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Activity in the labor market in the context of sustainable development

Abstract

For thousands of years mankind lived in groups of collectors, hunters, and finally shepherds dependent on environmental resources. Once these resources were exhausted people moved to the other areas. Settlers brought a great change, which was a consequence of the activities in the cultivation of the land. Human permanent residence appeared, new social groups appeared. Settling led to acceleration of development of civilization and culture. Basic agricultural tools were invented. The invention of the wheel and sail boat intensified transport. With time more complex structures appeared: watermill, windmill. Despite these improvements in the historic communities life went on in rhythm regulated by the sunrises and sunsets, the sequential seasons. Wars, battles, conquests formed outside sequence of historical processes. Their inner side represented civilizational development, determined by technological inventions and organization of work.

Key words: activity, labor market, sustainable development

Real acceleration of transformation of human work begins with the steam engine. There have emerged factories using dozens of machines, operating under supervision of workers. They did not need to have several years of training conducted by guilds. For jobs in the factory hall short apprenticeship was sufficient. The ideal of the organization of work has become an assembly line. Anyone could after a short briefing and demonstration take place at the machine. The twentieth century brought new areas of work caused by the use of microelectronics. People have begun being replaced by the computers. Transformation of work took on heavy acceleration. There were many new occupational specializations in the field of networking, telecommunications, the wide field of programming. Rapid changes of technique have created unpredictable situations, while

creating a remarkable acceleration of economic, social, cultural and educational fields[1].

P. Drucker observed that every few hundred years, comes a clear "distinction" of eras. Within a few decades, society reorganize the way of seeing the world, the basic values, social and political structures[2].

A. and H. Toffler, analyzing the history of mankind, have identified three waves of shaping the modern world, and thus three coexisting civilizations: the plow was the symbol of the first, the second an assembly line, and the third computer[3]. The domain of first is the work of man and the use of the environment, the second is based on the energy and resources, the basis of the third is to create and use knowledge. Manifestations of the emerging of information civilization are the development of science and education, the transformation of knowledge into production resource, the development of information technology.

T.L. Friedman, focusing on the development of the globalization process, identified three eras. The first one, in which the world has shrunk from a large to medium, covering the period from Columbus' voyage to the early nineteenth century he called globalization 1.0. The next epoch, including the nineteenth and twentieth centuries, in which the world has shrunk from medium to small, is globalization 2.0. Since the beginning of the new millennium, we have to deal with globalization 3.0. World shrunk to microscopic, simultaneously – according to T.L. Friedman – has flattened. The essence of the first epoch is globalization of countries, the second – companies, and the third – entities[4].

Social phenomena caused by the development and popularization of modern communication technologies have become a subject of research of many scholars. Some thinkers for the creation of harmonious society seek solutions in the process of the construction of power. At first, the plan is put forward for planning and rationalization of human activities. For example, C.H. Saint-Simon presented the concept of a new society, which was called the class of industrialists (new Christianity). Industrial system in its pure form, detached from the reverse social relations had to be based

[1] T.W. Nowacki, Twarzą ku przyszłości, [in:] Z. Wiatrowski, I. Pyrzyk (eds.), *Nauki pedagogiczne w perspektywie społeczeństwa wiedzy i pracy*, vol. I, Włocławskie Towarzystwo Naukowe, Wyższa Szkoła Humanistyczno-Ekonomiczna we Włocławku, Włocławek 2010, p. 160.

[2] P. Drucker, *Społeczeństwo pokapitalistyczne*, PWN, Warszawa 1999, p. 9.

[3] A. Toffler, H. Toffler, *Budowa nowej cywilizacji. Polityka trzeciej fali*, Zysk i Spółka, Warszawa 1996, pp. 19–29.

[4] T.L. Friedman, *Świat jest płaski. Krótka historia XXI wieku*, Rebis, Poznań 2006, pp. 17–18.

on a scientific organization, professionalism and the general public good. The new Christianity all morality must be led from the principle: men are brothers. This principle, the correct to the original Christianity, should be the goal of any activity[5]. Development also considered through the prism of the processes of modernization, as a result of collision of societies of various levels. Poorly modernized countries have the ability to use the experience of those with higher levels[6]. The concept of spontaneous growth assumed that for exceeding a certain threshold in the process of modernization, it is necessary to accumulate capital, which subsequently can be used to invest – and this demonstrates the successive stages of growth[7]. In the analysis of the problem significant is evolutionary approach, or social change. In the social sciences it was common to rush over found situations and the desire for forecasting recognition. An example of this approach is mentioned earlier, the concept of three waves of A. Toffler. The second wave was to pass due to the adoption by the society industrial paradigm, which was expressed in the human possibilities of transforming the environment (such as excessive use of environmental resources). The third wave is a response to overexploitation of the environment by man. In terms of natural resources a person begins to seek new sources of energy, and rationalization of activities should be in harmony at various levels – capital[8]. For D. Bella driving force for transformation shall be new technologies. J. Naisbitt the socio-economic changes entered into a concept of megatrends[9].

In 1979, the National Academy of Sciences USA, noting the penetration of digital technology in all areas of life, signaled the beginning of a new period in the history, of information civilization period[10].

A visible recently civilization and cultural process, which is called "technology information", has become one of the most important catalysts of globalization. For her description are used the two interpret models. Universalism, recognizing and accepting the cultural diversity of the modern world, postulates a holistic approach, often based on recognition of the universality of the specifically Western democracy, tolerance and

[5] C.H. Saint-Simon, *Pisma wybrane*, vol. 2, Warszawa 1968, p. 647.

[6] A.W. Jelonek, K. Tyszka, *Koncepcje rozwoju społecznego*, Scholar, Warszawa 2001, pp. 59–92.

[7] J. Wiatr, *Socjologia polityki*, Scholar, Warszawa 1999, pp. 160–168.

[8] A. Toffler, *Trzecia fala*, PIW, Warszawa 1999.

[9] Cz. Mojsiewicz, *Globalne problemy ludzkości*, WSZiB, Poznań 1998, pp. 25–32; W. Morawski, *Nowe społeczeństwo przemysłowe. Analiza i krytyka koncepcji*, PWN, Warszawa 1975, pp. 19–66.

[10] A.M. Wilk, Polska wobec wyzwań społeczeństwa informacyjnego, [in:] T. Zasępa (ed.), *Internet. Fenomen społeczeństwa informacyjnego*, Edycja Świętego Pawła, Częstochowa 2001, pp. 152–153.

common legal standards. But it is also understood as an attempt to synthesize through intercultural dialogue. In terms of universal culture it becomes a tool for global integrating[11]. On the other hand, we have postmodernism characterized by pluralism and relativism of experiences, values and criteria of truth. Denying the universal belief that all cultures can follow the general standards of ethics and law, it promotes fragmentation and regionalization of world of culture. Under these conditions, a new organization of society was formed, called **information society**.

In the literature we can find other terms: M. Druker uses the expression postcapitalist society[12], A. Toffler society of the third wave[13], J. Naisbitt knowledge society[14].

The information society is a new type of society, shaping the post-industrial countries, in which the development of technology has achieved the fastest rate. In the information society, information management, its quality, the flow rate are critical to the competitiveness both in industry and in services[15].

M. Łuszczuk and A. Pawłowska treat the information society as a multidimensional reality which is co-created by the four basic substrates[16]:

- Technological – the availability of equipment for collecting, processing, storage and sharing of information;
- Economical – branches of production and services that deal with the production and distribution of information and information techniques;
- Social – a high percentage of people using information technology, which is consistent with the high level of education of the society;
- Cultural – a high level of information culture understood as the degree of acceptance of information, as well as information culture, by which is meant mastering skills related to the operation of your computer.

In order to emphasize the role of knowledge in the ongoing transformation of the concept is also used 'knowledge society'. The idea of a formal education and practical, related to the skills, experience. Knowledge society then appears as a value by itself[17]. Z. Wiatrowski adopt in this regard,

[11] T. Paleczny, materials from the conference „Tożsamość kulturoznawstwa", Jagiellonian University in Cracow, 18–19 October 2007, http:// www3. uj.edu.pl/alma/alma/100/29.pdf.

[12] P. Drucker, *Społeczeństwo pokapitalistyczne*, op. cit., p. 45.

[13] A. Toffler, *Trzecia fala*, op. cit., p. 27.

[14] J. Naisbitt, *Megatrendy*, Zysk i Spółka, Poznań 1997, p. 105.

[15] R. Smolski, M. Smolski, E. H. Stadtmüller, *Słownik encyklopedyczny. Edukacja obywatelska*, Wydawnictwo Europa, Warszawa 1999, p. 251.

[16] M. Łuszczuk, A. Pawłowska, *Stan zaawansowania społeczeństwa informacyjnego w Polsce*, Polska Fundacja Spraw Międzynarodowych, Warszawa 2000, pp. 87–88

[17] K. Piech, *Wiedza i innowacje*, Instytut Wiedzy i Innowacji, Warszawa 2009, p. 216.

the following understanding: "Knowledge society is an organized community of people at the macro level, recognizing the contemporary information as the most important link in the pursuit of knowledge, which is an expression of the accumulation and processing of information by intelligence human or machine"[18].

In conclusion, the Industrial Revolution gradually shaped the contemporary type societies, and modern technology is already changing lifestyle – it can have an even deeper impact on the dynamics and direction of its transformation. In the area of management changes occur in all sectors of productive activity – in the traditional sectors increases the use robotics, automation and information technology, changing the way of functioning and structure of the economy[19].

As a result, there has been tremendous economic growth – the world production of goods and services has increased significantly, the number of the world's population exceeded seven billion, and bring substantial increase of food production. However, more and more often appear signals related to global problems of the modern world, such as depletion of natural resources or environmental degradation as a result of anthropogenic activities. To meet the growing environmental problems, which became the result of rapid economic development, has been formulated the concept of sustainable development.

The concept of sustainable development is often analyzed in economic terms – as the best idea to overcome the socio-economic and economic crisis. Development should be implemented in three dimensions: economic (GDP growth to provide the right amount of goods and services), social (meeting basic social needs, reducing unemployment, improving the quality of life etc.) and ecological (improvement of the environment, preservation of natural capital, biodiversity protection)[20].

The concept of sustainable development implies the possibility of transforming society, as well as its various spheres of functioning in such a way as to protect resources and allow the next generations to use the achievements of others. The aim is to create a kind of symbiosis between man, the environment and endangered artificial biocenosis and biotope.

[18] Z. Wiatrowski, Nauki społeczno-pedagogiczne w perspektywie społeczeństwa wiedzy i pracy, [in:] Z. Wiatrowski, I. Pyrzyk (eds.), *Nauki pedagogiczne*…, op. cit., p. 55.

[19] A. King, B. Schneider, *Pierwsza rewolucja globalna. Raport Klubu Rzymskiego*, Polskie Towarzystwo Współpracy z Klubem Rzymskim, Warszawa 1992, pp. 83–84.

[20] Z. Hull, Wprowadzenie do filozofii zrównoważonego rozwoju, [in:] W. Tyburski (ed.), *Zasady kształtowania postaw sprzyjających wdrażaniu zrównoważonego rozwoju*, Wydawnictwo UMK, Toruń 2011, pp. 55–65.

Usually it is being emphasized that it is mainly the government's actions that lead to the creation of the foundations of long-term economic growth by ensuring the existence and the proper functioning of basic social and material infrastructure[21]. Sustainable development is also in the Constitution (Art. 5), which proves it is rooted in our social consciousness. Unfortunately, as Joost Platje writes, despite the prevailing belief in the high priority of sustainable development in the countries of the European Union, there is a tendency to sacrifice environmental issues for growth. He adds that the environment is more important on a global scale than on a national scale, where especially developed countries focus on economic and social issues[22].

Coming back to the concept of a knowledge economy – it is still ambiguous. In the narrow sense it is conceived as a part of the economy, which deals with 'industries' knowledge, which is primarily science. In a broader sense it is a 'knowledge economy', in which one of the factors of production is knowledge. The term is often replaced by the term 'new economy', to emphasize the new stage of economic development, radically different from the traditional understanding of the economy, which increases the role of IT, increasing the efficiency of economic activity. It is also used the term 'knowledge-driven economy', indicating the formation of new structures of the economy under the influence of the development of knowledge. There are also terms 'digital economy' and 'network economy'. Other concepts are the 'information society', 'information economy', 'networked economy', the 'economy of the third wave'. There is talk of virtualization of business. These concepts describe the same reality, but emphasize different aspects, e.g. the importance of networks in the economic structure, and the emergence of the radical changes in technologies related to digitization.

Economy based on knowledge is a new area of interest for the science of management. By tracking economic history we can clearly see that knowledge always played an important role. Secrets of the production gave a competitive advantage and were heavily guarded by manufacturers[23]. The concept of a knowledge-based economy has become, however, opinion that the traditional factors of economic development: land and natu-

[21] J. Sachs, *Nasze wspólne bogactwo. Ekonomia dla przeludnionej planety*, PWN, Warszawa 2009, p. 209.

[22] J. Platje, Poziom dochodu a priorytety w rozwoju zrównoważonym, [in:] S. Kozłowski, A. Haładyj (eds.), *Rozwój zrównoważony na szczeblu krajowym, regionalnym i lokalnym – doświadczenia polskie i możliwości ich zastosowania na Ukrainie*, Wydawnictwo Katolickiego Uniwersytetu Lubelskiego, Lublin 2006, p. 37.

[23] G. Gorzelak, A. Olechnicka, Innowacyjny potencjał polskich regionów, [in:] L. Zienkowski (ed.), *Wiedza a wzrost gospodarczy*, Scholar, Warszawa 2003, p. 122.

ral resources, labor and capital, although still significant, give way to the knowledge which is the main source of wealth and the most important factor of production[24].

There is no one common and universal definition, moreover, knowledge-based economy is not really a definite vision of the economy. It is generally accepted that the knowledge-based economy is the economy in which knowledge is created, absorbed, transmitted and used more efficiently by businesses, organizations, individuals and communities, promoting the rapid development of economy and society. Knowledge is a key factor in productivity and economic growth (before labor and capital, raw materials and energy), and the crucial role is played by information, education and technology, particularly information and communication technologies.

Knowledge-based economy is the economy in which there are many businesses based on knowledge as a competitive advantage[25]. The mechanisms leading to the use of knowledge to enhance the competitiveness of enterprises cannot be limited to the activities undertaken within the enterprise. Important is the mechanism for knowledge transfer, promotion and innovation, development of infrastructure, in which the main role is played by science policy and the development of the state[26].

It is assumed that the knowledge economy is composed of four pillars[27]:

- human capital, knowledge society, in which a part of the knowledge is accumulated,
- innovation system, which, as a result of discoveries, also creates new knowledge,
- information technology to facilitate the exchange of knowledge,
- institutional – law environment that creates the conditions for the development in these fields.

In recent years, both in theory and practice of economic, has been a change of development accents from the same knowledge into knowledge

[24] Z. Chojnicki, T. Czyż, Polska na ścieżce rozwoju gospodarki opartej na wiedzy. Podejście regionalne, [in:] A. Kukliński (ed.), *Gospodarka oparta na wiedzy. Perspektywy Banku Światowego*, KBN, Warszawa 2003, p. 203.

[25] A.K. Koźmiński, Jak tworzyć gospodarkę opartą na wiedzy?, [in:] *Strategia rozwoju Polski u progu XXI wieku*, Kancelaria Prezydenta RP i Komitet Prognoz Polska 2000 Plus, PAN, Warszawa 2001.

[26] A. Bylicki, Uwagi dotyczące realizacji w Polsce programu budowy gospodarki opartej na wiedzy, [in:] A. Kukliński (ed.), *Gospodarka oparta na wiedzy. Perspektywy Banku Światowego*, Warszawa 2003, p. 123.

[27] K. Piech, *Wiedza i innowacje*, op. cit., p. 217.

and innovation – it emphasized in this way to an even greater extent than before the role of innovation as a factor of economic growth.

According to Pilch, knowledge alone is not sufficient for the development. In support of this thesis he cites the example of Japan, which is one of the world's largest investors in the sector of science. Science sector alone is not sufficient to accelerate the pace of development, even if the investment in education is accompanied by numerous innovations. In Japan, they have the process character, gradual. Qualitatively radical innovation needs not so much more knowledge as creativity and skills to use it[28].

Economic development, according to Pilch, depends on several interactions with interconnected elements: science, education, business and state authorities, which could shape them. The concept of a knowledge economy seems to not sufficiently take this fact into account, but puts too much emphasis on information technology, rather than on the factors leading to the formation of that or other technologies. Stronger emphasis should be in it, the role of innovation. Pilch therefore proposes the creation of the concept of the knowledge economy and innovation[29].

In the system of the knowledge based economy should be taken into account innovation activities, education, information and communication, knowledge management at the level of the organization based on the identification of institutional and business environment, and the various aspects of regional characteristics[30].

With the arrival of these new developments raises the question: how to create a knowledge-based economy and whether this process can be controlled. In the simplest terms, building of the knowledge-based economy comes down to creating conditions for the development and operation of businesses as a competitive advantage based on knowledge. Actors who produce these conditions are: the state, regional and local authorities, businesses, intellectual and academic environment. Competitive advantage based on knowledge has two approaches: wider and narrower. More broadly competitive advantage results from the recognition for the knowledge of any useful information (for example, a specific, unmet demand), which the company has exclusive or limited availability to and is able to use it to achieve or strengthen competitive advantage. In the narrower terms of

[28] Ibidem, p. 219.

[29] Ibidem, p. 222.

[30] W.M. Grudzewski, I.K. Hejduk, *Zarządzanie wiedzą w przedsiębiorstwach*, Difin, Warszawa 2004, p. 14.

unique scientific and technical knowledge, which the company uses, but it did not create it itself[31].

L. Zienkowski suggests that the concept of a knowledge-based economy is associated with endogenous growth theory. This theory assumes that certain factors of production are the result of processes of accumulation, e.g. knowledge capital. Technical and organizational progress depends on the broader socio-economic policy and changes in the mentality of the society. Efficient use of production factors occurs when there is a strong legal framework for the economic and security of property rights. Knowledge is considered as the main factor affecting the endogenous production structure and economic and social progress. In accordance with such recognized theory can be said that knowledge in the form of effort and the state has become an important factor in determining the rate and level of economic development with expenditure and state assets[32].

Knowledge becomes a commodity, increasing the role of professionals and scientists, knowledge plays a key role as a source of innovation[33]. However, the knowledge-based economy can also connect to threats such as[34]:

- rapid technological change may exacerbate the gap between the underdeveloped countries and the most technologically advanced,
- there is a risk that without global technological absorption developing countries will be further marginalized,
- differences in the quality of the organization can enhance disparities, efficiency and pace of economic development in different countries,
- standardization of products and services may possess danger of monopolization of the market,
- there is expected deepening of the digital divide in relation to countries that do not have the resources and ability to use modern technology,
- there may be disparity in the level of use of technology,
- with time may worsen division into sectors of the economy that can enjoy the benefits of technology and those that cannot be used,

[31] A. Koźmiński, Jak zbudować gospodarkę opartą na wiedzy?, [in:] G. Kołodko (ed.), *Rozwój polskiej gospodarki. Perspektywy i uwarunkowania*, Wydawnictwo Wyższej Szkoły Przedsiębiorczości i Zarządzania im. Leona Koźmińskiego, Warszawa 2002, p. 155.

[32] L. Zienkowski, Gospodarka „oparta na wiedzy" – mit czy rzeczywistość?, [in:] L. Zienkowski (ed.), *Wiedza a wzrost gospodarczy*, op. cit., p. 16.

[33] After: M. Fic, D. Fic, Partnerstwo w społeczeństwie wiedzy, [in:] M. Dudka (ed.), *Stosunki gospodarcze Unii Europejskiej. Wybrane kierunki polityki wspólnotowej*, Uniwersytet Zielonogórski, Zielona Góra 2004, p. 270.

[34] M. Piątkowski, *Nowa gospodarka a transformacja*, Wydawnictwo WSPiZ, Warszawa 2003, p. 370.

- divisions arise in the spatial structure of the country into regions with or without a modern infrastructure and adequate human capital,
- relations between developed countries may strengthen which will cause the formation of groups of countries mutually supportive in the implementation of new technology, which can further deepen the gap between them and the developing countries.

The new economic order, according to Z. Zymonik, requires the development and implementation of new principles of operation, as well as the designation of innovative measures of assessing the effectiveness of business operations. D. Tapscot identifies twelve conditions, which is called the rules of the management of the new century: knowledge; digital technology; virtual organization; the molecular organizational structure based on processes; work in the network; disappearance of intermediate functions; telecommunications; innovation; consumer as a producer; real-time operation; the global scale of operation; unrest and threats[35].

Knowledge is human resource created by conscious producers and consumers. The success is achieved by such a company whose activities focus on the man that adds to the value of manufactured products in the form of knowledge and intellect. The value of the products also depends on consumer perceptions. Because the product is accompanied by a series of feedback on production, the producer, the circumstances of the sale, the consumer.

The collection, processing and sharing of information is possible through digital technology. It is used by both companies – suppliers of value to the customer, and customers – the recipient of values.

The widespread use of IT resources, focus on assets and replacement of the existing physical products of their virtual counterparts makes enterprise virtual organization. The concept of virtual organization refers to the energy carrier of quantum physics associated with the intangible asset, and the carrier material with material resources. Particular importance is the money, considered as a carrier of information and the value created and delivered to the customer.

Company of industrial period was characterized by relatively stable vertical organizational structure. With time, however, due to the increasing complexity of production processes, it proved to be ineffective. Horizontal structures became desirable, dynamic, customer-oriented and implementing strategic business goals. a new type of companies should be based on the molecular structure of units (molecules) applicants to the products

[35] After: Z. Zymonik, *Koszty jakości w zarządzaniu przedsiębiorstwem*, Oficyna Wydawnicza Politechniki Wrocławskiej, Wrocław 2003, pp. 14–17.

value in the appropriate dose of knowledge and intellect. They allow you to work in a network. Loose relationships between suppliers and customers are being replaced by integrated supply, production and distribution, whereby the movement of products along the value chain is driven by customers. Networking makes in economic exchange process intermediate cells are unnecessary, in which the product is enriched with no value added. In the new conditions business operations must take into account the integration of economic areas referred to as telecommunications, which includes three elements: computing technology, data transmission and value delivered to customers.

Competitive advantage enables innovation, or the ability to generate new values. Increasingly shorter product cycles require effective measures to each of the stages of their preparation. This creates the need for a comprehensive understanding and the ability to anticipate changes.

The modern consumer becomes a producer, as in the processes involved related to the implementation of the product. His knowledge and ideas are crucial, especially at the design stage. Exchange of views via the network also contributes to the increase of information resources.

Adapting to changing market demands, calling them action in real time, it is possible thanks to widespread use of IT. As a result, companies have a global scale of operations. Competitors on the market are the best companies in the world.

Violation of settled order and traditional organizational structures causes a whole range of disturbances and threats. Changing nature of work and job requirements, resulting in a reduction of employment, it can cause the division of society into those who have the knowledge, skills and access to information, and those who do not possess it. The problem may be the new nature of the work and participation of employees in the division of the obtained values. All this makes that we can soon become witnesses of rapid turbulences and social change.

In conclusion, the economy gradually shifts from material-economy to the economy based on the potential of science and information. Becoming increasingly important intangible resources, especially human capital, knowledge and new technologies. Increasing competition requires from people continuous improvement of education level, the respective competencies and the creation and assimilation of new knowledge. The development of knowledge-based entrepreneurship largely depends on the political circumstances and the individual and social awareness. And economic development must take into account not only economic or social reasons, but also the environmental conditions.

Categories around which operates a modern organization, are 'competence'. Knowledge, skills and attitudes are matched to the individual tasks. Consequently, people take 'areas of tasks', for which they are best prepared. Competence of employees is the basis of goodwill, as it generates income in the form of intangible assets (knowledge, image etc.)[36].

Since competencies are becoming a key concept of new economy, let's clear how to understand them. Polish Language Dictionary defines competencies as: range privileges, powers, scope of activities or affairs of an institution subject to a specific body etc.; the scope of one's knowledge, skills and responsibility[37]. In the Dictionary of labor pedagogy 'competence' is understood as given on the basis of appropriate qualifications range of proxies and powers to act and decide and make judgments in a particular area. One is competent when it has the power to act and qualifications[38]. For the purpose of this paper I defined the competence as a team capacity to use knowledge, skills and attitudes to accomplish tasks at a designated level of employee and accepting responsibility for them.

According to A. Bańka, replacing the traditional human capital, which is based on qualifications, competence-based, leads to a situation in which the employers interested in observable behavior of employees provide immediate return on labor costs, and not hidden potential, which are abilities. Competencies give employers a direct return on investment, which is the very fact of employment of the employee. Qualifications are a secondary factor, whose development rests on the employee[39].

The knowledge economy is therefore seeking 'ready' employees with high qualifications. They are the ones who in the long term, enriched by experience, decide on competitiveness of the company and the economy. Their level depends largely on the state of educational thought in the process of defining the transformation of learning and teaching and the organization of education and science[40].

Polish Language Dictionary defines qualifications as: education, preparation need to practice some activities; aptitude, suitability to something[41].

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[36] A. Bańka, Nowy wymiar pracy i organizacji w społeczeństwie wiedzy. Wyzwania dla psychologii i pedagogiki, [in:] Z. Wiatrowski, I. Pyrzyk (eds.), *Nauki pedagogiczne*…, op. cit., p. 72.

[37] M. Szymczak (ed.), *Słownik języka polskiego*, vol. I, PWN, Warszawa 1993, p. 977.

[38] T. Nowacki, K. Korabiowa-Nowacka, B. Baraniak, *Nowy słownik pedagogiki pracy*, Wydawnictwo WSP TWP, Warszawa 2000, p. 101.

[39] A. Bańka, *Nowy wymiar pracy*…, op. cit., p. 73.

[40] Por. S. Kwiatkowski, Nauki pedagogiczne z myślą o randze intelektualnej działania ludzkiego, [in:] Z. Wiatrowski, I. Pyrzyk (eds.), *Nauki pedagogiczne*…, op. cit., p. 65.

[41] M. Szymczak (ed.), *Słownik języka polskiego*…, op. cit., p. 1096.

Developer of labor pedagogy, T. Nowacki, defines qualifications as a system of mental and practical skills, based on the corresponding systems tailored interdisciplinary knowledge to deal effectively with different but specific classes of professional tasks and deliberately shaped human psychophysical features which condition effectively. So understood qualifications are divided into: labor and professional, attributing greater meaning to 'qualified employee', which consists of three types of partial qualifications. These are: physical and health qualifications, social, moral and appropriate qualifications[42]. Generally by professional qualifications Nowacki understands the scope and quality of the preparation necessary to execute a trade, which consists of: the level of general education, professional knowledge, professional skills and especially the degree of skill and the ability to organize and facilitate the work, talent and professional interests[43].

In the structure qualifications are distinguished by news (knowledge), skills and psychophysical qualities necessary to comply with a set of professional tasks.

The first component indicates the importance of the knowledge qualifications broadly understood as knowledge in the work process. If the work will be understood as series of interrelated professional tasks, in each case to carry out specific tasks you need a different scope and nature of knowledge. Nowadays, due to the development of techniques and technology, it is dominated by jobs that require employees with appropriate intellectual preparation.

Skills are understood as willingness to deliberate action, based on knowledge about the objects and phenomena and mastery of specific elements of movement activities[44]. Skills relate to perform the duties of an intellectual nature – theoretical or practical. Among the practical skills T. Nowacki defines skills: elementary, functional and complex[45]. Knowledge, according to S. Kwiatkowski, is a kind of structure, where skills are based. The researcher also indicates the skills that do not have an adequate basis in the form of design knowledge, but which are the result of imitation (procedural knowledge without understanding, that is, without the knowledge content of cause and effect)[46].

[42] T. Nowacki, *Kształcenie i doskonalenie pracowników. Zarys andragogiki pracy,* PWN, Warszawa 1983, pp. 312–316.

[43] W. Okoń, *Nowy słownik pedagogiczny,* Wydawnictwo Akademickie „Żak", Warszawa 1996, p. 146.

[44] T. Nowacki, *Podstawy dydaktyki zawodowej*, PWN, Warszawa 1973, p. 184.

[45] Ibidem, p. 191.

[46] S. Kwiatkowski, *Nauki pedagogiczne*…, op. cit., p. 60.

The complexity of today's professional tasks will, in the opinion of Kwiatkowski, change within the sets of skills. Skills recognized for some time specialized over time move towards the core for a given profession, and even the general vocational or over-professional. Currently we observe the expansion of the set of skills 'for all'. The scholar cites examples of skills until recently considered to be specialized, such as: applying information technology to communicate effectively in foreign languages, or interpersonal skills[47].

The last of the components forming a coherent system of qualifications are psychophysical qualities, which include sensorimotor skills, abilities and personality traits. The knowledge and skills gained during the school are getting quickly out of date. This is a natural consequence of technical and technological progress. In this situation, they take on a special meaning[48].

A kind of description of reality concerning the labor process are the professional qualification standards. They set the standard of minimum qualification requirements for the profession with respect to the types and levels of qualifications. Standard of professional qualification is a description of the requirements in terms of knowledge, skills and psychophysical features[49].

Levels of qualification form a hierarchical structure that reflects the complexity and difficulty of professional qualifications, tasks and the corresponding system of qualification requirements. They shall normally be considered by five-level hierarchy – from the qualifications necessary to perform simple tasks (level 1) to the qualifications required in the performance of complex tasks, often embedded in problematic situations that require decisions of strategic importance for the company (level 5). Today we observe dominance of skilled tasks from the highest (5th) level. This trend is observed in the vast majority of professions as a result not only of progressive complexity of technological processes, but also strive to improve quality while increasing productivity[50].

S. Kwiatkowski proposes considered as a whole as the basis of theoretical knowledge, skills and knowledge as the use of psychophysical characteristics (especially all personality traits) as individual determinants trigger action. From a pedagogical point of view, highlights, rather than operating concept of 'knowledge society', it is better to use the term 'social skills' in

[47] Ibidem, p. 61.
[48] Ibidem.
[49] Ibidem, p. 62.
[50] Ibidem.

place of 'knowledge economy' is preferable to adopt the term 'skills-based economy' or 'developing economy through training'[51].

Conclusions

Changes in the work take place as a result of many factors. One of these is the progress of scientific and technological knowledge. Years ago, significant progress has been made by automation of many manufacturing processes, followed by robotics. There has been a massive shift from physical work to intellectual work, from simple to complex work. Over time, mental effort gained in importance to become dominant. Finally, it also included the creation – including the auto-creative efforts. This in turn caused a change in eligibility requirements based on experience and replacing them with those which are systems of motor skills and intellectual skills supported by scientific knowledge and relevant to the job requirements personality traits.

The information society is the next stage of human development. To develop this proceeded harmoniously is necessary to create a kind of symbiosis between man, the environment and endangered artificial biocenosis and biotope.

This kind of conditions deeply reflect upon general and vocational education. One has to formulate a completely different learning objectives focused on developing employee characteristics such as initiative, willingness to risk, habit of lifelong learning, occupational mobility etc.

Working in the knowledge society, when it is not enough to content and professionally know and be able, but also strive to objectify truth and wisdom in their behavior on a daily basis, will be different than at the turn of both millennia.

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[51] Ibidem, pp. 59–60.

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