

DEVELOPMENT OF EDUCATION, RESEARCH, INNOVATIONS AT UNIVERSITIES OF RUSSIA

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Summary: 1. Global Context and a New Role of Universities in Modern Society; 2. National and Regional Contexts; 3. Experience and Perspectives of the University Innovational Development; 4. New Forms of Research Implementation into the Training Process; 5. University Management and Status; 6. Cooperation of HSE with Key Partners; 7. Social Effects of the HSE Development at Regional Level.

1. Global Context and a New Role of Universities in Modern Society

Today we can definitely say that despite the crisis in most developed countries a new society was formed – a knowledge-based society. In many countries of the Organization for Economic Cooperation and Development (OECD) the actual growth of added value in knowledge-based branches for the last two decades has steadily exceeded general economic rate. World innovational process these years has been speeding up due to the investments in Research and Development (R&D), formation of global telecommunication networks, spreading of internet technologies. Presently, the volumes of capital investments in intangible assets that form the knowledge base, namely investments in the staff training, R&D, patents, licensing, projecting, marketing, are equal or even exceed capital investments into the fixed capital. In general up to 2020 in accordance with a series of forecasts a share of tangible investments in GDP will decrease to 19% and in developed countries to 17%. Investments in human capital and intangible assets will increase.

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In knowledge-based economy achievements in the sphere of high technologies lead to production growth in other branches. The spreading of knowledge means the life of technologies and products is becoming shorter and shorter; they are getting out of date earlier. Economically essential is the process of technological convergence which means mutual penetration and simultaneous development of new scientific and technological branches.

Typical features of world economic development for the last decades are globalization, growth of knowledge-based competitive advantages at all levels. Knowledge is the most important factor in formation of competitive advantages of country. In the international trade a share of goods of high technological and medium technological productions is steadily increasing since 1975. This tendency is becoming an acute one at regional level. Regional authorities of all countries are trying to attract highly technological companies that manufacture goods with high added value. The number of private and state technological parks, special economical areas and territories is growing.

Stable modernization and growth of all branches of knowledge-based economy are impossible without a certain impact of the innovational system of Higher education. Education is the first element of the triad “education-research-innovations”, but it is not limited by this. Research and innovations are often generated within university walls, and the academic society in many aspects influence practical application of innovative ideas.

An important moment in the formation of key elements of educational system – universities is the development of educational market. World educational market has been growing up to the present with the average annual rate of 9.2% that is much higher than GDP growth of developed countries. Today one can observe a tendency to shifting of competition from the regional level to the individual one. Due to this fact the role of educational institutions as centres of retraining and continuous education increases drastically. For instance, the number of people who want to get MBA degree at prestigious universities is increasing.

In the countries with innovative knowledge-based economy, productivity growth is achieved by spreading technological innovations, and most of these innovations are the result of fundamental and applied research carried out in universities. Fast integration of science and education has led to the fact that in the developed countries the so-called close

circuit occurred in which the results of scientific research support production of new wealth which in its turn provide the basis for the state resources supporting scientific research – clusters. The centres of such circuit are research universities and think tanks serving as the main source of knowledge. The idea of a research university is not new. In the 19th century a great German scientist Humboldt formulated the idea of an integration of the training process and fundamental scientific research.

However the role and the essence of a university in modern society are beyond the tasks the university usually solves. Today a university is one of the principal social institutions providing stable and balanced development of economy, social spheres, world culture and the culture of national and regional societies.

2. National and Regional Contexts

Russian regional policy determining social and economic development declares the transfer from the policy of leveling the territorial social economic development to the multipolar strategy directed to the establishing of regional growth centres and the diffusion of effect of development among regions. Concentration of efforts in certain regions helps to get the effects of the scale and agglomeration which lead to creating powers for self-development at the growth “poles”, and the right choice of poles in the countries results in the increase of the surrounding regions as well.

In most regions of Russia the strategies of development for 10-15 years are already developed. Their main objective is to provide a life quality, education and health standards for every citizen, with the help of the system ensured by the State. In these strategies we observe regional shifting of competition from the tangible sphere to the innovational sphere of ideas, conceptions, strategies, technologies, projects.

Following the world tendency, the number of technological parks is increasing in Russian regions. It can be well observed in the number of leading regions of the Volga Federal District (VFD), in Nizhegorodsky, Samarsky regions and the Tatarstan Republic. [1]. Even in conditions of growing crisis, regional innovation programmes are not cancelled. Multi-polar strategy carried out by the Federal Government gives a real histori-

cal chance to the regions which not being rich in natural resources (Nizhegorodsky, Kirovsky, Ulyanovsky region and the Marij El Republic and others), to become perspective poles of growth in Russian economy.

Nizhegorodsky region is historically one of the best scientific, industrial and educational centre of Russia which managed to preserve its potential during the period of reforms. In the regional strategy up to 2020 approved by the regional government in 2006, major efforts have to be focused on three directions:

- innovations and scientific educational complex;
- production and distribution of goods of collective request;
- automobile production and automobile components production.

This focus has to form the targeted economy structure providing highly paid job places. In case of the most positive innovational scenario, in 2020 gross product per capita can be increased in 7 times; average income in 8 times. Special attention is drawn to the development of Information Technologies sector. By 2010 the labour force will be increased in 3.25 times in this sphere. Realization of innovational course in Nizhegorodsky region can stimulate revival of the Volgo-Vyatsky territory.

For innovational economy the region has serious competitive advantages. These are relevant scientific potential in the form of scientific schools having world recognition, a lot of innovation-active organizations and successfully modernized system of higher and secondary education. In the region there works approximately the third part of all researchers of the Volga Federal District and most of innovational organizations [1]. Among them there are certain organizations that can be cluster core or they are already these ones de-facto. Classical and technical universities, institutes of the Russian Academy of Sciences (RAS), scientific research centres like the Federal Nuclear Centre in Sarov are related to them. The number of researchers per population of 10 000 people in Nizhegorodsky region exceeds the average index in about 4 times.

Last year internal expenses for research and developments were about 5 percent of the GRP. As known it is necessary to allocate not less than 1 per cent of GDP to support the scientific research complex (in the most developed countries – the USA, Germany, Japan – this figure is about 3 %).

Despite of the crisis and the 20% reduction of Budget 2009, new innovational clusters are being established in the region, the most important

of which are universities, scientific research centres, technological parks, large industrial enterprises. They provide best practice and promote increase in labour efficiency. Good universities, developed defence complex, mechanical engineering, radio electronics and instrument engineering, nuclear physics and energetic as well as other fields of study gives an opportunity to form a number of other clusters that can be essential in the process of internationalization and international labour cooperation.

Successful experience of the regions where highly technological production is concentrated, for example, the Silicone Valley in California, Bangalore in the Indian state of Karnataka, Shanghai in China and Campinas in Sao Paulo, Brazil, testifies to an extremely positive effect that is resulted from the fact that highly qualified human capital is cooperating with the leading technological companies. The experience of university districts, like the university district in California also testifies that.

Under growing international competition, Russia is in danger, because the system of Higher education can happen not to be ready to use the benefits from knowledge production in developed countries. The gap in the competitiveness of Russian universities (with rare exceptions) and the universities of OECD is getting larger. It especially concerns the regional components of the system of Higher education.

Today the key objective of universities is to overcome institutional gap between science and training, because it seriously influences the competitiveness of the regional economy. It is necessary for a university to train specialists capable of creating new economical models of regional and federal politics, to realize effective strategies of long-term planning and efficient solutions of applied social economic problems, to become leaders of economic and social innovations in the region.

The complexity of the stated objectives and limitations in recourses today does not decrease but increase their acuteness. That is why in the Volga Federal District (VFD), in Nizhegorodsky region it is necessary to create an advanced R&D centres which due to its own developments and transfers of innovational educational technologies, the research results at the world level can actually interact with the best international scientific research centres in the sphere of social economic sciences, mathematics, informatics, promoting global competitiveness of Russian regions. We suggest that this centre should be established on the basis of Nizhny

Novgorod branch of the State University–Higher School of Economics (HSE). Actually the history of establishment and development of the Branch testifies to the appropriateness of setting and realization of such a mission. Innovational training programmes, innovational training forms ranging from preparatory courses to MBA programmes, innovational methods of scientific research support in the HSE are the foundation of knowledge-based economics.

3. Experience and Perspectives of the University Innovational Development

The HSE was founded in 1992 to train highly qualified professionals in the sphere of economics and social sciences. This new educational establishment turned to be a centre of modern economic and administrative science and education. At present the HSE is the largest in Eastern Europe scientific educational complex in the sphere of economic and social sciences. It carries out its activity in 4 Russian cities: Moscow, Saint Petersburg, Nizhny Novgorod and Perm, and consists of more than 20 faculties and departments. Its strategic objective today is to create on the basis of the HSE a pioneering scientific educational, analytical, consulting and planning centre in the sphere of social and economic sciences that will be rated highly among the leading world research institutions by its competence and developments and will make a practical impact into the innovational development and global competitiveness of Russia [3].

In 1996 Nizhny Novgorod Branch of the HSE was established. At that time it had a mission to bring to Nizhegorodsky region high quality and modern education from the point of view of content and technologies, to promote the creation of modern scientific school in the sphere of economics. Many elements of educational modernization in the sphere of economics which HSE began to implement in 1990-s in the country (that is two-level system, mobility, development of professional retraining programmes, cooperation with industry and public organizations, accent on high quality of education) turned to be fundamental constituents of the Bologna Process to which Russia officially joined in 2003.

In the HSE and its Nizhny Novgorod Branch there was created infrastructure of academic and applied research. The regulation on academic bonuses in the HSE for scientific and methodological work of the teaching staff is effective. On the basis of off-budget income there were cre-

ated Scientific funds of the HSE and of its Nizhny Novgorod Branch. The system of grants allows to stimulate research which can lead to developing scientific schools. There is a three-stage support of research. At the lowest stage there are internal grants of Nizhny Novgorod Branch oriented to young teaching staff, postgraduate and undergraduate students. At the second stage there are grants of the HSE, for example, teacher-students', individual grants. And at the third stage, the highest one, there are external grants of Russian and international organizations.

Educational process at the HSE is directed to students' inclusion into theoretical and practical activity as early as possible. Theoretical and practical conferences are arranged annually at Nizhny Novgorod Branch of the HSE. Each year the quality of students' scientific works is growing, as very often they win external competitions. Thus, the students of the faculty of law won the Russian stage of the largest and the most prestigious competition in international law, Philip Jessup International Law Competition.

4. New Forms of Research Implementation into the Training Process

One of innovational approaches to the stimulation of students' interest to academic career is realized at HSE in the form of scientific educational laboratories (SEL). The key idea of SEL is to unite undergraduate students, postgraduates and lecturers in the joint research activity [2]. The first SEL of the analysis of economic reforms was created in HSE in 2005. In 2006-2007 with the support of innovational educational programme of HSE, financed by the National Project "Education", several new laboratories began their work including the laboratory of quantitative analysis and the modeling of economics of Nizhny Novgorod Branch of HSE.

Collective type of work in SEL is a basic distinction from a traditional approach of individual supervision of course papers and final qualification paper. In case of traditional approach only final discussion is public, whereas all preparatory work, creative process is individual work. Public discussions of research objectives, intermediate results promote the skills of collective discussion, capacity for criticizing and accepting criticism in

students. The participation in the work of such laboratories is optional as SELs are not included in the curriculum. That is why work in SEL attracts only those who are really interested in it. It should be mentioned that subject areas of SEL at HSE are diverse, so students can choose the direction of their scientific activity in accordance with their own interests.

Scientific components of SEL presuppose lecturers and students' joint research projects, reports at scientific conferences and scientific publications. Students practice the skills of searching and selecting the information, making reference surveys, using empirical and statistical methods of analysis, writing scientific articles and making presentations. The development of students' research skills results in increasing the general quality of university education. Methodological component of SEL activity lies in creation and renewal of educational material in core disciplines based on generalization of modern theoretical and practical achievements of economic science and the results of research projects.

The training process of the laboratories presupposes arranging of educational workshops and mini-courses in certain subjects. Laboratories successfully solve the task of selecting students who are promising from the point of view of academic career at the second-third year of baccalaureate, because at this period the training is theoretically –oriented, so it is important to promote interest in students' scientific work.

At Nizhny Novgorod Branch of HSE in the field of economics the laboratory of quantitative analysis and economics modeling is highly effective at the moment. There are several branches within it: social economic research activities, the modeling of the city and regional economics, the studies of the spatial economic structure, research and implementation of quantitative methods of analysis in the sphere of finances. Diversity of directions under one SEL is justified at the stage of formation of this type of students' and lecturers' research work especially among a limited group of students. This diversity provides positive effect, because very often interdisciplinary areas are the most promising ones.

The programme of development of HSE presupposes creation of a number of project educational laboratories (PEL) in the sphere of applied research. It helps to develop intensively students' analytical competence as well as to form experience of project management and innovative activity that is so necessary today [3].

5. *University Management and Status*

Today there is a need for greater autonomy of Higher educational institutions, that is why the leading international tendency is the transformation of rigid, hierarchical, closed university structures into open and dynamic universities acting on the principle of division of management functions. A modern Russian university has to be to a certain extent autonomous and managed on the principles of accountability, openness and the division of normative strategic and operative management functions. In this regard gaining a new status of the HSE by the Resolution of the Government of the Russian Federation dated August 12, 2008 No 1177-p considerably widens its autonomy. Along with this strengthening of legal position of a university leads to the necessity of including risks management into its current activity.

The development of internal university management through determination of the degree of academic and financial autonomy also gains much importance. In conditions of enhancing the legal status of a university the requirement to it are changed at the university level and at the level of its branches. Then the practice of creating collective managing authorities (boards or councils) responsible of the basic issues of the university activities and the administrative structure headed by the Rector (Director of the branch) is becoming more common. The main issues concerning the establishment of such practice include Board authorities, its size, structure and the number of members and etc. The solution of a greater part of issues is transferred to lower levels. However in critical situations caused by negative influence of the environment there should be mechanisms of direct actions and personal responsibility for the decisions.

Thus, there appears another serious task connected with the effectiveness rise of all university management mechanisms.

6. *Cooperation of HSE With Key Partners*

For long-term innovational development a system of training of innovational staff is necessary. Universities can cooperate with secondary schools. A university should enroll gifted young people capable of generating ideas, innovations and striving for work in a team of professionals.

In this aspect this university has good innovational background realized in the form of the university district of HSE. It includes 37 leading lyceums, gymnasiums, specialized schools. Through the system of olympiads, tests and scientific contests the HSE university district helps to reveal young people capable of taking part in scientific activities carried out by university laboratories.

The most important objective of Higher professional training development is to strengthen cooperation of educational establishments and the real sector of economy. Several large Russian enterprises established their departments in the HSE, their staff takes part in the training process by means of workshops, seminars and courses. At the university, the student business incubator was created where students can realize their business projects [4]. Thus, there arise networks including the university and partner companies. The university is a constant constituent of the educational system capable of not only giving the fundamentals of future profession but being the source of up-to-date competences for a specialist.

This university pays much attention to international cooperation. International support from the countries of the European Union paid a great role in the establishment of HSE. Relations with foreign partners promote its positioning as a university established in accordance with international standards and contribute much to its development into a research university of European level. Cooperation with foreign universities is realized through students' and lecturers' participation in international educational and scientific programmes, interuniversity agreements, research grants from international scientific organizations. A considerable part of the university teaching staff has experience in joint projects with foreign colleagues which is reflected in modern content of courses and the latest methods of teaching. It is pleasant to mention that cooperation of this university with Italian universities – the university of Florence, the university of Perugia, the university Tuscia – is growing. Annual Russian-Italian conferences are resulted from this cooperation.

7. Social Effects of the HSE Development at Regional Level

The existing programme of the branch development is aimed at establishment of a regional branch of a large research university of social economic orientation corresponding to the best world standards. Using the

unique opportunity of being a branch of HSE we are capable of being an intellectual centre of business, scientific and political regional society, a powerful regional instrument of transmission of advanced achievements and feedback from the region to the centre.

This university influences directly the human capital that are in contact with Nizhny Novgorod Branch of the HSE, especially its graduates. Professional spheres in which Nizhny Novgorod Branch of the HSE trains its specialists – Economics, Management, Law - are social sciences. Nizhny Novgorod Branch has already got the status of a university training the elite staff, business, science and government management leaders. That is why the quality of social life of the region and its economic indices will depend on the quality of training of specialists. The planned increase in the number of students admitted from other regions will contribute to spreading positive effect on other territories of the country.

A considerable social and economic effect of the university activity is due to the participation of the specialists of the HSE in the development, expertise, realization of regional and modernization projects. Each year the volume of innovational projects in the VFD and Nizhegorodsky region is increasing as well as there exists a dissatisfied demand for specialists skilled in modern theoretical and practical methods.

Acting within integrated structures, Nizhny Novgorod Branch of the HSE promotes spreading of advanced analysis and management methods in partnering companies and then through the partners to their clients and etc. It helps Russian companies to master innovational technologies, broaden their markets and improve product and service quality. Closer relations of Nizhny Novgorod Branch of the HSE with business partners and state authorities allow to follow current economic tendencies and to accumulate practical experience.

Network structures of the HSE in Russian system of education contributes to spreading of new quality standards and training practices, mostly in the sphere of master's programmes in Economics, Management, Business Informatics. Programmes of the mobility of students, lecturers, university administration, programmes of continuous education on the basis of the HSE approach the quality of education in other universities to international standards.

Appropriately representing the Russian system of education at the international level, HSE contributes to the creation of a positive image of Russia today, the intellectual capacity of which is not limited by two large megapolises. Due to the peculiarities of the educational sphere all possible social economic effects are hard to evaluate. However international experience shows that it is the sphere of education and science where effectiveness and duration of beneficial structural changes is especially great.

BIBLIOGRAPHY

- Maximov A.G., Tsarkov A.S. et al., *“Cautious Optimism” or “Severe Realism. What will the locomotive region in the Volga Federal Region and in Russia?”* Nizhny Novgorod, Nizhny Novgorod Technical University, 2008;
- [udkevich M.M., *Economic education: New academic models and innovational experience*. University management: practice and analysis., № 1, 2007, p.p.16 – 23;
- Programme of Development of the State University – Higher School of Economics for the period 2009 – 2015 and up to 2020*. HSE, 2008.
- Kuzminov Ya., Frumin I. (Eds.). *Russian Education - 2020: educational model for knowledge – oriented economics*: The 9th International Scientific Conference «Economic modernization and globalization», Moscow, the 1st – 3rd of April, 2008.– M. : Publishing House of HSE, 2008.