Increasing role of human capital and evolution of values in digital economy

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Abstract. This article presents an expression of the authors’ opinion about one of the key issues in development of the digital economy space that shows a requirement of new-quality human capital, i.e. basic principles and values of a higher order as compared with other production factors. This article gives justification of an ontological link between the categories “human capital”, “values”, “digital economy”. The importance of a humanitarian approach to the analysis of the formation and sources of self-development of the digital economy, considered as a potential factor in the growth of the national economy and improving the quality of life. The article gives an overview of the reasons for changing values accounted for society development and formation of a gap between generations’ values among different age groups that have had a certain impact on motives of the labor market participants. The results of the opinion poll of students, young and mature specialists are presented herein to show the tendency with which the personal priorities in terms of work values change. It was revealed that students tend to be more motivated to accumulate the human assets and to realize importance of vocational education, to acquire more positive attitude towards such principle as ‘learning all life’ deemed to be an impact on being a sought-after specialist and “getting a decent job” as far as the youth obtains better idea of the digital revolution that is particularly important given the forecast of growing tension in the labor market.

1. Introduction

The global movement towards the digital economy, which is a technospheric-scale phenomenon in the wake of the fourth industrial revolution, is characterized by its systemic influence on various spheres of activity. As it was highlighted at the Saint-Petersburg International Economic Forum 2017, “the digital economy is not a separate industry, but essentially it is a platform allowing to create new quality model of business, trade, logistics, production, that changes the format of education, medical aid, government, communication between people, and therefore it sets a new paradigm of development of the state, economy and the entire society” [1]. This certainly leads to the study of its essence and potential of impact on economical, cultural and other kinds of people’s relations, on population life quality.

Issues of the digital economy development in Russia and abroad are dealt with ever-growing care by both the scientific and technical circle, and the business sphere as well as by government which results in strategic programs [2] providing for overall governmental support of digitization. The number of scientific papers casting certain light on various aspects of digital economy, digital
transformation and digitization which are normally used broadly as synonymous notions of various processes generated by different Information and Communication Technologies (ICT) has grown. Specter of research related to specialties and new capabilities of the digital economy helping to improve efficiency of economical processes, to strengthen advantages of business units over their competitors, to change the occupation structure and the procedure of work process administration, to create national information security, new rationalized household models etc. has significantly extended. These aspects gained enormous public response and became a fancy talking point on the forums and at the scientific and practical conferences which were actively held by Peter the Great St. Petersburg Polytechnic University (SPbPU) [3], Bauman Moscow State Technical University, Institute for Economic Strategies of RAS, other scientific and regional societies.

Use of ICTs, including cloud services, internet of things, big data and other components of digital revolution can produce a colossal effect on the micro economical level by accelerating operation processes, using complex digital engineering, optimizing use of main production aspects, extending specter of provided services, and so on. Their system capabilities are visualized in the “Industry 4.0” concept, Industrial Internet Consortium and etc. Despite all that, introduction of the information and technical complexes of the digital economy cannot be an end in itself. The mission of the digital economy in Russia is to improve the population’s life quality, ensure competitive ability, national security and for the following 15 to 20 years in perspective to ensure that our country will enter the group of the global economy leaders [4]. In order to achieve these macro economical goals, it is vital to speed up GDP ramp that is forecast by the experts to be about 1.7–1.8 percents in Russia in 2018–2021 against worldwide mean 3 percents, and about 4.5 per cents in developing countries and emerging markets [5]. Supposedly, as soon as the digital economy reaches a specific level, the government majorly supporting it on the initial stages, then it will become a significant factor for accelerating development of the national economy.

In order to digitize the conventional industries, to create a digital industry able to compete and to solve other tasks related to digitization, apart from development and introduction of various ICT, it is necessary to identify sources of self-development of this field having strong motivation resources. This requires a lot of humanitarian work which is focused, as we believe, on development of an environment assisting in improvement of the human capital, transformation of the system of values to be put in the first place in the field of labor relations, raising awareness of how important the highly qualified labor is because this kind of labor is a main source of welfare and self-implementation.

It should be noted that in modern Russia, whose economy is reoriented to market principles, the social and personal values are mostly set to reproduce the model of social relations ushered in socialism period that is characterized by patterns, common state property and underestimation of how significant the human factor is. In our country labor has not yet become a dominant motive for development of the human capital mostly because not enough efforts were taken to promote diligence and taking pride in results of your work. To a certain extent, this led to establishment of quasi entrepreneurial organizations unable to introduce any major innovations, but seeking individual enrichment and prone to turning into a “leisure class”.

The development of individual human capital with an independent value needs an effective motivation, the beginning of which should be laid in educating young people focused on the awareness of the high value of labor that creates public and personal benefits, which is more inherent in market liberal-democratic relations. The need for a new quality of human capital predetermines the systemic effect of introducing the main components of the digital economy. These issues, particularly, were most fancied to be discussed in the frame of development of the scientific heritage of S. P. Kapitza [6].

The existing situation needs a deeper analysis of philosophical and economical and social aspects, new methodological approaches for development of national educational system, modification of education format in terms of not only seeking overall digital training, but also raising awareness of importance and prestige of highly qualified work. Therefore in order to complete this strategic task, i.e. to urge growth of the national economy and to improve the life quality, it may be useful to apply such tactics as doing theoretical studies and scientific rationale with reference to the concept of the
value paradigm change and formation of new quality human capital on the grounds of the “lessons learnt” and opportunities discovered by joining the digital economy.

The emergence of the digital economy also has a moral and ethical aspect. Inherent in digitalization transformations in material and organizational and managerial elements, forms of collective activities and relations between subjects inevitably entail a change in preferences and priorities, established order and traditions, forms of behavior and communication in society. There is a transformation of fundamental ideas about the models of vital activity that have taken shape in the “pre-digital period,” that is, the change of paradigms and the reassessment of basic economic values. In this regard, a new subject of research appears, due to the inevitable changes in the hierarchy of values across societies, corporations and individuals in the period of entry into a new stage of social development.

The problems associated with the phenomenon of value are interdisciplinary in nature and are considered in the humanities using, as a rule, the tools of sociological research. Extensive empirical base for the analysis of mass values in the context of the modernization of modern society is presented by materials of international sociological research, regularly conducted in the form of surveys of the population of 97 countries of the world and summarized in the form of “World Value Surveys” [7]. Findings of the studies of value systems of the business individuals that allow developing specific motives and inclination to professional self-implementation, freedom and independence, to business achievements, to public recognition, which are conducted by RANEPA, HSE and by other institutes, are academically interesting. However, the value approach to the special role of human capital and the change in the value settings of its carriers under the influence of the digital transformation of the economic space has not yet found a comprehensive and complex description.

The author's contribution to the study of these problems is expressed in the analysis of the diversity of values of actors in the market space, including the formation of ‘common values’, the study of the value attitudes of youth and other age groups of the population, consideration of the value of human capital for the implementation of industrial policy, the economic value of highly professional labor force, innovation digital revolution entities.

2. Research subject
Given the urgency of the problems considered and the available scientific background, the purpose of this article is to establish the relationship between the categories of “human capital”, “value”, “digital economy” which together can create a synergistic effect that is important for developing economic potential and increasing the growth rate of the national economy. The subject of the research includes the rationale for the exceptional value of human capital, analysis of the diversity and causes of the evolution of values and value systems in the era of digitization.

3. Research techniques
The theoretical and methodological apparatus of the research is based on the historical and political and economic approach to analyzing the conditions that ensured the elevation of the role and importance of the human capital as a result of overcoming the conflict between labor and capital, described by K. Marx [8], which allowed developing humanistic ideas about the worker as a creative person (Frankfurt school), the emancipation of which gave impetus to the industrial and post-industrial development of society, ultimately leading to creation of the digital economy. The conceptual statements about measurement of the human capital’ value and transition from one type of values, such as survival, to another type of values, such as self-expression, are used (R. Inglehart [9], R. Crawford [10]). When justifying the evolutionary nature of the change in values, the conclusions about the intergenerational value gap and the value transformation factors were taken into account (R. Inglehart [9], M. G. Rudnev [11], S. L. Sazanova [12], N. E. Sobolev [13] etc.). The application side of the research makes use of such technique as the social analysis of value inclinations (M. Rokich [14]), adapted by the authors in terms of the specialties of the modern economic environment.
4. Findings

4.1. On the role of labor and the human capital in the digital economy

Promotion and use of digital technologies creates previously inaccessible opportunities for improving the organization of work processes, increasing productivity rates and labor efficiency, which naturally leads to the fact that the human capital in all its dimensions starts to act as the most important value of the society. According to Microsoft Vice President Preston McAfee, expressed at the St. Petersburg International Economic Forum — 2017, “The digital revolution concerns not so much the things as the people themselves” and at the same time “human capital is more valuable than everything else taken together” [15]. In the post-industrial information society, the traditional production factors gradually become secondary and more dependent on the depth of knowledge, the extent of accumulated information and readiness for its practical application in various spheres of life, business processes and creation of innovative systems with appropriate infrastructure.

Foresight of the usher into, what is figuratively referred to by R. Crawford as “a special era of the human capital” [10] which turns into the main factor of economic growth, the one that is much more important than material resources, was not accidental. The rise of its status in the modern world has replaced the technocratic approach, the concept of which was based on the principle that man is an “appendage of a machine”, “part of a partial machine”, “means of production”.

These categories were first introduced by Karl Marx as a statement of the fact and the evidence that labor alienated whilst the degree of exploitation was very high and meant that labor ceased to be a natural part of the human nature, became dependent on technical devices.

According to Heidegger, for example, only a technique is a value of a special kind, not utilitarian, but even of universal scale.

Due to the conflict between labor and capital, the worker “does not assert himself by working, but denies, doesn’t feel happy, but is unhappy, does not freely develop his physical power and spirit, but exhausts his physical body and destroys his mental strength” [8]. A striking illustration is the reference to a man as to a “cog in a machine” who remains a part of the machine even after leaving his workplace. Under these conditions, the highest value of labor was out of the question.

The humiliated position of the worker in the era of the second industrial revolution (almost until the end of the XIX century) is due simultaneously to two reasons. Firstly, the worker was dependent on machinery which frightened him leading to “Luddites rebellion” in England, and secondly, the worker was fully dependent on the owner of the production means who didn’t bother himself to take care of hired labor. Naturally, under the circumstances, an individual is not interested in working with maximum efficiency, and unable to enjoy himself working, develop and improve his skills and qualification. His life values are reduced to a utilitarian minimum such as availability of roof, food and safety.

Labor liberation and increasing of labor contents and attractiveness started in the first half of the twentieth century. The International Labor Organization (ILO) established in 1919 played a major role in this because of the Labor Protecting Conventions which significantly contributed to mitigating the relationship between the employer and the employee [16]. This is not to mention the positive influence of the idea of humanistic technocracy and presentation of a man as a creative individual developed by representatives of the Frankfurt School who studied the contradictions of technical civilization in terms of spiritual gains and losses, as well as the classic doctrine of human capital after G. Becker and T. Schultz; evolutionary concept of N. O. Lossky and others. Particular importance was a rapid development of competition which set an environment for fast ramp-up of the human capital significance as being a strategic factor for corporate success; by the end of the century the intellectual capital has become a new imperative of competitiveness. Experts believe that the intellectual assets have become more valuable than monetary assets and their share in the value of successful corporations, judging from a variety of estimates, reaches from 40 to 50 percent [15].

With increasing rate of changes in the economy and expanding business space, the significance of the human capital starts to increase even more; on a certain stage of the society evolution, in
particular, when a massive introduction of digital technologies occurs, the human capital turn into a “value of a higher order”. Creativity, being a main drive of evolution, adds new content to the very concept of “the human capital”; so that the key characteristics of these capital, namely education level and entrepreneurial abilities, are enriched with such qualities as initiative in striving for success and independence, self-awareness creating the ability to step beyond the boundaries of the generally accepted, self-fulfillment due to larger amount of opportunities to apply one’s intellect and to ensure own growth. Thus reproduction of the human capital has faced a shift from physical to intellectual work.

4.2. About reasons for evolution of values

Due to the profound political and economic transformations of the global economy caused by the tendency towards neo-industrialization and by increasing Corporate Social responsibility, and against the background of development of the system paradigm concept the value palette which reflects an ideology, foreign and domestic policies of states, interests of the business community, the beliefs of an individual about importance and usefulness of his actions, which is manifested in his values, motives and focus of actions, and in the decisions he prefers [12].

Such categories as “universal values”, “European values”, “cultural values”, “values of entrepreneurship” have come in firm use in the business segment and speech. In society, the diversity of values across different social and age groups such as business representatives, government officers, representatives of the leisure class, the youth and the older generation, has expanded; “corporate values” and “shared values” are formed [17], in which, as the review of practice shows, priority is given to the conditions for the all-round development of the human capital (by increasing qualification, improving health, ensuring occupational safety, etc.).

The diversity of values can be judged by the data contained in the Worldwide Review of Values [7] that is issued every five years starting from 1981 till now and includes the opinion of the population of several generations. The assumption that values change as far as the society is pushed from the traditional to its industrial and post-industrial format due to economy development and better welfare was confirmed by the unique studies initiated, methodically substantiated and conducted under the guidance of the sociologists R. Inglhart and K. Welzer. Changes in value priorities in the mass consciousness and behavior occur in the direction from traditional materialistic and purely pragmatic values to secular-rational (authority, order, rationality, safety) ones; from values of survival to post-material values of self-expression, self-awareness, civic participation, etc. [9]. The authors do not mention the aspect of occupational relations, but the stage-by-stage evolution of values that they identified also tends to acquire post-modernization features and to follow the mankind evolution. This is observed during the transition to the digital revolution producing a complex impact on the pace of economic development, transformations in companies, industries and society as a whole [18]. This evolution has a special impact on work processes, enhances demand of innovative skills of personnel and sets higher standards of the quality of the human capital [19].

Thus, a chronological analysis of the stages of the society development over the recent centuries allows drawing a parallel between the growing importance of the human capital and development of values and value systems due to the scientific and technological progress and liberalization of economic relations. Introduction of digital technologies that is a prerequisite of fundamental transformation and establishment of completely new opportunities in various manufacturing and non-manufacturing industries, in labor and business processes, in population life style and quality, also modifies needs and capabilities of the man, his popularity in the labor market, and thereby changes the structure of his values and value system [20]. With this reference a certain ontological connection between the categories “human capital”, “values”, “digital economy” may be established on the grounds of the trends of their development and mutual influence prevailing in the society. The key role in this trio belongs to the human capital as an independent value of a “higher order” that, in many respects, predetermines values and value systems of their representatives. Only due to development of the human capital a new reality is being built using components of the digital economy as the basis of
the knowledge economy and the new quality of life. In turn, digitization causes changes in the system of the mankind values and further development of the human capital.

4.3. About value systems of different generations

It should be noted that changes in values do not occur as an immediate response to the social modernization. Fundamental change in values happens gradually as soon as one generation is replaced by another, forming the so-called “intergenerational value gap” [11]. This does not mean that these values do not change in the older generations which are objectively more conservative and, as a rule, they “reappraise values” in a different age. Difference in values is also observed between countries. These changes, due to their nature, produce a significant economic, political and social effect.

Polls of young people (2017–2018) conducted by the authors using the method of M. Rokich [14] to assess priorities in the system of values and the main motives for entrepreneurship across different age groups (by 18 indicators) to some extent confirmed the existence of a value gap between generations (1st-2nd-year students — young specialists — mature specialists), which, however, is not large enough. In the system of the terminal “target values”, including wealth, interesting job and dynamic activity, fruitful life, health, etc., the most noticeable gap was found in the category of the values “wisdom and common sense” which is the 1st priority with the older generations (and the 5th priority for the students), “interesting job” – 10th priority among students, 8th priority, among young specialists; as for the students their 1st priority value is “welfare”. As for the system of instrumental “tool value” the value "education" has the same priority (1st place); the largest gap is for the value category “self-restraint and self-command” that makes 9 and 14th ranks, respectively. The value of “diligence” takes 12th place with the students, and 10 and 8th places with the older generations.

One more interview was conducted for the senior bachelor students who have mastered the disciplines related to the digital economy. Then it turned out that most of them (73%) initially had actually next to no knowledge about the essence and complex effect that the digitization might have. This motivated the students to issue relevant student’s and teacher’s support. With the help of the polls’ results and via correction of the questionnaires (October, 2018), it became possible to extend the level of interpretation of the answers in order to see the values with which young people enter their digital future. The new version of the questionnaire allowed confirming the priority of the value “education”, as well as the positive attitude towards the “learning all life” concept, in order to “become popular on the labor market”, “have a decent job”, “be a successful specialist”, “keep accumulating the human capital.” This, to a certain extent, proved that the personal values change gradually at the evolutionary rate against the upcoming occupation and revealed readiness to accept structural changes in the labor market.

Conducted research of the ways the values evolved and of the fact that the human capital have become more important in the digital economy allowed to:

— identify the ontological relationship between the categories of “human capital”, “values”, "digital economy" on account of their mutual impact and impact of scientific, technological and social progress, primarily in terms of improvement of labor relations, helping to better understand essence of these categories;

— expand the concepts of what causes evolution of the values from purely pragmatic ones given alienation of labor and technocratic pressure, to the values of self-fulfillment, public recognition, freedom of choice, universal, corporate, shared values due to requirement for such values in the modern market economy, due to the increased role of the human capital and humanistic attitude to the human capital;

— to draw attention to the existence of a “value gap” consisting in the difference in the personal value systems, which was confirmed by the results of interviewing the young audience and their parents, and caused by the difference in rate with which various generations get used to new realities which in real life takes place at the labor market leading to employment issues especially in the era of digitization;
highlight the specific social and economical focus of the human capital development process in Russia due to higher importance of the production factor “labor” among young people and increase in significance of labor motivation in the general education system of the country and among young people.

5. Conclusions and further research
The conducted research allowed to introduce the main authors’ idea to justify how important it is to include explanation of the exclusive nature of the human capital giving and using the innovative advantages of the digitization at the same time, as well as of the significance of the value approach into the scope of other issues related to the digital economy. The ontological connection of these categories allows not only to enlarge scientific studies of the human capital and of the labor importance as the most important resources of the society, but also to emphasize the importance of a humanitarian approach to the analysis of the ways the digital economy, that is considered as a potential factor in the growth of the national economy and improving the quality of life came into existence and developed. Analysis of the reasons why the role of the human capital strengthened and the values changed in the economic space filled with digital technologies helps to identify tools for motivating labor, filling it with creative content, increasing interest and effectiveness. These problems are particularly relevant as it is necessary to adapt to the upcoming changes in the labor market dictating that continuous occupational education and uninterruptible accumulation of the human capital is an inevitable necessity in order to “show professional compliance” and have a decent job. Further research will be aimed at extension of the analysis of the individual value systems, the institutional effects of the digitization of the economic environment and the activation of the human capital in entrepreneurial activities.

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