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**AN INTERDISCIPLINARY APPROACH TO EDUCATION AS A  
BASIS FOR URBAN DEVELOPMENT MANAGEMENT**

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*Abstract*

Currently, fundamental changes are taking place in human resourcing of the economy, which is reflected both in the emergence of new specialties that are extremely in demand on the modern labour market and in the gradual reduction in the need for some professions and their predictable disappearance. In our opinion, the rapid development of digital technologies and their widespread application form new requirements for professional culture of a modern specialist, which is reflected in the gradual transformation of educational programs which are aimed at more complete compliance with the requirements of the digital economy. This article substantiates the relevance of improving the personnel training system in order to provide the labour market with specialists in creating a comfortable living environment, identifies the problem of lack of working skills in the digital economy and also considers such an aspect of the labour market as the emergence of new specialties at the junction of different areas of knowledge. As a result, the authors proposed directions for the further development of the personnel training system, among which there is an integration of the interdisciplinary approach in the framework of educational programs in various specialties, as well as the development of an optimal combination of the number of lecture and practical classes in order to most fully ensure that the content of the educational program meets modern requirements for specialists in conditions of a digital transformation of all spheres of life of the population.

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## 1. Introduction

The complex transformation of society is taking place in the context of globalization and simultaneous formation of the digital economy. The structure of consumption of goods and services is changing; forms of interaction between people at personal and working levels are becoming more and more digital. One of the areas of digital transformation of the economy is the formation of a comfortable environment for a human life, which implies widening the list of services available to the population, the functional development of the information infrastructure, increasing the level of dissemination of digital technologies, as well as creating conditions for generation and development of innovative tools in the city (Ganchenko & Tarzanova, 2019).

According to experts' opinion (Luksha et al., 2014), polarization of specialists will occur in the nearest future - highly qualified personnel responsible for the generation of innovative ideas, transformation process management and other complex tasks, as well as low-skilled ones who can competently work with automated equipment will be required. It is predicted that within 15-20 years 14% of jobs will disappear due to the process of full automation of their activities and qualification requirements will radically change for 32% of jobs (OECD, 2019). Already, 45% of employers have noted a lack of skills among candidates for employment and this has been the highest index since 2006 (ManpowerGroup, 2018).

In our opinion, a modern personnel training system should be adapted to rapidly changing conditions in the economy and the labour market. Trainees should not only have skills in working with digital technologies, platforms and infrastructures, but also have knowledge in various related fields, since labour activity in the digital economy is often associated with implementing tasks which are covering several specialties.

## 2. Problem Statement

The formation and development of the digital economy leads to changing the set of skills inherent in one or another specialty (Stein, 2015). According to the results of surveys (Lichtblau et al., 2015; ManpowerGroup, 2018; World Economic Forum, 2015), insufficient staff qualifications and the lack of necessary working skills in the context of digitalization are among the main obstacles in the dissemination of new technologies both at the level of individual legal entities and at the level of government initiatives. Elements of the system responsible for ensuring comfortable living environment of people within the framework of smart cities are technologies which provide for collection and analyses of big data, digital platforms, sensor systems, etc., which, according to scientists, will be reflected in changes in the necessary skills of employees (Bhimani & Willcocks, 2014) and will require a radical revision of the list of specialties.

Due to automation, the introduction of smart city technologies will lead to a certain reduction in the need for jobs, implying low qualifications, but the demand for highly qualified personnel will increase, and in general, according to McKinsey experts, global employment growth is projected 1-3% by 2025 (McKinsey Global Institute, 2018).

Among the problems of human resourcing of the economy scientists emphasize the low rate of adaptation of educational programs to the demands of the labor market, the insufficient level of practical skills of graduates of specialized educational institutions and the insufficient skills in working with digital technologies both among graduates of educational institutions and existing employees (Abyazov & Shcherbina, 2018).

Accordingly, in order to remain in demand as a specialist, it is necessary to improve your qualifications constantly, as well as at the stage of studying to be able to cover the widest possible range of disciplines directly and indirectly related to the specialty acquired, since in modern economic conditions it is not ruled out to change a specialty in the course of work. We believe that the lack of specialists with skills in the digital economy is one of the priority problems that need to be solved within the framework of the personnel training system.

### **3. Research Questions**

At present, the formation of comfortable environment for human life is becoming one of the priority factors influencing the economy of regions in general and the labour market in particular.

- 3.1.** Among the issues that need to be solved by the scientific community, we highlight the problem of qualified specialists training in the conditions of increasing requirements for employee skills, which requires adjustment of educational programs.
- 3.2.** Also, employers are increasingly demanding specialists with knowledge in related areas, which justifies the need to develop an interdisciplinary approach to the educational process.

### **4. Purpose of the Study**

The aim of this work is to study the human resourcing component in the process of creating a comfortable environment for human life in the digital economy and to propose measures to improve the personnel training system in order to most fully provide the labour market with the necessary specialists.

### **5. Research Methods**

To solve the set tasks, cognition methods will be applied, including a systematic approach, methods of logical and comparative analysis, economic and statistics analysis and expert method.

### **6. Findings**

Ensuring comfortable environment for human life is associated with the technologies of “smart” cities, which is also reflected in the classification of the labour market. In cities with highly developed network of digital technologies, such as New York, the demand for administrative specialties is expected to decrease by 0.6% in the next 5 years, while the demand for temporary work on the installation of equipment and facilities, as well as for driver services will increase by 0.2% (McKinsey Global Institute, 2018). In cities with lower levels of digital technology development, a smaller reduction in demand for

administrative professions is expected (-0.3%), but the demand for temporary workers will increase by 0.3% (McKinsey Global Institute, 2018). The general trend for all smart cities is the growth in the licensing of digital business (+ 0.3-1.3%) and digital services in the issue of land use and obtaining permits for construction (+ 0.1-0.3%), and also an increase in the supply of personalized education (+ 0.4-0.9%) and online training programs (+0.1-0.3%) (McKinsey Global Institute, 2018).

The ManpowerGroup experts conducted a study in more than 40 countries, which revealed that the greatest shortage of specialists is observed in such professions as skilled workers (electricians, mechanics, etc.), engineers, technical workers, financial department personnel, administrative staff, skilled workers in Commerce, IT staff, drivers, executives, equipment operators and supporting staff (ManpowerGroup, 2018).

As you can see, not all specialties mentioned in this study are new for the labour market, on the contrary, many of them exist for decades, but the deficit still remains. In our opinion, the results of the study reflect the tendency to improve the qualifications of specialists in terms of skills in working with information technologies, since in the digital economy it is impossible to imagine effective activities without their application. The OECD study is consistent with this opinion: more than 40% of employees use information and communication technologies on a regular basis, but do not have sufficient skills for their effective application (OECD, 2016).

Currently, scientists recognize the need for continuous improvement of the personnel training system, since in the digital transformation of the economy and social relations, exactly this knowledge becomes the key aspect of the successful development of individuals, organizations, countries and the world as a whole (Namiot et al., 2017). It is currently recognized that Generation Z (born after 1995-1996) has grown in satiated information environment, and it expects the use of information and communication technologies in all areas of its activity and the effectiveness of the educational process with the use of modern technologies is increasing (Remizantseva & Ablyazov, 2019). Now employees must not only have a standard set of skills, but also be able to think outside the box, be able to make decisions in the conditions of uncertainty and rapid environmental variability and also recognize and solve new problems dictated by the digital economy.

In our opinion, in such conditions, the personnel training system must adapt to the conditions of digitalization and subsequent changes in the labour market through the development of interdisciplinary communications and introduction of optional educational modules. According to foreign experts, Russia is in 49th place (out of 125) in the Global Talent Competitiveness Index (Lanvin & Monteiro, 2019). The existing education system is noted among the country's strong points, however, among the shortcomings, experts highlighted the problems in attracting personnel (109th place in the ranking) (Lanvin & Monteiro, 2019), which, we believe, is not due to the lack of required specialists as such, but with their insufficient level of professional training in the conditions of constant changes in the necessary set of knowledge, skills and abilities in connection with the active development of equipment and technologies.

One can single out a comprehensive reorganization of the methodological support of the educational process among the key approaches to improve the personnel training system in order to adapt to the conditions of digital transformation of the economy and human environment. In the digital

economy, teachers need not only passively transmit information, but also apply an activity approach, during which students generate knowledge immediately applying it in practice.

The traditional educational form of lectures is an effective way of conveying theoretical ideas, principles and concepts to a large audience, that is, it provides information about the outside world, however, despite the fact that lectures are the basis for putting theory into practice (Bedwell et al., 2014; Salas et al., 2009), this learning format allows students to remain passive and also does not allow teachers to use any innovative technologies to develop students' skills (Hermens & Clarke, 2009).

The solution of various practical cases, on the contrary, develops students' analytical abilities and the ability to apply theory to solve real problems (Farashahi & Tajeddin, 2018). This form of teaching relates to active teaching methods in which students simultaneously develop interdisciplinary skills, such as the ability to work in a team and make decisions in conditions of uncertainty and also learn from their own experience, rather than taking ready-made decisions from theory.

Another form of teaching is the modelling of situations related to practical activities by specialty, or in another way, various business games. According to experts, the modelling of situations is more effective in the framework of advanced training, as it involves some experience in this field, although its application as an additional type of work to the main course of study at the university is not excluded (Faria et al., 2009). In the teaching process through modelling, emphasis is placed on the empirical application of knowledge; participants in such events are actively involved in the educational process, make complex decisions and act on the basis of not only their theoretical knowledge, but also taking into account the situation that changes independent to students will in the business game (Coffey & Anderson, 2006). However, modelling is not possible in all areas of training (for example, accounting, in which this form does not completely replace real work tasks (Mason Burdon & Munro, 2017) and also does not reflect the time factor for which simulated situations occur, which inevitably affects decision making in practice (Lainema & Makkonen, 2003). Therefore, the rational distribution of various forms of teaching for a particular specialty is one of the directions for improving the personnel training system in the field of adaptation to the labour market in the digital economy.

We also note the importance of developing a system of practical application of the knowledge acquired by students even at the stage of study by holding case championships and mastery contests. Such events will not only allow students to identify areas in which they lack skills, but will also be a great way to stand out from applicants in subsequent employment, as this will demonstrate to employers the ability to solve real work problems (Loginova et al., 2018).

Particular attention should be paid to the quite popular division of skills into hard and soft ones. Hard skills are professional knowledge gained during the development of an educational program, as well as such skills as planning, organization, self-control and critical thinking. Previously, it was believed that the employee's effective work is provided by this category. Nevertheless, in the last decade more and more attention has been paid to soft skills, that is, the ability to work in a team and argue to defend one's point of view and resolve conflicts (Parente et al., 2012). The personnel training system should simultaneously develop both categories of skills in students; this approach is reflected in a combination of different methods of conducting classes.

Moreover, in the context of digitalization of the human environment, a need for new specialties arises that are at the junction of professions: big data analysts, specialists in machine learning, artificial intelligence and robotics, digital marketing and digital transformation (Maddox, 2018). A striking example is the specialty of an analyst in the field of urban informatics, which is interdisciplinary in nature and establishes connections between people, objects and technologies. Such areas of knowledge as biotechnology, information modelling of buildings and structures, energy efficiency, etc., are becoming increasingly widespread. In our opinion, the development of an interdisciplinary approach in higher education, on the one hand, will allow students to cover a wide range of disciplines that are related to the specialty they receive, such as mastering building design technologies and organizing building production while training in economic specialties in the field of construction, which will give the possibility of more efficient work in the context of erasing the boundaries between different areas of knowledge. On the other hand, an interdisciplinary approach creates qualitatively new specialties and it is important for universities to monitor the labour market in a timely manner in order to adapt as quickly as possible to the needs of society and to teach students the skills which are mostly in demand in the digital economy. One of the ways to implement an interdisciplinary approach is the introduction of optional modules and not necessarily directly related to the acquired specialty.

Thus, the university education should be adapted to changing economic conditions and new skills requirements for specialists. Currently, the need for various new specialties in the field of information and communication technologies is growing and the range of responsibilities for professions that are not directly related to technical tasks is becoming wider. Summing up, we can say that modern education should be interdisciplinary in order to comprehensively prepare students for work.

## **7. Conclusion**

Thus, the formation of comfortable environment for human life in the context of the digital economy is one of the factors affecting the labour market and, therefore, introducing changes in the personnel training system. The processes of population growth with simultaneous urbanization lead to the fact that by 2050 2/3 of the world population will live in cities (Namiot et al., 2017), which will require the development of urban infrastructure, which in turn will have to withstand huge data arrays involved in the exchange of information between many subsystems which support the city's life.

In the context of the digital transformation of all spheres of human life, the training of personnel whose qualifications meet modern requirements for knowledge, skills and abilities is a priority in the process of improving teaching. It is important to take into account the relationship between theoretical knowledge and practical problems in their application, paying more and more attention to solving cases and modelling situations in the framework of business games, since the traditional form of teaching in the form of lectures no longer meets all the challenges facing educational institutions. Universities need to differentiate educational programs depending on the set of skills required from specialists in the labour market and take this into account when determining the ratio of lecture and practical classes.

In our opinion, an interdisciplinary approach is the basis for the training of qualified specialists in the context of constant change in the labour market in the direction of digitalizing the activities of many professions. It should be noted that at present, as part of the fulfilment of the strategic task of creating

comfortable environment for human life, the emergence of new professions is proposed that are at the junction of various specialties and therefore it is important to create educational environment in which dynamically changing optional modules are introduced that can satisfy students' need for a comprehensive professional development.

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