TRAINING TALENT FOR DIGITAL ECONOMY AT DUBNA STATE UNIVERSITY

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This article focuses on the new trends in education fueled by the transition to the digital economy. The program of digital transformation in Russia requires new approaches to training and the use of modern digital technologies.

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1. Introduction

The modern information society has embarked on a new era – the era of digital economy. The Decree of the President of Russia No. 203 of May 9, 2017, "Strategy for Information Society Development in the Russian Federation in 2017-2030", defines the goal of this strategy as follows: "... creating conditions for the emergence of a knowledge society in the Russian Federation". The document also states that the strategy of fostering the information society seeks to secure the national interests, including the formation of digital economy [1].

2. Current trends

The program "Digital Economy of the Russian Federation", that is underway according to the instruction of the President of the Russian Federation, must embrace measures helping to create legal, technical, organizational and financial conditions for the development of the digital economy in the Russian Federation and its integration into the digital economy of the member states of the Eurasian Economic Union. The draft program sets out goals and objectives of eight development areas of the digital economy in the Russian Federation until 2025:

- government regulation;
- information infrastructure;
- R&D;
- talent and education;
- information security;
- public administration;
- smart city;
- digital healthcare.

According to the Presidential Decree "Strategy for Information Society Development in the Russian Federation in 2017-2030", the digital economy is an economic activity, where the key production factor is digital big data, whose processing and analytics vs. traditional management help drive various types of production, technology, equipment, storage, sale, delivery of goods and services. The purpose of creating digital economy is to build information space based on knowledge through the development of science, the roll-out of educational projects.

One of the conditions for the successful roll-out of the "Digital Economy of the Russian Federation" program is bridging the existing IT talent gap caused by the country's specific IT training system, and the consequences of the baby bust period. In order to tackle this problem, the government plans to gradually step up its demand for IT professionals. Through the cooperation of departments, the government's demand for IT talent soured by more than 70% in 2014-2016, rising from 25,000 to more than 42,500 state-funded places at universities [2].

To solve the tasks of the digital economy, it is imperative to create information space that ensures:

- better knowledge-sharing tools;
- better further education engaging students in scientific research and creativity, nurturing their skills of solving non-standard tasks;
- use and development of diverse educational technologies, including distance learning, e-learning, in educational programs;
- development and roll-out of partner programs at higher educational institutions and Russian high-tech companies, including those focused on the improvement of learning programs.

The Open Education project, a modern learning platform offering online versions of basic undergraduate courses studied at Russian universities, makes a huge contribution to improving the education system and training digital-literate talent. Open education is the use of IT networks in education helping to create a common global educational space available for any person worldwide. The core goal of open education is free personal growth, which ensures, on the one hand, the

acquisition of a whole system of required knowledge, skills, labor potential, and, on the other hand, comfortable living in the society [3].

These three pillars, namely: the decrees of the President of the Russian Federation "Strategy for Information Society Development in the Russian Federation in 2017-2030", the "Digital Economy of the Russian Federation" program and the Open Education project are prerequisites for building adaptive strategies of training digital talent at Dubna State University.

They define three key areas that seek improvement in the modern education that could help meet the challenges of digital transformation and to bridge the talent gap in today's society:

- scientific and applied research;
- fostering technology entrepreneurship;
- custom programs of training gifted youth.

3. Training strategies in the digital economy

The strategy of training talent for scientific and applied research at Dubna State University embraces:

- attracting young talent and prominent scientists for R&D;
- roll-out of internal R&D;
- strategic partnership with academic and business communities;
- participation in research projects, including globally.

The outcome of this strategy is the stirred up research activity of employees and students of Dubna State University. Among the latest achievements, it is noteworthy to mention the participation of universities in NICA mega-project together with the Joint Institute for Nuclear Research (JINR) and target training of talent for these projects. The share of R&D projects also grew, these include:

- project of a new program of training talent for space communications centers, as requested by the Russian Satellite Communications Company;
- elaborating a technique of using electronic study packs;
- creating an integrated system of dealing with graduates of Dubna University and many other projects that involve both teachers and students.

One of the promising areas of development is also the expansion and strengthening of cooperation with resident companies of Dubna Special Economic Zone (SEZ) and participation in the operations of the medical technology cluster.

The strategy of fostering technology entrepreneurship includes teaching modern project management and the basics of launching ICT projects at the startup stage to senior students, as well as teaching IT in project management and corporate governance.

The strategy of developing dedicated training programs for young talent includes the roll-out of extra programs simultaneously with the core educational curriculum in three main areas:

Innovation: students independently develop projects and showcase them to potential investors and buyers.

Products: students fulfill orders from industrial enterprises and scientific institutions.

Research: students deal with theoretical issues with a strong scientific potential.

This strategy is based on the idea of premium higher education that features the selection of students depending on their skills for a future in-depth study program, intensive English language course and participation in Olympiads and contests. During the training, it is planned to involve top professionals, scientists and experts in the training process and organize internships and on-the-job training on the premises of leading companies and enterprises. The scope of competences of graduates of such premium higher education institutions include:

- skills to set goals and objectives;
- demonstration of leadership qualities;
- teamwork skills;
- ability to solve complex inventive tasks;

- engineering entrepreneurship.

To implement the strategies described above, innovative educational technologies are used, among them:

- individual educational programs;
- project-based learning (integration of education and business);
- network educational programs;
- open education;
- innovative techniques of e-learning;
- smart learning technologies;
- educational IT startups.

The core areas of training digital talent at Dubna State University embrace:

- processing big data;
- artificial intelligence;
- cloud computing;
- internet of things and industrial Internet;
- robotics and biotechnology;
- radio engineering and electronic component base;
- 3D modeling and 3D printing;
- information security.

To date, 35% of the total number of Dubna State University's graduates accounts for ICT professionals. The university offers the following programs: Information Science and IT Equipment, Software Engineering, Fundamental Information Science and Information Technologies, Information Systems and Technologies, Applied Mathematics and Information Science, Engineering and Technology of Electronics, Business Information Science, Applied Information Science.

According to the Analytical Center "Education and Career" of Dubna State University, the labor market's demand for graduates of digital courses reaches 100% in Dubna.

In the total number of employees of various resident companies of Dubna Special Economic Zone (SEZ), 50% are graduates of Dubna State University, the second half of graduates engage in academic sectors and the defense industry: in the United Institute for Nuclear Research (JINR), Dubna State University, innovative territorial cluster of nuclear physics and nanotechnology in Dubna, Raduga State Engineering Design Bureau (MKB), Russian Satellite Communications Company (Dubna).

A probable reason of the high employment rate is the target enrollment to master's programs at the request of innovative companies. The ICT and digital technologies master's programs of Dubna State University include: Theory and Mathematical Methods of Systemic Analysis and Management in Technical Systems, Systemic Analysis of Design and Technological Solutions, Cognitive Computing and Business Analytics, Intelligent Systems of Big Data Processing, Geoinformation Technologies in Decision-Making, Systemic Analysis and Management of Sustainable Development of Complex Systems, Project Management of Sustainable Development, Corporate Governance Systems, Applied Information Science in Economics, Information Technologies in Electronic Engineering, Mathematical Modeling.

A crucial area of educational activities at Dubna State University is the development of further education programs, advanced training courses, lifelong learning (LOL) programs utilizing new educational technologies. Dubna State University laid a solid foundation for LOL programs, creating the Common Information Educational Environment (CIEE). This environment brings together all learning institutions of the city and key research centers and administrative authorities. The opportunities that have emerged through the CIEE include the speed-up of data transfer from 1Gbit to 10Gbit, which provides schools with access to custom software and cloud services.

Another important task of Dubna State University is to establish a digital production platform. This project seeks to create an infrastructure aimed to increase the demand for available fixed assets with formation of flexible process flows for innovative goods. This will help to outsource services of companies without differentiation by industries, helping to organize many process flows of virtual

factories. Such infrastructure implies the joint use of facilities, digital design based on cloud services, application of IT logistics with digital quality history, analysis of big data in digital services of companies.

5. Conclusion

Thus, Dubna State University has created all required conditions for talent training required by the society on the verge of the digital economy, which is in line with the trend of the growing strategic role of digital transformation and the importance of the ICT industry in it. The steady fast-paced IT development undoubtedly requires the state to make certain investments in better facilities and infrastructure of the university in order to ensure effective education of competitive talent.

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