and support is an investment, not just an expense⁸⁵.

Recent approaches to Human Capital Theory stressed the role of education in forwarding from information society into knowledge one. We agree that human need mobilize encouraging of the mind to transform the world, generating active growth of needs of each next generation. It serves as a powerful impetus to the search for possible their complete satisfaction through dramatic changes in material and spiritual reconstruction, in the forms of ownership, social, political and public relations, the law⁸⁶. The concept of human capital stems from the economic model of human-resource capitalism, which emphasizes the relationship between improved productivity or performance and the need for continuous and long-term investments in the development of human resources⁸⁷.

The global concept of Human Development emerged historically and logically based on the theory of Human Capital and referred to Education.

The Human Capital Theory (HTC), unlike the Human Development one referred to Adams Smith (1776) and Alfred Marshall (1890) as 'a man educated at the expense of much labour and time may be compared to one of those expensive machines... and the work he learns to perform should replace to him the whole expense of his education'⁸⁸. The later references come to industrial training as 'a national investment' in Mincer (1958), Schultz (1961) and Backer (1975). 'They affirmed that time and money spent on education builds human capital hence one should be able to estimate the rate of return on such investment, in a way similar to investment in physical capital. In short, the HTC states that a person's education is an investment (involves costs, in terms of direct spending on education and the opportunity costs of student time) in her/his human capital (akin to investment by a firm in physical capital), which makes the individual more productive and accrue him/her a future stream of benefits (superior productivity, higher wages and other non-monetary benefits to the individual and the society)⁸⁹.

In the western economic theory centuries lengthy discussion of productive and unproductive nature of work in the social sector (A. Marshall⁹⁰, A. Smith, S.

⁸⁵ Stockley D., *Human capital concept - definition and explanation*,

<http://www.derekstockley.com.au/newsletters-05/018-human-capital.html>, 29.01.2016.

⁸⁶ Elaborated at: Romer P., *Human capital and growth: theory and evidence*, Carnegie Rochester Conference Series on Public Policy. – 1990. – № 32. – pp. 151–286.

⁸⁷ Pospelova T., *Labor market as a factor of development and realization of human potential in Ukraine: state and prospects*, [in:] Pospelova T., *State regulation of economy: Coll. science. works - Vol. 174*, Donetsk: DSUM, 2010, pp. 99-106.

⁸⁸ Romer P. *Human capital and growth: theory and evidence*, Carnegie Rochester Conference Series on Public Policy. – 1990. – # 32, pp. 151–286.

⁸⁹ Fitzsimons, *The Encyclopedia of Philosophy of Education*, 1999.,

http://www.ffst.hr/ENCYCLOPAEDIA/doku.php?id=human_capital_theory_and_education, 28.05.2012.

⁹⁰ Marshall A., *Principles of Economics*, <http://www.econlib.org/library/Marshall/marP.html>, 29.01.2016.

Fischer⁹¹) became the basics for the theory. In XX century the concept of “human capital” has being developed. In the early 50-ies of XX century American scientist T.Schultz, studying the problems of productivity, identified previously unknown parameter – “residual factor”. He was subsequently identified as the ability to work, the acquired person. Followers T.Schultz it was formulated the concept of “human capital”, which was understood as “a body of knowledge and qualifications that performs a dual function capital goods and durable”. The name “capital” is derived from two qualities: the length of use and productive nature; “Human” means that this capital can not be separated from its carrier specific person⁹².

Concluded the brief theoretical review, we prove that the first viewpoint of Concept of Human capital is based on the individual aspects. T.Schultz (1961) recognized the human capital as “something akin to property” against the concept of labor force in the classical perspective. There is the second viewpoint on human capital itself and the accumulation process of it. This perspective stresses on knowledge and skills obtained throughout educational activities such as compulsory education, postsecondary education, and vocational education, as learnt by De la Fuente & Ciccone, 2002. The third is closely linked to the production-oriented perspective of human capital. Frank & Bemanke in 2007 define that human capital is “an amalgam of factors such as education, experience, training, intelligence, energy, work habits, trustworthiness, and initiative that affect the value of a worker's marginal product” “the stock of skills and knowledge embodied in the ability to perform labor so as to produce economic value” as for Sheffin’s concept, 2003⁹³.

In practical view, the significance of education and human capital can be also classified into the micro and macro levels.

Basically, on the micro level the higher the education level, the higher the income. That means more “educated” people tend to earn higher wages and have better jobs than the less “educated” ones (UNDP, 2010) and the better educated the group, the lower the unemployment rate. The UNDP’s Human Development Report (2010) asserts that it is a basic fact that levels of income and levels of health and education are positively and significantly correlated⁹⁴.

Theory predicts that increases in the overall level of education can benefit society in ways that are not fully reflected in the ‘private returns’ of educated workers, what is otherwise referred to as the ‘externalities of education’. For instance, social groups, communities or countries where the average schooling is

⁹¹ Fisher S., *The Role of Macroeconomic Factors in Growth*, <http://www.nber.org/papers/w4565.pdf>, 29.01.2016.

⁹² Shultz T. W., *Investment in Human capital*, <http://www.ssc.wisc.edu/~walker/wp/wp-content/uploads/2012/04/schultz61.pdf>, 29.01.2016.

⁹³ *Human development: definition, concept and larger context*, <http://www.arab-hdr.org/publications/contents/2002/ch1-e.pdf>, 29.01.2016.

⁹⁴ *Human Development Report 2010, The Real Wealth of Nations: Pathways to Human Development*, http://hdr.undp.org/sites/default/files/reports/270/hdr_2010_en_complete_reprint.pdf, 29.01.2016.

higher offer, as a rule, better living conditions, both material and non-material, than those where the population is less educated⁹⁵.

At the macro level, Robert (1991) developed a human capital model which shows that education and the creation of human capital is responsible for both the differences in labour productivity and the differences in overall levels of technology that we observe in the world today. Countries such as Hong Kong, Korea, Singapore, and Taiwan have achieved unprecedented rates of economic growth while making large investments in education⁹⁶.

There are several social indicators of quality of life. By integrated indicators include: Human Development Index (Human Development Index), an index of intellectual potential of society, human capital per capita rate of population viability.

From 1990 UN releases annual report on human development, as a category that was introduced in the scientific revolution are in one of the first reports, and by which is understood not only increasing income of people, but also health, education, environmental conservation, providing freedom of action and speech, facilitating the socio-economic development. It was proposed to apply further indicator of “human development index” (HDI), which includes estimates of life expectancy and educational level of the adult population, its income, and in subsequent reports specified measuring mechanism – “Human Development Index” (HDI). In 70 years in national and international statistical services implemented unified system of social and demographic statistics, established on the recommendation of the UN Statistical Commission.

The proposed system of economic and social indicators of quality of life substantially reflects the dynamics of the social society. With the social sphere, above all, achieve social stability ensured as internal properties of a modern system of reproduction relations of society, which goes to post-industrial development. The level depends on the level of development of human life, which directly affects economic growth. Social sphere ultimately contributes to the reproduction of human capital is the dominant part of the national wealth of each country according to the concept of human development, presented today in the world of economics.

In 1995 in Copenhagen hosted the World Conference on Social Development, where the international community was asked to move the focus from economic growth to sustainable human development and on this basis to formulate new goals of society. The basis of this approach was the principle according to which “the economy exists for the development of people, not people for the

⁹⁵ Fitzsimons, *The Encyclopedia of Philosophy of Education*, 1999, http://www.flist.hr/ENCYCLOPAEDIA/doku.php?id=human_capital_theory_and_education, 28.05.2012.

⁹⁶ *Human development: definition, concept and larger context*, <http://www.arab-hdr.org/publications/contents/2002/ch1-e.pdf>, 29.01.2016.

economy”⁹⁷¹⁵. This approach has identified priority over social economics. The growing role of the human factor has become a reality today in all civilized countries. It is the main indicator of the maturity of the economy in the course of evolution acquires qualitatively new features. The level of social development is the factor that determines the "face" of the economy and its main criterion should be the level of social development, that is, the degree of satisfaction of its social needs.

As to the methodology for calculating the HDI, we should briefly describe its main characteristics. It is known that societies growing employment potential by reducing disease and injury, leading to an increase in the labor force and scale of work. Improving health is seen as an important factor of physical development and population increase efficiency and empower pursuant to create products and services that the accumulation of knowledge, as selected indicators of life expectancy, which reflects achievements in improving human health.

Raising the level of education of the individual and the general public greatly affect the quality of “human capital” main factor increasing the wealth of society and causes growth of social productivity. The level of education characterizes accumulated educational, employment, research and creativity, making the total fund of knowledge and skills - "the spiritual wealth of society." This quality is transmitted from generation to generation and it is an important prerequisite for the development of the person as well as increases the efficiency of the reproductive process in general⁹⁸.

As a result of the introduction of a system of indicators in the practice of national statistical authorities and generalizations derived from these comparisons of the data developed a relatively simple mechanism to evaluate the level of socio-economic development, providing the ability to apply the results obtained in the development of reasonable national and international socio-economic development and monitoring their implementation.

Recent government programs involve significant changes in the nature of state relations with the public. The transition from subsidizing industries to subsidize citizens involves strengthening targeted social support, features differentiated consideration of different (and above all profitable) groups. This model can be applied on a broad scale where investments in human capital are viewed as affecting national and global economic performance or, more narrowly, where investments in people are viewed as crucial to organization performance. That differs from a more traditional and instrumental approach where human resources are primarily seen as a cost to be contained beyond immediate and short-term needs. This short-term view often addresses change or poor performance by seeking government intervention to offset competition and by

⁹⁷ *Economic and Social Development at the United Nations*, World Summit for Social Development Copenhagen, 1995, <http://www.un.org/esa/socdev/wssd/text-version>, 29.01.2016.

⁹⁸ *Human development: definition, concept and larger contex*, <http://www.arab-hdr.org/publications/contents/2002/ch1-e.pdf>, 29.01.2016.

using cutback methods for keeping wages down, contracting out, and automating jobs⁹⁹.

In a society which places a strong emphasis on competition, financial return and viability, the people issues can sometimes be neglected.

Increasingly however, business and political leaders are starting to recognise that having good people who are skilled and motivated can make a significant difference.

Human development concept is based on socio-economic indicators, as proposed by the UN Development Programme's human development index is recognized worldwide as an integral indicator of socio-economic development that reflects the excellence of industrial relations^{100,18}.

Human development can be simply defined as a process of enlarging choices. Human development is both a process and an outcome. It is concerned with the process through which choices are enlarged, but it also focuses on the outcomes of enhanced choices.

Knowledge societies that are a source of development for all, first and foremost for the least developed countries. Knowledge societies are about capabilities to identify, produce, process, transform, disseminate and use information to build and apply knowledge for human development.

Being educated empowers people to advance their interests and resist exploitation (Eyben, 2004). Educated people are more aware of how to avoid health risks and to live longer, have smaller families, exhibit better consumption/savings habits and more comfortable lives (Bassel 2008)¹⁰¹.

People should be treated as an asset rather than an expense item. Every effort should be taken, whether formally or informally, to develop skills and abilities and to provide opportunities for people to maximise their contribution.

In summary, we note that the key elements in public administration of human development is the human potential, self-actualization, social nature and public policy where public control influences on the formation conditions, assumptions grounds for human development and its implementation through self-actualization, and under the public policy of human development refers to a course of action (or abstention from action), the system of government for the formation fruitful social issues as dominant in society, and environment for human development as well as its implementation through self-actualization.

This approach assumes that in the formation of their own potential for person making specific efforts and spending time and energy to meet basic needs as

⁹⁹ Pospelova T., *Labor market as a factor of development and realization of human potential in Ukraine: state and prospects*, [in:] Pospelova T., *State regulation of economy: Coll. science. works - Vol. 174*, Donetsk: DSUM, 2010, pp. 99-106.

¹⁰⁰ United Nations development Programme, *Human Development Report*, Human Development Index (HDI), <http://hdr.undp.org/en/content/human-development-index-hdi>, 29.01.2016.

¹⁰¹ *Human development: definition, concept and larger context*, <http://www.arab-hdr.org/publications/contents/2002/ch1-e.pdf>, 29.01.2016.

well as the needs of the highest order. What are the needs and motives it depends on the type of social character. The society creates conditions (social, economic, political) being adapted to those which are represented by the state and which are contributed to the formation and development of certain skills (social issues). If formed as demand in a society for favorable situation for the realization of human development. If not, the society builds critical mass of people, the potential of which can not be demanded in principle for a given social system. Depending on their number, the following consequences for society: revolutionary situation; "Waves" of emigration; the emergence of new subcultures and alternative movements; manifestations of antisocial behavior; spreading „social diseases”.

As we can see, the process of human development reflects the unity of the personal and the social, subjective and objective sides. Based on this abstract, the development of theoretical and methodological principles, practical recommendations to improve the system of public administration of human development should be based on consideration of both public and personal factor¹⁰². This, in turn, requires the formation of an appropriate methodology for human development for good governance.

The practical issues can be discussed on the basis of evidence that elaboration and implementation of educational programs according to the needs and specificity of the audience with regards to the European standards of sustainable development need: realization of Public policy of social inclusion in Ukraine on the science-grounded basis, involvement of resources of regional and local self-governments and reduction of the vertical gap in aforementioned interaction.

3.2. Formal vs non-formal education: pros' and contras' for good governments

Human development is impossible without satisfying the needs of a man. According to the concept of human development there are five basic needs and five main social institutions/ needs for:

- having family (family institution);
- safety and order (state);
- obtaining a livelihood (production);
- knowledge transfer, socialization of the younger generation (family and education);
- solving spiritual problems (religion and art, etc.).

These institutions are responsible for that human development because of their role in reducing uncertainty and establishing a stable, though not always effective, patterns of interaction between people, defining and limiting the set of

¹⁰² Pospelova T., *State policy on the management of human potential*, [in:] Pospelova T., *Democratic Government: Science, Education, Practice materials scientific-practic.* conf. by Intern. participation (Kyiv, 29 May, 2009); NAPA. - K., LLC "Salyutis", 2009. - V. 2, pp. 258-261.

alternatives. Accordingly, the institutions of human development - a set of rules of social behavior, legal framework, and forms of social organization aimed at ensuring human development.

During human life, institutions that are performing functions in the society of information, education, motivation, attitude formation to certain activities, facilitating implementation combating human individual needs, sometimes even against personal development. These institutions can contribute to human development, or conversely, inhibit it. Among them education is considered as a source of economic growth and development. Education plays a significant role for national economy's competitiveness.

In this abstract we promote three-dimension analysis of formal and non-formal education on their basic and real distinctions, but it was done within a systematic and holistic view of education.

Firstly, let us define formal and non-formal education.

Formal education corresponds to a systematic, organized education model, structured and administered according to a given set of laws and norms, presenting a rather rigid curriculum as regards objectives, content and methodology. It is characterized by supporting teaching, supportive learning; collaboration and supportive learning how to think.

Non-formal education corresponds to centralization of the process on the students oriented to their previously identified needs and possibilities, and the immediate usefulness of the education for the students' personal and professional growth.

There is no standard definition of non-formal education in common usage yet.

Secondly, conceptually, according to learning process, theoretical and practical content, terms of learning, results formal and non-formal education can be defined as follow:

Learning process:

For formal – selective (select first and then train; stages-oriented system; once out, cannot get back in; system ends up with very elitist; costly).

For non-formal – open (can get in and out at any time; no prior selection, but self-selection; no permanent dropouts; cheap).

Theoretical and practical content:

For formal – remote from life (while period of education there is no work; takes students out of life into full-time education; rejects life-experience for classroom experience; learn now for future use; academic curriculum).

For non-formal – in-life education (learning not for future, but for present use; using experience and existing knowledge; relevant curriculum, immediate application; part-time, not full-time).

Terms of learning:

For formal – terminal (front-end loading education; certificated).

For non-formal – lifelong (education never complete; no interest in certificate).

Results:

For formal – creates dependent learners.

For non-formal – creates independent and continuing learners.

Formal and non-formal educations have a well-defined set of features.

Formal education is characterized with following ones:

- contiguous education process named, or “presential education”;
- formal education institutions are administratively, physically and curricularly organized;
- involvement the teacher, the students and the institution;
- require from students classroom attendance;
- involvement intermediate and final assessments in order to advance students to the next learning stage;
- assessments are made on a general basis, for administrative purposes and are infrequently used to improve the education process;
- setting-up of a formal education system does not consider the students’ standards, values and attitudes that are relevant to the education system which, generally, is not tested or assessed at the level of student acceptance, and efficiency;
- degrees and diplomas pursuant to a quite strict set of regulations;
- methodology is basically expositive, scarcely relating to the desired behavioral objectives;
- methodology is poor, ineffective, scarcely creative and it is adopted, whether the universe contains 10, 50 or 200 students;
- subjects are presented in isolated blocks, whether as to content or methodology;
- mono-directional methodology fails to stimulate students, and to provide for their active participation in the process;
- objectives are aimed at the personal growth of students are negligenced and, the basic principles of learning fail to be considered in the planning and the performance of education systems.

It is not excessive to say that in the case of formal education, for the most part teachers pretend to teach; students pretend to learn; and, institutions pretend to be really catering to the interests of students and of the society.

Non-formal education is characterized with following well-defined set of features, as follow:

- it does not require student attendance;
- educative processes endowed with flexible curricula and methodology, capable of adapting to the needs and interests of students;
- contacts between teacher and student and most activities take place outside the institution;
- non-formal education seems better to meet the individual needs of students;
- offers the expertise that students hope to acquire and the necessary assistance for a better understanding of their own selves and of their world;

- presents flexible features as regards the initially established and adopted procedures, objectives and contents.

Thirdly, applicability analyzes allows to define three educative processes, namely: “correspondence learning”, “distance learning” and “open systems” within the system of non-formal education.

“Correspondence Learning” is defined as planned and systematized activity, based on the preparation of printed educational materials which are forwarded to students who are physically separated from the teachers who can give but a limited assistance to them.

Historically, first organized, structured correspondence schools were mentioned in 1856, in Berlin. Toussaint and Langenscheidt founded a correspondence languages course.

In 1886, in England, a graduate studies correspondence course was introduced.

A “Society to Encourage Study at Home” was organized in 1873, in Boston, and the first formal experience took place in 1883, in New York, the “Correspondence University”¹⁰³.

Today correspondence learning is characterized with:

- studies provide basic education to university studies;
- includes a wide variety of subjects in the professional area;
- individualized learning system that allows students to proceed at their own pace, according to their interest;
- institutional materials are for the most part printed and are generally prepared by a teacher who has not enough didactic and technical knowledge;
- generally establish a bi-directional communication by mail, supported by the teacher who corrects the paperwork, offers guidance and the requested explanations;
- degree may or may not be obtained;
- student’s motivation is the basic factor for the program’s success;
- correspondence courses do not incorporate several features of the formal education.

“Distance Learning” is defined as courses prepared on a high technical level, by a multidisciplinary team, administered by a relatively large institution, comprising a wide variety of educational materials, with learning supported by those teaching methods in which, because of the physical separateness of learners and teachers, the interactive, as well as the preactive phase of teaching is conducted through print, mechanical or electronic devices.

Today distance learning is characterized with:

- non-contiguous communication;
- at the time during the teachinglearning process;

¹⁰³ Stockley D., *Human capital concept - definition and explanation*, <http://www.derekstockley.com.au/newsletters-05/018-human-capital.html>, 29.01.2016.

- reflects the incorporation of media other than print (and particularly the medium of broadcasting);
- fresh impetus coming from research into individualized learning and self-instructional methods;
- broadening of the social base for open learning systems;
- development of courses and qualifications designed specifically to meet the needs of distance learning students;
- typical of the whole distance study is that it is based on non-contiguous communication;
- pre-produced course, as self-instructional as possible, printed and/or consisting of presentation brought about by other means than print (audio or video-tapes, radio or TV programmes, etc.) guides the study;
- organized non-contiguous two-way communication is a constitutive element of distance study;
- organization and administration of distance learning significantly differ from those of formal education: no students attend classes at the institution, except for occasional visitors; there are no classrooms; instead there are places where multidisciplinary teams comprised of redactors, authors, audio-visual experts, and so on;
- no „academic semesters“;
- students may at will discontinue studies whenever he needs or wants to do so;
- basic activities are development and technical production of distance study courses;
- non-contiguous two-way communication between students and tutors/counselors;
- other activities may be as follow: course certificate, examination and degrees, supplementary face-to-face contacts between students and tutors/counselors.

A well-succeeded example of such use is the Open University that is generally based on distance study through one or more communication media (radio, TV and the printed press), provision of a mixture of academic culture and industrial activity, requiring the cooperation of professionals from varied backgrounds to act as redactors (educational planners, professors specializing in the different fields, audio-visual experts), displaying a multidisciplinary character, comprising printed texts, audio or videotapes, kits, etc., ensuring a high degree of efficiency. The Open University seldom has its start on an academic basis.

The British Open University is now the most successful among all Open Universities.

Open Systems are more instance of non-formal education. They are defined as those which offer students a measure of flexibility and autonomy, to study the programmes of their choice when and where they wish, and at a pace to suit

their circumstances. As mentioned before, correspondence learning is a type of distance learning and, distance learning is an instance of open systems.

Some authors also consider rather freely the concept of open education - as synonymous with open systems.

„The idea of openness may be twofold: open as to structures, that is, a rupture of the physical barriers of educative institutions, so as to provide free access to schools; or open as to methodology and learning resources”.¹⁰⁴

He concludes that the open learning system aims at the formation of independent students who have capacity for self-discipline and a high capacity for synthesis and for analysis.

This author also defines that in an open system learning is the function of an interaction between the student and the actual world.

Therefore, there is a range for transition from formal to non-formal education, as well as a probable conflict between ones.

Formal vs non-formal education

Formal and non-formal educations are being developed as competitive, alternative systems. There is some adoption of the formal educational institutions for the non-formal model. Sometimes formal and non-formal educations are integrated into the broader concept and both serve for educational development.

It is necessary that formal education should analyze the reasons that led to this success and, if possible, incorporate many of its proposals, structures and programmes.

Thus, „instead of attracting students to the classroom, universities should be accredited and authorized to offer distance learning as well, establishing, themselves, the equivalence of courses, teaching loads and requisites for enrollment and graduation, should that be the case”¹⁰⁵.

We agree that no competition exists between formal and non-formal systems, and they are not conflicting systems. At the same time, in the transition from formal to non-formal education the strategy has being changed, and non-formal elements gradually are incorporated into the system of formal education to meet the needs of a man and society.

Strategically, the forementioned transformation is existed in the following structures:

- adaptation of non-formal propositions;
- technical-administrative restructuring and organization of the basics of multidisciplinary teams the necessary instructional materials.

¹⁰⁴ Huff R., *Human capital, Economics*, <http://www.britannica.com/topic/human-capital>, 29.01.2016.

¹⁰⁵ *Human development: definition, concept and larger contex*, <http://www.arab-hdr.org/publications/contents/2002/ch1-e.pdf>, 29.01.2016.

To make this transition gradual and painless one it is important to take into accounts the concept of human development.

Consequently, the main agent of this transition is the institutions in education system. A person or group of people can influence the course of development of education system only through institutionalized forms of activities that are directed and coordinated within certain value-regulatory systems that the society is through the development of educational institutions and establishing regulated formal and non-formal education ties. The process of streamlining, formalization and standardization of the relations and connections within and between them is based on “institutionalization”.

Institutionalization is a long and complicated process. The process of institutionalization depends on the condition and structure of public institutions. D. North singled out three main components:¹⁰⁶

- formal rules (laws, administrative acts);
- informal rules (social norms, customs, norms, traditions and unwritten codes of honor, etc.);
- enforcement mechanisms to ensure compliance with regulations (courts, inspections, etc.).

Informal constraints are the customs, traditions and codes of conduct informally adopted models in the society. Official rules are formally fixed and may vary by adopting political or legal decisions. Typically, fixed in the official rules and enforcement mechanisms, formal rules can be easier to analyze and improve than informal.

Here are three transitions from the formal to the non-formal model with different degrees of alterations.

Basically, *the first model* is characterized with the features as follow:

- formal learning institution detects in some classes an insufficient level of pre-requisites;
- instructional materials, of the self-instruction type, are previously prepared by a multidisciplinary team;
- education technologies are given to the students for individual utilization (in small groups) whether in the classroom, or not;
- students will join any class after having acquired the necessary knowledge, as comproved by assessment procedures;
- alterations arising from the introduction of nonformal elements into the overall framework;
- resulting system would not be strictly formal, since it is in an initial stage of transition from formal to non-formal.

The second model is characterized with the features as follow:

- transition is deeper, with formal features is greater;

¹⁰⁶ North D. C., *Institutions, Institutional Change and Economic Performance*, <http://www.cambridge.org/us/academic/subjects/politics-international-relations/political-economy/institutions-institutional-change-and-economic-performance>, 29.01.2016.

- team for non-formal studies implementation suggests as a basic strategy;
- previously prepared instructional materials;
- program restructured to enable student to perform part of his or her work at home and only go to the campus when his or her presence should be required to carry-out supplementary work;
- restructurations relating with technical-administrative issues (control plans, assessments, etc.);
- non-formal elements are supported by a formal organization.

The third model is characterized with the features as follow:

- certain night-course programmes provided for an extremely heterogeneous population presenting a diversity of pre-requisites, geographically distributed far and wide;
- team for non-formal elements implementation to suggest a more radical transformation of the system to a distance learning model;
- self-instructional materials and study guides, previously prepared distance control systems;
- two-way communication by mail enabled the correction of the students' works and the follow-up of their progress;
- phone call communications used for additional guidance and clarifications;
- visits to the institution for personal contact between students and professors;
- supplementary work (on week-ends or vacation periods);
- program endowed with non-formal features and supported by an originally formal institution;

All three types of transition from formal to non-formal require different efforts and investments.

A modern system of education should be prepared for rapid changes and challenges that are constantly arising. So everywhere in the world the lifelong learning becomes an important feature of education.

The EU is called for non-formal education and its development for decades. Even more - in developed countries, where the classical education operates stably and successfully, the main focus of the government is committed to supporting non-formal education. It helps a modern man to improve his professional skills rapidly and acquire new knowledge.

Ukraine has declared its desire to join the European concept of education, which provides lifelong learning. Integration of Ukraine into the EU education universe requires recognition of non-formal education. It is written in the Association Agreement in the recommendations of the European Council on the recognition of non-formal education.

The importance of a skilled and knowledgeable citizenry extends beyond formal education to learning acquired in non-formal way. Citizens must be able to demonstrate what they have learned in order to use this learning in their

career and for further education and training. To do so, they must have access to a system which identifies documents, assesses and certifies, validates all forms of learning. This is what the EU has called upon Member States to put in place by 2018.

Countries need to establish systems that allow individuals to identify, document, assess and certify.

In the project of the Law of Ukraine “On amendments to some laws of Ukraine (concerning the recognition of non-formal education)” articles 28 and 29 need alterations as mentioned below¹⁰⁷:

- Formal education - education that is institutionalized, purposeful, planned with the participation of public and private organizations and recognized a total of formal educational system of the country to provide educational programs and related qualifications validated by the state;
- Informal education - education that is institutionalized, deliberate and planned educational institution without the provision of educational programs and qualifications recognized by the national education authorities, or no qualifications at all, and is complementary, alternative and / or complementary to formal education in the process of lifelong learning; contributes to securing the rights of persons of all ages to access education, but does not provide for compulsory continuous structured sequence to get education and can be small or short-term and high intensity, particularly in the form of short courses, seminars and workshops. Although non-formal education does not directly lead to formal qualifications recognized formal qualifications can be obtained through the development of a set of individual programs of informal education and recognition of the relevant competent authority acquired knowledge, skills and other competencies.

Concluded, the transition of formal education into non-formal one, or their integrity, needs, on the one hand, establishing the non-formal institutions or, on the other hand, gradual implementation of non-formal elements into the existing formal structures. The organization of a non-formal institution requires resources: organization, human resources, strategic definitions, preparation of instructional materials and the formulation of distribution and control plans. However, all this require strong political support.

3.3. Prospects for human capital issues: decade for innovations

In the narrower sense human capital associated only with a person as bearer of knowledge as a key factor of social development and economic growth. In the

¹⁰⁷ Project of the Law of Ukraine “On amendments to some laws of Ukraine (concerning the recognition of non-formal education)”, http://w1.c1.rada.gov.ua/pls/zweb2/webproc4_1?p3511=54026, 29.01.2016.

broad sense human capital provides specialists, knowledge, learning, education, and intellectual tools and work environment.

The analysis proves that in 1993 a modern man can master 1/1000 of the existing information. In 2003 he can master 1/2000 of one. The scholars say that till 2013 he will be able to assimilate 1/4000 of information. It means the increasing on the effective demand for scientific, technical knowledge to manage capabilities. Besides in 1970s of the twentieth century the amount of scientific information doubles every 5-7 years. In 80s of the twentieth century this doubling took place every 1 year and 8 months. In the XXI century the amount of scientific information doubles in 1 year. We could see the rapid growth of the scientific information at the end of the twentieth century until now¹⁰⁸.

The problem of the quality of education, and its effectiveness begins to be seen in the context of changes that occur in society. Globalization brings forth a new set of actors and institutions influencing public policy on the national level.

Understanding the quality of education is conditioned by the tasks in training and retraining, which is demanded by the economy.

In industrial society, the quality of education means fundamental knowledge which ensures high professionalism and material status in society.

For the post-industrial society of XXI century the quality of education means:

- skills in methodology, knowledge, competence;
- development and implementation of the human, intellectual, social, innovation capital.

In the formal system of education there are the following indicators of the quality of education: knowledge; skills; availability.

The necessary subjective conditions of effective education of people of different ages revealed the following:

- maturity of reflection;
- manifestation of the activity;
- independence;
- initiative;
- desire to learn;
- ability to learn.

The effectiveness of education depends on many factors, in particular:

- theoretical educational paradigm that defines the use of scientific developments, approaches, concepts, technologies, methods and techniques of training;

- introduction of innovative technologies and methods;
- reconstruction, updates, enhancements, content and forms of formal and non-formal education;

¹⁰⁸ *Economics of Higher Education of Ukraine: Trends and mechanism of development: Monograph / [V.Andruschenko, I.Kalenyuk, S.Mochernyy and others.], by edit. V.Andruschenka; Acad.ped.science of Ukraine; Kyiv.: Institute vysch.osvity.- Ped.presa, 2006, 206 p.*

- choice of the individual paths of life-long learning;
- introduction of testing, selection, pedagogical innovations to students of all ages;
- implementation of educational monitoring;
- innovative educational technologies, teaching methods, psychophysiological and age oriented programs for prospective customers;
- implementation of learning technologies in developing the sensitive psychophysiological and age-oriented periods;
- conducting research to identify sensitive periods for training for people of the second and third ages.

Ukraine traditionally is a leader by the number of institutions of education for citizens of all ages. 45% of the workforce in Ukraine have higher education. According to this indicator Ukraine ranked the fifth place among 37 countries. Meanwhile, the quality of higher education raises questions.

In the European Union the other standard for the quality of higher education are adopted. Prestige of higher education qualifications is traditionally very high. Higher education is available not for everyone, and about one in ten of those who studied at school can get higher education (master's and doctoral level). No more than 10-15% of graduates reach bachelor degree.

In Ukraine universities 70% of people who graduated from schools' study; that is 7 times more than the normal distribution. This leads to discreditation of the Ukrainian diploma. It is not recognized in Europe, and without any additional improvement/nostification Ukrainian experts can not find a job¹⁰⁹.

In connection with the announcement of its intention to Ukraine to join the European Union higher education system needs radical reform. On the modernization of higher education to the state authorities are particularly important points of principle such as the quality of education and accreditation, are strongly linked and to impose our system of licensing and accreditation of new challenges regarding the use of European quality standards. Therefore, Ukraine's participation in the European network of quality assurance in higher education mandatory in the near future. It must be applied not only an internal evaluation of the quality, but also external one.

The different forms of integration of nono-formal and formal education in Ukraine are of great demand in the country nowadays. Challenges for identification of ageing as a new form of "risk" in society, its role in creating new structures in the system of education are on agenda.

The impact of globalization on ideologies relating to ageing has been a highly significant development. A key aspect of this has been the move from debates that focused on ageing as a burden for national economies to perspectives that

¹⁰⁹ Haman M., *State regulation of the Innovative Development of Ukraine*, Monograph. / M. Haman - K.: From-in NAPA, 2005, 388 p.

view population ageing as a worldwide socio-economic problem for human development.

Globalization has also played an influential role in the production of new forms of risk associated with the privatization of social policy and human development. On the one hand, ageing population seems to have become more secure, with longer life expectancy, rising levels of economic well-being (Disney and Whitehouse, 2002) and enhanced lifestyles in old age¹¹⁰.

Trust as the most important component of social capital in the conditions where “risk society” will generate new forms of insecurity, of which anxieties and fears about ageing may represent a significant dimension, needed primarily for the successful development of the country as a whole is education. In a society with a high level of confidence this is generally higher level of recognition of the public authorities, and thus lower the cost of maintaining order. The reforms introduced by the authorities pass more smoothly because reduced costs of resolving social conflicts. In many countries with a low level of trust people have basic institutional safeguards that protect against political crises. The low level of trust is an obstacle to consolidate society and government.

Analysis of formal education in Ukraine showed that all levels have serious problems related to both objective factors and failures of governance.

The main disadvantages of the public policy in the field of education are:

- focus on short-term benefits despite the strategic priorities of the country;
- absence of a balanced long-term reform program that does not depend on the change of political elites;
- residual principle of financing;
- lack of targeted regional programs, which leads to significant regional stratification by level of education.

Overcoming these deficiencies is a priority for prospects for human capital issues in decade for innovations for education.

Democratic society should serve as stable interpersonal communication, organizational forms of participation in social activity and positive attitude towards social activity.

Innovations will inevitably arise in society, if not solved serious social problems. The sources of social innovation in education appear as the new social problems or insoluble contradictions, social uncertainty, instability.

At the heart of an innovative model of human development is, on the one hand, innovators that have tend to creative actions, and on the other hand it is a state of active participation that provides a life of failure of the market reforms, focusing their efforts on strengthening the capacity for creativity most members of society.

¹¹⁰ Disney R., Whitehouse E., *The Economic Well-Being of Older People in International Perspective*, <https://www.business.unsw.edu.au/research-site/cps-site/Documents/R.%20Disney%20and%20E.%20Whitehouse%20-%20The%20Economic%20Well-Being%20of%20Older%20People%20in%20International%20Perspective.pdf>, 29.01.2016.

Older people will certainly be living in a culturally and socially diverse world, increasingly aware not only of the ageing of their own society but the impact of growing old on different communities across the globe.

There is also a growing impact of supranational bodies in determining policies for older people. Progressively more people will find different aspects of their daily lives influenced by skills, abilities, knowledge. Human development needs to be incorporated into new era of non-formal education.

The crisis of formal education lies in its inability to function so as to ensure disclosure human potential and the unwillingness of the individual operate in conditions that violate the original feasibility and ability to self-realization. The whole mechanism of formal education intended to make mechanistic. World needs a new education that will make the individual being more aware and more knowledgeable, as well as age-oriented/ age-friendly.

One of the main contradictions can not be resolved today by national education policy is the utterance of high humanitarian purposes for which the education system was created, and the inability of the system to move more effectively in this direction.

According to the humanistic theory the modern innovative education should have the following features:

- it comes with universal values, consistent with the specific values of other ethnic cultures;
- purpose of education is self-identity;
- personal development is integral, in the unity of mind and feeling, body and soul;
- rights to the free choice of content, form, mode of education are protected;
- education is understood by the public and social care;
- education means attention, cooperation, and not formal leadership.

Based on these principles, innovative learning is intended to ensure the development of the abilities, knowledge and skills of any person aimed to effectively participation in the society. It is referring to the current goal to solve complex problems in society. Innovative life-long education focuses not on the “yesterday” but at “disturbing tomorrow” demand. Accordingly, the currently emerging paradigm of anticipating education/innovative one has been taken into account.

Anticipating education is based on new meanings of worldview, culture and training, which are relevant to nonlinear world in its complexity and the growing uncertainty. In this model of advanced life-long learning knowledge, skills will found the new content, in particular:

- concept of constructive-organizing knowledge;
- ability to ensure survival, functioning and development of society in extreme conditions, including the ability to work in a team and independently;
- crisis management skills that are updated promptly, including unconventional and technology, instrumental and operational approaches;

- values to economic liberalization of public interest, independence and initiative of citizens with the objectives of improving the efficiency of innovative model of education.

The human development and empowerment centred approaches, implicit in the concept of knowledge society, should ensure that human rights are among the fundamental ones of the individual, making for greater effectiveness in the fight against poverty and the framing of the policy of human development¹⁰.

Education can not exist as an uncontrollable process; it must be properly defined, integrated into all areas of society, social relations. It is about two interrelated components:

1. Proclamation of national (strategic) course in the humanities.
2. Determination of education relevant regulations, laws.

The process of integration Ukraine into the EU requires the harmonization of approaches to education in Ukraine to European countries' one. Ukrainian legislation is under constant change as a result of changes in the internal and external contours of socio-economic development. It passes the adoption of new legislation, legal documents that provide the legal basis for solving diverse social, economic and political problems. Given the dominant European vector of foreign policy of the state, the steps to integration and plans to join the EU, Ukraine has ratified many international conventions and declarations but it is still not reflected in the rules of national legislation. The adoption of "convergence strategy" in the EU makes provision of relevant human development in Ukraine as a priority for education as well.

Drawing conclusions, it should be noted that innovative decade for education in Ukraine states measures to mitigate inequality. It is aimed at weakening the age differentiation, mitigate contradictions between the parties to a market economy and prevent social conflicts on socio-economic grounds.

Accordingly, the content of education is always in relation to a specific stage of historical development of society and national and largely due to its political system, economic and spiritual condition. Education is a key factor in the activity of a socially oriented state. Social policy - a set of principles, decisions and actions of public facilities that are embodied in social programs and social practices to meet the needs and interests of social rights, social communities and society as a whole, advance active participation.

Education today is actually a synthesis of several major areas of human development, including changes in the field of labor market for older people, relations between formal and non-formal education aimed at improving the human capital in Ukraine. Education is a key factor in the activity of a socially oriented state in the global world. Education in knowledge economy is a set of principles, decisions and actions of public facilities that are embodied in education programs for life-long learning and training/re-training practices to meet the needs and interests of social rights, social communities and society as a whole.

Formation and development of the state of active participation in Ukraine provided the relevant priorities. At each stage of development, the state sets priorities to implement the principles set based on the degree of severity of major socio-economic and political problems. The special content and education policy priorities of each state during the period of its development are not static, but undergo a transformation at different stages of development.

Formal and non-formal education must have common vectors of development, promote the creation of conditions to achieve the strategic goal of state, in particular:

- ensuring the orientation the knowledge economy;
- development of human, labor and intellectual potential and ensure their development;
- protection of social interests of the individual, society and state independently of age.

Formation and development of the education in Ukraine provided the following priorities for society:

- guaranteeing the constitutional rights and freedoms of man and citizen;
- development of civil society and its democratic institutions;
- strengthening political and social stability in society;
- creation of a competitive, social market economy and the growing standard of living and welfare;
- development of spirituality, moral values, intellectual potential of the Ukrainian people, strengthening mental and physical health of the nation, creating conditions for expanded reproduction of the population.

In this regard in Ukraine there is no national program to support the people of the “third age” in education including:

- comprehensive human development in retirement;
- assistancy to the older people to adapt to modern conditions of life by learning new modern knowledge;
- inclusion of people “third age” in active life;
- organization of communication;
- development and implementation of the principles of a healthy lifestyle in old age;
- popularization of higher education institutions that participate in programs to support people of the “third age”;
- consolidation of the efforts of local and state government, the scientific community, volunteer work for social and adequate response to the problem of ageing.

Promoting Universities of the Third Age programs at the national and regional programs are, in our opinion, necessary for a number of subjective factors, such as:

- low level of awareness of the older people on the content of such programs;

- lack of readiness of society to attract people of the “third age” not only in educational programs but in age-friendly labor market programs;
- low level of intergenerational culture of young and older generations;
- stereotypes regarding acceptable types of people of retirement age.

We could also state that aforementioned innovative educational approaches are the long-term investment in human development, quality assurance. Innovative development of society and economy involves primarily the growth and self-realization of the intellectual potential of the nation, creating conditions for the development of life-long education for employment and active life.

Conclusions

In view of these considerations, problems arising for solving a system of universities 'third age' challenges including: comprehensive human development in retirement; help the elderly to adapt to modern conditions of life by learning new modern knowledge; support for inclusion of people of the "third age" in active life and organization of communication, development and implementation of the principles of a healthy lifestyle in old age; popularization of higher education institutions that zaluchatsya to participate in programs to support people "third age"; consolidate the efforts of local and state government, the scientific community, volunteer work for social and adequate response to the problem of aging.

Promoting Universities of the Third Age programs at the country level and regions are, in our opinion, necessary for a number of subjective factors, such as: low level of awareness of the elderly on the content of such programs; lack of readiness of society (especially in eastern regions) to attract people "third age" in educational programs; low level of culture between young and older generations; stereotypes regarding acceptable types of people of retirement age and so on.

In Ukraine the primary objective is to overcome the demographic crisis and minimize its consequences for human development and national security. The content of the real output of the demographic crisis is not so much overcome depopulation how to improve the quality of the population, preservation and reproduction of its life and employment potential, and social involvement.

The development of non-formal education system for the people "third age" is critical and take on special significance and relevance for the Ukrainian state. Describing Ukraine as a European state mean that it is determined by its historical past, geography, belonging to the cultural traditions of European civilization, the demographic composition of the population, opportunities for economic relations with the EU, the development and implementation of a national program to support people of the „third age” is promising. These issues are important for Ukrainian present and on time, because now we are witnessing

policy making social inclusion of those groups that are classified as excluded or are at risk of social exclusion.

Chapter 4

Human capital in ageing society: “roadmap” for Ukraine

Introduction

The concept of “negative aspects of old age” is one of the most widespread stereotypes in modern society.

The paradox of modern civilization is that it multiplies the number of seniors, reflecting the culture of the past, while knowledge and cultural values are evolving with unprecedented speed for the future.

Today in Ukraine there are many obstacles for older people to participate in economic, social, cultural and political life. The high level of social exclusion makes human development impossible. According to the World Bank, Ukraine has one of the worst demographic profiles in Europe. Modern Ukrainian society needs modernizing of all socio-economic spheres. One of the most fundamental problems is significance and qualitative efficiency of the national economy and its competitiveness for successful integration into the global economic space. Public authorities outlined the importance of principles that are inherent in the application of strategic socio-economic reforms, including trends to improving quality of life, forming an effective system of education, improving the quality and availability of life-long education.

At the same time the positive changes take place in the socio-demographic policies aimed at adapting society to the ageing population, as well as search and implementation of effective forms of social inclusion of older people in Ukraine to.

The formation and dynamics of these changes in Ukraine are characterized by synchronization with the EU policy of social inclusion and active participation of the seniors.

Detailed fullness and practical implementation of these principles is developing in specific plan of reforms, in particular in formation of age-friendly economy for the senior adults.

In Ukraine there is no national program to support the people of the “third age”, increase the employability of the seniors.

The national educational programs for the seniors’ optimization and for curriculum implementation are to be aimed for preventing social tension and reducing unemployment of the seniors by implementing short-term training programs, flexible-learning training and retraining, professional development. It could result in increasing mobility and competitiveness of the senior adults in the labor market.

The aim of this study is to ground the necessity to elaborate the Comprehensive national policy plan for human development in Ukraine, which can provide

humanistic ideas of the senior adults and recognize their highest socio-economic labor potential value.

4.1. Population ageing in Ukraine: threats and challenges

Human capital is a socio-economic category derived from ‘labor’, ‘labor potential’, ‘human resources’, ‘human potential’. Human capital is a manifestation of the process of capitalization of labor costs, its special qualities of a man. This concept considers a man as an object and subject of the most effective investments that turn them into productive skills to their further implementation in the production. This concept increases the relevance of government programs for employment’s improvements.

In economic literature the concept of human capital is considered in the broad and narrow sense. In the narrow sense, one of the forms of human capital is education. In the broad sense, human capital is formed by the long-term investments in a man as expenditure on education and training, health care, migration, etc.

Human capital is not just a set of skills, knowledge, abilities possessed by a man.

First, it accumulates skills, knowledge and abilities.

Secondly, a man uses skills, knowledge, abilities in the given field of social reproduction and promotes the growth of productivity and production.

Thirdly, the appropriate use of these skills, knowledge, abilities in the form of high-performance naturally leads to the increase in earnings/ income of an employee.

And, fourth, the increase in income stimulates the interests of a man for investments that may relate to health, education, etc. This increase can lead to accumulating of a new supply of skills, knowledge, abilities and, at least, to the motivation to continue and effectively apply them again.

In general, features of Human Capital are as follow:¹¹¹

- in knowledge economy human capital is the core value of society and the determining factor of economic growth;
- formation of human capital requires significant costs of a person and society;
- human capital in the form of skills, knowledge, abilities can be accumulated;
- human capital can be reflected physically, economically and change its amortized cost;
- human capital differs from physical capital in the degree of liquidity;
- human capital is inseparable from its carrier who is a human;

¹¹¹ Khaletska A., *Social Protection in Ukraine: theory and practice of public administration* , Monograph, South-East Publishing House, 2010. – 430 p. – pp.143-153.

- human capital can be public, family, private etc. as for the source of its creation.

Types of human capital can be classified by elements of cost, and investment in human capital. For example, there are the following components of capital: education, health and equity capital, culture.

The concept of human capital is not opposed to the concept of human potential, because the potential is summarized and aggregated the characteristics of the resource in a particular place and time. Human capital is not focused on the requests and needs of society, as it must be in demand on the labor market, while human potential characterizes the possibility that exists regardless of the demands of society. In the broad interpretation human potential is used to perform any task or achieve the particular purposes, opportunities for the individual, society and the state. Human potential can concentrate in itself both three levels of connections and relationships, in particular it:

- reflects the past that is a set of properties accumulated by the system during its formation, operation and development of capabilities. In this regard, the term “potential” actually takes the meaning of “life”;

- characterizes the present in terms of practical application and use of existing capacity;

- focuses on the development, or the future, during the employment cycle an employee does not only implement his available capacity and knowledge, but he also acquires new skills and abilities.

In knowledge economy the new trends of the formation of social relationships and employment are to be taken into consideration. They are connected with the liberation of a man from routine and mechanical work, and giving him the opportunity for self-realization, creativity and personal aspirations. It creates the conditions where information and knowledge are becoming a direct productive force. There is a new exclusive resource that features once unknown qualities and characteristics. On the one hand, the assimilation of knowledge and information serves as a prerequisite for the production of new knowledge; on the other hand, it radically changes the nature of tasks and objectives a man faced, and creates a new system of reasons for employment¹¹².

The labor is the main factor of production, and it is the basis for creating other resources excluding natural. Furthermore, it should be noted that among the main competitive advantages of a country the geographical location, accumulated production assets (production specialization of the country), quality of market institutions, human capital are allocated. The quality of the institutional environment, in turn, is derived from the level of employment potential of people who are directly involved in the development of national institutional layout.

¹¹² Ahmedova O., *Category “employment” in economic theory: to the practice of state regulation*, [in:] O.Akhmedova // Coll.science.works DSUM [“Current policies of government in Ukraine”]. – “Governance”. - Vol. IX, #. 108, Donetsk: DSUM, 2008, pp. 5-15.

Among the factors that significantly affect the efficiency of development and employment opportunities for the population, especially those characterizing the state as capacity (education level, the state of physical and mental health, morale, social and ethical mentality, etc) are as follow.¹¹³

- effectiveness of the institutional environment (providing the equal starting for opportunities at the individual level, the clarity and feasibility of positive prospects for all social groups, the formation of lifestyle that meets national model of social inclusion of citizens, etc.);
- impact of public authorities in the context of defined strategy of social development (priorities of social development; coordination of actions of different public branches and different levels of implementation; effectiveness of the organization and functioning of the executives, public authorities and officials, etc.);
- presence of a positive experience/ effect of increasing human potential and social inclusion;
- adequacy of individual freedom as the basis for enforcement motivation mechanism to stimulate labor potential.

The public policy of social inclusion in the present conditions is not considered by many authors as a public charity, but as a set of state guarantees provided to everyone and ensures the implementation of civil rights on the principles of operation of existing legislation. At the same time, social services groups that are classified as excluded or are at risk of social exclusion should be at a level to those who are called to provide services, stored incentives for skilled, creative social activities with regard to including regional specifics. According to M. Porter, the only reasonable concept that explains the competitiveness at the national level is productivity¹¹⁴. “The main goal of each state is to achieve high and constantly rising standard of living for its citizens. The possibility of realizing this goal depends on productivity, which is achieved by the use of manpower and capital”¹¹⁵.

There should be a differentiated approach to certain segments of the population depending on social status, age, disability and level of economic independence.

Productivity is a key determinant of long-term standard of living, the main source of national income per capita.

In industrial society significant improvements in quality of life, as a result of scientific and technological progress, are traditionally observed. In the transition to a market economy, some sectors of the population are ignored by society: the disabled, children, orphans, HIV/ AIDS infected and the senior adults. The

¹¹³ *Financial mechanism of public management of the economy of Ukraine: Monograph / Society. ed. A. Povazhnyy. - Donetsk: DonDUU, 2014, pp. 314-331.*

¹¹⁴ Porter E. M., *Competitive Strategy Techniques for Analyzing Industries and Competitors*, <http://books.simonandschuster.com/Competitive-Strategy/Michael-E-Porter/9780684841489>, 29.01.2016.

¹¹⁵ Geyets V., *Society, state, economy: phenomenology of interaction / Valeriy Geyets // NAS of Ukraine; Institute of Economics. - K. : 2009, 864 p.*

reforms do not always help them to overcome barriers to participation in economic, social, cultural and political life. To achieve a high level of social inclusion as a means of human development is not possible because of the interaction risks of exclusion and factors of regional differences, lack of access to basic consumer goods basket of public services and social networks¹¹⁶.

The forms of social exclusion is economic (low income, limited employment opportunities, poor conditions of access to the means of communication), cultural, educational (inaccessibility of educational and cultural services), social (social security system unavailability, limited social connections), and political (impossibility of political rights and freedoms).

According to data published by the National Human Development Report 2011 "Ukraine: Towards Social Inclusion"¹¹⁷ and the Regional Human Development Report 2011 "From the transformation society to the society for all" of the United Nations Development Programme in Ukraine, a number of socially excluded people in Ukraine counted 20%. Economic exclusion counted 28%; social exclusion from participation in public and social life and networks counted 36%. Gender and age pyramid of excluded people with low incomes suggested that growing risks to be excluded in the age group of 65 years (the so-called "third age") that is the largest for both men and women in their 80-84 and 85+ years. Among people of that age group there is the largest percentage of social exclusion¹¹⁸.

Well-known Ukrainian scientists of the Ptukha Institute of Demography and Social Studies such as E. Libanova, A. Makarova, S. Pyrozhekov, A. Pozniak, P. Shevchuk, L. Cherenko and others have analyzed and assessed the risks of demographic national development in the XXI century, its trends and consequences of ageing, as well as social inclusion strategies. On the basis of this analysis we can elaborate the concept for development of age-friendly economy in Ukraine, or labor market for the senior adults¹¹⁹.

Analysis of the literature leads to the conclusion that theoretical issues for development of age-friendly economy in Ukraine are based on the methodology and practical approaches to the social inclusion policy: N. Didenko, V. Kutsenko, N. Nyzhnyk, A. Novikov and foreign researchers John Birrena, D. Bromley, J. Stuart-Hamilton, S. Hall, K. Shayye. The social inclusion is aimed at initiating challenges for the integration of senior adults into society through changing the perception about/of them as a valid human capital and introducing its correspondent approach to the concept of life-long education.

¹¹⁶ Burega V., Khaletska A. *Prospects for the formation of a national program to support the people of „the third age”* / Valery Burega, Alina Khaletska // Manager. - Donetsk, № 4 (29) - 2011. - pp. 10-17.2011.

¹¹⁷ National Human Development Report 2011, *Ukraine: Towards Social Inclusion*, http://www.undp.org.ua/files/en_95644NHDR_2011_eng.pdf, 29.01.2016.

¹¹⁸ Ptukha Institute of Demography and Social Studies, *The United Nations Development Programme in Ukraine*, <http://www.idss.org.ua/>

¹¹⁹ Ptukha Institute of Demography and Social Studies, <http://www.idss.org.ua/>

Demographic portrait of population ageing in Ukraine

The demographers call the XXIst century as the century of the aged population. Ukraine is not an exception in this regards, the country is also characterized by the ageing population, which has become a nationwide trend.

According to the analysis of current demographic situation and evaluation of the national tendencies of development, Ukraine takes the 26th place among 30 countries in the world with the share of the population aged over 60.

The formation and dynamics of ageing in Ukraine can be characterized with the following trends:

1. “The demographic waves” caused significant fluctuations in the number of people aged over 60 years. The demographic forecast for Ukraine till 2050 based on the updated methodology in complex shows that the highest level of ageing population is expected in 2050's (people aged over 60 years old is expected to take 21.7% of the total population, in particular women – 26%, men - 16.8%. And 438 persons of retirement age will comprise each 1000 persons of the working age

2. In regards of gender and the type of residence there is distinct process of ageing of rural population in Ukraine, due to mass migration of young and adult people from rural to urban areas. The most senior adult population in the country are rural women (the proportion is 19.1 for urban areas to 26.1% for rural ones), and as for the gender the process can be proved with the proportion (100 women aged over 60 years old to 56 men of the same age).

3. Regional differences in population ageing show that the “oldest” areas in the country are in the north-east of Ukraine. Regional differentiation of the demographic situation in Ukraine is caused by the variety of factors such as: geographic, historical, economic and political ones, as well as with different development of socio-economic infrastructure, structure of production, regional differences in quality of life, specificity of labor markets, differences in lifestyle of rural and urban population (especially in metropolitan areas), dynamics of migration, urbanization trends, environmental situation, cultural and historical traditions, etc.¹²⁰

According to the World Bank, Ukraine has one of the worst demographic profiles among the other countries of the European continent. Modern Ukrainian society needs modernization of the national economy and improvements of its competitiveness for successful integration into the global economic universe, in particular for:

- improvements in quality of life;
- formation of the effective system of social inclusion;

¹²⁰ Khaletska A., *University of the "third age" in the Donetsk region as a form of social innovation: the vision of strategy/ Alina Khaletska // Proceedings of the International methodical and scientific-practical conference “Education for the older generation”, March 18-20, 2015. - St. Petersburg State Technological University of Plant Polymers. – St.Petersburg, 2015. - PP.189-195.*

- improvements in the quality and availability of social services.
- At the introduction of the Madrid International Plan of Action on Ageing the vectors for reforms were indicated¹²¹.

In our opinion, as a result of proportion of children declined from 40% in the early XXth century to 15% at the beginning of the XXI century, the proportion of the working population was changed correspondingly from 60% to 62%. However, with increasing life expectancy and reduced mortality the growth of the population over 60 years old have been observed from 3.4% at the beginning of the XXth century to 21% at the beginning of the XXIth one¹²².

The aforementioned processes have the following consequences:¹²³

- reducing of the quality of labor/competitiveness: older people have a life and professional experience, but they slowly adapted to innovations and changes. In Western Europe and South America, scientists and engineers that went over 35 years also have difficulties with job opportunities. The employers prefer younger professionals.

- intellectual potential of the senior adults is not used in full, so there is a need for the introduction of life-long education with the large range of services for the senior population;

- standards of living of retired people are being extremely low. The percentage for poverty of pensioners' households in Ukraine is 27% with the highest level of this index as 29% for the pensioners who are older than 75.

In Ukraine, the proportion between people of working age to those of retirement age is 10 to 4 of them. Till 2025 the proportion between them will come to equality. According to The United Nations index the population a country is considered as an old one if the proportion of people aged over 65 years old among all population is more than 7%. In Ukraine it has already reached 15.9%, and among the rural population it has reached level of 19.8%.

In 2002 in Madrid the principles of international policy on ageing population for the next 20 years of the XX century were elaborated. Since then the global community has formed the thesis of the need to "review approaches, policy and practice at all levels and in all sectors in the interests of involvement enormous potential of ageing in the XXI century"¹²⁴.

The common standards in five areas related to the place of the senior adults in society have been established such as: independence, participation in public life, care, self-fulfillment and self-esteem.

¹²¹ Khaletska A., *Active ageing: from tradition to change*. Centre for Research & Development in Adult and Lifelong learning (CR&DALL), <http://cradall.org/content/active-ageing-tradition-change>

¹²² *Report of the second World Assembly on Issues of Ageing*, Madrid, 8-12 April 2002 year. - UN, A / CONE, 2002. - p. 10, http://www.un.org/en/events/pastevents/ageing_assembly2.shtml, 29.01.2016.

¹²³ Khaletska A. *Current issues of formation the system of universities of the "third age" in Ukraine: Challenges and Actions* / Alina Khaletska // „Public Administration: Strategy for Reform 2020” Coll. abstracts of the XV Intern. science. congress, April 23, 2015 - Kharkiv: "Master", 2015. - pp. 338- 341.

¹²⁴ *Report of the second World Assembly on Issues of Ageing*, Madrid, 8-12 April 2002 year. - UN, A / CONE, 2002, p.10, Available at: http://www.un.org/en/events/pastevents/ageing_assembly2.shtml, 29.01.2016.

In Madrid International Plan of Action on Ageing it was defined that the priority areas for the implementation of the aforementioned standards are as follow:

- support to participation of senior adults in society;
- ensuring of health and well-being of old age;
- ensuring quality of life.

The national public policy of social inclusion in Ukraine in the present conditions is not considered by many authors as a public charity, but as a set of state guarantees provided to everyone and ensure the implementation of civil rights on the principles of operation of existing legislation. At the same time, social services groups that are classified as excluded or are at risk of social exclusion should be at a level to those who are called to provide services, stored incentives for skilled, creative social activities with regard to including regional specifics. It should be a differentiated approach to different segments of the population depending on social status, age, disability and level of economic independence.

For most of people ageing is associated with the negative processes of:¹²⁵

- loss of capacity;
- reduced memory and intelligence, sexuality;
- physical infirmity;
- worsening health;
- dependency on the other people;
- lack of understanding between children and old parents in the family;
- conflicts between young and old employees at work;
- inequality of the elderly.

Key Challenges for the social inclusion in ageing society in Ukraine have been declared as follow:

- understanding the changes occurred in the socio-demographic policy aimed at adapting society to the ageing population;
- finding and implementing the most effective forms of social inclusion of senior adults.

To be concluded we could say that in the conditions of military conflict, economic recession and political crisis in Ukraine the current demographic situation is worrisome. Depopulation and reduced life expectancy and fertility are the signs of the current demographic catastrophe.

The primary objective is to overcome the demographic crisis/ catastrophe and minimize/prevent its consequences for human development and socio-economic security in Ukraine. The development of system of non-formal education for the people of the “third age” takes on special significance and relevance for the nation. Describing Ukraine as a European country we mean that it is determined

¹²⁵ Conventions and agreements, *United Nations Principles for Older Persons*, http://www.un.org/ru/document/decl_conv/conventions/oldprinc.shtml, 29.01.2016.

by its historical past, geography, belonging to the cultural traditions of European civilization, demographic profile of the population, opportunities for economic relations with the EU, development and implementation of a national program to support people of the "third age". These issues are important for Ukrainian present and on time, because now we are witnessing the formation of public policy making social inclusion for those groups that are classified as excluded or are at risk of social exclusion. In Donetsk and Lutsk the "Universities of the Third Age" (U3A) have been set up under the project the Project "544517-Tempus-1-2013-1-IT-Tempus-JPHES Center of the Third Age –Centre for the Third Age Education"¹²⁶.

In Donetsk State University of Management (Mariupol City) and Volyn Institute of economics and management have been established comprehensive programmes including practical subjects on consumer rights, pension legislation, inheritance, money management, as well as traditional cultural, art and health studies for becoming Ukraine more and more age-friendly nation.

4.2. Age-friendly economy: labor market for the senior

We know that socially oriented highly efficient economy involves a society where are optimally combined economic (efficiency, profitability) and social (high quality of social standards and life expectancy) parameters that economic development can provide a great opportunity to meet social needs, and active social life helps to maintain high economic activity. To optimize the production of socio-economic efficiency the system should be in equilibrium. The growth of economic efficiency must be accompanied by a corresponding increase of social efficiency. The proportion between them is determined by systematic correlation. Economic life should focus on the development of human factor. However, the implementation of its most important socio-economic rights and creativity of a man remains in deep social and economic crisis.

Among the many global challenges facing humanity at the beginning of the third millennium the central problem is social orientation of the economy as a prerequisite for training of highly qualified personnel which is capable of productivity and successful realization of its skills, abilities, knowledge. In our view, the social orientation of the market economy is not to carry out the most extensive social assistance, but to create an environment where such assistance would be required by a minimum number of people.

The ageing population is a social phenomenon that becomes a permanent characteristic not only for developed countries but also for developing ones. Among its features there are the following ones:

¹²⁶ "Universities of the Third Age" (U3A), Project "544517-Tempus-1-2013-1-IT-Tempus-JPHES Center of the Third Age – Centre for the Third Age Education". Available at:<http://3au.dsum.edu.ua/> ; <http://viem.edu.ua/>

- rate of population ageing in developing countries over the past decade exceeds the rate of population ageing in developed countries;
- rapid ageing of population is already recognized as a universal phenomenon (the scale is to be comparable to globalization), with a prolonged impact on almost all aspects of social systems and people's lives;
- relatively gradual pace of the ageing of population in developed countries allowed to accumulate resources to finance various reforms and social systems, which include social security for the senior adults. But in developing countries, with the much faster rate of ageing and related economic necessity of solving the problems of ageing population, lack of resources are becoming the critical issues.

The impact of ageing is not limited to the well-being of senior adult people, but it has a much wider effect. In the broader and longer terms, there is a need for a new term or a new paradigm in understanding ageing society¹²⁷.

In particular, in Ukraine there is a need for public policy that will be more efficient and effective to solve the economic and social consequences of ageing population, and the one that takes the complexity characteristics in the broad and long prospects.

Recognizing that in Ukraine, as in the EU as a whole, the last decade of the transition from the policy of passive social protection to active policy of social inclusion of older people (including poverty, social exclusion, unemployment), there is an immediate need for a labor market of that category of citizens.

The question of efficient use of labor potential in the context of the challenges for society largely depends on the effectiveness of the forms of regulation, the contents of which are linked to fiscal, monetary, antimonopoly and competitive, price, investment, foreign trade, environmental and socio-economic policy. The connection between certain forms of state regulation occurs at the institutional level, which defines the legal limits of the formal value of public and private, spiritual and material, social and individual or regulates the scope of individual freedoms as the basis for the exercise of individual choice.

According to preliminary results of the research, the scope of individual freedom is formed in consequence of the interaction of political, economic freedom and freedom of conscience and is the result of active interaction between human society and the state.

For active participation on the labor market the ageing-friendly economy must be formed on the basis of the conscious positive attitude towards work of senior adults, commitment to the educational process and work, responsibility for decision-making.

The analysis of the scientific literature reveals the following sources of support for positive motivation to work: the correct selection of professional areas of activity, the development of a stable demand for self-determination, development of new knowledge and skills for the purpose of self-affirmation,

¹²⁷ Khaletska A. *Active ageing: from tradition to change*. Centre for Research & Development in Adult and Lifelong learning (CR&DALL), <http://cradall.org/content/active-ageing-tradition-change>, 29.01.2016.

increased capacity in dealing professionally oriented tasks both standard and creative. From the point of becoming a person in market conditions we consider as appropriate to make the priorities to be focused on.

They are as follow:

- performance;
- productivity;
- satisfaction of work;
- career growth;
- increased earnings.

The main goal for the formation of the labor market for the senior is:

- economic recovery;
- medium and small business development;
- re-launch economy in ageing society;
- cross-sector cooperation for new jobs infrastructure;
- digital economy: supply and demand equilibrium.

To be concluded as priority of social inclusion policy it will solve such problems as:

- jobs growth and investment;
- new jobs infrastructures;
- economic recovery;
- work program;
- cutting red tapes, corruption;
- small / medium size enterprises;
- limited horizons for start-ups;
- digital society;
- smart citizenship.

The algorithm of implementation of special educational technologies in the formation of educational space for age-friendly economy on the basis of individual component shown in Figure 4.1. It consists of five stages: collecting the necessary information; assessment of the employment potential of the seniors; self-employment assistance program; selection of corresponding to individual orientation; program to promote employment and control. The above steps can be divided into mandatory and “conditional”.

The first stage of the algorithm is to collect the necessary information. This stage is divided into several steps: analysis of labor market, analysis of the personal files of the seniors’ discussion, questioning and testing. The main task of this stage is the collection of high-quality and reliable information on which to conclude that quantitative and qualitative labor market and employment potential of the seniors, their individual focus.

In our opinion, the feasibility of using this method is confirmed by the results, so we offer it to base the collection of information on the labor market.

Information to assess the employment potential of the seniors is based on analysis of interviews, questionnaires and testing.

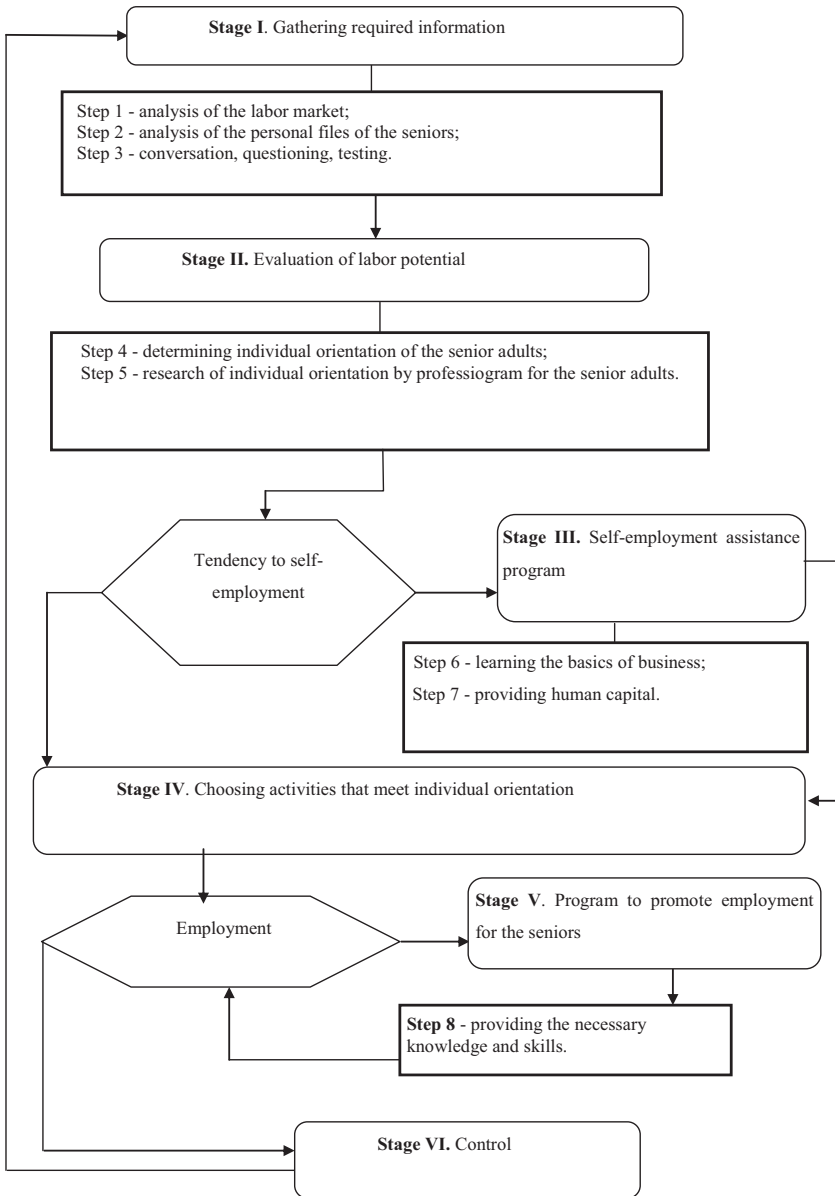


Figure 4.1 Algorithm of implementation of special educational technologies in the formation of educational space for age-friendly economy

It is also important to assess employment potential and individual orientation in the form of *professiogram*. *Professiogram* is a comprehensive systematic description of any kind of work on the basis of functional, psychological and psycho-physiological analysis of its content, which helps identify professionally important qualities of the individual professional requirements as a profession to a person.

After gathering information it is necessary to move to the next stage of the algorithm that is evaluation of labor potential.

Evaluation of labor potential in these conditions is the process of matching the seniors' performance with the standards in this activity.

There is a need for special educational technologies, knowledge and skills in the formation of educational space for age-friendly economy, where there can be a set of educational institutions, methodological, technological, technical, software, information, personnel, and rehabilitation, legislative and regulatory and other kinds of support.

That is why we can state that there is also the need for non-formal education for senior adults integrated into the continuous professional formal education as part of the modern system of education and social protection of population in a market economy. The above in no way implies the establishment of an independent system of non-formal educational institutions for the senior adults. This could be seen as inhumane approach enhanced the isolation of this category of people from society.

Solving the problem lies in the educational programs optimization and curriculum implementation: short-term aspect, for instance, could be aimed to mitigate social tension and reduce the duration of unemployment by implementing short-term training programs, flexible-learning training and retraining, professional development, etc. It could result in increasing mobility and competitiveness of the senior adults in the labor market; and in long-term aspect it could support training and retraining highly qualified specialists for the priority sectors of the country, region or community.

At last the process of learning requires not only specific technologies of knowledge transfer, but also the deep psychological and pedagogical approaches, usage of special technical training, training equipment, and all spectrum of learning innovations.

4.3. Human capital for age-integrated non-formal education

The problem with the competitiveness of the senior adults in the labor market will not be probably solved by the means of influence over the employers and by increasing the professionalism.

In the practice of assessing the quality of labor employment agencies test parameters of personality's characteristics like the following:

- competence;

- qualifications;
- professional experience;
- health;
- positive attitude to work.

The senior adults can demonstrate:

- high level of qualification;
- professional experience;
- positive attitude to work;
- good health which allows an individual to perform professional duties.

The key parameter that allows the individual in older age to be competitive on the labor market and to be interested in self-realization of the abilities through effective professional activity is “competence”, which is regarded by us as the ability to apply existing knowledge and skills in new situations of professional life. It manifests itself in the organization of work planning in everyday situations and meeting different innovations.

Competence implies characteristics of interpersonal communication at work, increasing of individual performance that is always needed at any workplace.

In modern society the system of social inclusion of the senior adults is able to result in achieving rehabilitation and inclusion standards that are only beginning to emerge and become the main direction of increasing the efficiency of social protection of this people.

In this regard, legislative reform that has led to structural changes and the creation of educational services for the senior adults forms the basis of labor potential within the system of social inclusion with all its shortcomings. There is a significant step forward in the implementation of the basic principles of international policy of human resource development. The essence of this policy is filled with a new meaning of the term “senior adults”, people of the “third age” which under current conditions are identified with the concept of human capital.

The system of social inclusion aimed at formation of age-friendly economy favors the labor potential system of social protection of population in Ukraine and system of non-formal education integrated into the formal correspondent one. It can be designed to ensure the integration of senior adult people in society and help their adaptation to social environment.

The system of formal education with integrated non-formal programs for the senior adults is aimed to train specialists, form the basis of human resource capacity of the country.

Ukrainian education system is developing in rapid and varied changes.

First of all, the formation of market relations in the economy means the development of economic relations in education as well. In addition, the developing process of informatization, penetrating into all spheres of social life is inevitably reflected in the field of formal and non-formal education.

The higher education system is to be adapted to the requirements of multiple markets of different specialties, and take into account the future requirements of the labor market, due to the large inertia of the system of training and retraining.

Therefore, while adapting these processes to these requirements the future demand needs to be taken into account, i.e. the permanent monitoring of the market and instruments to predict their condition.

Life-long education is one that encompasses all human life. As we know, it includes formal and non-formal types of education, the relationship between objects studied and various aspects of human development at various stages of life:

- ability to assimilate new scientific achievements;
- improvements of the ability to learn;
- stimulating motivation to learn;
- creation of appropriate conditions and atmosphere for learning;
- implementing creative and innovative approaches, with an emphasis on self-education and self-organization.

Every year the number of the senior adult people globally increases to 2,4 per cent, basically due to the fact of improving of social and economic status of population. According to some of the prognosis, the number of senior people will increase up to 1 milliard by 2020 year. Most of demographers confirm the irreversibility of the given process and declare, as we have mentioned before, that the world entered into the “century of aged people”. The latest demographics show that nowadays the world undergoes a demographic transformation: today every tenth person in the world is at the age of 60 and older and according to the forecasts till 2050 every fifth person of the globe will be at this age¹²⁸.

The consequences of such processes are as follow:

- reduction of the quality of labour power;
- reduction of the intellectual potential of senior adult people.

Nowadays in the EU and Ukraine, other countries the popular form of non-formal education is the universities of the “third age”. This is a program oriented to increasing of social activity and communication of the senior adult people, the level of their health and physical activity, and also the education for them which is necessary for integration into social and economic life.

Historically, the issues for creation in Ukraine the universities of the “third age” occurred for the first time at the session of Round table under the initiative of Ministry of Labor and Social Policy of Ukraine under the project “Support of the implementation of the Madrid International Plan as for Ageing in Ukraine” in 2008¹²⁹.

¹²⁸ Ptukha Institute of Demography and Social Studies, <http://www.idss.org.ua/>

¹²⁹ Official website of Ministry of Labor and Social Policy of Ukraine, <http://www.mlsp.gov.ua/labour/control/uk/index>

In 2008 under the initiative of Ministry of Labor and Social Policy there was formed a pilot project “The University of the Third Age”. It was created with the aim to give a support to senior adult people, who have an active life stance, and also to increase the quality of social services. The history of the same projects in Ukraine counts more than 350 centers and more than 250 thousand of students since then. The issue of Universities of the "third age" as a national program aimed at improving communication and social activity of senior adult age, level of physical activity, health, education. The senior adults need to integrate into society with skills and today it requires good governance support and development of appropriate stable mechanisms.

Promoting “Universities of the Third Age” programs at national and regional levels is, in our opinion, necessary because of the number of subjective factors, such as:

- low awareness of the senior adults on the content of such programs;
- lack of readiness of society (especially in eastern regions) to attract people of the “third age” to educational programs;
- low level of culture between young and older generations;
- stereotypes regarding acceptable types of people of retirement age and so on.

Solving these problems for people of the “third age” is critical and acquires special importance and relevance for Ukrainian state and needs:

- learning leading foreign experience to develop and implement educational programs for people of "the third age";
- creation of a center of "the third age" to provide equal opportunities for development of successive generations in terms of the demographic crisis and social exclusion;
- development and implementation of training programs in accordance with European standards and the quality of education on the basis of experience using leading European schools, intersectoral experience and interaction of state bodies, public organizations and businesses;
- training teachers to work with people of "the third age" with regard to social and medical characteristics of the senior adults and others.

Establishing the universities of the “third age” with a variety of educational programs, demonstrating the value of the senior adult people who remain engaged and willing to contribute in their own community for as long as possible. The elaboration and implementation of educational programs according to the needs and specificity of the labor market in Ukraine with regards to the European standards do not need the standardization of quality of education, but means constitution and maintenance the interaction of the universities with public authorities, non-government organizations and local business, community.

It becomes obvious that there is a great demand for programs to promote employment, development of non-formal education and adapting the senior

adults to the training of unemployed older persons with the introduction in the educational process of special learning tools. This approach requires a change of organization of educational process for the senior adults, linking together the formal and non-formal education technologies and forms that would allow formal education model support non-formal learning process through methodology of flexible professional learning on the background of implementing renewable-adjustment programs of all kinds and levels for seniors.

The most effective organization of educational process is flexible innovative forms, which include open and distance learning. Main characteristics of innovative types of training are in tune with the requirements of the educational process for the senior adults and include:

- possibility of training in a group or individually;
- modular approach to teaching material;
- opportunity to study at home;
- using a system of consultation;
- using of multimedia applications in electronic form;
- flexible time planning for the educational process.

Simulation training process for the senior adults requires high flexibility. It needs the seniors being involved in labor market with innovative teaching methods, labor, working hours, wages and finishing flexible control systems of labor markets.

The word „flexibility” is understood as the capacity for renewal and adaptation activities in the current economic environment, characterized by accelerated change, increased instability and unpredictability. Therefore, the requirements of multidisciplinary training, the role of lifelong learning, the ability to adapt to working life, rapidly changes becoming for the senior adults of vitally importance.

Solving a great variety of problems of senior adult people is critical and takes on special significance and actuality for every generation. Ukraine is a European country determined by its historical past, geography, and belonging to the cultural traditions of European civilization.

Under these conditions the solution of the problem of maintaining, and scaling up the use of human potential through the implementation of programs of social inclusion of people of the ‘third age’ in the system of non-formal life-long education is becoming more and more important. The modern Ukrainian society needs modernizing all components of its socio-economic life, but the fundamental problem is the substantial quality and efficiency of the national economy, its competitiveness for successful integration into the world economic space.

Public authorities outlined the fundamental principles that should be incorporated in the strategic program of economic reform, including one of the

main trends that is the rise in quality of life, forming an effective social security system, improve the quality and accessibility of social services.

Detailed fullness and practical implementation of these principles is key factor to developing a definite plan of the education reform. Therefore, it seems appropriate to consider the international, particularly European experience of strategic reform.

Development, accumulation and caretaking of human capital through the implementation of programs of age-friendly economy and social inclusion of the senior adult people into the system of informal and continuing education in Ukraine are of great importance.

4.4. Comprehensive national policy plan for human capital in reforms

As defined by law, labor is the “activity of citizens related to meeting the personal and social needs such that usually brings them income in monetary or other form”, and further “... the citizens of Ukraine freely choose the activities that are not prohibited by law, according to their abilities”¹³⁰.

Certainly, freedom of choice in employment of the handicapped is limited, above all, their state of health and the related restriction of professional mobility need essential improvements for their competitiveness on the modern labour market.

As pointed by V.Moroz, human resources in a given country and skill levels of people depend, ultimately, upon the results of economic development, and living standards”¹³¹.

The main features of social-oriented state, among other attributes are as follow:

- willingness of society to ensure equal opportunities throughout the population, including citizens who are most in need of social protection;
- creation of anti-discrimination legislation and normative space that provides not only the level of civil, economic, political and other rights and freedoms, but also a real opportunity to implement them, providing inclusion for realization of employment potential;
- enable the use of social infrastructure, cultural, educational, scientific, industrial and other by creating smooth habitat;
- access to transport links and communications, etc.

Achieving these indicators is possible through the implementation of public policy based on the priorities of social orientation and providing guaranteed

¹³⁰ Ahmedova O., *Category “employment” in economic theory: to the practice of state regulation / O.Akhmedova // Coll.science.works DSUM [“Current policies of government in Ukraine”]*. – “Governance”. - Vol. IX, #. 108. - Donetsk: DSUM, 2008, pp. 5-15.

¹³¹ Moroz V., *Place of the quality of education in the model of motivational mechanism to stimulate labor activity of the person / Vladimir Moroz// VII International conference “Strategy of quality in the industry and education” (3-10 June 2011, Varna, Bulgaria): Vol. I.: Dnepropetrovsk - Varna 2011, pp. 679 – 683.*

employment for any citizen on the principle of realization of human potential independently of his age.

Implementation of aforementioned principle is designed to not only create the necessary conditions for the life restoration of the senior adults, but renew their physical status, education, occupation, feasible participation in the labor force, but as well to change attitudes towards them as full citizens of society.

The approach to the involvement of the senior adults to rational employment can be realized through the development and implementation of the integrated system of recovery of labor potential. It is based on the targeted system that allows applying the senior adults in labor market and restoring their professionally important qualities, and making the adaptation of tangible and intangible external factors that affect the integration of the senior people into society and the world of work. The socio-economic importance of innovation can be achieved due to the involvement of additional labor force to economics, i.e. the senior adults who have been professional and now have labor rehabilitation reduce unemployment among the older population and improve their material well-being due to receiving wages.

In organizational aspects it establishes economic measures to promote employment of the senior adult people but at the same time requires measures to be undertaken in the following directions:

- on legislation it needs preferential financial, credit and tax policies that promote the creation and operation of specialized companies that employ the senior adults;
- on budget funding it is necessary to create jobs for the senior adult persons;
- on organizational prospect it requires the expansion of home-office work;
- on financial aspects it needs the employers payments from local budgets to cover the compensation of income, loss due to the employment of the senior adults; provide all the financial support institutions that introduce a program of formation of age-friendly labor market.

The economy of the last decade means constantly increasing outflow of labor. The number of economically active and employed population in the economy is reduced.

This happens due to worsening demographics, increased morbidity, disability, mortality among the citizens at their working age. Different scenarios forecasted in demographic development, but they are all similar in that this situation cannot be drastically changed even under the most favorable evolution of fertility and mortality. In Ukraine people mortality is also increased by 68.6 thousand people. In the age structure of Ukraine the trend has been established for prevalence the population of the retirement age over the younger generation in 15 years¹³².

¹³² *The UNDP's Human Development Report 2015*, hdr.undp.org<http://hdr.undp.org/en/rethinking-work-for-human-development>

It is strategically important to find solutions for social problem and discover reserves of human resources, their rational use and development.

Employment is a key condition for the integration of the senior adults into social and economic life. Equal access to employment can be achieved through a combination of combat discrimination with the implementation of active public policy.

Finally, we must admit that the freedom of choice in employment of the senior adults is limited primarily to healthcare and the related restriction of professional mobility, which is essential for increasing competitiveness in today's labor market.

In a competitive market enterprises, especially small and medium, the employers try to get rid of ineffective staff, not being able or not wanting to contribute to the qualitative improvement of its employment indicators. Sometimes the seniors don't meet employers' different requirements. Based on the open labor market, the senior adults get into a competitive environment. The employers are interested in hiring top quality workforce, especially in today's labor market where labor supply exceeds demand.

The formation of favorable conditions for increasing employment potential of the unemployed seniors is based on the principles of social adaptation and vocational rehabilitation.

The main strategic line in the formation of a regional system is to promote employment of the senior adult persons in the labor market. Most Ukrainian scholars agree that in the transition the government actions on the labor market must be strengthened, primarily through the development of active policies to promote employment. For example, scientists believe that the new model of regulation of employment in the labor market should be based on a combination of market principles and active participation of the state in the regulation of the labor market in the direction of social protection from the effects of unemployment in accelerating of the population adaptation to market requirements¹³³. This adaptation requires a special approach provided by the special employment programs for the senior adults in the all spectrum of aforementioned conditions in Ukraine.

Many countries in the late 1980s - early 1990s with the aim of state regulation of employment entered into practice the government programs to promote employment (in particular, for the senior adults). Government stimulated labor markets through the targeted programs of "active" promoting employment for young people, women and the seniors. Programs for this part of population provided training to work, occupational guidance and information, re-training,

¹³³ Bodrov V., *Transformation of economic systems: concepts, models, mechanisms of regulation and management*: Navch.posib. / Vladimir Bodrov. - K.: UAPA, 2002, 104 p.

adaptive programs, quoting jobs, support for employers, which led to the easing of the situation with unemployment (Korean experience)¹³⁴.

This experience is certainly useful for Ukraine. Based on an analysis of theoretical studies in the system of employment and social protection, we are convinced of the need for an active policy on the labor market, in particular for the senior adult persons, who require specific forms of social protection, the main of which is vocational rehabilitation and ensuring their employment.

The view of the author is based on the fact that even in countries with highly developed economic system where the labor market is open for sufficiently developed social institutions it is necessary to improve the quality of the workforce to the exit of the labor market, is visible part of the state in support of the seniors. It is expressed in preferential financial and tax policies for enterprises that provide jobs to the seniors, in supporting employers who offer them jobs, in providing them with the technical support and, finally, in the development of age-friendly industries, provision of social inclusion, and social environmental adaptation for work.

In Ukraine the development of age-friendly labor market is more declarative than practical. However, the society needs the concept and strategy of building a future society with indicated prospects of attracting the seniors to active economic activity.

The Comprehensive national policy plan for human capital for reforms claims the international scene for the role of Ukraine, which provides humanistic ideas of the seniors and recognizes the highest social value. The state must guarantee the rights of all citizens and to care for those most in need of social protection. It is also a demand in society for a systematic approach to carrying out a consistent, systematic and coordinated policy supporting this population on national and regional levels.

In conclusion, the following directions of development of labor potential recovery of these categories of persons are as follow:

1. Formation of a new ideology that equates the senior adult people with all members of society in which government policies can be built and can be made legal and economic support measures to ensure implementation of constitutional rights of these persons to social protection. This approach is very different from the current trends for the seniors, which often are discriminated against their right to work.

2. Implementation of the priority of public policy in dealing with rehabilitation and employment of the senior adults persons, improvement of legislation in the sector of social protection and employment of these persons.

¹³⁴ Sung Jao CHOI, *Ageing society issues in Korea*, CHOI, Sung Jao, "Ageing society issues in Korea" (2007). *APIAS Monograph* 專題論文. Paper 13, <http://commons.ln.edu.hk/apiasmp/13>, 29.01.2016.

3. Expanding the network of labor market inclusion facilities and improve their technologies.

4. Creation of a database accessible to the seniors, as well as institutions, organizations and enterprises working in the field of formation age-friendly economy and labor market for them.

5. Improving economic support by employers who employs the seniors, as well as industries and institutions that implement individual employment programs for the seniors.

6. Creating a trust fund to promote employment for the seniors by means of consolidation based on cooperation budget, off-budget allocations and other contributions.

7. Developing and implementing effective employment programs of social protection for the seniors at the national, regional and municipal levels, as well as at the community. It also needs financial support for activities of these programs.

In transition from the industrial society into knowledge one it is traditionally observed significant positive change in the quality of life of people. The society is ready to enforce the conditions which provide an opportunity for the senior adult people to live healthy years of significant experience and contribute to public life.

However, in today's world there are many obstacles for older people to participate in economic, social, cultural and political life. The high levels of social exclusion make it impossible for human development. Research scientists consider social exclusion as a dynamic process (interaction risk exclusion factors, regional differences), they analyze its nature (relatively different social status, lack of access to basic consumer basket of public services and social networks, etc.). The forms and manifestations of social exclusion is economic (low income, limited employment opportunities, poor conditions of access to the means of communication), cultural, educational (inaccessibility of educational and cultural services), social (social security system unavailability, lack of social ties, etc.), political (limits on political rights and freedoms).

In these circumstances, it is important to understand the changes taking place in the socio-demographic policies aimed at adapting society to the ageing population, as well as search and implementation of effective forms of social inclusion of older people.

The systemic nature of the process of formation of age-friendly labor markets, increase of employment potential of the seniors and stimulating interaction between structures that are involved in this process requires a systematic approach to the study of economic and organizational basis for their formation and management.

Conclusions

Human capital is not just a set of skills, knowledge, abilities possessed by a man. The public policy of social inclusion in the present conditions is not considered by many authors as a public charity, but as a set of state guarantees provided to everyone and ensures the implementation of civil rights on the principles of operation of existing legislation. At the same time, social services groups that are classified as excluded or are at risk of social exclusion should be at a level to those who are called to provide services, stored incentives for skilled, creative social activities with regard to including regional specifics.

As in other countries Ukraine has persistent ageing stereotypes, with old age associated with wealth reduction, financial instability and social exclusion. To shift these negative attitudes requires systematic challenge.

There are opportunities to involve all generations in shaping future educational and social systems. Although many older people have responded, many are unaware of engagement with the “third age” or have expressed scepticism about the feasibility of creating a culture of active ageing.

With the changed social infrastructure older adults are more likely to pursue lifelong activities and participate in personally and socially meaningful ways, and develop new interests and sources of fulfilment. Economy of Ukraine is ready to become age-friendly with the establishment of a comprehensive programme for reforms.

If a significant number of the older population retain or develop this quest for knowledge, the labor market will be strengthened. In view of the growing ageing population, the increase of experienced “seniors” is also the key to a strong platform of rich experience for younger generations. This desire for new knowledge in later life is a special step towards progress, and every step is good for the stable development of the Ukrainian nation and the formation of a new culture of old age.

Chapter 5

Model of Human Capital Accounting

5.1. Human Capital as the object of Accounting

In the context of transition to the information economy efficient development and operation of enterprises in most cases depends on nonmaterial factors, particularly human capital. This is confirmed by the significant gap between the market and balance sheet value of the world's leading companies. Thus, according to the rating agency's data «Standard & Poors»¹³⁵, in 1998, more than 78% of company's total cost from the list «S&P 500» combine intellectual capital.

As a result of these trends goes a paradigm shift from human resources management to the management of human capital. It determines the need to display information about human capital in the accounting system based on its valuation, which is one of the major unsolved problems in this area of research.

The overrepresentation of the human capital importance of value formation in terms

of the information economy, achieving its strategic goals stipulated a detailed investigation

of the use of accounting methods elements for human capital.

The issue of human capital accounting reflection paid attention in his writings I. Abeysekera, E. Brooking, L. Edvinson, D. Dobby, Dobby M., N. M Malyuga, MR Matthews, M.H.B. Perera, R. Hermanson, E. Flammholts and others.

Today the reflection of human capital accounting is controversial and almost unsolved, both at the level of international financial reporting standards, and at the level of national accounting methodology. E. Flammholts concept of "human resources accounting" (Human Resources Accounting - HRA), developed in 1971¹³⁶, did not find significant spread among development contractor of international standards.

One of the main issues that need to be solved is specification of related concepts used in the economic literature (table 5.1.).

¹³⁵ *Intellectual Assets Account for 78 Percent of Total Value of S&P 500*, PricewaterhouseCoopers Analysis Finds, www.pwcglobal.com

¹³⁶ Flammholtz E., *A Model for Human Resource Valuation: A Stochastic Process With Service Rewards*, The Accounting Review, 1971. Vol. 46, No 2, pp. 253–267.

Table 5.1 Notions that are used for person's characteristic as an object of accounting

Notion	Characteristic
Human capital	Assets embodied in human in form of their education, qualification, professional knowledge, experience, which provide obtaining of economic benefits in future ¹³⁷ .
	As a special form of capital, this includes combination of congenital and acquired, on the one hand and productive and on the other – quality, capability and features of individual, which are in its property, the formation is implemented on the basis of purposeful investment to its growth, has an ability being accumulated during a lifetime and provide its owner with income receive and growth. ¹³⁸
Human resources	The number of employees with higher qualification level, involved to the process of intellectual product operation ¹³⁹
	Human resources — are employees, that have specific professional skills and knowledge which can be used in the work process. ¹⁴⁰
Human assets	The totality of the corporate employees' collective knowledge, their creativity, ability to solve problems, leadership quality, enterprise and management skills ⁵
	Human assets are the totality of individual and collective knowledge of corporate employees, their creativity ¹⁴¹
Intellectual capital	The total number of human, organizational and capital assets ¹⁴²
	Is knowledge that can be turned into the profit and evaluated ¹⁴³
Human potential	The level of embodied natural endowments in human, talent, educational level, qualification and ability to do a land-office business ⁵
	Providing people with a wider free choice in all life spheres and provide facilities that will help to develop human's potential ¹⁴⁴
Staff	The main staff composition of corporate employees, who has necessary qualification and execute different functions of consumer operations ⁵
	Is a total number of regular and temporal employees, who gained necessary background or has practical experience ¹⁴⁵

¹³⁷ Korolyuk N.M., *Buxhalters'kyj oblik lyuds'koho kapitalu: teoretychnyj aspekt*, Visnyk ZhDTU.– Sekciya: Ekonomichni nauky, 2006, №2, pp. 46–52.

¹³⁸ Korolyuk N. M., *Oblik i kontrol' u systemi upravlinnya lyuds'kym kapitalom pidpryyemstva: metodyka ta orhanizaciya : avtoref. dys. na zdobuttya nauk. stupenya kand. ek. nauk : spec. 08.00.09 "buxhalters'kyj oblik, analiz ta audyt (za vydamy ekonomichnoyi diyal'nosti)"*, Korolyuk Natalya Myxajlivna – Derzhavnyi akademiyi statystyky, 21 p.

¹³⁹ Slovar' jenciklopedicheskij // dic.academic.ru.

¹⁴⁰ <http://library.if.ua/books/40.html>

¹⁴¹ Hrebeshkova O.M., Mel'nyk O.V. Bazovi polozhennya strateichnoho upravlinnya nematerial'nyhmy aktyvamy pidpryyemstva // Visnyk Xmel'nyc'koho nacional'noho universytetu. – 2008. – № 6. – Tom № 2., pp. 132 – 135.

¹⁴² Lehenchuk S.F. Buxhalters'ke vidobrazhennya intelektual'noho kapitalu: Dys... kand. ekon. nauk: 08.06.04 / Zhytomyrs'kyj derzh. tehnolohichnyj un-t. – Zhytomyr, 2006, 267 p.

¹⁴³ Zinov V., Safarjan K. Intellektual'nyj kapital kak bazovaja harakteristika stoimosti biznesa. //Intellektual'na vlasnist' – 2001, # 5-6, pp. 23-25

¹⁴⁴ Chelovecheskoe razvitiye: novoe izmereniy social'no-jekonomicheskogo progressa. Uch. posob. pod obshh. red. prof. V.P. Kolesova. – M.: Prava cheloveka, 2008. – 636 p.

¹⁴⁵ <http://ecolib.com.ua/article.php?book=12&article=1133>

Accounting that is a basis of human capital gives a unique opportunity of complex use of things, which are obligatory for modern economy. As notes F. F. Butynets¹⁴⁶, «one should have accounting methodology, which will be equal to the growth of economic level». Existed traditional system of accounting needs adequate changes, which are dictated by the reform of economic system, which is an integral element of human capital. Peculiarity of human capital as an object of accounting requires the application of accounting methods, which will provide an effective identification, registration that will contribute an effective management on the enterprise level.

Identifying the methods of accounting and applying 2 approaches - procedural and additive. Let's analyze the components of the application features in method of accounting for human capital additive approach.

Documenting is the result of the economic life observation of the enterprise, identification and measurement of business transactions. The documentary grounds is a prerequisite for registration of economic operations in accounting, strengthens the role of accounting as a legal basis for the property preservation.

Ukrainian scientists investigating the accounting of human capital, pay attention to the need for documentation of such facilities. This way, A. A. Chukhno notes that since the components of intellectual capital, including human capital involved in the production, they determine the value of the company, which should be reflected in the accounting records¹⁴⁷.

As for today, both domestic and international practice has not produced legislatively list of documents that would reflect information about the components of human capital in the form required by accounting.

It should be mentioned that every economy management person according to their needs can develop the necessary forms of primary documents, which will contain necessary information about human capital. While developing forms of primary documents it is necessary to comply with the requirements under the Law of Ukraine "About Accounting and Financial Reporting in Ukraine"¹⁴⁸.

The development of the primary documents' forms appropriate to carry out in terms of the human capital components. This ensures the display of the information that accounting requires. Developed forms of primary documents have to be approved by internal regulatory documents of the company.

In such a matter, the documented information about individual human capital management apparatus will be used as a means of fulfillment of its functions.

In recent years, the problem of assessing human capital remains unsolved, though, there were developed quite a lot of appropriate methods (profitable,

¹⁴⁶ Butynets" F.F. Buxhalters"kyj oblik v Ukrayini. Mifolohiya. – Zhytomyr: ZhDTU, 2003. – Ch. 2, 524 p.

¹⁴⁷ Chuxno A., *Intelektual"nyj kapital: sutnist" formy i zakonimirostyi rozvytku*, Ekonomika Ukrayiny, 1999, 11, pp. 48–55.

¹⁴⁸ Pro buxhalters"kyj oblik ta finansovu zvitnist" v Ukrayini: Zakon Ukrayiny vid 16.07.1999 №996-XIV zi zminamy ta dopovnennyamy vid 01.01.2007 // zakon1.rada.gov.ua.

cost-based, market). However, these methods did not get a wide distribution and use of accounting.

We have analyzed different approaches to assess the value of human capital, both domestic and foreign scientists.

The proposed methods can be divided into revenue and expenditure. Most scientists (domestic and foreign) prefer expenditure method to assess the value of human capital.

This position is justified, as it involves the use of exact information (because each economic entity can give quite accurate information that characterizes the personnel expenses). Income method that provides assessment to the value of human capital obtained from the position of employee's income, reflecting the returns of the means invested in the appropriate education and qualification levels are not accurate because one can not always predict the precise valuation of the realized earnings.

Human capital management needs to develop its quantitative assessment, the active methods which are based on two approaches: the cost of production and the process of capitalization earnings (or its combination)¹⁴⁹.

There are several methodological approaches to the human capital¹⁵⁰ assessment: UNDP proposed mechanism for calculating the human development index of world countries (for calculation were taken the most defining characteristics: longevity, level of education and human welfare); group methodology of Ukrainian scientists led by E. M. Libanova to assess the level of human development regions that is more complex and contain nine alignments.

The main reason of low value concerning human index development of separate regions is the short lifetime, low law grasping level of complete secondary education and very high pollution level (despite quite high level of average income per capita). The best indications are provided by a higher educational, income and health indicator level. Similar human capital assessment widely used both on meso - and macroeconomic level to determine the sum of national wealth, loss of society from the war, disease, disaster in the life insurance sphere, educational investment benefits, life protection and many other. Provided methods of human capital assessment can be used for determination of necessary and sufficient human capital assessment, so the detection of its reserve. Besides, an increase of informative possibilities measurement system should be included to its composition the level of monetary and nonmonetary character.

Analyzing other methodological approaches to the human capital assessment (on the ground of consumer confidence index, owing to production function),

¹⁴⁹ Kudlaj A. V., *Upravlinnya lyuds'kym kapitalom pidpnyemstva : avtoref. dys. na zdobuttya nauk. stupenya kand. ek. nauk : spec. 08.09.01*, [in:] Kudlaj A. V., *Xarkivs'kyj derzhavnyj ekonomichnyj universytet*, 2004, 21 p.

¹⁵⁰ Myxajlova L. I., *Formuvannya ta rozvytok trudovyx resursiv yak skladovoyi kapitalu APK : avtoref. dys. na zdobuttya nauk. stupenya dokt. ek. nauk : spec. 08.07.02*, [in:] Myxajlova L. I., *Sums'kyj nacional'nyj ahrarnyj universytet*, 2004, 30 p.

also its constituents, we consider them to be applied for comparative analysis of regional development, identify potential productive capacity or life monitoring. However, to assess the prerequisites, opportunities for development and use of human capital can be used remuneration of payment indicator. In a market economy remuneration of payment largely reflect the value of human capital.

The history of human capital assessment in accounting investigated Y. V. Sokolov. He allocated two main approaches to the assessment of employees at the enterprise¹⁵¹:

- the expected income of the company from the work of the individual (three factors are taken into account: a) efficiency of labour b) labour turnover c) possibility of carrier development and the probable duration of his work in the firm (characterizing the degree of satisfaction);

- labor forces of the enterprises make one team and should be evaluated as a whole. Associates' value depends on three group of reasons a) independent (organizational structure of the enterprise, economic policy, management methods, qualifications, skills and behavior of colleagues) b) complicated (loyalty to the company, goals and behavioral motivation, moral environment); c) final or dependant (efficiency of labor, amount of work growth, income, and market share increase. First two groups determine third one.

History of accounting offers 5 ways measuring labor forces in money table 5.2.

The function of employees in economic activity is measured by the following characteristics: professionalism, communication, validity, creativity. L. I. Mukhailova¹⁶ consider health to be the main constituent of human capital (lifetime), educational level (qualification, knowledge), welfare (life level).

Economic activity of any company associated with a large number of business transactions. As a result of business transactions' registration on the accounting accounts and generalization of received data in accounting book and rendering of accounts of internal users who get the information necessary for accepting governmental decisions.

To ensure accepting of an effective management decisions and control the availability and movement of human capital the accounting should provide all the information that significantly affects the financial results of the company.

To display the transactions that do not affect the enterprise statement of balance, however, affect the financial results, oriented off-balance sheet accounts. Characteristic of these accounts is that they do not belong to the general system of accounts followed by economic facts shown by double entry bookkeeping method, which means accounting entries are not made.

¹⁵¹ Sokolov Ja. V., *Ocherki po istorii buhgalterskogo ucheta*, [in:] Ja. V. Sokolov. – Moskva: Finansy i statistika, 1991, 400 p.

Table 5.2 Ways of labour forces assessment

№ 3/II	Ways	Pros and Cons
1	Historic price. (N. V. E.Glauntier, B. Anderdoun)	All actual costs on staff composition create original amount that annually reduced by amortization accrued by the average duration of the individual work in the enterprise. The advantages of this method –computational efficiency, basis for assessment reality. Drawbacks: 1)the real cost of labour power is not necessarily associated with the ongoing historical expenses; 2) an increase of labour power cost and its amortization is volatile.
2	Refund. (E. Flamcholtz)	It is assumed that the change of every employee will lead to extra expenses; new cost will estimate the money value of labour. Advantages of the method – simplicity and objectivity, as well as taken into account the current situation of the labor power. Drawbacks: 1) in some cases employee’s replacement lowers the price of labour power; 2) employee’s replacement is rarely equivalent 3) in general, the cost of employee’s replacement is very difficult to determine, and every administrator defines it differently.
3	Prabable cost. (S. Khimican, D.T.Jons)	Administration arrange auction inside the enterprise. All the employees are «sold» to the heads of department. That, who has no «market uptake», gets the price 0, but integrated cost of other employees amount the labour forces price. The advantages of the method – assessment reality, whereas within the team one better know the true value of their employees. Drawbacks: 1) phase to general total only those, who are quoted, decrease the overall value and discriminate people; 2) less profitable units lose their qualified employees and are economically unjustified; 3)economical, artificial and unethical assessment.
4	Remuneration model. (B. Lev, A. Shartz)	<p>It is assumed that future compensation rights – value substitute goods (1).</p> $Vm = \sum_{t=T}^T \frac{I(t)}{(1+r)^{-r}}, \quad (1)$ <p>where Vm –the value of human cost; I (t) - person’s annual return up to dismissal. r - discount rate for a giver t - time (term) of dismissal.</p> <p>: The advantages of the method 1) taken into account all the person’s work; 2) discount counting. Drawbacks: an extreme subjectivity associated with 1) future value of wages; 2) time of job expectation; 3) discount rate.</p> <p style="text-align: right;"><i>Table continuation. 5.2</i></p>

Table 5.2 Ways of labour forces assessment - continued

№ з/п	Ways	Pros and Cons
5	Expected wage (R. K. Germanson).	<p>Employees assessment is carried out the next model base, which consists of річних the annual rate of economic efficiency (each of them assigned ratio) (2):</p> $R = \frac{5 \frac{RF_0}{RE_0} + 4 \frac{RF_1}{RE_1} + 3 \frac{RF_2}{RE_2} + 2 \frac{RF_3}{RE_3} + \frac{RF_4}{RE_4}}{15} \quad (2)$ <p>where RF_i -annual rate level рівень річного прибутку to the company's own assets; RE_i – annual rate level for all enterprises of the contry; I – year from 0 to 4.</p> <p>The advantages of the method – laid the basis for the effectiveness assessment of assets use. Drawbacks –extreme subjectivism.</p>

The national accounting system double entry bookkeeping does not provide accounting and management reflection of human capital.

Among the specific factors that complicate human asset accounting, M. Medvedev¹⁵² allocates permanent nature of incurrence (for some period of time, equal or unequal ranking) obligations of job compensation payment, which complicates accounting while applying double entry bookkeeping.

Modern accounting methodology has no techniques in its arsenal for permanent display creation of such objects as:

- in the case of displaying the human assets at the time of their arrival in the property complex in the accounting system reflection is also displayed on their job compensation payment, although the employee actually did not work out payment;

- in the case of human assets reflection at the time of the obligation formation to pay the fact of human assets presence in the property sector this time will be ignored;

Accordingly, to reflect the accounting of human assets in the double entry bookkeeping system requires that in one accounting transaction two objects (one – debit side, the other – credit side) were assigned different dates. That is a time gap between debit side and credit side in the same economic transaction¹⁸.

However, the double entry bookkeeping is a reflection method of economic operations in the corresponding accounts and their economic content explains the double entry bookkeeping, because of which business transactions have been changed certain type of assets or sources of their formation. Business transactions are the result of the accounting interpretation of the economic life fact, which is the point of the economic process. Accordingly, in the system of

¹⁵² Medvedev M. Ju., *Buhgalterskij uchet dlja posvjashhenykh*, M.: ID FBK-PRESS, 2004, 320 p.

the double entry bookkeeping, a display of internal transaction entries with a time gap between the dates of debit and credit recording is not possible¹⁸.

To organize data on the cost factor of individual human capital the company needs to develop its own form of record card, which information should be the basis for the human capital formation of management balance in the system of company's management accounting (figure 5.1).

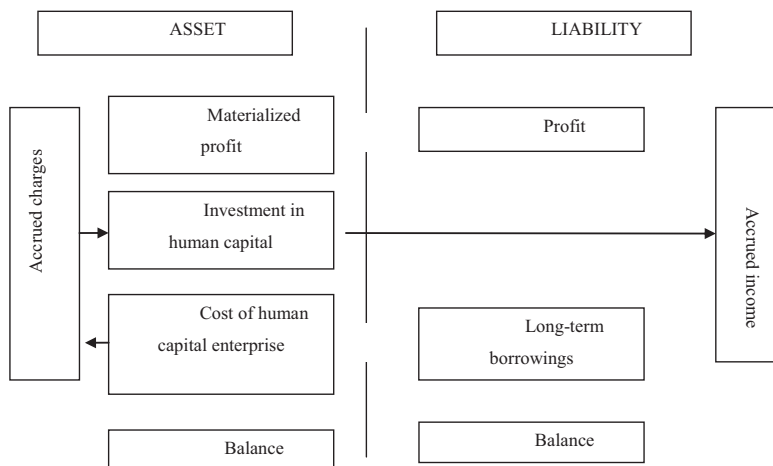


Figure 5.1. Balance chart to create a database value of human capital in enterprises account

Thus, the form of individual records of human capital depends on the specificity (sphere of action, ownership form, organizational structure) and accounting system management of the company.

5.2. Accounting and analytical human capital support

Today, human capital has become an integral part of companies' property. Intelligent (human) values involved in creating the product, controlled processes, in establishing enterprises interaction with the environment. The role of human capital in the economy evidenced by the following data: 60-85% of the world's largest business companies are fictitious (including intellectual) assets¹⁵³; accordingly selected expert judgments, in Ukraine in economic turnover in 2014 were unregistered intellectual assets of \$ 210-250 billion dollars, while the total amount of the state budget for the same period was

¹⁵³ Androshhuk H., *Najpotuzhmishi brendy svitu: stan i tendencyi*, [in:] *Intelektual"na vlasnist*, 2008, №12, pp. 19-31.

approved in the amount of about 28 billion dollars. In addition, the human capital in the broader sense (as a kind of property, philosophical, accounting and management category) is the object of attention for many researchers. All this indicates a significant role of intellectual resources and human capital as a whole in the global and national economy, and in microeconomics.

With the increasing role of intellectual capital acquired special significance its accounting questions from the accounting and management views. Accounting and analytical questions of intellectual capital management considered were shown in the works of Zaykivskoho A. and V. Komarova, O. R. Hramovycha, I. Pavlyuk Umantsiv G. etc. In these publications were defined methodological principles and analyzed the legal justification of the stockholder capital account, disclosed the possibility of intellectual property as part of stockholder capital, allocated the shortcomings of the existing accounting system in the displayed intellectual assets.

Today, the concept of stockholder capital built a number of successful business enterprises, and foreign countries are developing a strategy of their economy, but the concept of "stockholder capital" is not used explicitly at any international convention, a legislative act or a regulatory document.

Table 5.3 Human capital constituents according to E. Brooking

Human capital			
Market assets	Intellectual property	Human capital	Infrastructural assets
<ul style="list-style-type: none"> – reputation of the trade mark (service mark) – corporate mark – «own» people – buyers – «propagandist - supporter» of the company – repeated contracts – portfolio – mechanism of goods distribution – business cooperation – franchise agreements – license agreement – corporate name – favourable contacts 	<ul style="list-style-type: none"> – patents – copyright – design rights – trade secrets – know-how – rights in Trademarks and Service 	<ul style="list-style-type: none"> – employees' Education – professional Qualification – knowledge Connected with work – professional Predispositions – psychometric Characteristics – skills connected With work 	<ul style="list-style-type: none"> – management Philosophy – corporate Culture – management Processes – informational technologies – network Communication system – relationship with financial institutions

According to the Law of Ukraine "On Accounting and Financial Reporting in Ukraine", a company develops their own system and form of accounting management, reporting and control of business operations (p. 5, p. 8). Regarding

human capital, this means that accounting management system should provide identification of the following groups of values¹⁵⁴ (table 5.3).

Fair to say that this system should provide a simultaneous solution of these two problems:

1) the real value reflection of companies' property based on intellectual assets that is valuable records of human capital;

2) the real quality reflection of the existing values of enterprise, i.e. structural human capital account.

Authors allocate with one accord human capital as part of intellectual capital. Moreover, they are almost solid about its characteristics. Human capital is represented not only as assembled together and trained workforce, but also a good management, unique scientific potential contracts with prominent experts in the field, which include the business.

Table 5.4 Consistency indicators of human capital in the reporting forms

№ f/t	Human capital indicators	Intellectual capital report	Report on work, Report on employees number
1	2	3	4
1	The average number of regular employees	+	+
2	Turnover of staff	+	+
3	Working time fund	+	+
4	Number of employees, who has higher education, has PhD, inventors and innovators	+	+
5	Acquired new professions, raise qualification level	+	+
6	Jobs with poor working conditions	+	+
7	Working pensioners	+	+
8	Evaluation of management	+	-
9	Workers welfare	+	-
10	Ability to cooperate	+	-
11	Division of management	+	-
12	Index control	+	-
13	Authority index	+	-
14	Motivation index	+	-
15	Training costs per employee	+	-
16	Training part per employee	+	-
17	Personnel share costs in total	+	-

*¹⁵⁵, ¹⁵⁶, ¹⁵⁷

¹⁵⁴ Bruking Je. Intellektual'nyj kapital. – SPb.: Piter, 2001. – 288 p.

¹⁵⁵ “Austrian Academy of Sciences. Report on intellectual capital”, <http://interacademies.net/File.aspx?id=12660>

¹⁵⁶ Davydiuk, T.V. “Methodological approaches for reflection the human capital in reporting of foreign companies: experience for Ukraine”, <http://eztuir.ztu.edu.ua/607/1/117.pdf>

In order to successfully run human capital, management should monitor approximately the following set of parameters: education, qualification, job-related knowledge, professional inclinations.

Foreign companies represent information about stockholder's capital on a specially designed form according to the expectations and requirements of users. Social indicators are disclosed in the chapter about human capital as part of intellectual. The main indicators' analysis "intellectual capital report"¹⁵⁸ in the human capital chapter shows partial responsibility for domestic reporting forms, namely "Work report" and "Report on Employees number" their quantitative composition and professional training. Consistency of human capital indicators in the reporting forms of foreign and domestic enterprises listed in table 5.4.

Analyzing the table one can note that the human capital indicators in domestic forms are shown very modest and do not give information about qualitative and quantitative indicators of human capital use.

Firstly let's analyze the possibility of constructing such a system based on the official financial reports.

Today, not all the elements of human capital could be described with the help of the official accounting categories (table. 5.5). It is known that human capital is a set of fictitious assets, i.e. those assets that have no physical expression.

Table 5.5 Comparator of the intellectual capital elements and types of accounting assets

Elements of intellectual capital	Types of assets
Intellectual property	Rights on intellectual property
Market assets	–
Infrastructural assets	–
Human assets	(in accounting could be displayed in form of staff development expenses, but not assets)

In the Ukrainian accounting system, according to P (S) 8 "Fictitious Assets" provided the following groups of values:

- The right to use natural resources;
- The right to use property;
- The right to marks for goods and services;
- The right to the industrial property rights (the right to inventions, utility models, industrial designs, plant varieties, animal breeds, know-how, protection against unfair competition etc.)
- Copyright and related rights to them (right to literary and musical works, computer programs, databases, etc.);
- Goodwill;

¹⁵⁷ "On Approval of forms for state statistical observations from Labor Statistics", Order of the State Statistics Service of Ukraine from 07.08.2013, no. 239, <http://ukrstat.gov.ua/>

¹⁵⁸ Avstrijs"ka akademiya nauk. Zvit pro intelektual"nyj kapital [Elektronnyj resurs], <http://www.interakademies.net/File.aspx?id=12660,30.01.2016>.

- Other fictitious assets (the right to engage in activities, the use of economic and other benefits, etc.).

Based on the list of fictitious assets could be displayed only one of the four parts of shareholder equity – intellectual property (copyright, industrial property right, right on marks for goods and services). In a possible indirect form could be reflected in the financial accounting of market and infrastructure assets. Their presence provides the company with additional revenues, which in turn leads to an increase of the company's market value and the emergence of goodwill. However, goodwill could not be considered a direct expression of the market and infrastructure assets accordingly the following reasons:

- Goodwill shown in the balance sheet is usually a result of the operation of the enterprise legal status change (sale, acquisition, merger with another entity). The lack of goodwill in the documents is not an evidence of lack of intellectual capital, but as a result of the fact that the company did not faced with the need of its evaluation;

- Affect the contract value, which resulted in goodwill, many factors, including the availability and size of market and infrastructure assets do not always have the highest importance level;

- Goodwill inherently reflects the value of fictitious assets in the past, at the time of its appearance in official reports. These market and infrastructure assets are a dynamic, rapidly changing category, which constantly changes its value.

- So, goodwill can only serve for orienting assessment of market and infrastructure assets.

Finally, the last one in the table order 5.5. is an intellectual capital – human capital - does not appear in the financial reports as an asset. All expenses which a company provides for staff development, or charged to the current period expenses, or (partially) made from profits.

Thus the official financial report does not provide a complete description of intellectual capital. The principles of its construction do not make a chance to organize an objective account of this type of property.

It seems the way out of this situation could be the introduction of additional off-balance sheet accounts to reflect the individual elements of intellectual capital. The Research is carried out in this direction in the work of S. Lehenchuka¹⁵⁹. Without denying the value of this approach for accounting improving, note its disadvantages for the management setting up the shareholders equity:

1. The accounting displayed only the property that belongs to this enterprise, when some elements of stockholder equity (for example, customer loyalty, "own" people in the partnership organizations, the reputation of the trade mark, etc.) exist uncertainty whether they belong to the legal person. So, obviously,

¹⁵⁹ Lehenchuk S. Nematerial"ni aktyvy ta intelektual"nyj kapital v buxhelters"komu obliku pidpryemstv: vzhayemozv'yazok ponyat" // Visnyk ZhDTU "Ekonomichni nauky", 2005, № 1 (31), pp. 131–137.

their accounting is either impossible or extremely difficult and fragmented. However, the company has some expenses to make these assets; management accounting should necessarily ensure the display of such values, at least in expenditure principle.

2. Equity, on the one hand, is a type of asset, since it allows getting additional economic benefits, on the other – has a costly nature, that should be reflected in liabilities as the amount of funds invested by enterprise in intellectual activity. The complexity of this category is the amount of investment may not meet the established benefit and, therefore, a mismatch of assets and liabilities. In traditional accounting this problem is solved by selecting the accounting principle for asset - or for the cost of establishment (acquisition) or utility (fair value). The problem is that for the stockholder equity the difference is between the expenses of establishment and the fair value can be significant (in separate areas - cybernetics, pharmaceuticals, services – an order and more). Therefore, the choice of any of these principles will lead to distorting report.

3. The concept of fair value can be applied to intellectual assets only with significant restrictions, since their value is largely dependent by uniqueness. The concept also implies the existence of fair value for the active market property, i.e. a certain set of similar objects in this time change the owner. So the displayed elements of intellectual capital at fair value of the off-balance sheet are complicated, and for some elements of intellectual capital are impossible. A display the same costly principle is complicated by the fact that the national system of accounting cost, not all incurred expenses on creation of intellectual asset may be included in its cost.

Given the above, it is advisable to organize accounting of stockholder equity without complying with the principles of financial accounting. Let's analyze where the principles of stockholder equity should be based.

As noted above, the stockholder equity account must be at the same time, cost and quality.

The value accounting can be conducted both by individual elements of equity and for its total value. As in Ukraine there is no finally formed and legally approved methodology which allowed the balance attributed all kinds of intellectual assets; for the needs of the enterprise may be used one of the many methods of intellectual capital evaluation as a whole. The literature repeatedly carried their ordering, also an analysis of their drawbacks and limitations¹⁶⁰.

However, the precise definition of the intellectual capital value, including the complexity of such a process in a changing economic environment is impractical since most assessment methods are sensitive to the changes in macroeconomic indicators or the choice of comparison base. Therefore, the domestic conditions appropriate to recommend accounting cost for the cost of its creation, which can

¹⁶⁰ Andriessen D., *Making sense of intellectual capital: Designing a Method for the Valuation of Intangibles*, New York: Elsevier Inc., 2004, 412 p.

be carried out on the basis of the existing financial reports. This category of expenditure can be reconsidered in terms of their potential utility for the stockholder equity development. In the tax code were included such types of current costs, which, in our opinion, should be attributed to investments in stockholder equity:

- funds transferred to nonprofit organizations as charity, as an investment in the company's image;
- costs associated with the scientific and technical support of economic activity, invention and rationalization of business processes, conducting research, experimental and development work
 - as an investment in the intellectual property;
 - the costs of the taxpayer related to training, education, retraining or further training of staff
 - as an investment in human capital;
- Any costs for warranty repair (servicing) or warranty replacement products - as investments in customer relationships;
- The cost of advertising and promotion - as an investment in a trademark, service mark, corporate name.

In addition, investments in stockholder equity can be attributed certain categories of expenditure that are not equal to operating expenses, such as costs of corporate events, distribution of gifts and more. The final list of expenses that are included in the cost of stockholder equity requires justification based on industry activity, company goals, time horizon, which is taken into account.

As noted above, cost accounting of stockholder equity does not allow fully reflect the utility of the latter. Therefore, you must also keep records of quality. Quality records, in it turn, should reflect the state of the intellectual capital elements in physical indicators (number of a high-class employees, the number of regular customers, presence and age of the client and procurement databases). Because he, and cost accounting, is intended to increase the validity of management decisions, there are two principles of its organization:

1) through the calculation of additional management indicators based on accounting data that are collected be enterprise now (refers to the official financial data and statistical reporting). For each company the list of additional parameters will be determined: a) the types of statistics, made by the company and b) kind of activity, which depends on what elements of intellectual capital are important from the management point of view;

2) quality records can be organized through the collection of additional information that is available to staff in a daily activities, but does not get to the traditional reporting. Examples of such information are: the number of applications from employees to employers with efficient proposals; the structure of customer complaints; the presence of "own" people in partner organizations and others. The disadvantage of this approach compared with the previous is a need for additional expenditures of labor is the formulation of key performance indicators, their calculation methods, collecting primary information. The

advantage of this construction accounting principle is that the use of additionally collected data will help to expand the knowledge base in management decisions, while the interpretation of statistical reporting does not increase the amount of available information, but only changes its form.

In terms of the resources adequacy it is necessary to recommend a combination of the two described principles. Taking into account the specific needs of local leaders in the decision support system (low cost, taking into account national specificities and variability of economic environment), in practice during the study list of quality accounting indicators one should seek to minimize the total number for preserving sufficient information content created by the accounting system as a whole.

So, for improvement of accounting and analytical maintenance of stockholder equity we can make the following conclusions:

1. Available in the literature recommendations for introduction of additional off-balance sheet accounts for more complete mapping of stockholder equity although it is justified in terms of the financial statements, but do not provide a sufficient informational content for management accounting decisions. That is why accounting stockholder equity should be supplemented by management.

2. Calculation of the stockholder equity cost in domestic conditions is necessary to carry out the cost method as adopted in the world practice earning assets are too sensitive to external economic factors. The list of expenses recognized in stockholders equity investment, should be approved for each company individually, taking into account the specificity of its activities.

3. Since the consumable accounts of stockholder equity does not reflect its usefulness it must also carry out quality the records. It can be based on the data of statistical reports, and the collected additional information. Recommended to combine both.

4. In practice, during the approval index of the indicators list whose analysis is sufficient to effectively manage their own capital, you must strive to minimize their number, and in general - to minimize the cost of stockholder equity management of the company.

5.3. Model accounting of human capital as the primary basis of crisis management

Current conditions of global development, powerful processes of globalization and transnationalization in the field of new types require the use of administrative influence that would provide the development of any system of negative external and internal influences. In addition, the reorganization of economic relations, ownership and organizational forms of management requires modern management, firstly anti crisis. Objectively crisis characterized by a large number of related situations that increase complexity and risk management. Herewith a possibility to avert a crisis, to stabilize it transmits into

another area of development, to mitigate negative consequences, turn them into development stimulator out of it, etc.

Important are also aspects of governance crisis, since the state must regulate market relations in terms of its efficiency and mitigate social contradictions. The task of the state is to trace the relationship between the scale and speed of change and the emergence of dangerous trends that endanger social stability and security.

In the context of the global crisis, at many domestic enterprises, especially acute an issue of preventive anti-crisis management (trans. from French. «Preventif» and from Latin. «Praeventus» means "warning something, preventing") the totality of resources, especially human. The essence of preventive anti-crisis staff management is the need for foreseeing crisis, the company's increased resistance to the expected critical factors actions by mean of early development of specific crisis script, i.e. preventive crisis management is focused on the future. Development of alternative scripts of the personnel strategy construction should be implemented in three areas: situational selection of standard alternatives (choice of action should be proceed using the existing tools, instruments, methods); problem situation (solution requires more complex action, but composed of simple and common action, additional actions); crisis (resolution through innovations, simple and powerful – simple innovations allow to find easy way out from the crisis situation, and powerful innovations allow you to move from a crisis situation to the standard selection options). The crisis is usually the situation-on-the-limit, which detects all the best and worst personalities features and leave undetected properties, which is similar to many other people, at the forefront goes innovation together with its carriers¹⁶¹.

A man in a consumer society tends to consume so, on the one hand, not to be worse than others, but on the other do not merge with the crowd¹⁶². Individual consumption reflects not only the social characteristics of the consumer (as a demonstration of its social status), but also the features of individual lifestyle. All these features change the personnel, thus change the characteristics (properties) of the personnel, there are specific depending on economic activity. All this requires changes in company's outlook on staff as a special, priority resource – the transformation of the entire enterprise resource system, its constituent elements (accounting, analysis, planning, organization, control, etc.). A display in the economic theory concept the notion of human capital necessitates the creation of efficient informational management, which became a

¹⁶¹ Datchuk S.A., Yak vyjty z sytuaciyi kryzy? Dlya tyx, xto pryjmaye rishennya. / S.A. Datchuk, K.S. Matviyenko // [Elektronnyj resurs], <http://gardarica.net/pulications/107-new-pubs/237-2013-07-26-10-46-19>

¹⁶² Doroshkevych A.S., Suspil'stvo spozhyvannya: moral'no-social'ni naslidky / A.S. Doroshkevych // Visnyk Nacional'noho universytetu «Yurydychna akademiya Ukrainy imeni Yaroslava Mudroho». Seriya: Filosofiya, filosofiya prava, politolohiya, sociolohiya. [Elektronnyj resurs], 2012, № 4 (14), <http://cyberleninka.ru/article/n/suspilstvo-spozhyvannya-moralno-sotsialni-naslidk>

precondition for the account concept of human resources formation (human capital, personnel)¹⁶³.

In the modern economic schools there are a lot of areas of research on issues of problematic methodology of cost accounting and investment on staff. Particularly, Davydyuk T.V., Pochinok N.V., Tyutlikova V.V. Fonareva T. A.

Traditional accounting considers only the resources that are owned by the company. Due to the fact that the staff as a special kind of resource can be neither property nor the subject of ownership, representatives of traditional accounting do not consider it as an object of accounting – asset (resources now controlled by the enterprise as a result of past events whose use as it is expected, will result in the future economic benefits). But personnel costs are systematical.

The future economic benefit of human resources as an asset of economic entity, is a potential that will facilitate the flow (directly or indirectly) in cash and cash equivalents by a special resource – staff for product manufacturing (services, implementation of works as appropriate) which are able to satisfy consumers' desires or needs. As these goods, services, work can satisfy the desires or needs, customers are ready to pay for them, hence contribute the cash flow to the economic entity. Also human resources are able to reduce cash outflows, e. g. when an alternative manufacturing process reduces costs for manufacturing.

The future economic benefits embodied in an asset can be flowed to the economic entity in different ways. For example, an asset can be used separately or together with other assets in the goods production or services intended for the implementation of the economic entity; exchange to other assets; use to repay debt; distribute between the owners of economic entity. Of course, a staff as a specific asset of the company is not possible in factoring or exchange of human resources. But an existence of outsourcing in the personnel management (HRO, Human Resources Outsourcing). Staffing processes are always transmitted and associated with the selection and employees search (as well as personnel leasing and out staffing¹⁶⁴), the least used – processes HR administration and payroll.

The material form is not essential for the asset existence in accordance with the Framework Financial report. The Staff is need in a social production not by itself, but for the implementation of production tasks in the workplace duties. Human resources depending on the enterprise economic activity must have certain personal characteristics, which are aimed to adapt the system in the existing changing internal and external environment, especially in a crisis³⁰.

The accumulation of intellectual capital experience and knowledge to the beginning of the current decade allowed to define common approaches to

¹⁶³ Pochynok N.V., Lyuds"ki resursy v oblikovij teorii ta praktyci / N.V. Pochynok // Ekonomichnyj analiz. [Elektronnyj resurs], 2010, Vypusk 6, pp. 141–144, http://econa.at.ua/Vypusk_6/pochynok.pdf

¹⁶⁴ Konceptual"na osnova finansovoyi zvitnosti, https://docviewer.yandex.ua/?url=yaserp%3A%2F%2Fbuhgalter911.com%2FRes%2FMSFZ%2Fkoncept_MSFZ.pdf&c=55a75f8879e4

produce more or less uniform structuring intellectual of the company's intellectual assets of companies¹⁶⁵. Virtually all the researchers and managers of the issue allocate three components of intellectual capital:

- 1) human capital;
- 2) a structural or organizational capital;
- 3) customer equity.

Each model justifies in its own the selection of elements and relationships between them. The structure of intellectual capital in one of the most famous models «Skandia Value Scheme», developed by L. Edvinsson can be shown in figure 5.2.

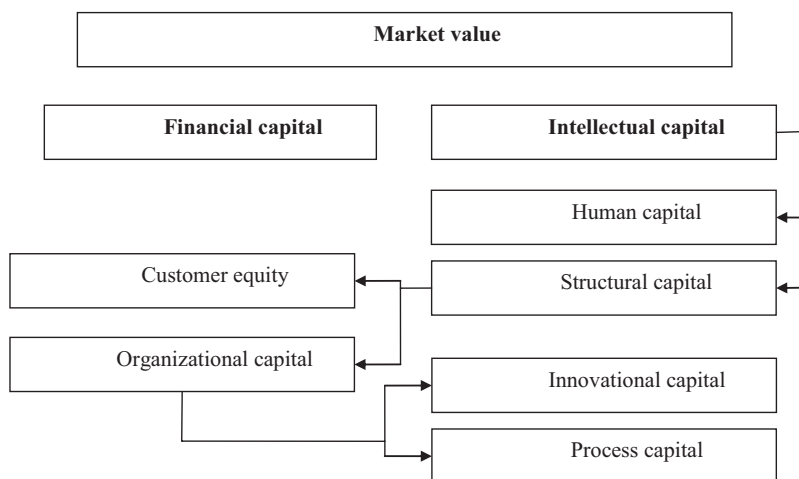


Figure 5.2. The structure of intellectual capital in «Scandia Value Scheme» model by Edvinsson L.

In 1995 this company was the first to include in its annual report a section on intellectual capital, initiating a new practice content of companies' annual reports. In the scheme human capital is considered as a staff competence and abilities. This part of the intellectual capital leaves the company along with the employees in the end of the day. Structural capital is what is left in the company after working day and workers leave. It is divided into client and organizational capital. Customer capital is the value that is in the relationship with customers. Organizational capital is divided into innovation and process capital. Innovative capital mainly consists of legal rights (patents, licensing agreements), as well as why it is difficult to give a precise definition, but that largely determines the

¹⁶⁵ Dzhejms K. Van Horn, Dzhon M. Vahovich, *Osnovy finansovogo menedzhmenta*, M.-S.Pb. K., 2006, 1225 p.

company's value (ideas, trademarks). Process capital is a company's infrastructure (information technologies, work processes, etc.).

In this model, the intellectual capital represented as the arithmetic sum of its elements. However, due to the complexity of the phenomena it is necessary to take into account the interaction between the elements themselves and their unequal role in the company's value creation. Such an attempt was made by another Swedish investigator – D. E. Sveybi (Sveiby). His model «The intangible assets monitor» is widely known. Sveybi prefers to use a borrowed name in the accounting "Intangible assets", although the standard sense refers to the intellectual capital.

But enterprises are interested in the development of those personnel properties that affect the adjustment (adaptation). Analysis of the requirements for companies' personnel vacancies that put forward employers allowed staff to classify these properties into 3 groups: natural properties, acquired social and professional skills and system properties.

Primary and developed natural abilities (natural property) of the enterprise personnel directly affect the human potential in the labor process. System properties of the enterprises' communications personnel should be considered as integral or collective properties that consist of specific employee characteristics that are reflected in the social and professional staff content, thereby characterizing the integrity of humans' ability to work.

In the process of hiring an employee the employer does not know the real employed personnel properties, this information is not available. So from January 1, 2013 according to the Law of Ukraine¹⁶⁶ "On Employment" section 11 "The right of individuals on protection against discrimination in employment", "prohibited in ads (advertising) vacancy to specify the age restrictions of candidates, offer job only to women or men, except specific work which can be performed only by persons of a particular sex, make demands that give preference to one of the sex, and to require employed people provide details about the personal life". So the beginning of work the employer receives only limited information about the properties personnel (education, general experience, including at the desired position, experience, specialty, etc.), it is considered as a signal about the possibilities and abilities of staff as an asset that will bring future benefit.

Many assets (e.g., accounts receivable and real estate) are associated with legal rights, including the right of property. In determining the assets existence the right of property is not essential; thus, for example, human capital is an asset, if economic entity controls the benefits which are intended to receive from this resource. Despite the fact that the ability of an economic entity to control benefits is usually defined by legal rights, human resources, economic content of the assets definition, even when there is no legal control.

¹⁶⁶ Zakon Ukrainy «Pro zajnyatist' naseleण्या», vid 05.07.2012 № 5067-VI, http://search.ligazakon.ua/l_doc2.nsf/link1/T125067.html

Table 5.6. Features of human resources as a priority economic entity assets

№ 3/n	Criterion of asset	Peculiarities						
1	Future economic benefit	Potential that will facilitate the flow (directly or indirectly) in cash and cash equivalents in the production (services, implementation of the work).						
2	Controlled be enterprise as a result of past events	Economic control is implemented by ownership position of economic benefits.						
3	The possibility of an objective assessment (identification) by measuring money	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th data-bbox="434 759 695 824">Staff model of accounting and assessment</th> <th data-bbox="434 431 695 759">Advantages</th> <th data-bbox="434 196 695 431">Disadvantages</th> </tr> </thead> <tbody> <tr> <td data-bbox="496 759 695 1204">Model of assets ("Expenses" / chronological cost model): the traditional accounting scheme of capital, including "human capital" peculiarities; accounts record the expenses on staff formation (long-term investments, operating costs); the standard period of depreciation staff.</td> <td data-bbox="496 431 695 759">The ability to determine group personnel expenses for group long-term investment (capitalization staff) and operating costs (costs of using staff), the opportunity to assess the standard period of money depreciation spent on staff - a period when the need to invest further.</td> <td data-bbox="496 196 695 431">Value of the investment may significantly differ from its market value, as in practice there is no direct relationship between costs and usefulness of the object.</td> </tr> </tbody> </table>	Staff model of accounting and assessment	Advantages	Disadvantages	Model of assets ("Expenses" / chronological cost model): the traditional accounting scheme of capital, including "human capital" peculiarities; accounts record the expenses on staff formation (long-term investments, operating costs); the standard period of depreciation staff.	The ability to determine group personnel expenses for group long-term investment (capitalization staff) and operating costs (costs of using staff), the opportunity to assess the standard period of money depreciation spent on staff - a period when the need to invest further.	Value of the investment may significantly differ from its market value, as in practice there is no direct relationship between costs and usefulness of the object.
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<p>The possibility of an objective assessment of changes in staff labor behavior of (recruitment effect of value of invested capital and income from its balance, other accounting (identification) by measuring investment); projections of expected from investment; connection with accounting property information; figures do not money projects revenues, comparing them with the necessary income (accounting profit); simplicity include changes in the value of investment costs; determination of: Investment payback calculation, visibility, availability of money over time.</p>	<p>Utility model resource: assessment of economic impact of investment; connection with accounting property information; figures do not money projects revenues, comparing them with the necessary income (accounting profit); simplicity include changes in the value of investment costs; determination of: Investment payback calculation, visibility, availability of money over time.</p>	<p>Establishing real connection between the Not tied to accounting</p>
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The assets of the economic entity are the results of past transactions or other events. Economic entities normally obtain assets by purchasing or producing them; but other transactions or events also generate the assets¹⁶⁷.

It allows prolonging personality's professional way due to staff development, developing properties under the innovative technologies influence. The life concept of the personnel cycle as a specific asset takes into account current trends a new type of economy based on knowledge. Permanent staff development throughout life, gain new knowledge, skills, maintaining health and good living standards is a prerequisite for the information society.

In applying the lifecycle concept staff should take into account current trends a new type of economy based on knowledge. Permanent staff development throughout life, gain new knowledge, skills, support for health and good living standards is a prerequisite for the information society is the main condition of the need to change the orthodox system of personnel costs accounting¹⁶⁸. Career growth reflects the direction, sequence and dynamics of employee's career proves the logic and prospects for professional and hierarchical advancement within the entire period of employment lifecycle. The period of particular employee's career goes, usually beyond a single enterprise.

One of the defining characteristics of this multi-faceted, specific and largely probabilistic process is cycle. Periodic repetition of such stable sequences is carried out as selection – training, placement, labor – assessment – promotion, resource – reserve – staff and others. It largely determines not only the process of their career building, but also the implementation of basic management procedures¹⁶⁹. These points to the need for cyclic basic career planning procedures makes the term "employee's career cycle", which brings together periodically repeating sequence of career advancement. In our opinion the phase of career cycle personnel in the company consists of the following stages: hiring the company, career growth, decay, release. Depending on the phase of the career cycle model were used various procedures for accounting and personnel evaluation as an asset. Summarizing the features of human resources as a priority economic entity asset could be presented (Table 5.6)

In the world practice there are two basic approaches to the accounting and evaluation of human resources, asset model („Expenses” chronological) and utility model. In world practice there are two basic approaches to the accounting and evaluation of human resources, asset model („Expenses” chronological) and utility model.

¹⁶⁷ Krimova M.O. Zhittevij cikl rozvitku konkurentospromozhnosti fahivcja, chinniki ta skladovi jogo formuvannja, <https://docviewer.yandex.ua/?url=ya-serp%3A%2F%2Fwww.afp.org.ua%2Fassets%2Ffiles%2F5-aktivi.doc&c=55a7617fc21f>

¹⁶⁸ Gorelov O.I., *Organizacionnoe povedenie*, http://www.e-college.ru/xbooks/xbook085/book/index/index.html?go=part-010*page.htm

¹⁶⁹ Hil"orme T.V. Vytraty na personal pidpryemstva: oblikovyj aspekt / T.V. Hil"orme, Yu.V. Stepanenko // Xersons"kyj derzhavnyj universytet: Ekonomichni nauky, 2015, Vypusk 11. Chastyna 2, pp. 68–71.

Figure 5.3 the features of the model introduction in personnel management economic entity. The first stage is created on the accounting methodological platform and evaluation of human capital (regulatory assessment period amortization, valuation of net investment, valuation), using the general and specific scientific principles, methods, instruments and tools. In the second phase of the internal management accounting system introduced additional accounts with the principle of double entry in the accounting are introduced three bills: effective due to "costs of human capital" (the sub-defined balances by cost of development (professional and social), adaptation (professional, social), motivation and other costs associated with the formation, use and reproduction of the human capital); appropriate account in the asset ("Net investment in human resources").

"Human capital as an intangible asset") and liabilities ("Allocation of funds for investment in human resources").

At the last stage, developed internal (corporate) social reporting on human capital, thus, in our view, the report should be formed in two vectors: the balance of human resources and general social reporting. In the balance human resources appropriate to separate the individual articles and chapters ("Formation", "use", "Play"). Total social reporting for companies can be a separate report ("Social Report", "report on social responsibility", "Report on Corporate Social Responsibility") and part of the corporate report ("Report on the overall progress", "Sustainability Report").

It is necessary to carry out the evaluation of the economic and social effectiveness of the investments implementation in human capital development as a basis for the overall development strategy of the company to prevent crisis management.

But the paradigm of "human capital – is the cost of enterprise" provokes the management of the company to reduce the cost of reproduction (especially social and professional development) staff in forming a strategy to minimize total costs, especially in a crisis.

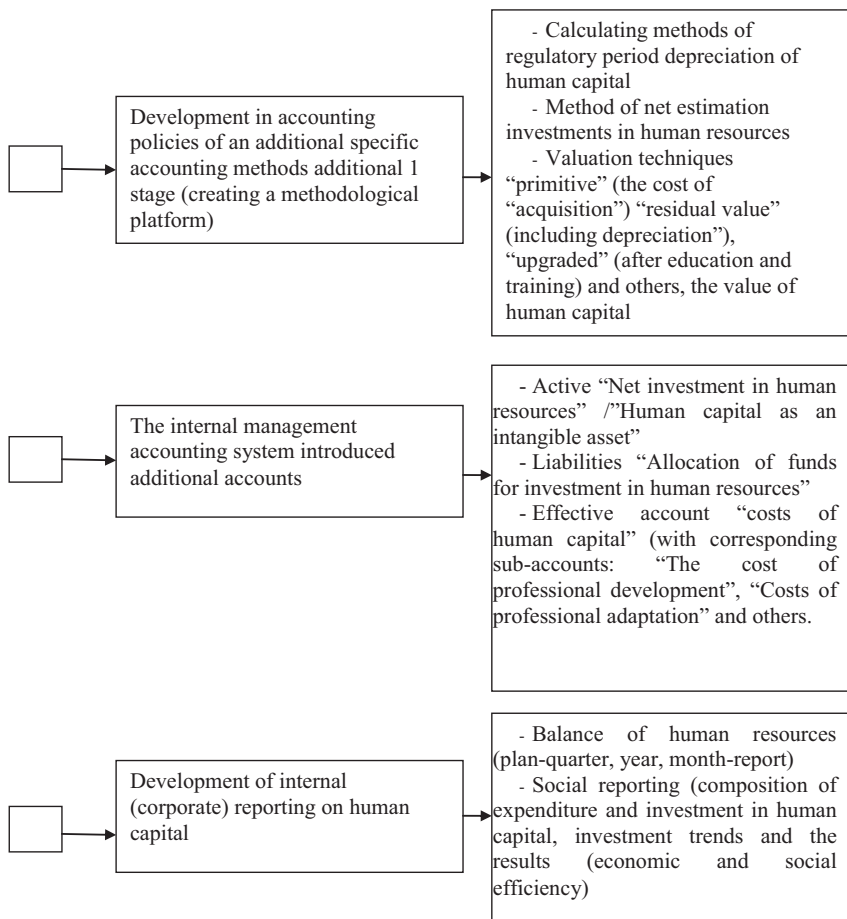


Figure 5.3. Stages of model implementation of "expenditure" in management personnel of the entity

Thus according to alternative theories costs must take into account two additional indicators: cost "lifetime" (draft) (LCC) and the cost of pending decisions (CoD)¹⁷⁰.

You must reveal the features of index calculation time for return on investment in staff development programs – the cost of "lifetime" (draft) (LCC). The

¹⁷⁰ Hjensen Sh., *Perfomans – kontraktng: novye goriznty*, Sh. Hjensen, Dzh. Vejsman // Jenergoauditijenergoservis, 2013, # 2 (26). – pp. 4-11.

exclusion of all costs and savings that are spent during the personnel "lifetime" of the entity is an opportunity to assess the profitability of projects. This approach is the cost of "lifetime" (project or LCC) can be accepted by management as the antithesis of the necessary dismissal procedures in non functional duties with the rapid development of innovative technologies for minimizing total costs. LCC – is laborious calculation, but efforts are justified enterprise survival strategy. Expenses "lifetime» (LCC) help to estimate the net profit for the project implementation staff development with all major expenditures and savings for staff salaries, discounted to the present value of money. Thus, additional questions (calculation of present value, the discount factor and regulations, LCC) require detailed analysis. A formula costs "lifetime" (draft) (LCC) (taking into account the features of the project (program) development staff) (formula 1):

$$LCC = In - S + M + R, \quad (1)$$

where LCC- costs "lifetime" (draft);

In –upfront investment into human capital;

S – Residual staff value as an asset on the date of expiration of the amortization period of the regulatory asset;

M - personnel costs during the project (program);

R - the cost of external personnel rotation .

Cost of pending decisions (CoD) allows you to define alternative scenarios' with the project without the project. "It is proposed corrected formula CoD (taking into account the features of the project (program) staff development) (Formula 2):

$$CoD = - (Le + Lb) + In, \quad (2)$$

where CoD – the cost of pending decisions;

Lb – economic impact of changes in staff labor behavior (recruitment effect of investment);

Le – savings in staff costs during the project (program);

In –upfront investment in human capital.

Organizational and methodical approach to personnel accounting expenses as a special resource of company reforming accounting methods, especially accounting – bring it closer to international standards and principles, taking into account the experience of advanced countries with market economies, including the US, the formation of personnel models in the system management accounting, in assessing the effectiveness of formation, the use and reproduction of personnel. Each specific entity due to the nature of its activities and organizational structure can form individuality a model of accounting and

evaluation of human resources and on this basis to build a development strategy as a condition of survival in a crisis.

CONCLUSIONS

As practice shows, human capital means consideration for most Ukrainian companies' impossibility of cost measurement, and therefore, the inability to account and ensure appropriate management needs. The above requires changes in existing accounting system.

A promising area of research is to develop a model for making decisions based on the information, provided accounting system, methods of evaluation and reporting on company's human capital.

At present there are important economic transformations associated with the intensification of accumulation and use of economic equity. Previously determining factors were the development of material, material and financial capital, in today's world economic equity becomes increasingly important. According to various economists, economic equity is a strategic factor in economic development. There is a need to reflect all the elements of economic equity accounting for the effective operation of the entity. Incorrect assessment of individual objects economic equity leads to the loss of much of accounting information, misinterpretation of business results, making wrong management decisions regarding the real company's value and its assets, which reduces the competitiveness of the whole enterprise. However, the traditional model of accounting is unable to provide reliable information about the intangible assets of the company, as they are accounted for, and investment in them written off as expenses. Consequently, accounting, based on economic equity, provides a unique opportunity; integrated use of all the things without it cannot effectively operate a modern economy. Further research in this area should be aimed at improving the accounting model with all components of economic activity and the development of more detailed methods for assessing equity.

Summary

The twenty-first century, continuing processes of globalization, inequality in the development and wealth of the regions are constantly or ever intensifying competition and the changing expectations of people, forcing economies and their functioning being always flexible to emerging challenges and threats. The flexibility is closely related to those innovations determined by various factors. Among them one of the most important is the essence of human capital.

Its important role, inter alia, due to the fact that people are the authors of many valuable and interesting ideas and studies. The key in this case is, however, taking care of the quality of that capital. Therefore, investments in a human and lifting his skills, qualifications and interests play important issues and can be vital force of human development.

A very interesting approach to this issue is in Europe-2020 Strategy and the Horizon-2020 Program, and more specifically Sklodowska- Marie Curie Action (MSCA), which allows the arming of human capital and improving its quality through the exchange of experience and cooperation of people from different countries in the world.

It is quite comforting that the European Union and its pro-development initiatives bear the possibility of development for countries not being its members. MSCA serves only as an illustrious example of the possibilities to use such an opportunity.

Undeniable application seems to be a necessity to spread international cooperation and use of appearing chances which in effect may result in the upgrade of the quality of human capital and improvement of socio-economic situation.

It is obvious that the quality of human capital and raising its actions should be constantly monitored, evaluated and improved. Taking into account these words we can state that the most important for us is monitoring which must be full, transparent as well as quality and accreditation which are interconnected. All these things define new tasks for EU licensing and accreditation systems and so our participation in ENQA should be obligatory. We should supervise not only educational process itself, staff, scientific bases and investments, but first of all we have to carefully monitor graduates knowledge levels, defining their competence and ability to meet the labor market requirements. Not only majors and institutions should be accredited, so the new programs must be as well. It is something we have never heard of, external and internal evaluation is inevitable. These are the ENQA requirements and they enable us to estimate the educational programs abroad applying generally accepted criteria.

It is important that investment in human capital should include citizen of all ages, from the youngest to the oldest years. In view of these considerations, problems arising for solving by system of universities of the "third age" with the challenges include in particular: comprehensive human development in

retirement; inclusion of the elderly to adapt to modern conditions of life by learning new modern knowledge; support for inclusion of people of the "third age" in active life and organization of communication, development and implementation of the principles of a healthy lifestyle in old age; popularization of this agenda by higher education institutions for senior people to participate in programs of the "third age"; consolidation the efforts of local and state government, academic community, volunteers to work for social and adequate response to the problem of aging.

What is more, human capital is not just a set of skills, knowledge, abilities possessed by a man. The public policy of social inclusion in the present conditions is not considered by many authors as a public charity, but as a set of state guarantees provided to everyone and ensures the implementation of civil rights on the principles of operation of existing legislation. At the same time, social services groups that are classified as excluded or are at risk of social exclusion should be at a level to those who are called to provide services, stored incentives for skilled, creative social activities with regard to including regional specifics.

Many countries till now have persistent aging stereotypes, associated old age with wealth reduction, financial instability and social exclusion. To shift these negative attitudes it requires systematic challenge.

Extremely important is the constant care about the essence of human capital, since it is one of the most important determinants of socio-economic development. This is due to the fact that a properly educated and equipment in proper qualifications workers are creators of many of the key ideas and inventions, which increase the ability of an innovative economy and the functioning of the entities. Innovation gives the opportunity to develop society, and also serve to creation of new sites of work. The more subjects demonstrating innovative tendencies will be presented the more problem of unemployment will be offset. Then the increase of the wealth of society and ability of consumer households stimulate driving forces of the entire economic mechanisms.

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