

# *Higher education in the XXI century Russia: an imperative of reindustrialization*

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**Abstract** — New industrial technologies and innovations as an imperative of reindustrialization have given a new set of challenges to the core of the tertiary education - the classical university. The aim of the paper is to analyse how modern universities respond to the existing challenges of reindustrialization and adapt to emerging modern management technologies and development of knowledge-intensive activities.

In each period of time, universities played a number of roles in their respective societies. Since the 60s of the last century, one of the main criteria for the effectiveness of universities has been their social utility and ability to meet social demands. The notion of ‘Third Mission’ develops from the growing importance given to direct connections between university research activities and the external economic and social environment. For the majority of Russian universities facing financial and social difficulties, the only opportunity to stay afloat and even to develop is to be needed by the community where they exist. International experience demonstrates how well-considered and active interaction between the university and the local community can impact the life of the university and its perception in society. Close links of the Russian tertiary education with local communities are not only a tool for survival, but also an opportunity to tailor higher education to the realities of modern life, to improve the quality of education, to sharpen its practical focus. For Russia, pursuing the path of innovation and reindustrialization is impossible without training a new generation of specialists, who possess qualitatively new professional knowledge and common employability skills.

**Keywords**— *higher education, ‘third mission’, entrepreneurial university, employability skills.*

## I. INTRODUCTION

For most countries, the development of education is an essential component of state policy. Education is widely regarded as an investment in the development of society. That is why at the level of the state and the general public, there is a growing concern about the quality of education, economic and social returns on funds and resources invested in education.

In the XXI century, new industrial technologies and innovations as an imperative of reindustrialization make

higher education face unprecedented challenges in the definition of its purpose, role, organisation and scope in the society and economy. The information and communication technology revolution, the emergence of modern management technologies and development of knowledge-intensive economy, the turbulence of the economy and consequent funding conditions have all thrown new light and new demands on higher education systems across the world.

## II. LITERATURE REVIEW

The rapidly changing realities of the modern world and reindustrialization are posing global challenges to the core of the tertiary education - the classical university:

- The innovative type of social development gives priority to ‘situational’ information rather than to abstract and fundamental knowledge, i.e. the forms and methods of knowledge transfer traditionally used by universities are losing their effectiveness.

- Knowledge dissemination becomes a major factor in the reproduction of social wealth: it acts as capital, and the cost of its production is regarded as an investment in human capital. Universities transform from a social institute into an economic entity engaged in the production of scientific and educational services, which results in commercialization of education and its effectiveness is measured against economic criteria.

- Denationalization of tertiary education leads to the fact that state participation in the activities of higher education institutions is now associated with public private partnership (PPP), with simultaneous involvement of government and private sectors in education. The purpose of this ‘business’ relationship is to attain a commonly shared goal that also achieves objectives of each partner. Areas that come under PPP might include almost every aspect of education, including policy making, formulation of plans, evaluation and implementation, ownership, management, funding, running of institutions, academic aspects, special education programmes, teacher training services [1].

- Virtual communication translates social interaction online, extending the quantity of its members and freeing them

from the territorial belonging. This ensures an unprecedented rate of access to cognitive resources, their translation and processing. Distance education reaches a qualitatively new level and acquires new organizational models.

- Consumption, as the dominant type of the modern society, leads to consumerism of higher education. With increasing stridency, students and their parents frame their educational expectations with a consumer paradigm, viewing professors as their employees, universities as consumer markets, and degrees as commodities. Universities function increasingly like corporations as they struggle to compensate for budget shortfalls caused by declining public support. This causes unjustified simplification of the content of educational programmes in order to minimize efforts required for designing them, and reduces the value of education to the value of consumer goods and services [2].

- Globalization transforms education into a functional infrastructure of the global economy, which demands for a single world educational system based on universal standards. Transnational corporations and international financial and banking institutions become fully involved in shaping state educational policy, which can be implemented in a variety of forms: from establishing corporate universities to policy making. Degrading higher education to the level of professional training is an unprecedented challenge to the educational mission of the classical university.

The question ‘How will the education of tomorrow be reshaped?’ is becoming an urgent issue and a kind of ‘catalyst’ in tertiary education reforms being promoted in many countries. The outcome is the emergence of a new ‘generation’ of universities with new aims and missions.

### III. UNIVERSITY ROLE IN SOCIETY

In each period of time, universities played a number of roles in their respective societies. Universities in medieval Europe became repositories of knowledge, ancient and modern, and special workshops of judgment and opinion. The universities’ primary goal, the reason for their creation, was to prepare professionals to maintain and lead the established social order, secular as well as religious. They pursued that goal through faculty teaching, student study, and the collective pursuit of accepted and acceptable learning [3].

Due to the victorious march of the natural sciences, universities of the early XIX century, in addition to educational, gained a second mission – involvement in the business of ‘research’ and the pursuit of new knowledge and innovation for its own sake. The self-sufficiency of these universities was justified by the intrinsically valuable nature of produced knowledge, standards of education, and examples of ‘high culture’. However, their activities were not directly related to meeting the practical needs of society.

Since the 60s of the last century, one of the main criteria for the effectiveness of universities has been their social utility and ability to meet social demands: universities should respond immediately and adequately to public inquiries about their products and services. Consistent with new principles of social organization, the interaction between the university and the society should be based on the commodity-money

exchange. Higher education institutions need a variety of individual visions and missions for an attractive positioning in a changing society. The notion of ‘Third Mission’ develops from the growing importance given to direct connections between university research activities and the external economic and social worlds. Universities, beyond student training and publications, are asked to produce revenues from technology transfer and science communication [4].

### IV. ENTREPRENEURIAL UNIVERSITY

What does it mean to be an entrepreneurial university? Though several attempts have been made to offer a single definition of the entrepreneurial university [5], they have reached no consensus. The Guided Framework proposed by EC-OECD [6] allows universities to assess themselves against seven characteristics of the Entrepreneurial University. They are as follows:

- Leadership and governance
- Organisational capacity, people and incentives
- Entrepreneurship development in teaching and learning
- Pathways for entrepreneurs
- University – business/external relationships for knowledge exchange
- Internationalization
- Impact measuring

As a self-assessment tool, the framework has the simple purpose of helping universities identify their current situation and potential areas of action, taking into account their local and national environments.

Russian higher educational institutions have traditionally dealt with government and departmental objectives. Their main functions were student teaching and research activities. The Russian tertiary education felt the full impact of the global trends only at the beginning of the XXI century. The main challenge Russian universities are currently facing is the fact that an overwhelming majority of high school leavers does not meet the requirements of higher education, and university graduates do not meet employers’ expectations [7].

Despite the ongoing reforms to the Russian tertiary education, its effectiveness, autonomy and responsiveness to the ever-changing world remain in question. One of the avenues of the Russian education modernization, which started in the mid-2000s, was de facto movement towards ‘University 3.0’, though the notion of ‘Third Mission’ was not formalized de jure. Entrepreneurial activity has become a performance marker in national research and federal universities. Enacting the third mission as a matter of survival has been characteristic of the best private universities.

For the majority of Russian universities facing financial and social difficulties, the only opportunity to stay afloat and even to develop is to be needed by the community where they exist. International experience demonstrates clearly how well-considered and active interaction between the university and the local community can impact the life of the university and its perception in society.

Close links of the Russian tertiary education with local communities are not only a tool for survival, but also an opportunity to tailor education to the realities of modern life, to improve the quality of education, to sharpen its practical focus. In this regard, articulating the third function of the university and its entrepreneurial activities emphasizes the social component [8, 9]. It is the strategic development and practical implementation of the third mission that is attributed to innovative regional growth. At the same time, this social activity may ensure continuous life-long learning and technology transfer, beneficial to a range of stakeholders (students, local public authorities, regional businesses).

A typical model of public private partnership in education implies active involvement of higher education institutions in life of society. Universities establish trust, acting as a competent non-profit partner and build university-industry collaborations, essentially for academic reasons, to improve the relevance of curriculum, increase employability of graduates etc. Students take up the opportunity to apply academic knowledge and obtain additional qualifications outside academia, thus being able to develop potential and prepare for future career, acquire employability skills and responsible behaviour patterns [14].

In order to drive regional, social and community development, the university should take on the following roles:

- A key partner of largest industrial enterprises and service companies which involves:
  - coordinating staff training and retraining across regional business;
  - creating a comprehensive model of response measures to the needs of local industrial enterprises and organizations in order to improve graduates' competitiveness in the labour market; timely adjustment of educational programmes;
  - conducting commissioned research for Russian and international companies;
  - ensuring information interaction between business, young generation and academic community.
- A socially responsible participant of regional, social and community development which involves:
  - organizing and holding educational events aimed at developing a proactive approach to life, cultivating moral and patriotic values in young people;
  - participating in socially important events at the regional and city levels;
  - interacting with regional public organizations in the implementation of socially important projects;
  - collaborating with regional professional bodies which representing the interests of main sectors of the economy (mechanical engineering, metallurgy, finance, construction, light and food industries, services, etc.);
  - promoting life-long learning, from school children (in order to maintain a constant dialogue

with prospective students and their parents), to short-term courses and professional training that meet the needs of region's development.

- A partner of regional authorities and local government bodies to assist in addressing the following issues:
  - monitoring of the state of affairs in the social and environmental sphere, preparation of analytical reviews and risk assessment in terms of socio-economic development, its innovative potential, and environmental conditions;
  - monitoring of the socio-political climate in the region;
  - staff training and retraining for regional and local public authorities in business planning and project management;
  - participation in public councils at various levels of government and administration, development and examination of key documents of territorial and sectoral socio-economic development;
  - consulting and mentoring by academic personnel with regard to determining the strategic direction of local development.

For Russia pursuing the path of innovation is impossible without training a new generation of specialists who possess qualitatively new professional knowledge and skills, which, in turn, calls for an advanced system of higher professional education. Among the most important challenges universities are facing today is a shortage of research and pedagogical academics caused by such factors as low social security of university teachers, the generation gap (many teachers are aged), small number of supporting staff at university chairs and departments [10]. In future all these factors may provoke a 'pedagogical crisis'. A modern teacher should comply with the requirements stipulated in the Professional Standard [11].

The reforms carried out in the Russian tertiary education emphasize the competence approach to Federal State Educational Standards. What skills are important for a person who wants to build a successful career, actively participate in the life of society, meet the challenges of the present and the future?

The realities of today are rapid advances in social and technological innovation, economic and cultural globalization, inequality of opportunity, wealth disparity and social unrest, economic crises and economic instability [12]. It is evident that subject knowledge and skills do not embody a full range of learning outcomes needed for human and social development, political and economic governance. The way we work is going through a fundamental transformation. Automation and 'thinking machines' are replacing human tasks and jobs, and changing the skills that organizations are looking for in their people. In fact, most subject specific knowledge that students learned in the university become obsolete very quickly. Thus, the goals of teaching and learning in higher education institutions need to be adjusted. The traditional purpose of higher education – to train specialists – ceases to be dominant, since today businesses offer their own

training facilities such as short-term courses, trainings, workshops and establish corporate universities.

The current challenge of higher education is to help individuals maintain integrity and develop the goal setting skills in order to find their own way in the world of volatility, uncertainty, complexity и ambiguity. The geek economy, state-of-the-art technology and modern workplace affect the shape that the workforce of the future will take. The most valuable employees are multidisciplinary and creative thinkers. Top talent - and 'talent' no longer means the same as ten years ago - is fiercely fought over, and employers search for exceptional talent early, forming links with schools and engaging promising youngsters.

The National Network has identified four groups of the Common Employability Skills [13]:

- 1) Applied Knowledge: reading, writing, mathematics, science, technology, and critical thinking
- 2) Personal Skills, such as integrity, initiative, dependability and reliability, adaptability, and professionalism
- 3) People Skills, such as teamwork, communication, and respect
- 4) Workplace Skills, such as planning and organizing, problem solving, decision making, business fundamentals, customer focus, working with tools and technology

These employability skills are interconnected to allow employers to look at the full scope of what skills are necessary in all major economic sectors. Together, attainment of these business-defined skills prepares individuals for careers and for further education and training.

It should be noted that almost all dynamically developing technology companies have started as a group of highly qualified engineers who are able to cope with almost any complex high-tech task. It is vital to train engineers and 'technology entrepreneurs' for this type of companies. On the one hand, the solution of the problem is to develop technologies that form prospective markets and competencies needed for generating breakthrough solutions; on the other hand, to build up a system of early finding and supporting talent.

Thus, the highest priority is given to train specialists who could easily and quickly adapt to any working environment, which will allow for their self-realization, beneficial to the well-being of the company and society as a whole. This requires an individual and differentiated approach to a student in order to develop their in-born unique qualities and abilities. Ideally, each student should be given chance to follow a personal development pathway, using all available forms and methods of learning. By promoting diversity and innovation in teaching and learning, the university will be able to gain a competitive advantage in the market of educational services; attract a wide variety of funding sources/investment, including investment by external stakeholders and support the pathways taken by would-be entrepreneurs (staff and students) from ideas to market growth or into employment.

## V. RESULTS AND DISCUSSION

In the new realities of reindustrialization and social order, the university will interact with the society on the commercial basis - the commodity-money exchange. The main activities of such a university will be: training innovators; producing innovative products; transferring innovative products to business and society; commercializing educational products; facilitating access to private financing; promoting an entrepreneurial culture among academic staff and students. These transformations demand for introducing good university governance aimed at maximum commercialization of educational products, search for financial, physical, and human resources, strengthening university entrepreneurial agenda.

For most Russian universities, the opportunity to gain an edge is to become needed by the community in which they exist, i.e. to promote actively the social (third) mission of the university. It is the strategic planning and implementation of the third mission that will ensure university's collaboration and engagement with the external environment and local development. At the same time, this social activity will push teaching and learning closer to the realities of modern life, enhance its quality, focus on practical application, ensure lifelong learning and technology transfer, beneficial not only to internal stakeholders (students, graduates, staff) but also to external stakeholders (local businesses, organisations and whole communities).

The reinvigorate national economy, state-of-the-art technology and modern organization of workplace induce workers to gain employability skills that are far beyond highly specialized training area. This calls for an individual and differentiated approach to the student in order to develop their unique qualities and abilities, utilizing available forms and methods of teaching and learning. This approach will help the university establish mechanisms for exploiting opportunities in the market of educational services in the reindustrialized economy and eventually contribute to social and economic development of the region by producing more prosperous, informative and knowledgeable society.

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