

CDSSES 2020**IV International Scientific Conference "Competitiveness and the development of socio-economic systems" dedicated to the memory of Alexander Tatarkin****HUMAN CAPITAL MANAGEMENT IN THE DIGITAL ECONOMY**

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Abstract

The paper focuses on analyzing the effects of political human capital management as a system of strategic decisions increasing the modern state's competitiveness under the digital economy conditions. The paper aims to identify efficient public management patterns of the development of national human capital in the Russian institutional environment. A circle of matters is problematized with analyzing specifics of quality reproduction, accumulation, and efficient use of human capital, specifics of control over these processes in the age of digitization. Relevant academic discussion of the phenomenon of human capital is analyzed. Its interpretation is a critical asset of strategic changes and the increasing competitiveness of the modern state. The authors use classic theories of human capital and original methodological policies. The research concludes that under the current conditions of fast-moving innovative processes, a demand not as much for hard skills as for soft and digital skills, the state must strive to a comprehensive and strategic approach to the management of people's competences, which implies above all investments in the institutes which facilitate accumulation and updating of human capital. It is asserted that ensuring such a strategic and comprehensive approach requires transforming a system of taking political decisions, reforming the educational infrastructure, personnel development and education, and forming civil readiness to use the benefits of digitization. The paper's special focus is on giving recommendations to public authorities to increase the competitiveness of the modern state in the digital economy age.

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1. Introduction

Academician Tatarkin (2016) research was focused theoretically on support on the structural, spatial, infrastructural, social, and other specifics existing in society for maintaining the systemic nature and stability of development. He repeatedly emphasized that dialectics of development of any phenomenon (process, institute, relation) are based on the «conflict of opposites» which become a source of their stable and systemic development under professional regulation. Such intensive growth factors include the use of all the diversity and abundance of the nation's human capital and its competitive advantages.

It is already evident that under the conditions of digitization, the transformation of the labor market the management of human capital development becomes a decisive factor of sustainable growth and increasing competitiveness of the state, the basis of which is a knowledge-based innovative economy. Researchers registering that Russia faces a problem of exhaustion of traditional sources of economic growth, the leaning of the total human capital (Barkhatov, 2019) introduce into academic circulation a concept «new normal» underpinned by the postulates of low rates of economic growth, high unemployment, the inefficiency of the former drivers of development and standard means of impact on the state of the national economy (Barkhatov & Benz, 2019).

A prerequisite for ensuring the solution of the problem of formation and strengthening of human capital is the active public governance. The development and adoption by public authorities of strategic programs of digital transformation can be an example of such activities. Digitization has currently obtained a strong impulse to accelerate the COVID-19 pandemic and sets new objectives before the state. The conceptual reevaluation of the sphere of labor and employment and assistance to people in the efficient adaptation to the changes and implementation of innovations take an important place among them. To make proper use of digital technologies' advantages, the population must be able and desire to use them. The pandemic will accelerate these processes, but as with any social changes, even changes in labor management only will bring about both beneficiaries and losers. Researchers predict vulnerability and drop in income of the medium class, the Western society's economic core. The states that will be unable to evaluate the risks of the situation in times of pandemic in terms of deterioration of living standards of large social groups will reduce their competitiveness and weaken their positions in the world's human capital market.

The inevitable digital transformation has actualized the set of problems of public human capital management as an intensive productive factor of the development of society and family, economy, that incorporates the educated part of manpower, the tooling of intellectual and managerial labor, the medium of labor activity and life, the knowledge that ensures rational and efficient functioning. The relevancy and high level of the modern public discourse of human capital problematize matters of theoretical and methodological basics of learning its traditional and modern treatments.

2. Problem Statement

Human capital as an aggregate of skills, knowledge, and competences which man acquires and accumulates through his/her life, is one of the most essential resources of the post-industrial society and the most important source of economic growth, also, among other things, because it is the man that generates value. The research program developing the necessity of investment in man initially suggested by Becker (1993) determined the basic approaches of the human capital concept, including as a factor of economic growth (Barro, 1999) and a key means of production (Lucas, 1988) and conducive to ensuring competitive advantages.

Human capital is «an aggregate of knowledge, skills, motivations and energy of an individual that can be used for production of goods and/or services» (Romer, 1990), an intensive productive factor, a measure of the ability to bring income embodied in man, that includes innate abilities and natural talent, knowledge and skills obtained and developed through a transfer between generations, education, acquired qualification, creative abilities and competency, motivation to labor and training, culture, working experience, personality traits (Kuznetsova et al., 2019; Wang & Liu, 2016).

Human capital management is deemed necessary to be determined as an activity in direct or indirect impact on human capital or separate structural elements of the latter to update the best alternatives for human capital, increase its cost, and extract profits from its use. Investment in human capital is one of the controls of human capital management, implying the use of the material and intangible resources to increase the human capital value (Plaskova et al., 2020).

Investment in human capital on the part of the state as one of the basic controls of human capital management implies above all investments in the institutes which facilitate accumulation and updating of the latter. Such institutes include: education and science, healthcare, family policies, care of the country's population, free participation of population in the market, physical culture and mass media, environmental protection.

As was noted earlier, today there is an intense activity of public institutes in the sphere of formation and development of digital economy – it is the state that acts as one of the main investors in the growth of human capital. The state and its institutes are able to ensure a strategic and comprehensive approach to the formation and use of human capital (Aleinikov et al., 2018).

Participation of the state in the management of skills, knowledge, and abilities of people is especially significant because it is the state that controls education and healthcare, and also engages in the regulation of the labor market. Reformation of the educational infrastructure, personnel development and further education, and digital economy propaganda is related to the public human capital management.

Modern processes of growing global crises and rapidly developing digital transformations have significantly changed approaches to human capital research and articulated new public management objectives in this sphere. Of severe problems of human capital management in Russia a low level of the tools and approaches used for it can be noted, which leads to reduced efficiency and losses in human capital (Sycheva et al., 2019; Titova et al., 2019).

Scientists also note a unique institutional Russian environment harming the formation of efficient stimuli to investment in human capital (Anikin, 2018). Therefore, a theoretical approach of Bourdieu

(1991) is deemed methodologically significant and, proceeding from the generation of modern social capital, including various forms of human capital being carried out «a social field of forces, struggles, and relationships that is defined at every moment by the relations of power among the protagonists» (p. 3).

In the opinion of Dakhli and De Clercq (2004), human capital influences the speed and quality of innovations, whereas the latter are not introduced and are not spread in social insulation and depend on the political and social environment.

Thus, the weakness of public human capital management has as a consequence of a high differentiation of the social-economic development in the regions (Chulanova et al., 2019; Voronkova et al., 2019). An uncertainty of the external and internal environment is also high, which causes a situational approach to human capital management to be used, which has a limited efficiency.

In connection to this, the circumstance that the «World Digital Competitiveness Ranking from the International Institute for Management Development (IMD) focuses on the three main factors is quite revealing: knowledge (know-how necessary for opening, understanding, and creating new technologies; divided into talent, training and education, scientific concentration), technologies (general context giving opportunities for the development of digital technologies; divided into the regulatory framework, capital, technological base) and preparedness for the future (level of preparedness for the use of benefits from digital transformation).

However, as authoritative Russian researchers note the Russian academic community as a whole has not yet fully understood the essence and potential of the human capital theory, even though a number of the most important consequences ensue from it: it is the quality of human capital as a key asset with which the modern employee enters the labor market that determines in many things his interests, «social activities», motivations and identities, it is directly linked to the processes of social reproduction of various groups and with mechanisms of retention of class affiliation (Tikhonova & Karavay, 2017).

Thus, the research problem consists of an insufficient state of knowledge of the mechanisms of influence of the political human capital management as a system of assets of strategic changes and increasing competitiveness of the modern state.

3. Research Questions

The problematic area of study is connected to several research questions the search for responses to which gives rise to a discussion in the academic community. First, it is necessary to articulate the basic «risk zones» on the process of public human capital management, which enables the development of the most efficient strategies in this sphere. Second, it is necessary to conceptualize the mainstream problems of human capital management conditioned by digitization. In the absence of answers to these questions, it is impossible to understand the nature of modern challenges for the stability of the state to which, in the opinion of the paper's authors, the following can be referred:

- formation of personnel reserve in the labor market. Discharge of employees dismissed due to digitization of a number of sectors is combined with a lack of personnel in the sectors growing in the digital economy age.
- the necessity of mass re-training of manpower being discharged. This problem is caused by the necessity for the population to learn modern technologies to satisfy the employers' demand.

- growth of demand for the «occupations of the future» related to the upgrading of digital economy sectors. Enterprises and companies experience an acute necessity in specialists who are necessary to support digitization of economic activities (engineers, programmers etc.).
- the necessity of mass training of population in high-level cognitive skills. One can note the ability for complex analysis, critical thinking, an ability to adapt to the rapidly changing conditions and methods of work etc.

It should be noted that the roles and capacities of the state in human capital management under the conditions of digital economy consist, above all, in developing education at all levels, the adaptation of the latter to the real needs of the labor market and innovative processes, and ensuring quality healthcare (including with the help of active prevention of disease, formation of the culture of care for health). Special significance is also given to the support of formation of general culture oriented at innovations and creative pursuit, and actualization in population of the aspiration for accumulation of human capital, for continuous learning (Becker, 1993). In other words, a combination of economic and moral incentives of a transfer to the new methods of labor and education related to digital technologies is of paramount importance. As was already said above, in order to make valid use of the advantages of digital technologies, the population must above all be able and want to use them.

The pandemic has set many additional important questions – for the valid implementation of digital and electronic technologies in education, including in terms of remote learning, it is necessary to form adequate standards and criteria for evaluating quality of the provided educational services. The tightest integration of modern technologies into the learning process is required, so that the abilities to use the latter might be one of the most important elements in the process of accumulation and formation of human capital. This will allow education to take a central place in the process of digitization.

Enhancing the digital literacy of the population rises, since the ability to use the newest technologies becomes fundamentally important under the conditions of fast-moving innovative processes (Kuznetsova et al., 2020).

Thus, the main research question determined by the growing global changes is how the state must prepare the industry, business, employees and population to the digital economy which will bring along new opportunities. In this context, being aware of the necessity of enhancing the state's competitiveness under the conditions of digital economy, public authorities adopt several documents and initiate several national and federal projects where they describe concrete spheres of application and the mechanisms of implementation of what is contemplated. But are these measures sufficient and quickly executable under the conditions of an unstable economic situation?

4. Purpose of the Study

This research's basic aim consists of learning and articulating the efficient patterns of public human capital management under the modern conditions. Taking into consideration the role of the state in human capital management and a considerable influence on the quality of national human capital, it is in the context of digital economy that it is necessary to identify new trajectories of participation of the state in human capital management and offer relevant scenarios of human capital management as a factor of increasing competitiveness of the modern state.

5. Research Methods

A key feature of the research methodology is a combination of scientific principles and theoretical approaches allowing characterization of all diversity of the processes and effects of digitization in the sphere of public governance in the modern world, particularly in the sphere of human capital management. Analysis of the processes of universal implementation of the principles of digital management and the appearance of modified versions of the labor market in various countries and regions of the modern world require relevant interpretations. Considering this circumstance, this paper uses many key methodological directions developed in today's political comparative studies within the recent decades.

Investigating various strategies of public human capital management, the principles of heterogeneity of comparative studies developed by Franzese (Franzese, 2007) is used as a departure. In the result of which this paper unites the following directions of comparative analysis: spot descriptions of the policies of «digital government» in separate countries, analysis of similar processes and institutes in a limited number of countries selected for these or those analytical aspects, research in development of typologies of the countries. A similar approach has made it possible to identify the most efficient scenarios of public human capital management in the leading countries in this sphere, and also to conceptualize the national specifics of this process. A key feature of the research methodology of the strategies for human capital management under the conditions of digitization is the use of a combination of neo-institutional approach, the public choice theory and the theory of the post-industrial society, allowing the interrelation of the technological and social-political aspects of the digital transformation of the system of taking political decisions to be revealed and its influence on the improvement of the quality of life of people to be adequately characterized, and also the key problems and obstacles for enhancement of civil activity of the population of the Russian Federation under the conditions of digitization to be identified.

The methodology of neo-institutionalism used in the research gives an opportunity to analyze in detail the possible combinations of the efforts of the state and business in the direction of digital transformation of the process of public management at all levels (Tay et al., 2018). The evaluation of efficiency of the various forms of the state partnership and the private sector in this sphere will provide for an objective analysis of an investment component under the conditions of the sanction, and the external factors of non-economic nature (such as dissemination of virus infections etc.).

The methodology of risk management has delineated the potentially dangerous scenarios in the process of human capital management under the conditions of digitization (Dumay et al., 2020). Within the frameworks of the above approaches it is possible not only to analyze and evaluate most accurately the efficiency of the public governance in the sphere of development of human capital, but also to describe the specifics of the process of interaction of the state and non-state actors (business, civil associations, network structures) during the implementation of the state programs of digitization in the aspect of both the service and the coordination components of the administrative reform in the Russian Federation. This will allow these programs' parameters to be clarified and their aggregate costs for the state more adequately evaluated.

6. Findings

In the course of the research it was established that in digital economy the role of the informative-digital component grows in comparison to the directly material one, both in production and in consumption. The speed of changes increases, horizontal interactions take a great place compared to vertical ones. The value and competitiveness of the companies is also determined in a greater degree by intangible assets: knowledge, human capital of employees, ideas and intellectual property.

In the modern labor market not as much hard skills as soft and digital skills grow in demand. The latter guarantees employment under the conditions of the labor market rapidly changing due to digitization (Petty & Guthrie, 2000; Sima et al., 2020). Sensible learning by people of these competences can be deemed one of the objectives of the state. An active enhancement of the digital competency of the population is also the state's objective, because the ability to use the newest technologies becomes fundamentally important under the conditions of the fast-moving innovative processes.

An analysis of various directions of the public governance has allowed making the conclusion that investment in man is deemed currently as one of the sources of innovative development closely related to the competitiveness of the state. In this connection, we will define the key strategic directions in the sphere of human capital management:

1) Education (implies improvement of education quality, coordination of the provided educational services and the needs of the labor market and digital economy, integration of education into the context of growing processes of digitization, development of career guidance; improvement of the educational infrastructure; personnel development and learning of people in the basic and professional skills in the sphere of digital economy);

2) Healthcare (improved quality of healthcare, formation of a culture of care for health, prevention of the most dangerous disease);

3) Regulation of income and social sphere (implies measures of re-distribution of the national wealth, support of least protection strata of population, ensuring a certain level of social-economic stability);

4) Partnership and cooperation of interested parties (wide engagement of various actors in consideration and discussion of matters related to digitization, joint measures in human capital management (also through investment placement) and increased cost of the latter, coordination of interests of the parties, ensuring settlement of possible conflict through negotiation processes, formation of a new culture of relationships of employers and employees, orientation of partners at innovations and development of digital economy);

5) Information supply, substantiation of the necessity of changes and support of the incentives of the population (dissemination of accessible and credible information on digital economy, orientation of population at digitization, «ideological» substantiation of the necessity and usefulness of the changes to come);

6) Overall quality of life and ecology (improving the quality of life, ensuring affordable housing and favorable ecological situation).

Thus, the conducted research allows to make a conclusion that human capital management under the conditions of digital economy implies two basic objectives: quality reproduction and accumulation of human capital, and efficient use of the accumulated human capital. The first includes creation of the conditions for accumulation of human capital, increased competitiveness of the latter, active investment in human capital and institutes facilitating accumulation and reproduction of the latter, and also prediction of perspectives for development of human capital in accordance with the future needs of economy. The second includes creation of favorable conditions and formation of competences for innovative labor and creative activities, enterprising (Abuzyarova et al., 2019).

In its policies the state must strive to a comprehensive and strategic approach of management of skills and competences of people, inasmuch as it is such an approach that ensures the best results and competitiveness of the state globally.

The state should further have a serious approach to human capital management as a means of successful digital transformation, and recognize human capital to be the most important resource of the country and therewith increase its competitiveness under the conditions of inevitability of the digital transformation of the economy.

The «Program for development of the digital economy in the Russian Federation until 2035» of the Center for studies of digital economy the latter is, in its turn, determined as an «aggregate of social relations forming during the use of electronic technologies, electronic infrastructure and services, technologies of analysis of large volumes of data and prediction for the purposes of optimizing production, distribution, exchange, consumption and enhancement of the level of the social-economic development of the state» .

The federal program «Manpower for digital economy» as goals and purposes related to human capital management, points out the following:

- Development of human capital potential;
- Use and development of various educational technologies, including remote, electronic learning, in the implementation of educational programs;
- Development and implementation of partnership programs of educational organizations of higher education and Russian high-technological organizations, including on improvement of educational programs;
- Motivation of Russian organizations for the purposes of providing employees with the conditions for remote employment.

7. Conclusion

On the basis of the conducted research it can be asserted that most often encountered specific measures of public human capital management in various states are very similar. The most often encountered specific measures of public human capital management in various states are very similar. Public initiatives most often implied: reduced shortage of necessary personnel in the labor market; facilitation of continuous learning and further training; buildup of a number of graduates with degrees in ICT; implementation of digital technologies into the educational process at all levels; wide participation of parties in articulating the competences necessary for digital economy; learning in the required digital

skills of both already working people and introduction of the necessary subjects in high schools and institutions of higher education; engagement of various actors in participation in human capital management; enhancement of awareness of digital technologies and the digital sector; generation of digital enthusiasm and engagement of people in participation in digital transformation; a number of measures related to expanded opportunities of people in equal access to digital technologies; creation and active introduction of digital learning materials.

Education and cooperation of interested parties are currently the chief directions of the national policy where the role of the state in human capital management in the context of digital economy acquires special significance. It can be not without grounds assumed that it is these spheres that are the key to successful digital transformation at the national level. By the results of research, continuous learning, introduction of digital technologies into the educational process, personnel development, cooperation with business in adopting curricula and in a number of other matters, as well as some other initiatives are the most important aspects of the worldwide experience of participation of the state in human capital management under digital economy.

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