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Digital Transformation of Society: Problems Entering in the Digital Economy

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ABSTRACT

The relevance of the research topic due to the necessity of identifying the main challenges of the digital transformation of companies. In the article the analysis of the terminology of the Digital economy. Selected the best quotes of scientific and public figures defining the need for a digital transformation of society. Conducted in-depth analysis of domestic and foreign research on the digital transformation of companies. The importance of building a parallel digital reality. The article graphically presents the results of a sociological survey. The survey was conducted anonymously with the test method. According to the results of sociological research revealed problems entering the population in the digital economy. The necessity of implementation of digital education to improve the overall quality of education of the population. The necessity of qualification of the teaching staff of higher educational institutions in the direction of the digital transformation of society.. the study was conducted system analysis, allowing to consider the challenges of digital transformation, digital education, digital literacy, digital culture, digital reputation. The advantages and disadvantages, and made reasoned conclusions. The processes of the

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digital transformation of society, aimed at improving the country's competitiveness. Scientific novelty is to identify the problems of the occurrence of the population in the digital economy. Identified the necessary digital competence. The materials of the article are of practical importance, was discussed at the faculty of information technologies of the Russian state social University, Moscow.
Keywords: digital transformation, digital competence, digital education, abstracts, and definition of the Digital economy, the sociological research of the digital transformation of companies.

INTRODUCTION

Education is the key and most promising areas of global competition of States for economic power and political influence in the twenty-first century. Modern higher educational institutions use virtual learning environment in the learning processes of distance students. Virtual environments allow us to provide educational services for various forms of learning. One of the most popular forms of training is a remote form. In the Russian Federation, distance learning allows you to reach remote regions of the country, providing educational opportunities to various categories of citizens, including citizens with disabilities. The concept of "the limited capacity of the human" is the physical limitations of man. Additionally, the limitation in education is the lack of sufficient funding for education for full-time and correspondence forms of training. Virtual learning environments have become factories of knowledge. Factory knowledge digital form is filled with electronic content. Electronic content contains high-quality educational program. The combination of all the available educational content is available on the websites of educational institutions using virtual learning environment. The use of modern methods of presentation of information allows you to use the information for different formats of data, namely, text, audio, video, 3D, multimedia, animation assemblies and performances. The use of information and communication technologies gives the possibility of improving the quality of training without discontinuing work.

Digital education takes the second place in importance after the digital economy. Digital transformation of society was discussed by V. V. Putin [1] at the plenary session of the St. Petersburg international economic forum. Assistant to the President I. Shchegolev [2] identified key interests of Russia in the digital economy. The head of the Government Dmitry Medvedev [6] instructed jointly with the presidential administration, to develop a program of "Digital economy", providing for measures to create legal, technical, organizational and financial conditions for the development of the digital economy in Russia and its integration into the economy of the member States of the Eurasian economic Union (Putin V.V. 2016).

The definition of the digital transformation of companies dedicated to the research of domestic and foreign scientists. In the works I. F. Kolontaevskaya & O. A. Isabekova [7] discusses issues of digital culture in the modern world. Digital culture as a factor of socio-professional mobility is considered in the works of T. S. Nahornova & A. A. Chikina [8]. The theme of the Digital economy was discussed at the lectures of the Global forum on civilization and peace, which was organized by the Academy of Korean studies [9]. In

Russian language were translated the work of Rafael Capurro, which presents the analysis of the impact of information and communication technologies in the information society. At the third Asia-Pacific conference on computing and philosophy, held under the auspices of the Center on ethical issues of science and technology University Chulalongkorn in Bangkok, reviewed the state of the digital transformation of companies. The results of performances published in the journal "Journal of Information, Communication & Ethics in Society" and partially translated into Russian language.

Questions of the effectiveness of virtual learning environments in the learning processes was reflected in the works of Russian scientists [10].

The use of Internet technologies in business, allows you to organize new forms of activity in the economy. In the work of A.V. Medvedeva [11] describes technological risks "...gives rise to specific risks such as the risk of mismatch of technology and time, the risk of exposure of information systems, the risk of conducting financial transactions. With growth of skill of the staff increases the risk of staff turnover. Due to the constant change of technical and technological base of e-Commerce, the variable cost tends to increase, as there is a constant need for updating the technical component and the training of personnel with an appropriate level of skill. Of interest are the works of the Russian scientists, revealing the issues of improving the quality of education through the use of virtual educational environments [12, 13, 14, 15]. Higher education system undergoing change. The basic concept of improving the quality of education is reduced to digital data conversion (educational content, educational e-modules) and organizational-administrative documents of higher educational institutions (of the orders of enrollment, orders for attachment to the group, issued diplomas, etc.). In the publication by N. F. Plotnikova "Critical thinking and its formation in higher education" discusses the formation of critical thinking of students of higher educational institutions to work with digital educational content [16].

Academician-Secretary of the Department of philosophy of education and pedagogics Russian Academy of education Michael Levitsky [17] gives the following definition of the term digitalization - "..this is a completely different aspect of our reality, rather than just information technology. Digitalization in the near future will form at the market of educational services in addition to the "producers" — institutions of higher education, and more "providers" — a major telecommunications company. They will start to show on the Internet entire educational program, after which will be issued the certifications." Dmitry Shtykhno [18], Ph. D., Vice-rector for development of REU named after G. V. Plekhanov considers the process of digitalization society as "... digitalization of all aspects of our lives is automation of vast numbers of productions, is a replacement of the professional obligations fully or professions as such robots; the development of new online communities; the transition from the concept of, say, "competition", "cooperation" more to the concept of "shared resource sharing". Tsvetkova Marina Serafimovna [19], candidate of pedagogical Sciences, associate Professor Russian Academy of natural Sciences examines digital education: "..this is a smart education that is based on the held innovative directions of development of digital pedagogy – pedagogy of the information society".

Dynamically, the process of entering the digital society. First and foremost, this process involves a system of digital education. In an unstable economic situation, higher education institutions are confronted with problems of finding reducing costs and releasing human resources. Application of value analysis in processes of cost optimization is insufficient as a tool for liberating labor, financial and material resources. The most effective tool for the optimization of costs is the transfer of system management and education in digital form, namely: translation management system paperless and translation of learning processes into electronic form submission data and documents. The need to transition to a Digital economy is associated with the high rental rates on occupied space, the unreasonably high cost of utilities costs, high energy costs, ever-increasing material costs for the purchase of equipment, spare parts, tools and accessories (Spare parts and accessories). The balance between the quality of educational programs and their cost can only be found in the transition to digital presentation data and documents. The modern consumer of educational services holds the selection of the educational institution, attending a virtual "open Days". Students analyze educational institutions of the information provided on the Internet. Applicants visit video blocks of presentations leading scientists, politicians. Webinars leaders of science, culture, politics, art, focus on the choice by the applicant institution. The more the applicant is planning to review the educational programs, the greater the amount of information he is viewing on electronic resources. To analyze interest to educational institutions, personal visits to higher education institutions in the modern mega polis is "expensive". A personal visit of higher education institutions consists of the following costs: financial costs for different types of public transport (metro, suburban railway, bus, trolleybus, tram, taxi); time costs, which consists of losing hours and days on visits to the applicant one educational institution, and is required to analyze tens of educational institutions; physical costs (downtime in traffic jams, the loss of health associated with lack of timely supply, General fatigue and stress, restriction in movement in connection with the temporarily existing diseases, etc.); material costs (purchase and payment communications, and communications). Additionally, the use of electronic interaction with the selection Committee substantiated the adverse climatic conditions and the absence of full security in the process of movement in the evening and later time periods. Digital transformation is needed for companies. June 2, 2017 plenary session of the St. Petersburg international economic forum Vladimir Putin has set the task to achieve universal digital literacy. To achieve this goal requires the introduction of digital technologies in all spheres of life. "The government will support those companies that are carriers of the development and competence of digital technology with the so-called end-to-end inter-industry effect. This processing and analysis of big data, artificial intelligence and nanotehnology, the technology of virtual and augmented reality and a number of other", - said Vladimir Putin. To create infrastructure for the digital economy will require professionals. Vladimir Putin [20] stressed, "...that in order to achieve universal digital literacy, it is necessary to improve the education system at all levels from schools to higher education institutions".

METHODOLOGICAL FRAMEWORK

In order to determine the readiness of specialists to join the digital economy will analysis the terminology of the Digital economy and the conceptual framework. Additionally, we conduct a case study in a survey of faculty of the Russian state social University, Moscow.

MATERIALS AND METHODS

In order to determine the readiness of specialists to join the digital economy will analyse the terminology of the Digital economy. Additionally, we conduct a case study in a survey of faculty of the Russian state social University, Moscow.

3.1. Modern definitions of the Digital economy

The digital economy (Digital economy) - economy, implemented by means of digital telecommunications. It professionals believe that the main instrument of economy is money, including all the transformation methods. In the digital economy there is a shift from "digitization" of money, which contributes to the acceleration of commodity-money relations, save time and increase the security of financial transactions. Doctor of economic Sciences, corresponding member of RAS Vladimir Ivanov gives the widest definition: "the Digital economy is a virtual environment that complements our reality". RIA Novosti (https://ria.ru/science/20170616/1496663946.html). Alexander Engovatov [21], candidate of economic Sciences, associate Professor of Economics of innovation Economics faculty of Moscow state University named after M. V. Lomonosov, gives this definition: "the Digital economy is the economy based on new methods of generation, processing, storage, data transmission, and digital computer technology". E. A. Khitskov [22], candidate of economic Sciences, Dean of the faculty of information technology, member of professional community of distance learning Professionals, chief architect of the Virtual learning environment of the Russian state social University, gives the following definition: "the Digital economy – a system of social relations, including production, distribution, exchange and consumption necessary for the society of digital goods, including products and services." S.V. Veretekhina [23], candidate of economic Sciences, staff «Tadviser», gives the following definition of the Digital economy "the Digital economy is a tool to ensure transparency of commodity-money and public relations used to ensure competitive advantages of the state, business and civil society, through the application of information and communication technologies, communication channels and telecommunications, the Internet, require a high level of information security."

Digital literacy is the knowledge and skills necessary for the effective use of digital technologies and Internet resources, includes digital competence, digital consumption and digital security.

Digital skills include finding information, using digital devices (gadgets) and functions of social networks. In the era of digital economy there is a need to conduct financial transactions and online purchases. Digital competence implies a critical perception of information, because the user of the system needs to have critical thinking: every fact is exposed deliberation; the process of knowledge acquires a personality and becomes

productive [24]. Digital competence includes the development of multimedia content. Multimedia content includes graphics, text, sound, animation information.

Digital consumption involves the use of the Internet services for work and life. The use of the fixed Internet, there is a wired connection. Mobile Internet is the main advantage of modems wireless. Digital consumption is not possible without digital devices and modern gadgets – the original high-tech gadgets (Smartphone, digital video recorder, TiVo, Bluetooth, GPS, Webcam, iPod Touch and other). Digital consumption is reflected in the necessity of receiving news via online media (media). Social networking has become a top priority in the consumption of digital information, and are approved means of communication. The relevance of information consumption is to obtain public services in electronic citizens. The portal is the most popular, in terms of obtaining documents, including in electronic form. Maintaining health for the modern citizen starts with an electronic record and ends with the receipt of sick leave, including in electronic form. Channels of media education aimed at informing the population of the technologies of healing and rejuvenation. Modern user of digital information faced with the need to use cloud storage. Total digital consumption is based on technology of obtaining, processing and storing large amounts of data and documents.

Digital security involves the protection of personal data. The existence of passwords and logins allows you to provide relative protection. A strong password is possible in the case of the use of the entropy of symbols and signs, increasing the length by the number of symbols used. Using modern technologies of remembering complex passwords and techniques of memorization allows minimum to ensure the security of stored information. For people with a bad memory and diseases of memory used by program managers passwords. The drawing up of the password according to the developed template. Modern user of digital information in full must be familiar with the basic principles of security storage of digital information on their own. All private digital information is called a legal user of content that includes albums of personal photos, music, personal audio and video recordings and more. Legal content of the right holder digital consumption can be protected with a functionality of the special software. To this may be a "water sign" - Watermark. The software informs the owner about the illegal copying, and denies copying. Pop-UPS on the ownership information of the copyright holder can protect the copyright of documentation, preventing digital piracy. Legal digital content allows to protect the business, providing quality services availability information and future reference.

Digital trends dictate a certain behaviour in a virtual educational world. The virtual page is available to open spaces for millions of users. The publication of the photographs in the digital space is a powerful tool of invasion, which allows to draw conclusions about a person's character, his interests, "strong and weak" sides of his life, including personal. Using the terminology of virtual environments, private slang users of the virtual environment threatened the career development, if information about a person is from the point of view of lowering his reputation in social networks. Not all users follow digital etiquette. Digital etiquette includes basic concepts: the notification of a person before photographing; notification of owner photos on the placement of information in social networks; the exact date and time of the photographing process; the author of the documentary photograph,

Surname-Name-Patronymic (name) of the photographer, with the address of its electronic mail and electronic identification. Under the digital culture refers to "...the value of digital technology that do not contradict the General humanistic values of the digital competence of the engineer, the possession of technologies of optimal orientation in the digital realm and, above all, productive dialogue in virtual space" [25]. In studies of T. S. Nahornova, A. A. Chikin [26] is given a complete definition of digital culture on all five levels: material, social, symbolic, mental and spiritual.

The digital culture is the system of new values, knowledge, skills, competencies, behaviors and communication, real and symbolic phenomena, based on digital encoding. Digital culture takes on a social-psychological sense and is the human behavior in the digital environment. Determines his habits in obtaining or providing information, generates the response information in social networks. Digital culture is a wide variation from high-grade humanistic self-realization in the information and digital environment to the rejection behaviors of the digital transformation of companies.

Digital reputation is a consequence of placing information about the person on social networks or on the official electronic resources. A digital reputation can be negative (compromising) or positive, is confirmed by the photographs, statements, reviews. The non-observance of the principles of digital culture can have a significant impact on real human life. The digital image may differ from the image of a real person. Digital image has a greater impact on his career, because all recruitment agencies employment analyze information of social networks and make a collective image of the applicant for an opening. In the digital space is very difficult to remove the objects or replace them with new ones. Information accumulates. Evidence of improper behavior impossible to hide, if they are duplicated (shares) to various information resources. HR staff confirm that to take into consideration the digital reputation of a person in its employment for the vacant position. A large part of the digital image depends on the ethical behavior of other people towards the chosen person. Fits the need to define digital ethics or information ethics. A key definition of information ethics, the Director of the international center for information ethics, Rafael Capurro [27] (Germany, Karlsruhe). They held in-depth analysis of the impact of information and communication technologies on digitalization companies. Formed R. Kapurro philosophy of digital culture aims to maintain the overall ethnic principles so that the digital culture has become a true symbol of freedom and human creativity in the era of the digital society. All of the digital information, including electronic content require the creation and structured storage in your personal computers and servers. All educational institutions have a library that constantly added to its collections a variety of information, including manuals, e-catalogs, video, audio content. E-learning virtual environment is structured filled with information and documentation in accordance with the requirements of educational programs. Filling a virtual educational environments meet the work programs of academic disciplines. This approach allows to optimize the cost of information search in academic disciplines. Storing digital information involves the ability to backup. Electronic citizen interaction with e-government uses digital information and is constantly produces a backup. It's about keeping the electrode of documents, whose number is constantly increasing. Problematic is the choice of where to store your backups. There is a need to control backups

and monitoring of the file system, protection from malicious software, threats from destruction and modification of information.

In total digital literacy involves a wide range of knowledge and skills for obtaining, processing, analysis, storage, copying of information and documents, perform the digitization of documents, archiving of electronic documents. For higher education institutions is becoming a priority direction for the development of educational programs to improve overall digital literacy of the teaching staff (TS). Identification of TS starts with the display of the status of scientist on the online electronic scientific library https://elibrary.ru. Publication activity of a scientist in a digital society is measured by the number of publications of different level (RISC, VAK, SCOPUS, Web of science). Posted on electronic resources, which include not only the online electronic scientific library https://elibrary.ru., but the map of Russian science https://mapofscience.ru. Technology of processing of publication activity of the scientist bring related indexes: citation index, decile rating in the direction of scientific categories, metrics (views, download, rating, downloads, inclusion in collections, etc.). Digital literacy of TS is reduced to the ability to analyze their publication activity. If you are late in posting, to be able to Supplement to the extent necessary your information resource author's publications. To be able to bind the links that are not always in automatic mode executed by the system to reliably and accurately observe a picture of the citation. Digital literacy allows a scientist to understand what regions of the Russian Federation demanded the author's publication the resource, to monitor thematic areas, which are the views of users (students, fellow teachers, organizations, etc.). The basic position of the scientist in relation to the information resources of its publication activity boils down to the need for condition monitoring the importance of its publications as a scientist for the world community. Availability of research results, analytical reviews, reports on the conducted scientific research and other scientific materials allows to provide the international community the necessary relevant information. Digital representation of scientific research gives the chance of transforming society to ensure freedom of circulation of scientific information in various fields.

Digital transformation companies defined the General concept of a scientific research SKOLKOVO. Presidential aide Igor Shchegolev [28] established the basic interests of Russia in the digital economy. One of the preferred directions of development of the digital economy is well-formed high-tech market. The main value of the high-tech market becoming information obtained in the result of processing big data (Big Data). Processing big data can be produced using the technology of the blockchain (the blockchain is a distributed database that stores information about all transactions of members of the system in the form of "block chains"). Active users of the blockchain now are the banks. Operations conducted by banks when you use the blockchain:

1. payments and transfers of funds. The basic principle is the following: once data is stored in the block chain, they cannot be modified or removed, allowing you to use the blockchain as documentary evidence of the transmission of digital data on cash.

2. smart contracts are special algorithms that run on their own when certain conditions are met. A smart contract allows you to update the data in the blockchain according to certain rules, which is comparable to HTML format.

3. Cyber security – the technology of the blockchain is focused on data transmission using cryptographic methods of information protection. The basic principle of cyber security with the use of blockchain technology is the lack of the human factor in the intermediary transactions.

The technology of the blockchain is gradually starting to be used in the education system. According to I. Kalganova [29] "Blockchain technology to solve a key problem – the problem of trust, because once added to a decentralized network of data cannot be changed in the future. This gives the possibility of reducing all the costs of interim inspections, which in many industries account for a significant part of the costs of business and the state". The use of blackchin technology tested in Singapore. "In Singapore was proposed to use the public blockchain to issue certificates and diplomas. Graduates of all educational institutions in the result to be transparent and publicly available list of their educational achievements, while educational institutions and other institutions will not be spent on the delivery of the documents, retention of records and their correction". This conclusion did I. Kalganov on the Internet resource of business and information technology "BIT" http://bit.samag.ru/uart/more/62. The whole factory of knowledge is already in digital form. The collective intelligence of Internet users allows us to solve "unsolvable" problems. Consider the experiment of the scientist, astrophysicist René Heller [30] of the max Planck Institute held in may 2017. The author offered to decrypt possible messages of the aliens to use social media. According to the scientist, the public data is derived by humans from alien civilizations that will allow them to decipher in a relatively short time. In the experiment, R. Heller encrypted message (in the form of a sequence around two million zeros and ones), put data in the Internet and invited anyone who wanted to try to consider six questions, the correct answers would mean understanding the coded text. The scientist received nearly 300 responses, of which **66 were correct**. Half of the solutions were obtained independently from each other, whereas the rest — in the course of discussions, particularly on social networks. The collective intelligence of the social network helped to solve "unsolvable" problem.

3.2. Research methods

Research methods have several levels. The empirical level of research are: observation, interview, questionnaire, survey, interview, testing, photographing, counting, measuring, comparing. To experimentalno-theoretical levels of research include: experiment, laboratory experiment, analysis, modeling, historical, logical, synthesis, induction, deduction, hypothetical. To identify the digital competencies, the authors conducted a study that allowed us to determine the willingness of subjects to enter the digital economy and digital space. The participants of the social survey made by the faculty of the Russian state social University, Moscow. The timing of the survey from 29 June to 18 July 2017. The survey was conducted anonymously on the site https://docs.google.com/forms in the automatic mode. Participants in corporate e-mail were sent individual emails with a hyperlink to the online survey. Sample informational messages: "In the framework of the research work carried out by the faculty of information technology, we invite You to answer the questions of the online questionnaire -https://goo.gl/forms/CFlxW7paSOSkeSkh1». The survey consisted of 10 main questions on the topic "**Readiness of personnel for the digital economy: a look to the future**." The survey consisted of two parts: part 1 – General questions about the interests of

participants, their gender, age, academic degree; part 2 – questions about the digital economy. Analysis of the results was processed in manual mode on the basis of the collected statistical information. The results file was downloaded from Google forms in the format *.xlsx. In Microsoft Excel 2007 was conducted and semi-automatic processing of data and generated charts that demonstrate the results obtained. We also used graphics generated by Google forms. The results of the survey was only available to the first author of this article. The number of people who took part in the survey – 133. The poll showed that more than 50% of respondents have a degree (45.1% of candidates of Sciences, 14.3% of the doctors, 39.1% have no academic degree). The professional interest of the respondents lies in the Humanities (38%), Economic (32%) and Information Sciences (29%). As additional areas of professional interest were noted: mathematics, physics and mathematics, medicine, photography (1%). Participants were distributed by age as follows: 25.6% were young people under 30 years old; – 27.8% aged between 30 and 39 years; – 22.6% aged 40 to 49 years; and 12% aged 50 to 59 years and 12% aged over 60 years. Most of the teachers who participated in the survey was female (64.7%), other males (35.3 per cent). The main objective of the social survey carried out by the method of testing was to identify the readiness of the teaching staff of the University to enter the digital economy and digital space. The majority of respondents believe that a key element of the Digital economy is the people (63.9 percent), a different opinion - a key element of the digital economy is a system (23.3%), the remaining 12% prefer human-system relations and 0.8% (1 person interviewed) believes that the economy is not digital. To the question: "What is the aim of the Digital economy?" most respondents replied that the Digital economy focus on: improving the quality of life (46%) of 100% number of respondents; reducing the human costs of support (54%) of 100%; optimization of educational routes for people with disabilities (20%) of 100%; other (5%) of 100%. The respondents were able to choose multiple answers.

Respondents noted that the entry into the Digital economy will require an increase in the number of it professionals. To the question "how many times should increase the number of specialists compared to 2017? The respondents answered: 35.8% of respondents answered - 2 times, 23.9% - in 5 times, 16.4% - in 10 times, 7.5% - to 100-fold, 16.4% of people are unable to determine the answer. To the question "What information resources do You trust to a greater extent in terms of review of "Digital education"?" 80.5% of respondents said that they trust the portal http://www.digital-edu.ru/ portal "Digital education". The specified portal combines sites "President of Russia", "The Portal Of Public Services of the Russian Federation", "Official website of the Ministry of Education and Science of the Russian Federation", the website of "the Ministry of communications of the Russian Federation", "Ministry of culture of the Russian Federation" and other sites of ministries and departments of the Russian Federation. Opposition resource "Digital education" http://www.ng.ru/politics/2017-05-31/3_6999_newopposicia.html "the New national utopia: a bright digital future. ..." trust about ten percent (9.8%) of respondents. Other answers on the issue of trust was limited to the analysis of information from various sources, including overseas; 1% of respondents do not trust any of the information sources. To the question "How do You feel about the technology of the blockchain (the blockchain) in the education system?" More than 80,5% of those who took part in the survey, a positive attitude to the technology of the blockchain in General and in education in particular. 14.3% of

respondents are negative, because the technology of the blockchain is technologically complex and expensive process of processing big data in education is not necessary. The rest have no information. To the question "Select what does the term "Digital competence", i.e. the ability of a person to the development of knowledge, abilities, skills in the digital age?". Choice of competencies are outlined as follows (**Figure1.**):

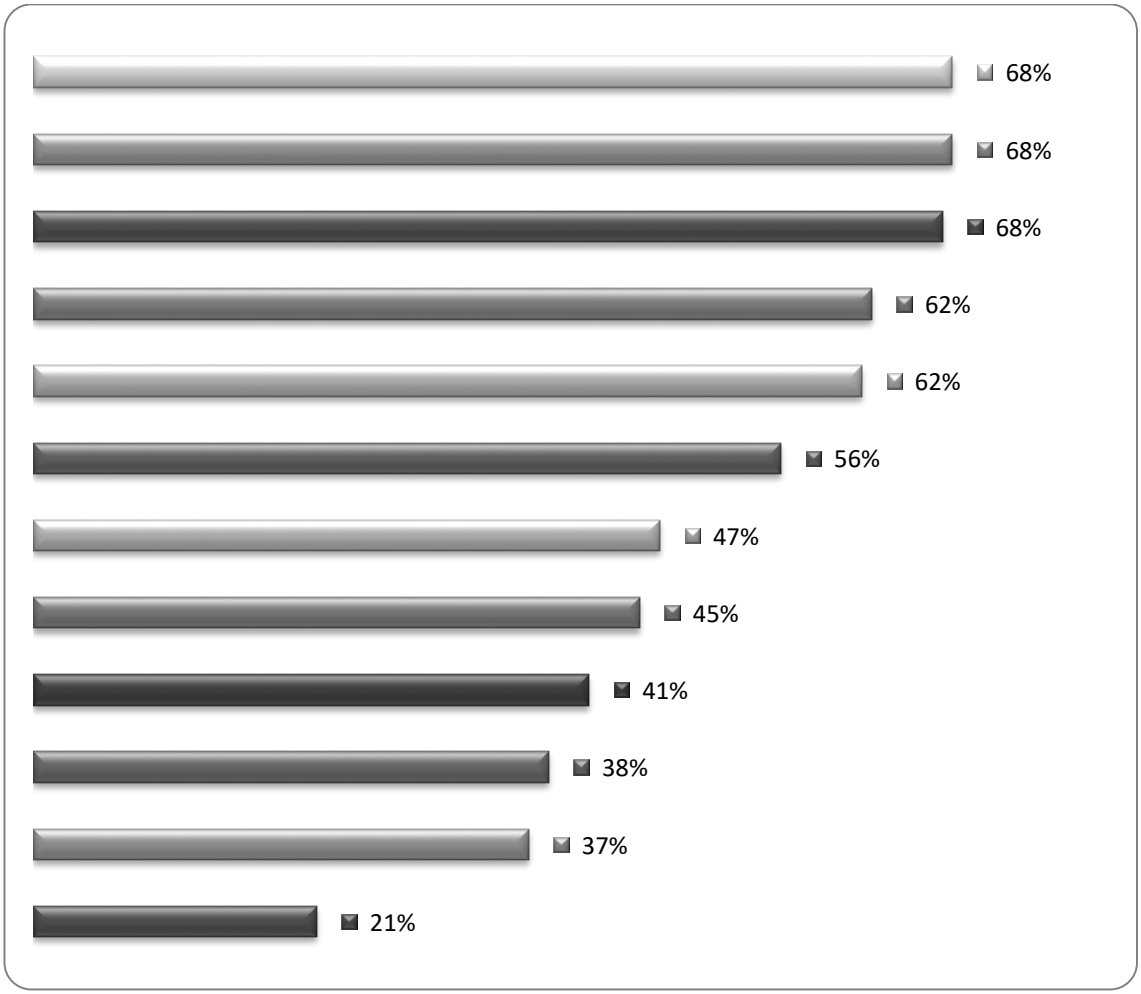

Figure 1. Distribution schedule of "Digital competences" according to the survey

To the question "What does the term "Digital literacy?" the majority of respondents (58.6%) believe computer literacy is the knowledge and skills necessary for safe and effective use of digital technologies and Internet resources. The remaining respondents (39.1%) chose the second option definition, which according to the concept of Glister Digital Literacy – media literacy, the ability to use various semiotic systems to have critical thinking, to understand, interpret and evaluate digital information placed on the Internet to determine its

accuracy. To the question "What is included in Digital consumption?" respondents prefer: the mobile Internet (74%) from the full list of the respondents (100%), public services (71%), digital devices (70%), cloud computing (65%), online media (63%), social networking (58%), fixed Internet (47%), news (44%), telemedicine (29%). To the question "What is included in Digital competencies — skills for effective technology use", the respondents gave the following responses which are presented in **Figure 2**. You can choose multiple answers from the list.

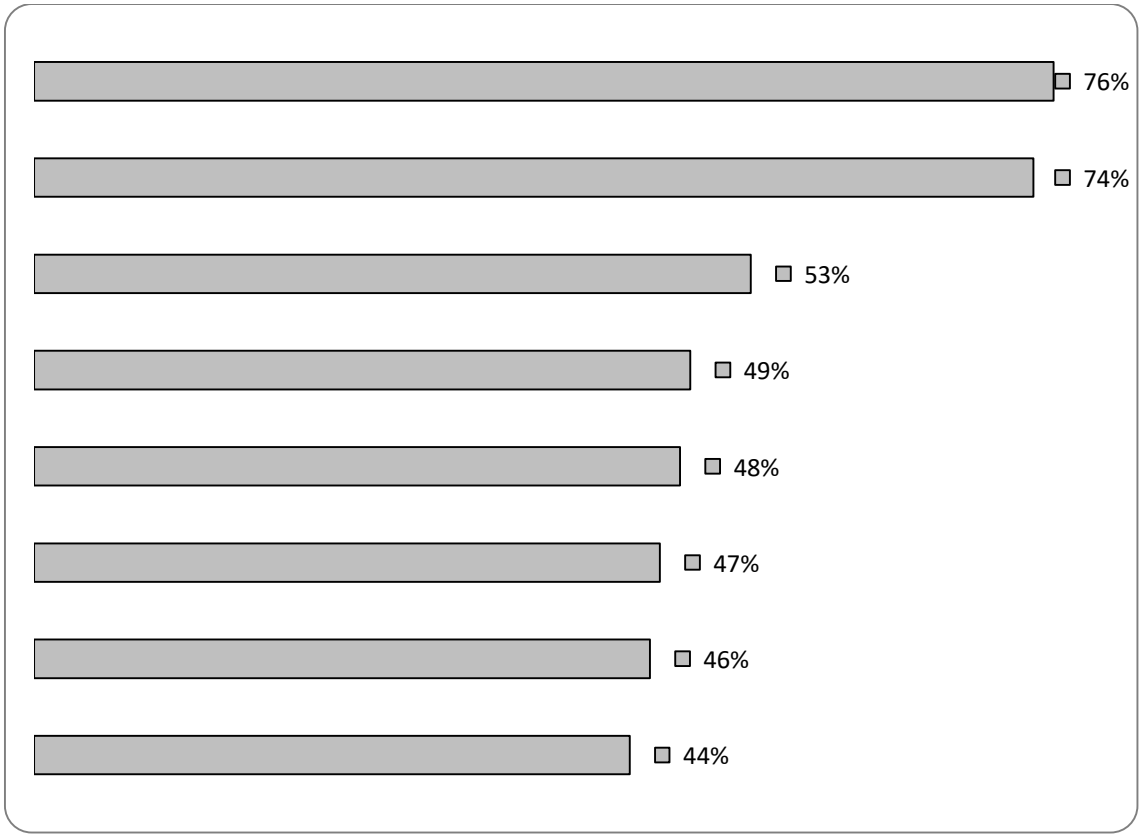

Figure 2. Distribution schedule of "Digital consumption," according to the survey

The poll showed that the issue of safe storage of data and documents respondents are very carefully. Indicate that the Federal laws of the Russian Federation and Decisions of the Government in full measure are ensured responsibility for the storage of data and documents, and use proven methods of information protection, as well as licensed software.

According to the results of sociological research by a team of authors have identified the readiness of joining the faculty of the University in the Digital economy and identified digital competence. Identified new competencies the faculty of the Russian state social University and their willingness to join in the Digital economy were the result of the

sociological survey testing. Required to note their active participation. Active position of scientific community in the process of entering the digital education due to the need of application of modern teaching methods using modern technology.

RESULTS

The survey showed a partial willingness to join the digital economy and the not enough competence in digital education.

The first identified problem is a misunderstanding of the processes. For example, a key element of the Digital economy of 35.3% consider the system and human-system relations. At the conference "Union leaders and divisions of additional professional education and employers" Vice-President L. V. Shmelkova [31] in matters of understanding the concepts of the Digital economy has placed the following priorities: "first priority: **People – the key element of the Digital economy** (and economy in General), and the process of transition to it. Second priority: Citizen, responsible of interacting with **Digital democracy, Digital government (government), Digital media**. The next priority: Stored in the digital environment the data about the educational and professional activities and their assessment form an individual **career digital history**" **(http://www.dpo-edu.ru/?p=15787).** Thus, only (63.9%) of respondents indicate digital literacy of human-system relations.

The second problem is the misunderstanding of the need to increase the number of IT-specialists. To the question "how many times should increase the number of specialists compared to 2017? The respondents answered: 35.8% of respondents answered – in 2 times, 23.9% - in 5 times, 16.4% - in 10 times 7.5% - in 100 time and 16.4% are undecided with the answer. The required increase in 10 times said only 16.4 per cent of respondents. The answer to this issue is the speech of the Deputy Minister of communications Alexey Kozyrev [32]. A. Kozyrev gave an interview to the information portal http://www.tadviser.ru. In an interview, he identified the following forecast of the digital economy as of 2024. "... in the field of training by 2024 in Russia should be enough IT-specialists. **They need 10 times more than as of 2017** comes higher education institutions. Traditional jobs, given the transformation of the sectors of the economy, require an additional set of competencies associated with digital technology. These competencies will be formed in the regime of the mandatory curriculum in schools and universities, as well as by vocational guidance, retraining". Thus, the poll showed that **83.6%** do not understand the necessity of reorientation training in technical and technological orientation.

The third problem observed is not in full possession of operations in the digital environment, which include: the acquisition of goods and services through existing and accepted technologies of payment, such as: payment of goods, payment of services of housing and communal services (HCS) via Sberbank online. The impossibility of synchronization between digital devices to each other, for example: computer and mobile applications. No willingness to produce media content, including educational content in electronic form. Not fully possess the skills of finding information and documentation on the digital resources of the state of Digital education portal. Only 21% of respondents understand the necessity of the formation of the professions of the future which is determined by the concept of the Government of the Russian Federation and developed

through research of SKOLKOVO. 79% of respondents do not have any information about the "Atlas of new professions" http://atlas100.ru/. The decisions of the Government of the Russian Federation has secured higher educational establishments that will receive additional funding for the development of future professionals. Therefore, almost 80% do not have any information in part of the upcoming changes in the change of occupations, namely: I don't know the list of occupations, whose function will be fully automated. In generalized studies of S. V. Veretekhina [33, 34, 35] presented "..**most of the control functions** is transmitted to the automated systems, robots and machines. …the table containing the list of names of professions model **automated control systems** of objects and the list of names of professions **replaced by automated systems in the management of documents**. Summarized in a General table of the profession that will be in demand tomorrow (2020), "the day after tomorrow" (after 2020), "profession-retired" and professions of the future. Described professional skills of the jobs of the future, ... identified the TOP 10 most popular professions of the future. Identified the need to replace old jobs. Effectiveness of transfer of functions of automated control systems".

The fourth identified problem is a partial awareness of the respondents of the need to respect digital reputation (29%), digital ethics (40%) and digital culture (41%) (**Figure 1**).

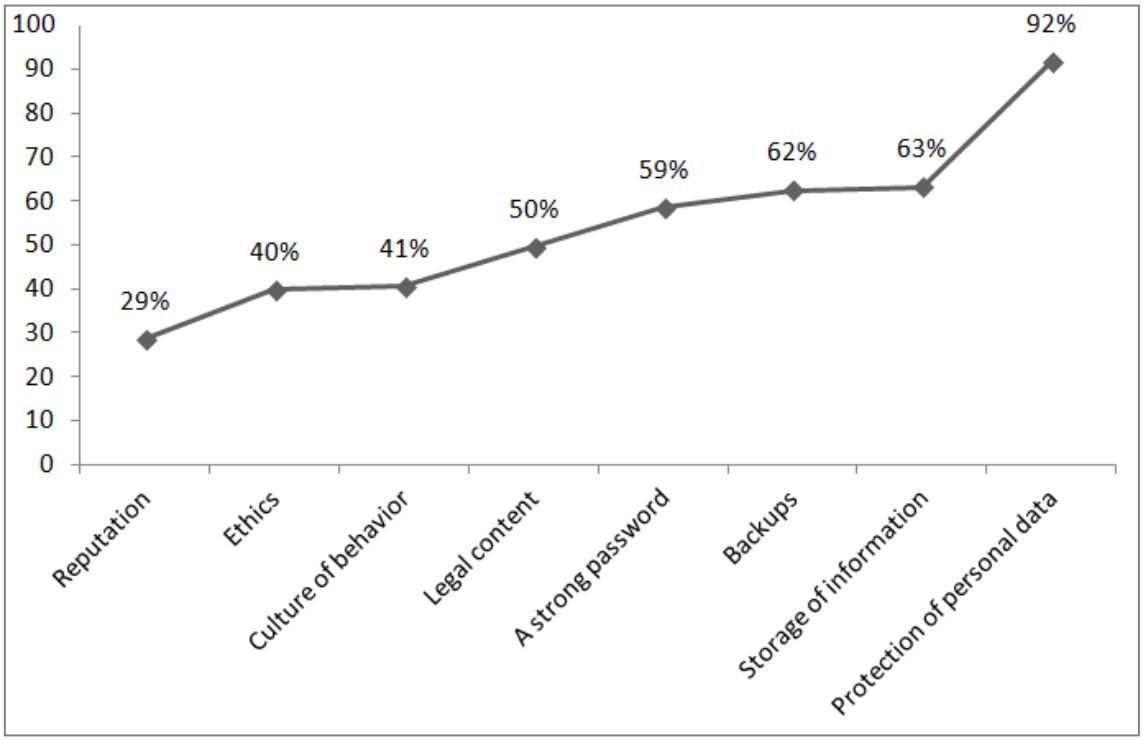

Figure 3. Graph of distribution of "Digital security" according to the survey

Among the problems identified have positive aspects, namely: the majority of respondents believe that the Digital economy aimed at improving the quality of life and reduction of human cost of life support. The respondents have trust in the actions of the State and Government, namely: 80.5% of respondents said that they trust the portal "Digital education" and is ready to fulfill all Government Regulations. The observed problems associated with lack of awareness or lack of retraining in the direction of "Digital literacy".

A sociological survey showed the need to improve staff qualifications, particularly among teaching staff. Need to be aware of the new Digital economy. Teachers must keep up with innovations faster to not only improve their level of knowledge, but also to have time to teach their students.

CONCLUSION

The need for a digital transformation of society due to several reasons. The parallel digital reality is responsible. Domestic and foreign scientists combine the results of their research to identify issues of the digital transformation of companies [36, 37, 38]. The decrees of the RF Government defined measures for providing the public with information on upcoming changes in society. Sociological studies have shown that fully formed concepts of the system which includes the use of fixed terminology of the Digital economy. The article summarizes the results for various publications. Described in detail, the terms and definitions of the Digital economy. Includes an explanation of terms digital literacy, digital consumption, digital security, digital competence, digital culture, digital ethics, digital trends, digital reputation, digital education, etc.

To identify the real situation regarding the preparedness of entering the Digital economy the authors of the survey. In a leading institution of higher education sociological focus carried out a survey of the faculty. Used an anonymous online survey. Applied testing method. At the empirical level of research (survey, testing) summarized the obtained data allow to draw conclusions in two main areas. First identified the interest of scientists in the process of digitalization of education. This is confirmed by their active participation in the ongoing survey and expressed civil position. Second, it identified the need for greater digital literacy. The process of digital transformation of society begins with the improvement of professional and cross-professional skills. The test showed incomplete competence of the teaching staff in digital transformation of companies. The highest competence was defined in the storage data and documents and the protection of personal data. Insufficient attention is paid to the issues of digital ethics, digital culture and digital reputation. The failure of attention due to the fact that at the present stage of Russian society development, preference is given to human relationships, because a large part of digital information is not taken into account when addressing key issues. A growing trend is to use the copyright of digital content and the licensed software. Users in the network, boarding school, more than 50% confident in the protection of their digital data through the use of personal passwords. More than 60% of respondents give utmost importance to back up data and documents, and storing information on the official resources. The need to use learning processes the digital information is confirmed by 76% of respondents. Insufficient use is made of digital consumption in terms of carrying out business and financial operations. Not enough

technology is used to purchase goods and services through online purchases and sales. The reason is that the Internet is a place where unclaimed imposed on goods and services.

The study identified four major challenges of the digital transformation of society on the example of the ongoing survey, namely:

1. the lack of understanding of the processes of the digital transformation of companies;

2. lack of understanding of the need to increase the number of it specialists for the Digital economy;

3. not in full possession of economic-financial transactions in the digital environment;

4. a partial awareness of the respondents of the need to respect digital reputation digital ethics and digital culture.

In conclusion, you want to say that the solution to the problems of the digital transformation of society is professional development of teaching staff, improving digital literacy for scientists, students, population in proportion to the total population so that observed through the inter-industry effect. The improvement of the education system in its digital expression requires to be started now in order to timely provide a qualitatively new level the occurrence of the population in the Digital economy [39, 40]. The decisions of the Government of the Russian Federation provided all the necessary steps to a new quality of life in the era of the digital transformation of companies [41, 42, 43].

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