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# Evaluation of Digital Development of Human Capital of Enterprises

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***Abstract*-The actuality of this study is due to the fact that the triumphal procession of new digital technologies and revolutionary scientific discoveries in various fields is steadily gaining momentum. In the coming years, the leadership will be owned by enterprises with the predominant digital development of human capital. The aim of the research is to assess digital development of human capital of enterprises. The empirical basis was given by the data of Sberbank Corporate University, 2018; KPMG-"Corporate Digital Learning", 2015; IBM Institute for Business Value, 2016; McKinsey & Company. The authors have defined the main trends, taking place in the management of human capital in the paradigm of digitization, formulated serious challenges for the world education in the field of digital skills training enterprise staff. The practical significance of the research results is that correct interpretation of the existing trends of digital development of human capital will allow enterprises to choose the right strategy in digital development management Human capital of enterprises.**

***Keywords-digital economics, education, digital skills***

## I. INTRODUCTION

The development of the digital economy has led to qualitative changes in the management of enterprises, these cardinal changes, which have been in the focus of theoretical and practical research for several decades, have led to the formation of a new socio- Economic paradigm [1, 2, 3]. This is an unprecedented project that affects the life of the country and each individual, because it is the digital economy that is the basis for the development of many industries, and the process of its formation-is already a question National security and independence in the context of global competition. Working conditions are modernized. The complex of managerial tasks is transformed. There are no permanent boundaries of the decision-making sphere.

With the globalization of market segmentation, tighter competition, the requirements for the survival of the organization are increasing. In the coming years, leadership will be owned by enterprises with the predominant development of artificial intellectualization, which surpasses the human mind, however, based on it. Therefore, human capital Management is one of the most important factors in the development of organizations, because human capital is the key to creating long-term competitive advantages, so-called distinctive Competencies, acquiring high adaptive qualities that allow to adapt to extremely volatile market conditions. The use of digital technology deepens the capital structure by creating digital capital, which today becomes a major production factor and a multiplier that increases productivity and productivity evenly.

Human capital is a key factor in the competitive digital economy [4]. The evolution of public relations has led to the fact that information, knowledge and digital cadres become an important factor of production. The "Digital footage" category was introduced for the first time by an international company working in the field of management consulting McKinsey & Company in July 2017 in its study "Digital Russia: A new reality" [5]. To reflect the essence of the form we introduce a new category "Digital development of human capital." The author's approach to the definition of this concept is the following: digital development of Human capital – development of human capital in the direction of increasing digitalization and digital competence.

## II. ASSESSMENT OF DIGITAL DEVELOPMENT OF HUMAN CAPITAL

### *A. Assessment of Demand for Digital Competencies*

Within the framework of the International Adult Competency Assessment Programme (PIAAC) developed by the OECD Directorate on Education, from 2011 to 2012, adult skills research is carried out. PIAAC jobs include 4 main blocks: Reading, understanding written text, numerical literacy and problem solving skills in technologically saturated environments. In particular, the ability to perceive and process electronic texts, as well as the conscious application of information available in the virtual environment, is checked. In the 2015 analysis, according to the PIAAC, it is noted that the level of skill development of solving problems using digital devices is directly related to the risk of unemployment (Figure 1).

The most protected from this point of view are workers who can confidently solve professional problems in a technologically saturated environment. Within the framework of the action plan for the Development of Digital Education (DEAP), which came into effect in January 2018, the European Commission focused on such aspects of digital competence as problem solving and cooperation in the digital environment. Similar tasks for transforming major

skill groups are also highlighted in the World Economic Forum analysis and the reports of the Corporate Analysis Services (see Figure 2).

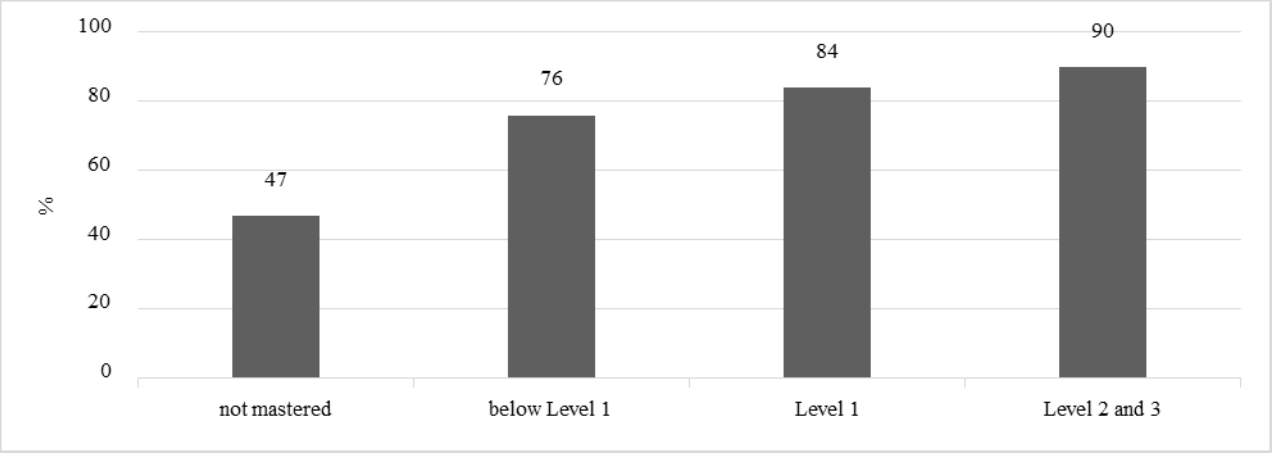


Figure 1. Employment of the population depending on the level of development of information and communication technologies [6]

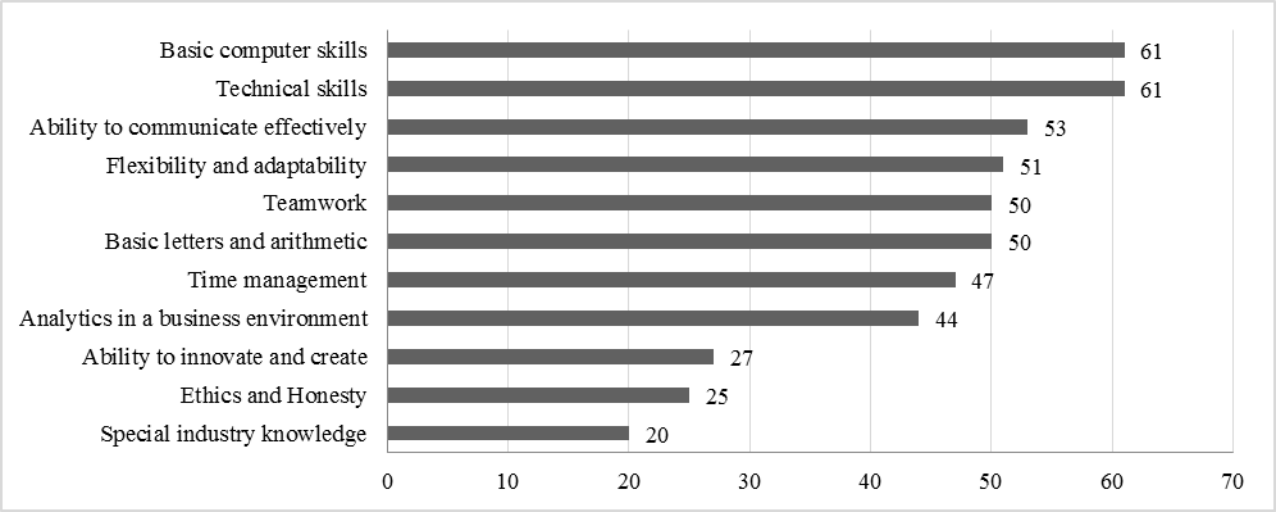


Figure 2. The demand for the competence of workers of industrial enterprises, % [7]

It is obvious that technical competence remains the most demanded, the importance of developed soft skills-social, behavioral and cognitive-is increasing for successful business in digital environments and adaptation to changing conditions. Digital literacy is not limited to acquiring certain technical knowledge and skills. Global challenges in learning digital skills are linked to the transformation of a vision of priority to success in the digital environment of skill groups.

### *B. Evaluation of Digital Training of Personnel*

Today, the issue of digital literacy of the population, determined by the set of knowledge and skills necessary for the safe and efficient use of digital technologies and Internet resources, is acutely emerging. Digital literacy is based on digital competencies-the ability to address diverse challenges in the use of information and communication technologies. Various State bodies, consulting companies and researchers have developed models of digital competencies/skills, which in many respects mutually complement each other. They provide the main directions for development: digital/information literacy, communication and cooperation, working with a large flow of information and solving problems that the machines will not be able to cope with. The importance of digital skills for work and social integration is increasing.

Universities, companies and people themselves should make an equivalent contribution to the development of digital skills, the upbringing of responsible and appropriate attitudes to the use of technology, including knowledge of digital rights and responsibilities, etiquette of network communication. According to a survey of 5 600 CEOs of global companies on IBM's skills development, half of the respondents believe that the companies themselves are responsible for raising the necessary skills of employees, and only 39% of respondents Believe that employees themselves should be engaged in development and maintenance of the professional skills (Fig. 3).

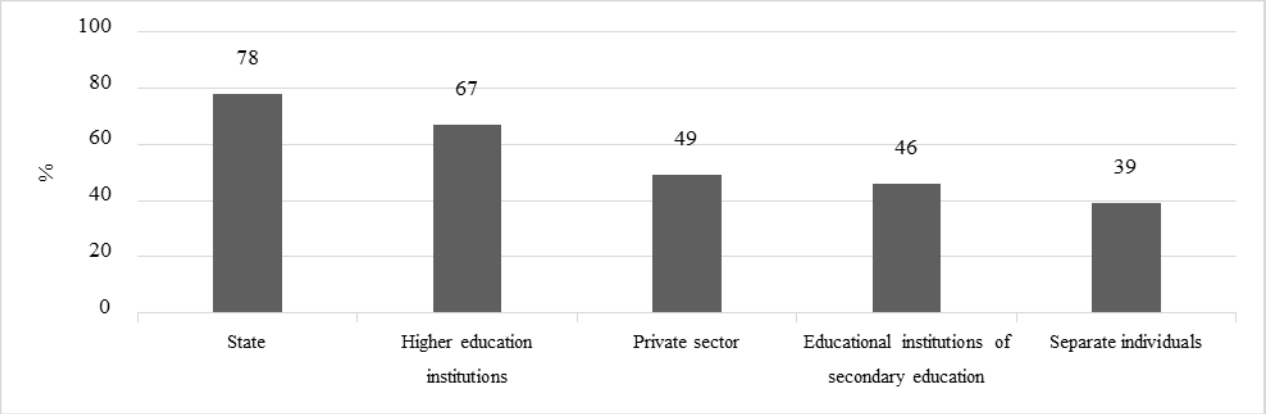


Figure 3. Who is responsible for developing and maintaining working skills and abilities [7]

The most important challenge for managers here is the lack of investment to ensure the necessary level of training. It is important to note that the increasing importance of integrated problem-solving skills and social cooperation allows forecasting increase of demand for professions in social sectors (education, health) and service sectors ( Financial services, coaching), which critically depend on the synthesis of technological and communicative skills. To succeed in the digital economy it is not enough once to gain knowledge or develop skills, it is necessary to regularly update the purchased luggage. The countries of the upper trajectory of development implement for this purpose solutions that stimulate lifelong learning – within the educational system, on the basis of employers or on their own. Educational systems are undergoing significant changes. The obsolescence of knowledge due to rapid technological change and the need to update knowledge regularly poses an issue for educational organizations to maintain the relevance and constant updating of curricula and courses appropriate Requirements of the environment. It is necessary to unite various training technologies, formats of training and technical innovations into a single educational system. It is important to expand the traditional models of learning with mobile technologies, augmented reality and other digital educational tools in a balanced way. The right distribution of the functional between teachers and digital means of support of training is crucial. Thus, the key challenge for modern education is the construction of an adaptive educational system that responds to changes in the environment and the creation of conditions for the implementation of individual (personalized) Paths of learning.

The answer to this challenge will be the creation of ecosystems, including public and private educational organizations, representatives of business and other employers, industry groups, professional communities (Fig. 4).

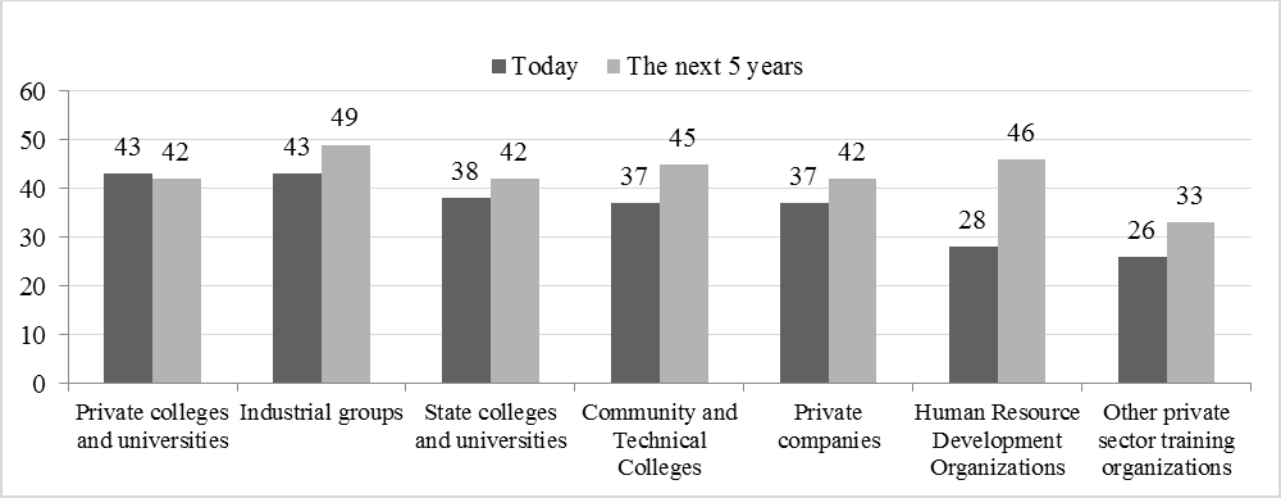


Figure 4. Contribution of organizations on the formation and development of the educational digital environment, % of respondents [8]

With this format of interaction the company will be better prepared to form a skilled workforce and increase its competitiveness, and workers will be able to develop the skills demanded in the modern economy. Within the framework of the ecosystem approach at the level of university education in Europe, the possibility of creating a pan-European platform for stimulating mixed learning, dialogue of researchers and online education is being

discussed.

At the same time the integration of corporate training tasks with support of high level of emotional and social satisfaction of users-ability to maintain communication and cooperation in heterogeneous digital environment acquires a special role. On a global scale, the depth of artificial intelligence in the education sector remains relatively insignificant [2, p. 112]. The reasons for this are related not only to the conservatism of the educational environment itself, but also to the unsettled ethical challenges concerning the use of the students ' data to build personalized and adaptive learning systems (Fig. 5).

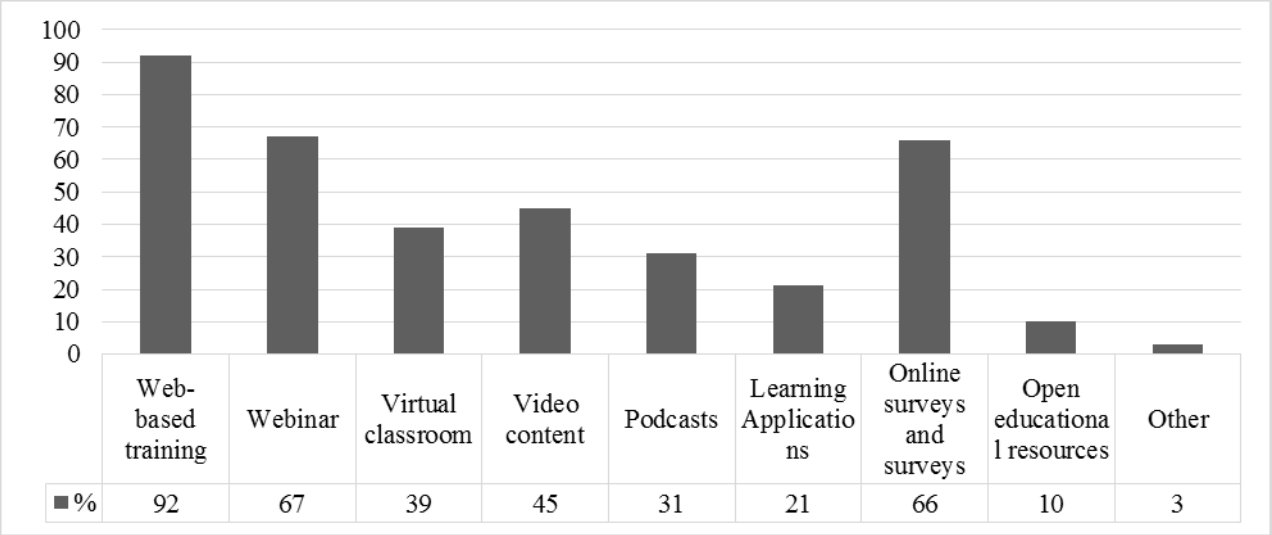


Figure 5. Types of digital learning in enterprises [9]

The willingness of different types of audiences to mastering digital learning tools is closely linked to the balance of formats and learning technologies, which can create a level of intensity for learning new information for all participants in the training process.

## III. SUMMARY

Accelerating technological change poses serious challenges to the development of human capital in the direction of increasing digitization and digital competence. To such challenges we have carried out a number of directions, the work on which requires immediate joint action by educational institutions, business environment and Governments:

1. Growing deficit of specialists with complex digital skills.

2. Formation of models of digital competences for people of different age groups and professional communities.

3. Increasing the demand for digital skills in a professional environment.

4. Creating a system of motivation to increase digital literacy and lifelong learning.

5. Optimal combination of standard educational approaches with new technologies, applicable in training.

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