



Organizational and Economic Support for Managing the Development of Human Capital in the Digital Economy

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Abstract: This article analyzes economic relations in the conditions of the digital economy, mainly digital production and digital service processes, as well as the organizational and economic management of the development of human capital in the digital economy.

Keywords: digital economy, innovative technologies, innovative system, modern innovative active companies, digital competences, investing in human capital.

In the context of the digital economy, economic relations are mainly digital production and digital service processes becoming more and more widespread. Implementation of network interactions between value creators is designed according to the concept of innovative development. Information exchange on the basis of innovative technologies is based on its diffusion, and its theoretical description is reflected in the works of modern economists as a structure that allows the implementation of relations between many companies.

As a mechanism for formalizing network relations, the architecture of the innovation system is studied in terms of coordination of cooperation and competition between participants and creation of incentives for participation in the innovation system [1].

In the design of the innovation system, the profit of the participating company is generally increased through interaction within the whole model. Since it is difficult for a single innovative enterprise to combine all the elements that provide a competitive advantage in the market, the participation of industries in cooperation is considered advantageous.

The innovation system architecture is made up of various participants: investors, state bodies, financial and credit organizations, insurance organizations, suppliers, intermediaries and distributors, customers, research institutions, scientific blocks consisting of research laboratories, universities (Fig. 1).

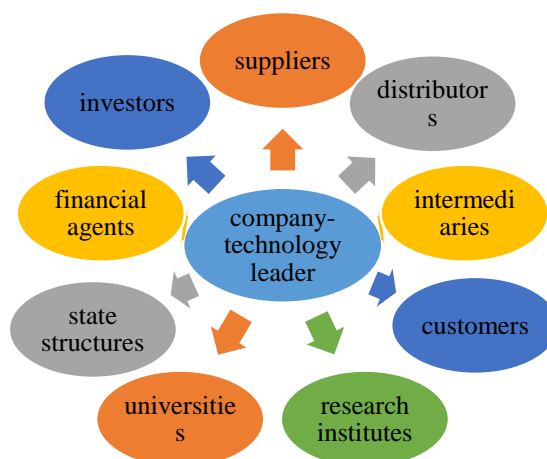


Figure 1. Innovative system architecture in the context of digital transformation



The innovative system complements the concept of value creation by expanding the range of entities directly involved in the supply-producer-consumer chain. Participants who do not belong to the traditional value chain can enter the system, including small innovative companies, financial and insurance institutions, outsourcing companies, innovation coordination structures, etc.

The core system is a leading technology company at the heart of the innovation system. This is appreciated by all other participants who use the system's capabilities, such as technology, services, information support tools, to improve the efficiency of their innovations. A single organization may participate in several related systems and play a different role in each.

Modern innovative active companies are trying to create a product on their own or to join a successfully developing system. Today, large companies such as Apple, Google, Siemens, Microsoft, IBM, Walmart are the world leaders that have created large-scale and complex innovative systems that work effectively in the market.

Thus, the innovative system is an interdependent integrated structure that formalizes the system of complex relations between its participants and their resources, and its purpose is aimed at forming an innovative culture, realizing innovative products and services.

The innovation system allows companies to create value that no one else can create [2]. The productivity and competitiveness of each participant is related to the efficiency of the system as a whole. In this regard, the main goal of scientific research is to study the boundaries of systems. The study of the organizational boundaries of innovative systems expands the theoretical understanding of the modern characteristics of the interaction of networked organizations with the environment, which helps to better understand the possibilities of motivation, stimulation, and innovation efficiency.

Defining the configuration of an innovative system is difficult because its boundaries are open and permeable. Unlike traditional forms of management, the interaction of system participants is not limited by their affiliation to the field. Rather, their cooperation within the system is determined by their ability to use interrelated technologies and the same or similar organizational competencies. Thus, it is not a network approach that is suitable for forming the concept of an innovative system, but rather considering it from the point of view of dynamically developing business circles specializing in research, invention, introduction, production of innovative products and services.

A separate and very important area is occupied by the new qualities of human capital, without which the development of innovative systems cannot be imagined. Digital transformation is also having a profound impact on the skills and competencies required to implement the new economic paradigm.

According to statistics from the European Union, more than sixty million Europeans do not have sufficient digital information. In 2020, almost 750,000 people will be unemployed in the information and communication sector due to a lack of people with digital skills. Around 40% of European employers report difficulties in finding employees with innovation skills[3]. In addition, it is true that 15 percent of youth between the ages of 15 and 24 are unemployed, and that highly skilled youth work in fields that do not match their skill level and talents.

Accordingly, the underdevelopment of digital competences is becoming a serious problem for the implementation of the innovative direction of socio-economic development. It should be noted that it is necessary to form a systematic approach to the formation of the structure of digital competences, which should include not only instrumental skills, but also digital literacy, creativity, critical thinking, communication experience and joint activities.



Challenges related to the formation of digital competences are the scale and sustainability, the availability of training and the provision of the training process with qualified teachers. The most successful approach in this regard is the integration of digital competences into educational programs at all stages of education, as well as the creation of dynamic learning processes that allow employers to participate in the partnership in training the required professionals. Investing in human capital and creating ample opportunities for lifelong learning is essential. As can be seen from the current situation, it is necessary to introduce digital technologies into the education system, as well as to create innovative educational ecosystems. Obviously, the role of teachers will increase, so it is important to invest in their professional growth and development of digital competences. The use of innovative teaching methods helps to develop students' creative thinking, creativity, curiosity skills and helps to find ways to solve problems. Artificial intelligence technologies, digital assessment, predictive analytics and virtual reality will become more widespread in the educational process. Using digital technologies to improve learning processes can support new ways of assessing student achievement.

Organization of the management process of human capital development in the digital economy is related to the classification of the factors determining its new system. During the research, personal (age, education level and income) and environmental (socio-economic development level, digital environment, formation of educational ecosystems) factors were determined. In addition, it is precisely environmental factors that form the basis for the formation and development of digital competence of human capital.

Table 1 National digital transformation initiatives around the world

Austria	Industriye 4.0 Oyesterreich
Belgium	Made different – Factoryes of the future
Czechia	Prumysl 4.0
Germany	Industrie 4.0
Denmark	Manufacturing Academy of Denmark
Spain	Industria Conectada 4.0
France	Alliance pour l'Industrie du Futur
Hungary	IPAR 4.0 National Technology Initiative
Italy	Industria 4.0
Lithuania	Pramone 4.0
Luxembourg	Digital For Industry Luxemboug
Netherlands	Smart Industry
Poland	Initiative and Platform Industry 4.0
Portugal	Industria 4.0
Sweden	Smart Industry

Systematization of research on this issue allowed to determine that the socio-economic status of the region is one of the main parameters, on the basis of which it is possible to adjust the development trajectory of human capital. The same group of factors includes the standard of living of the population, demographic characteristics, migration processes and specific characteristics of the labor market. Key parameters should be taken into account when making management decisions on human capital development. It is appropriate to consider the specific features of human capital management from the point of view of the digital transformation of the economic space. Accordingly, the issue of state assistance in the formation of the digital economy is particularly urgent. In recent years, a number of national and regional initiatives have been launched to promote digital transformation. Selected country initiatives are presented in Figure 6. These processes started in Germany within the framework of the state strategy "Industry 4.0" presented in 2011. Later, in 2015, the Alliance for Future Industry program was



created in France, which allowed to coordinate interactions between different business organizations, the scientific environment and a number of government organizations and institutions [4].

In accordance with the Decree of the President of the Republic of Uzbekistan dated October 5, 2020 No. PF-6079 "On approval of the Digital Uzbekistan - 2030" strategy and measures for its effective implementation, active development of the digital economy in our country, in all sectors and fields, first of all, public administration, comprehensive measures are being implemented for the wide introduction of modern information and communication technologies in education, health care and agriculture [5]. Based on this decree, in our opinion, in the practice of our republic, it is necessary to pay attention to the following cases in the development of the digital economy (Figure 2):

1. "Regulation of the digital environment"
2. "Personnel for the digital economy"
3. "Information infrastructure"
4. "Information security"
5. "Digital technologies"
6. "Digital public administration"



Figure 2. The main directions of state support for the digital economy in Uzbekistan

Support for the digital transformation of the economy and social sphere by the state is provided on the basis of:

- change the regulatory environment of relations between the population, business and the state;
- creation of a modern infrastructure of data storage, processing and transmission, as well as ensuring the efficiency and safety of its operation;
- formation of personnel for the digital economy;
- to support the development of digital economy technologies and the implementation of projects for their implementation;



- improving the efficiency of public administration and providing relevant services based on the introduction of digital technologies and platform solutions.

The personnel training system is of particular importance in ensuring the digital transformation of human capital, and the main directions of its implementation are:

1. Providing the digital economy with qualified personnel.
2. Support of talented schoolchildren and students in mathematics, informatics and digital economy technologies.
3. Assisting the population in developing digital literacy and digital economy competencies.

Solving the problem of staffing the digital economy is based on the development of a competency model, improvement of training programs, as well as support of relevant educational projects with grants.

Improving vocational education programs and introducing new training systems will provide the economy with the necessary personnel based on digital competences.

The reduction of jobs due to the automation of production creates the need to create additional conditions for the development of entrepreneurship. Accordingly, the support to the development of general education schools and business incubators and accelerators within the framework of the strategy implies the normative strengthening of the right to further development of the startup created within the framework of the final qualification work.

Digital competences are ultimately the highest priority area of key skills development and include 'the confident, critical and responsible use of digital technologies to learn, work and participate in society'[6]. They are aimed at performing all the tasks that are important for a modern employee to master (Figure 3).

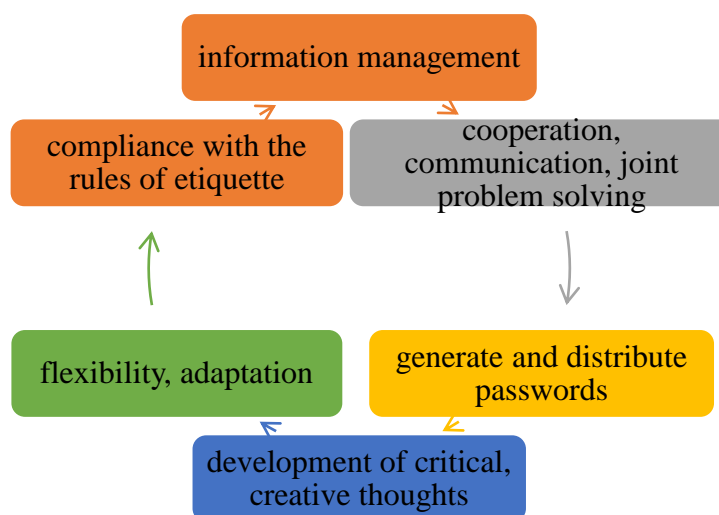


Figure 3. Tasks to be solved in the development of digital competences

The acquisition of digital competences contributes to the performance of tasks in the media and digital environment, expands the possibilities of media literacy, communication, cooperation, joint search for problem solving. Effective, systematic accumulation of knowledge, as well as critical, creative and flexible thinking skills are important.

Digital competencies include the areas of digital content creation, including programming, information security, including digital well-being and cyber security, and intellectual property protection. An important place is given to digital competences in order to form creative and critical thinking, increase adaptability to changing external conditions.



According to the data of the Higher School of Economics of the National Research University, more than 70% of the population of Uzbekistan aged 15 to 72 years used a personal computer, and the same percentage used the Internet [7].

Nevertheless, the pace of digital transformation of the economic space is still higher than the level of skills and competences in the field of using the digital environment of the majority of the population. In this regard, the problem of digital literacy of the population is very relevant both in the professional environment and at the user level.

List of used literature

1. Brandenburger AM, Nalebuff BJ. Co - Opetition: A Revolution Mindset That Combines Competition and Cooperation: The Game Theory Strategy That's Changing the Game of Business. Currency: New York, 1997. - 304 p.; Afuah A. How much do your coopetitors capabilities matter in the face of technological change? Strategic Management Journal, March Special Issue, 2000. 21, - pp 387-404.; Casadesus-Masanell R, Yoffie DB. Wintel: cooperation and conflict. Management Science. -2007, 53(4). - pp.584-598.
2. Adner R. "Match your innovation strategy to your innovation ecosystem", Harvard Business Review. -2006, Vol. 84 - No. 4. - p. 98.
3. European Commission (2019). Skills Agenda for Europe. - Mode contact : <https://ec.europa.eu/social/main.jsp?catId=1223&langId=en&moreDocuments=yes>
4. Coordination of European, national & regional initiatives - Mode link : <https://ec.europa.eu/digital-single-market/en/coordination-european-national-regional-initiatives>
5. European, national and regional initiatives coordination according to the author by structured - Introduction mode: <https://yec.yeuropa.yeu/digital-single-market/yen/coordination-yeuropean-national-regional-initiatives>.
6. <https://lex.uz/docs/5030957>
7. Council of the European Union (2018). Recommendation on Key Competences for Lifelong Learning. [Electronic resource] Mode friend : [https://eur-lex.europa.eu/legalcontent/EN/TXT/PDF/?uri=CELEX:32018H0604\(01\)&rid=7](https://eur-lex.europa.eu/legalcontent/EN/TXT/PDF/?uri=CELEX:32018H0604(01)&rid=7).