Personnel support for innovative economic development in the new normality

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Abstract. The concept of "new normality" is becoming popular among representatives of various scientific fields, and, above all, in the economy. It is rather controversial, however, the signs of stagnation observed in the Russian Federation, and corresponding to the signs in the framework of the concept of "new normality" clearly indicate the need for new solutions in the search for a way out to a new round of economic growth. Digital economy and innovation are the direction that can become a new driver on the way to growth and development. However, there are some factors that significantly affect the success of the implementation of state programs for the development of the digital economy in the Russian Federation. One of the significant factors is the training of qualified personnel who are able to solve problems in the mode here and now, capable of innovative activity, the creation of innovative products. This article examines the experience of the state university, the State University of Aerospace Instrumentation, on the introduction of the work-integrated education system in order to train innovative personnel for the economy of St. Petersburg and the Leningrad Region.

1. Introduction

Nowadays the phrase “a new normality” is rather often to be said. It shows up in numerous information sources, many scientists use it. However, the idea of “a new normality” has taken the biggest popularity in the context of economics. Mohamed El-Erian, one of the leaders of PIMCO (Pacific Investment Management Company), is thought to be the author of the concept. He wrote the article with the name «A New normal» included in analytical company report in 2009 [1]. Nevertheless, some scientists believe the phrase appeared in the beginning of the XX century and is connected with The Great Depression in the USA. Moreover, Solomon I. Cohen, Professor of Economics at Erasmus University, states that more than a hundred years ago the phrase “a new normality” was used in scientific literature and it was extremely popular in the last century [2].

El-Erian defines “a new normal” as post-crisis recovery of economy, this process is accompanied by uncertainty and search of new directions. The scientist explains usage of this phrase by necessity to change the vision of economic crisis as cyclical phenomenon. He believes crisis should be seen as a result of many economic problems that have been accumulating during development of economic systems. In many developed countries “a new normality” means decrease of economic growth, high unemployment level, decrease in private companies’ earnings, great national debt, politic influencing
economy, high leverage and serious problems in government economy regulation [3]. Typical solutions become inefficient and new approaches are required.

This opinion has been stated by well-known economists, Nobel laureates Joseph Stiglitz and Paul Krugman. They both use the phrase “a new normality” rather often and agree that the result of this state of the economy in the US is ineffective governance, which has a pronounced antisocial context because of austerity. Another well-known economist Tom Picketti also considers the situation to be socially conditioned. At the meeting titled "3 geniuses of economic thought" in 2016, the above-mentioned scientists spoke about the need to change the US economic and fiscal policy to overcome the period of new normality and exit from it [4].

Among the features of the "new normality" there can be named the following:

- slowing the growth of the world economy (the main feature);
- wide distribution of near-zero and negative interest rates of central and commercial banks, which is a feature of the global macroeconomic impasse [5,6].

2. Materials and methods

In Russia, the expression "new normality" gained popularity thanks to former Finance Minister A. Ulyukayev. He describes this state of slowing growth in developed countries, the lack of new leaders capable of demonstrating this growth, and reducing the attractiveness of raw materials in terms of investment [7].

The Russian "new normality" is due to a variety of reasons that can be classified into several groups. External reasons are:

- increase in oil prices;
- limited access to external credit markets;
- international sanctions.

Among the cyclic reasons there may be named:

- compression of demand (reduction of real incomes of the population, on-lending to consumers, reduction of investments, reduction of the real value of public expenditures);
- the discretionary policy of the state.
- The systemic reasons for the "new normality" in Russia are the following:
  - deformations and disproportions in the economy and social sphere, structural imbalance in the economy;
  - the exhaustion of the development resource of the economic model used and the policies pursued;
  - poor quality of governance (corruption, bureaucracy, etc.) [5, 8].

For Russia the state of the new normality is characterized by certain features:

1. Significant reduction in economic growth. At the same time, as in the USA, the decline is not so much a cyclical as a structural one. If in 2011-13 the economic growth decreased to 3-4% per year (from 6-7% in 2008), now it shows even smaller figures. As it is shown in the Figure 1, in Q1 2018, according to the Federal State Statistics Service, gross domestic product growth was 1.3%, and in the second quarter 1.8% (Rosstat), while the Central Bank forecasts for 3-4 quarters are 1.1-2% (The Central Bank estimated the annual growth rate the gross domestic product of the Russian Federation in the II quarter of 2018 as 1.8-2.2%).
2. Low unemployment. In Russia, the decline in unemployment is also due to demographic reasons. In addition, until 2008, the stock of free labor has almost dried up. In 2017, the unemployment rate was 5.1%, following the results for the 2nd quarter of 2018, 4.8% (Labor force).

3. A low level of inflation in comparison with the pre-crisis period.

4. Deficient budget. Before the crisis of 2008-2009 the budget of the Russian Federation was surplus.

In addition, the distinctive features of the current state of the Russian economy, characterized by a new normality, are a significant capital outflow and a reduction in investment in significant sectors of the economy. The proclaimed stability, which lasts too long, becomes stagnation, i.e. economic growth stops, which in modern conditions means defeat in the competitive struggle. The existing high dependence on prices for raw materials, as well as signs of protracted stagnation, necessitated the development of a "breakthrough", so a fundamentally new scenario for the development of the Russian economy.

3. Results and discussion

The main driver of intensive economic growth in Russia can be the digital economy. It can be especially effective in the realities of our country, because the reduction in the share of raw materials in the economy is a strategic goal. Digitalization will contribute to the development of the innovative sector of the economy.

The program for the development of the digital economy, passed by the Government of the Russian Federation No. 1632-r of July 28, 2017, aims to expand the use of information technologies to improve the quality of life and the conditions for doing business. The process of "digitalization" of the Russian economy is accompanied by several difficulties, and one of them is to choose measures to support innovative activity. For each country, it is individual and is conditioned by the varying degree of development of existing institutional mechanisms. For example, unlike most developed countries in the world, in Russia, state financial support is not widely available for innovative enterprises (Autonomous Non-commercial Organization «Digital economy»).

Specific examples of modernized production processes are:

- systematic IT integration of the enterprise, covering all levels: from the means of production to the adoption of managerial decisions;
- IT-integration of production processes of related enterprises;
- management of the life cycle of products of production through their "digital counterparts".

However, all efforts will remain in vain if the digitization process is not provided with the appropriate personnel. Therefore, the program "Digital Economy" provides for an increase in the number of IT
specialists trained by universities to grow from 46 thousand people in 2017 to 120 thousand people in 2024. According to experts' forecasts, in case of non-fulfillment of the program, the deficit of IT specialists in the Russian Federation may reach 2 million people for the next 10 years. Since 2019, Russia has introduced a new rating for higher education institutions, taking into account the training of IT staff, and the government allocates 5 billion rubles per year for retraining IT staff.

Also, the problem is that digitalization should fully cover all aspects of society's livelihood, contribute to improving the conduct of entrepreneurial activity in all spheres of the economy. According to the results of the study of the international consulting company Amrop, world leaders are digitally owned by company managers at the highest levels: most of all in Finland, 67% of the members of the boards of technology companies, and 4% of non-tech companies. Also, among the leaders among the countries, representatives of the members of the boards of directors of companies that "keep pace" with the digital economy include countries such as Denmark, Germany, the Netherlands, Sweden, Spain, the United Kingdom, the United States and Italy (Digitization on Boards: 2nd 3 Edition). This means only that knowledge and skills in the field of IT are necessary in all spheres of the economy, and therefore, and students of other specialties must possess this knowledge at a sufficiently high level.

To solve this complex of tasks is possible only by following certain principles, and the decision lies in the plane of taking into account a number of factors "... in the sphere of public-private partnership of public authorities, employers, professional educational organizations in the field of system transformations, building a practice-oriented system of training personnel from vocational guidance to the procedure for assessing professional qualifications [9].

In our opinion, the training of specialists of a new type is an innovative "product" of the education system. However, at this stage of the development of practice-oriented education, HEIs are guided by the consumer preferences of partner enterprises, that is, the main employers for graduates. However, enterprises cannot always clearly and clearly define the requirements for this innovative "product", as well as the criteria for assessing its level; therefore it is often limited to a set of characteristics of the personal qualities of students, so-called soft skills.

4. Conclusions
Institutions facing this problem try to develop their own versions of the implementation of the dual training model, experimenting and comparing the results with the original goals. Interest in the practice of the formation of a similar model in the St. Petersburg University of Aerospace Instrumentation (SUAI). In 2012, on its basis, the SDB REE (Special Design Bureau of Radio Electronic Equipment) was established. In the sphere of the main directions of the SDB REE: design of radio electronic devices for air, sea and land based, design, software development, development of microwave devices, modernization of on-board radio-electronic equipment. The main goal of the SDB REE is the preparation of innovative engineering personnel with the knowledge and experience to solve serious problems and participate in projects that require not only decision making, but also a serious innovative approach, as well as the use of modern digital technologies.

The results of more than 5 years of activity of the SDB REE allowed to organize practical-oriented training of students and postgraduates with significant practical experience of working at partner enterprises in parallel with classroom activities. All students from the very beginning of their activities in the SDB REE are 3 stages of preparation, which takes about 3 years. But since the preparation of each specialist has a strictly individual approach, the time of one or another stage can vary depending on the individual characteristics and preferences of the student:

1st year - general preparation, development of design systems, familiarity with standards and normative documentation, solving elementary work tasks;

2nd year - specialized training in the areas of activity of the SDB REE in accordance with the specialty of the chosen curriculum of the university;

3rd year - management of projects and their components, development of management skills (in accordance with the individual qualities of the student).
The development of new trainees takes place in real conditions of work on complex research projects for the development of radio electronic equipment and software within the orders of the Ministry of Defense of the Russian Federation, in the fields of agriculture, construction, small business, and urban infrastructure development.

The peculiarity of this model is the work on real projects, the customers of which have a clear understanding of the evaluation criteria and the indicated requirements to the results. Consequently, in the process of such "involved" formation of professional skills, a specialist is oriented to the needs of the real spheres of the economy, and gets the opportunity to clearly represent and assess his preferences and strengths and weaknesses. And this is very important in the process of professional formation and motivation of young professionals. The model of institutional interaction "Higher Education-Production-Customer" is presented in Figure 2 [10].

![Figure 2. The model of interaction "Higher education-production-customer" in SUAI.](image)

Practically-oriented model of training allows to achieve high results in scientific and research works, on the basis of which the production of models and prototypes is carried out at partner enterprises, their tests are conducted, and high-tech products are created. It should also be noted that the SDB REE operates entirely on the basis of self-financing.

The experience of the SUAI demonstrates the high effectiveness and prospects of this approach to education. The growing interest of business and the growing flow of orders testify to the need to develop this form of interaction "High Education - business environment (production) - customer". Such practice is a serious advance on the way to creating new directions for the development of a practice-oriented innovative business activity, demanded by the business environment, and new science-intensive technological facilities.

The construction of this new education system is impossible without the use of the most modern tools. On the one hand, IT-sphere is a consumer in the market of highly skilled manpower resources. On the other hand, it is able to provide future personnel with the most relevant technologies. This, in turn, will increase the efficiency of the process of training future specialists in all areas and thereby strengthen the country's competitiveness in the global economy.

Thus, overcoming "a new normality" and its features can be possible due to the institutionalized creation of new vectors for the development of science, education, business, production, and their close interaction. The development of innovative, including the digital economy, considered with reference to the "new normality", is one of the ways to solve the economic crisis. At the same time, Russia, possessing great potential, first of all a human resource, can lead this process, take the role of driver of global economic growth.
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