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DEVELOPMENT OF NEW ECONOMY AND HUMAN CAPITAL

Sergej Vojtovič, Emília Krajňáková
University of A.Dubček in Trenčín, Slovakia

Abstract:
Civilizational changes taking place in the second half of 20th century (predominantly 70s and 80s) have been called within the professional communication as a welfare society, post-industrial society, and "third wave" etc. The attention has shifted from the society to the economy during the 90s, and these basic changes in the social development began to be explained through such economic terms as "knowledge economy" or "new economy". This study analyses historical, technological, economic and social conditions present during the above mentioned period, when the need for innovations arose; and it also looks into the influence of these innovations on the economic development and on the process of forming of knowledge and new economy.
KEY WORDS: innovations, new economy, human capital, economic and social changes.

Introduction

The formation and development of a new economy is associated with a new system of wealth creation which affects the economic prosperity and development of human civilization on a large scale. This evolution can be perceived as a shift from an industrial economy to a knowledge-based economy and society. The underlying principle of these dynamic changes are the human resources (human beings) possessing a symbolic (intellectual) capital. Currently, any company intending to raise its financial capital has to invest heavily in the intellectual capital, such as education, science, information and communication technology. The replacement of the traditional dominant role of manufacturers for customers and consumers has also significantly contributed to the process of changes. Consumers give preference to new, more efficient, better and safer products and services. Any organization that wants to "survive in the market" and to be successful must satisfy the customers' needs which can only be managed through innovation.

Innovations are created by human beings, and their ability to accumulate knowledge and further employ it to create new knowledge to be applied in improving manufacturing efficiency, production management, etc. Therefore, a great emphasis is placed on the continuous staff education and development. However, this does not mean that in creating a product, physical capital, labour and other traditional resources of production are losing their value. It merely indicates that the identical volume of output produced requires less physical capital (investments in machinery, materials, labour). Therefore, physical capital is gradually becoming a secondary factor for economic prosperity. There are changes in priorities and knowledge, rather than the most sophisticated machinery, is becoming the driving force for the economic and social progress. Therefore, the role of innovations is critical and innovations are becoming the key element for economic growth and harmonious society.

The study is intended to identify and define the technological, economic, social and cultural prerequisites for the formation and development of the new economy and its key factor of production – the human capital. To meet the main goal of the study, major changes in the production technology, productivity, labour content, required qualifications and education of employees and social area are analysed. Following from the analyses conducted, significant prerequisites and factors for the formation and development of the new economy and the concept of human capital are defined and explained.

The rise of the need for innovations and forming of new economy

The need for innovations was caused by the myriad of economic, technical and social factors. Introduction of new technologies during the post war period not only significantly increased the labour productivity, but it also greatly reduced the time necessary for manufacture and accelerated economic development – from the process of providing material for production up until the consumer. Forming of new world economy and consequent increase of competition contributed to the shortening of the product's life cycle on the market. For example, in the beginning of 20th century Ford Company was producing the same car model Ford – T for almost thirty years; but the only way for a car producer to succeed on the market in the end of the same century is to introduce a new innovated car model in average every three years. After the TV had been introduced, its life cycle on the market used to be 10 to 15 years; in the end of 20th century it is only one year. Similar development can be observed also in the case of computers – its life cycle being approximately five years shortly after their introduction

on the market and only mere months at the end of 20th century.

The same trend applies to the amount of time passing between the scientific discovery (or a technological invention) and their application in praxis. While the average time between scientific discovery and its implementation in the production used to be 50 years in the 19th century, in the end of 20th century it was shortened to 10 15 years. The implication for producers is that the research and knowledge applied to a product have become a competitive factor. Therefore if companies want to stay competitive they try to deliver a new innovated product on the market as soon as possible. In order to do so, innovations and knowledge is required – how to make the product new again, improve its functionality, decrease its demands when it comes to material and energy, make it less costly etc. Above mentioned innovations are nowadays no longer limited by the level of technology applied by the production, but the only limitation remains the absence on new knowledge.

New economy significantly differs from the traditional industrial economy. It is a specific type of market economy that helps to further spread market relations. In 2000 the production of roughly 50 % GDP was based on innovations in the developed Western European countries, while in 1950 it was only 30 % and in 1900 only 10 %. The predictions state that the ratio of GDP based on innovations will reach approximately 70 % in 2020 (see Diagram 1).

When it comes to identifying the subjects creating new knowledge, which can be utilized in the production there are private and public companies, research facilities financed by either private or public capital, foundations and even individuals that purposefully deal with coming up with new knowledge. Currently there is only very few substantially large manufacturing companies that do not have a scientific or engineering department meant for their own needs. Number of people working in these departments is not insignificant. Even when taking only manufacturing companies in developed countries into account, there is still roughly 10 % of employed who work in research or engineering.

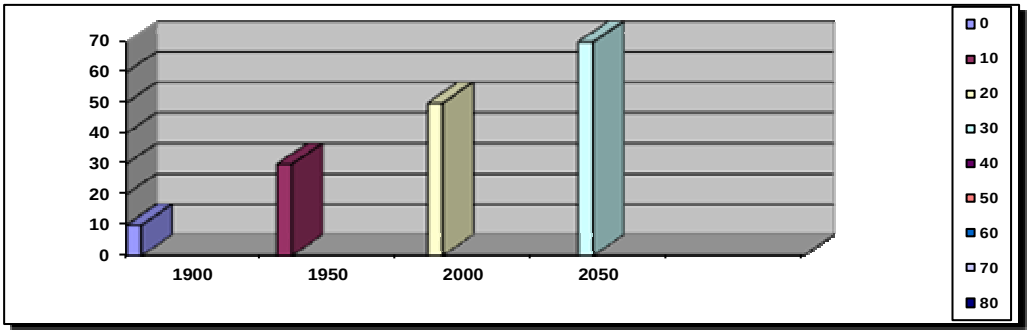


Diagram 1: Ratio of GDP based on innovations (OECD), (European average in %)

At present, the considerably big part of managerial or other highly qualified labour, be it in manufacturing or other companies, is to constantly look for new solutions and information that can in return serve as a source of competitive advantage for their company. Significant amount of expert workers in financial institutions (banks, insurance companies, stock markets), business consulting, marketing services and other deals almost exclusively with seeking new information necessary for adequate solutions and decisions. These workers are joined by many others, who create this new knowledge and who subsequently offer their services and expertise.

As a result of these processes there are new trends that can be observed within the economic production. Constant innovation of technologies and machines in manufacturing improves economic production and its effectiveness and lowers production costs. That means that producers are able to continuously increase the volume of production without increasing the amount of workers; or in case that the market is already saturated they can produce the same volume of production with decreasing number of employees.

Changes occurring on the labour market or in the society in the last decades of 20th century have been named as a post-industrial society (D. Bell, 1999; J. Galbraith, 1967) or the third wave (Toffler, A., Tofflerová, H., 1996). Revolutionary changes taking place in the economic processes in this period have been called innovation economy, electronic economy, knowledge economy, internet economy, network economy, digital economy or new economy. The term "new economy" is often used to describe such qualitative and quantitative changes that significantly changed the structure of factors influencing economic growth and that had changed the rules by which functioned previous economic economy (D. Bell, 1973; K. Kelly, 1998). Most authors, including those listed above, uses the term "new economy" to name the fact that knowledge is becoming the deciding capital, cost factor and the factor of development (P. Drucker, 1994; M. Castells, 1996; K. Kumar, 1978). New economy is the economy of knowledge and ideas, where the key to creating new jobs and reaching higher quality of life are innovative thoughts and technologies fully integrated into services and products. "It is economy, where risk, uncertainty and constant change is more of a rule than an exception" (Balaž, P., Verček, P., 2002).

The main distinction and quality of new economy is its non industrial character, since its production processes do not rely on factors characteristic for industrial production – raw materials, energy, capital, labour. New economy processes already gained information and knowledge and this forms a basis for creation of innovations. These innovations can be seen as a specific form of product which in response makes it possible to produce products or services that are cheaper, more

effective, safer, using less materials or energy and so on. As a result the information accelerates and improves production. That implies that there simultaneously exists also traditional industrial production and other activities that similarly change their previous qualities because of the influence of new information.

Human capital in new economy

Forming and development of new economy is connected with a new system of wealth creation, which considerably influences economic prosperity and the development of human civilization. This development is possible to characterize as a switch from the industrial to knowledge society. The basis for these dynamic changes is the human source - intellectual capital. Society that wants to have financial capital needs to intensively invest into intellectual capital – into education, science, IT and communication networks etc. The shift from traditional dominant position of producer to the dominance of costumer and consumer only contributes to these dynamic changes. Consumers prefer new products and services that are improved, more effective and safer. Each producer that wants to survive on the market and be successful has to satisfy those needs, which is possible through innovations.

Innovations are made by human quality to accumulate knowledge and from this basis to create new knowledge that could be used to improve production or its management. That is why there is a need for a continuously higher attention being placed on permanent education of all those involved (M.Kordoš, 2010). However, that does not mean that physical capital or labour loses its value in the production. It merely means that the same volume of industrial production requires less and less physical material (investments into machinery, material, and human labour). Therefore, physical capital becomes only secondary factor of economic prosperity. The priorities are changing and innovations, and not machinery, are becoming the engine of economic and social progress. As a result, the importance of innovations is constantly growing and becoming the dominant element of the economic development.

The input factor in the new economy does not have the tangible form; it merely exists as data, knowledge and information. Output is also intangible information; its only difference is it being new, previously non-existent knowledge that has not been used in the new technologies, management processes or new industrial products. Another distinctive quality of input factors in new economy is that information and knowledge are result of human abilities and creativity and these inputs are therefore renewable source. Their existence is also inseparable from human abilities and creativity, thus main and only production factor in new economy is creativity. In the industrial society human remains a supplement to the machine, whereas in the new economy human becomes the main "machine", since the product that is most valued in new economy can be produced only through human creativity. No other inputs are necessary.

Therefore human, or human abilities, is in the new economy input factor for the production and also the main source for the production; it assumes the role of "technical device" in the process of creating new knowledge. Instead of tangible inputs and energy (technological devices, labour and their intangible substitute financial capital) new economy utilizes different kind of capital – human capital or in other words the human capacity to create new knowledge. According to the words of well known Italian entrepreneur and manager V. Merloni, "financial capital has been replaced by human capital" (Toffler, A., Tofflerova, H., 1996, p. 40).

Creation of new knowledge and innovations is an activity requiring certain physical and mental effort, will and energy. It is an intellectual work, but its specific quality is that it requires fulfilment of certain criteria. For instance, it cannot be executed under administrative, mental, or other kind of duress. People are not able to create in long term, when they are placed in extreme conditions, in a situation when their acute needs are not met, or when they face health, mental or personal issues.

Once human capital is seen as a main source of production and people disposing of this capital are seen as creators of company values, their position and role in the production and in economic process in general changes. In the conditions of new economy human is becoming the primary source of economic prosperity, therefore replacing machinery during the period of industrial economy. Even though certain machinery and facilities (such as computers or laboratories) are needed when human capital is utilized, their role in the creation of new knowledge is merely supplementary.

The issue of human abilities was already discussed by A. Smith in his work "An Inquiry into the Nature and Causes of the Wealth of Nations" (Smith, A., 1958). He saw development of workers' abilities as a basic source of economic prosperity and growth of wealth. The fact that human abilities and creativity alone cannot produce new knowledge and innovations was recognized by A, Marshall, who claimed that firstly they require long term investments (Marshall, A., 1962). Another author looking into this issue was T. Keenoy who found human abilities and knowledge to be an important factor in overcoming the rule of diminishing returns (Keenoy, T., 1990).

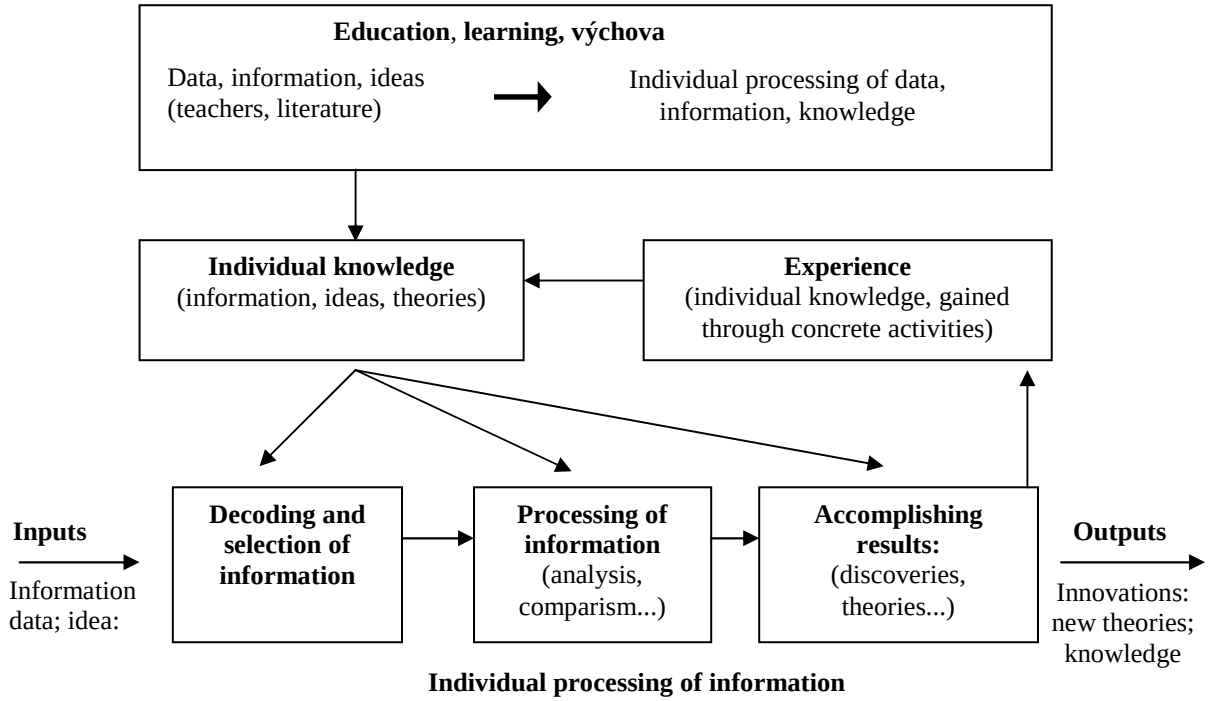
The science became a branch of economic production in the second half of 20th century. The scope of scientific discoveries realised in the industrial production was growing in that time, and the issue of investing in the process of creating new knowledge, measuring their revenues and return on invested capital were brought into foreground. G. Becker studied of rate of return on investments into human capital, and through processing the empirical data about present value of future income of workers and returns on alternative possibilities of investment he came to the conclusion that individuals invest into their abilities to create innovations up until marginal rate of return equals opportunity cost (Becker, 1975). The same author also conducted the analysis of factors of fluctuation. In order to do so, G. Becker divided human capital into following categories: specific, which can be utilised only in that particular company; and general, which can be used in various employments. Universal abilities that are useful in almost all spheres of human activities were identified as the

source of general human capital. Specific human capital includes such specific knowledge and abilities that are usable only in very concrete and specific group of activities. This distinction proved being useful when explaining the difference between investing into general and specific human capital.

Various definitions of human capital can be divided into two parts – the source of human capital and gains from its use. Most of the authors see formal education as the only source of human capital and the motivation behind its use are economic gains. But human capital can be defined in a much broader scope. N. Bonits states that human capital is influenced by the whole process of upbringing, all types of education and culture. According to this author, in addition to economic gains human capital can provide also mental and social gains (Bontis, 1999, p.179).

money), which is not meant for an immediate consumption but predominantly for creation of additional capital, goods or services. From this very universally understood definition of capital one can derive different forms of capital not only in the economy (technological, financial and so forth) but also in the noneconomic spheres of activities (social, spiritual, cultural, human capital).

The difficulties connected with its defining and naming are one of the important epistemological issues of human capital (Strunz, H., 2013). This is partially caused by the mechanisms of its reproduction and its long term cycle of creation and development; the main reason being human capital's interconnectedness with specific human being. To create human capital means to work with every individual, raise and educate him. It is a place where economics meets psychology, sociology, pedagogics and



Schematics 1. Process of creating innovations and factors influencing it

At the same time it is known that there is a positive correlation between socio economic status of parents and their children's level and quality of education. But there is no proven correlation between socio economic status of parents and the natural appearance of abilities in their children. This causes that mostly only social groups with higher income can afford investing into human capital and long term education. Therefore with not only personal but also social importance in mind, there is a need for a public financial support in order to grant every individual a chance to develop their abilities through long term education (Haviernikova, K., 2011). The education was formed and to these days is provided in the form of public goods in considerable number of countries, even though some countries (such as United States for example) practice the principle of private investments into education.

Capital is usually perceived as a value that creates added value. To simplify it, capital is seen as a form of wealth (for instance land, buildings, machinery, goods or other humanistic sciences (Soroková, T., 2008). In addition, even investing into human capital is not such a straightforward process as in the case of investments into physical capital. So far no system of accounting has been successful in creating a convincing method of assigning the financial value to human resources. That lowers the company's potential added created by people, thus only making it even more complicated to observe the mutual relations between human capital and other economic indicators (Bontis, N., 1999).

Therefore even despite already existing methodologies it is still difficult to determine the scope of human creativity and ability to create innovations, and human capital is mostly measured using indirect and vague methods. But, as it is emphasised by J. Veber, "the fact that these factors are not easily identifiable, measurable or reportable, should not be the cause of a lesser interest in their study and cultivation in every organisation attempting to be successful" (Veber, J., 2003).

Most experts share an opinion that new economy is driven by five mutually integrated engines. These are technologies, competitiveness and new economic culture in three following spheres: government, business and households (Ivanová, E., 2012). Their common characteristic is that they encompass the most important source of economic growth in future periods – human capital, which is not perceived as a general capital usable in more companies and branches or specific capital that is useful only in one specific company or branch. Decisive factor in the human capital is the scope of knowledge, or in other words the ability of an individual to transform gained knowledge into innovations – new machines, technologies, goods, services, organizational structures, systems and methods of management and so on. Innovations are the source of effectiveness and productivity and they condition the transformation of scientific knowledge into technological and managerial changes.

Conclusion

Results and efficiency of economic production in the conditions of new economy depend exclusively on the abilities, skills, experience, and other personal qualities. That determines the role of management in the conditions of new economy – the centre of all problems, expectations, visions, progress etc. lies in human capital, and therefore the emphasis in managing should be placed on the position and the role of people in the process of production.

DEVELOPMENT OF NEW ECONOMY AND HUMAN CAPITAL

S u m m a r y

During last years the notion of human capital has become a belonging of processes in the scientific and specialist communication. However it is being very often used broadly or groundless. The correct and adeguate use of the notion human capital is conditioned by knowing the historic conditions and dependencies of its rise and development. The inscribed study is devoted just to the folowing: questions of historic condicions of rise and formation of concpet of human capital, analysis and reasoning of human capital as a production factor, as the economic value, as the investment, the issues of measuring of human capital investment and benfits, storage, ownership, use etc. At the same time we observe the social aspects of human capital – its inseparability from human personality, patterns of its reproduction, formation and developent.

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The study is devoted to observation of theoretical and practical aspects of realization of concept of management of human resources in praxis of managing personal and employees affairs in the personnel of producing organizations, the reasons and mechanisms of inadequate interpretation of the concept of human resources itself and its consequent implementation into the praxis of personal management, the reasoning of historic condition of the rise and development of the concept of human resources. The adequate interpretation of the concept of human resources and its effective implementation in praxis of personal management is connected just with the questions of historic conditioning of the human capital as the mail production factor, as the economic value, as a new source in the creation of the higher value added in this study.

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Sergej Vojtovic, Doctor of Social Sciences, Associate Professor at University of Alexander Dubcek in Trenčín, Slovakia, Faculty of Social-Economic Relations, Department of Management and Development of Human Resources, Dean of the Faculty of Social-Economic Relations, Studentska 3, 91150 Trenčín, Slovakia, e-mail: sergej.vojtovic@tnuni.sk. Author of more than 145 scientific publications, published domestically and abroad (Austria, Czech Republic, Germany, Lithuania, Poland, Russia, Ukraine). Completed professional internships and lecturing stays at the Vienna University, Sorbonne University, Technical University Dresden, Technical University Valencia. Fields of scientific interest: economic sociology, labour market a employment policy, mobility and labour force migration, personnel management.

Emília Krajňáková, Doctor of Social Sciences, Assoc. Professor at University of Alexander Dubcek in Trencin, the Faculty of Social-Economic relations, the Department of Management and Development of Human Resources. Studentska 3, 91150 Trenčín, Slovakia, e-mail: emilia.krajnakova@tnuni.sk. Author of more than 120 scientific publications, published domestically and abroad (Czech Republic, Germany, Poland, Russia, Serbia). Lecturing stays at the University Valencia, Kiev State University and Technical University Dresden. Spheres of interests: financial literacy, labour market, economic sociology, human resources management, employment policy, social mobility, migration.