

**Sub-theme: 3.5 Entrepreneurial university roles: partner in regional systems of governance, player in regional technological and commercial advances, e.g. leading and supporting sector-specific initiatives**

**Title: The role of academia's values and objectives in creation of entrepreneurial university in the Triple Helix model in Russia**

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## **INTRODUCTION**

The Triple Helix Model is based on the interaction of three institutional players – government, business and universities for generation of innovations. Openness of institutional actors to interaction requires changes within each one of them. According to the entrepreneurial university model in the Triple Helix theory, the university mission consists not only in production of new knowledge, but also in capitalization thereof. It closely links the university to consumers of knowledge and thereby strengthens the university as an independent economic actor.

Nowadays Russian universities are undergoing transition to their new role – that of a participant in the economic development process. This transition is rather difficult, as in the 1990s universities had to move from the statist to laissez-faire economy. In early 21st century Russian universities are only starting to understand their role as member of the innovation process. The most advanced universities, such as for instance, the Tomsk State University of Control Systems and Radioelectronics, started by copying instruments and innovative infrastructure from the leading foreign universities – hybrid institutions, namely: offices of R&D commercialization, technology transfer offices, licensing offices, business incubators etc. This was the first step on the path of the university towards becoming an actor in the regional economic development. However, these instruments and components of the innovative infrastructure did not become important for the university development and were not recognized by the academia. Why do they face such a suspicious attitude? Why doesn't one witness the spread of academic entrepreneurship as new ideology? Today the leading universities begin to understand that “mechanistic” copying of new instruments does not allow the universities to implement the entrepreneurial model. It turns out that the main precondition of university transformation into the leader in “university-business-government” relationship is the change in academia's values and objectives. Academia should become an entrepreneurial community, i.e. the foundation for entrepreneurial university. The result of the survey shows, that the main obstacles are academia's norms, values and objectives.

## **STATE OF THE ART ABOUT THE TOPIC**

Today Russian academic literature pays little attention to the academia's values and objectives corresponding to the entrepreneurial university model. Generally the most discussed topics are innovative infrastructure,

functioning of business incubators and intensification of their influence upon regional development. Such a crucial issue as values and objectives of the academia is not given the attention it deserves.

However, in the U.S. and European academic literature this topic is widely explored. For instance, anatomy of an entrepreneurial university, which is based on academic entrepreneurship, is described in the paper "Delineating the Anatomy of an Entrepreneurial University: the MIT Experience" by Rory P. O'Shea, Thomas J. Allen, Kenneth P. Morse, Colm O'Gorman, and Frank Roche. In the U.S. and European academic literature phenomenon of academic entrepreneurship is seen as a mechanism of high complexity. It includes organizational policy and organizational structure, strategic orientation of the university, which is accepted by all departments, as well as values and objectives of the academia, and corporate culture of the faculty and staff that supports academic entrepreneurship.

## **RESEARCH FOCUS**

The present research strives to find answers to the following questions. What latent resources does the university have for the launch and implementation of changes leading to the emergence of an entrepreneurial university? How open is the academia to interaction with business and government? What values and objectives are inherent in the academia at a Russian engineering university? How does the academia see the future of the university and how does it plan to bring this future about?

## **METHODOLOGY**

The present research devoted to values and objectives of the academia relies on the use of semi-structured interviews. These are personal in-depth interviews, when an interviewer tries to discuss a specific list of topics or aspects with his or her respondents without having any clear structure or sequence of questions. An interview lasts for 40-90 minutes. The number of respondents which is necessary and sufficient for the research data to be representative is defined in the course of research. The interviewing is stopped as soon as it is clear that each successive interview does not provide new information. The overall number of respondents was 35, including members of the Academic Council – 9; deans – 4; heads of department – 7; full professors – 7; faculty members – 9; young faculty members – 7; members of the TUSUR educational, scientific and innovative complex – 2; auxiliary teaching staff – 2.

Based on conclusions drawn as a result of semi-structured interviews, the research hypotheses were formulated and tested using quantitative methods. Two quantitative surveys were performed – one by questionnaires and one through the system of Internet surveys at the official website of TUSUR. The questionnaire survey provided quantitative information for detailed description of the situation at the university and allowed increasing the scale of research. The primary objective of the Internet survey was not accumulation of the quantitative information. Instead, it was aimed at involving young faculty members and graduate students, who are active Internet users, into discussion of the problem and questions under study.

## **FINDINGS AND INTREPRETATION**

According to results of the present research, academia defines 4 key activities in transition to the entrepreneurial university model:

### *1. Providing continuity of engineering and scientific culture within the academia.*

Nowadays one can witness partial loss of scientific research culture, research teams are fading away, and there is a lack of young ambitious postgraduates striving to make valuable contribution to science. For the Russian universities transition from statist to laissez-faire economy that took place in the 1990s had certain negative consequences. In fact, the best researchers and engineers started establishing their own businesses and drastically reduced the amount of work done at the universities or even quit their university jobs. The drain of the best human resources from research resulted in the generation gap in science, as advanced engineering and research culture ceased reproducing itself.

The university academia can be tentatively divided into two groups. The first group is represented by the heads of research teams who took part in the Soviet megaprojects. They stay at the university and are the carriers of unique experience and competences needed to accomplish "impossible" engineering missions. However today they do not set new scientific objectives and development targets and do not create the new future. These professors note that the university has insufficient funds for the development of science and needs additional financial influx. This situation is associated with a serious risk, as in the long-term perspective it may deprive the university of its advanced technological basis that is one of the key resources for participation in the innovation process.

The second group is represented by professors who have retained their jobs at the university and founded science-intensive businesses. Their experience was not used to rearrange training and research at the university, since academic entrepreneurship was not a main trend and a recognized activity, so it was not considered worth encouraging. Ownership of a science-intensive business was and still is considered a private affair of such professors. That is why we can claim that the university has no policy to support academic entrepreneurship.

Another important aspect noted by respondents: the university academia is ageing, and this is a growing trend. According to one of the leading professors, *“the average age in the academia is such that in ten years there will be no one to lead advanced research areas, and this is a key problem that needs to be resolved”*.

2. *Formation of career development culture in the academia.* There are no clear and transparent trajectories at the university and this prevents the development of academic entrepreneurship. The model of entrepreneurial university cannot be implemented without career of an academic entrepreneur coexisting with that of a researcher, lecturer etc.

Today career of an academic entrepreneur is not visible and recognized at the Russian universities. Why is that?

In the statist economy the Russian universities, including TUSUR, were involved in research and development and attracted a lot of young people. At TUSUR 7% of the labor compensation fund were spent to involve students in research. Therefore, it was only possible to combine career of a researcher with that of a developer while carrying out scientific research and resolving complex engineering tasks. Today in the laissez-faire economy the role of the university is redefined, and consequently careers of a researcher and an engineer need to be reviewed and supplemented with a possibility to commercialize R&D results.

Survey carried out among the members of the TUSUR academia about career prospects of young researchers demonstrated that university staff linked the absence of an academic entrepreneur career trajectory with the fact that the university had little space for initiative and with conservative environment (40%). The ageing generation of researchers is interested in preserving funding for their scientific research and their positions, and this makes it difficult for young researchers to occupy management and research positions. Due to that young researchers cannot make careers of successful scientists and academic entrepreneurs in already existing areas of research. If such situation is maintained, young researchers are the ones who are interested in innovative development and academic entrepreneurship. Discussion of the way to motivate young researchers to make career of academic entrepreneurs is concentrated around two opportunities: first, an opportunity to participate in implementation of projects initiated by innovative companies (38%); second, an opportunity to undergo internships at research centers and science-intensive companies in Russia and worldwide and to take part in academic exchange (38%). A significant number of respondents also mentioned the opportunity to carry out promising scientific research (36%). Along with offering these opportunities, the university also needs to analyze experience of young researchers in using them. Thus, according to one respondent, *“many young researchers start working at an innovative company along with carrying out research at the university, and often they leave the university without completing their dissertations and get employed at these companies”*.

Representatives of the academia note that alumni of other universities ought to come to their university, for ideas and people not to “stagnate” and for research teams not to “stiffen”. 52% respondents believe that remuneration of a young researcher’s labor must be to a large extent determined by the number of new research publications and grants obtained, and by efficiency of projects implemented under his or her leadership.

3. *Development of entrepreneurial culture.* This culture includes the value of risk, the value of cooperation, the value of setting new tasks. Such culture renders the university community more dynamic and more open to changes, and makes it function according to entrepreneurial logic.

TUSUR academia cherishes the memory of complex research and engineering tasks resolved during the Soviet era, when “impossible” missions were set in order to develop the Soviet defense complex. Today this fact needs to be used under new conditions for the sake of academic entrepreneurship development. However, a crucial limiting factor is a predominant perception of “entrepreneurship as trade”, which is the evidence of the fact that entrepreneurship is associated with trade and not with new markets and innovations. The second widespread statement is formulated as follows: *“scientific research is a complex and serious kind of work, so let others deal with commercialization (trade). The academia is not supposed to deal with commercialization”*. Thus, entrepreneurship is not recognized by the academia as a type of activity founded upon R&D results and as a factor increasing the value of their labor and significance of their contribution into science. Moreover, the

academia is confident that entrepreneurship is characterized by short-term rather than long-term objectives. The practice of taking the market demand into consideration when launching research and development has not yet become an accepted rule for the academia.

Negative image of entrepreneurs among the academia members prevents the courses on entrepreneurship from emerging, though such courses would be useful for students and young researchers who implement projects at the student business incubator established at TUSUR in 2004.

However, the following questions remain important for the development of entrepreneurial culture. How to form the values of risk and cooperation? How should entrepreneurial courses be arranged? How to create an entrepreneurial environment at the university?

4. *Development of the web culture.* The use of Internet allows raising public awareness about university research and entrepreneurship results. University becomes more transparent and open to cooperation.

Our research demonstrates that the culture of Internet use by university staff and students was still nascent in 2008. Many survey participants noted that they practically did not use new technologies, software products and web-services. According to the authors of the present paper, this is a crucial limitation for development of a productive link between members of the academia. Quantitative research carried out among university students demonstrates that 50% of respondents did not get web-links from their professors as a source of information for academic disciplines. The link to the TUSUR e-library was given to 12% of respondents by their professors. Only 4% of students name the website of TUSUR among the websites they visit. By today the overall number of Internet users in Russia has experienced a twofold increase (from 40 mln. people in 2008 to 82 mln. people in late 2010). TUSUR faculty members started using the university website more often, and the daily number of website users increased 2.5 times (from 600 persons a day in 2008 to 1500 persons in 2011). It is noteworthy that introduction of a social network enhanced the density of communication among faculty and students. However, the role of the university website in activities of faculty and students remains latent. Increased number of network users identifies the need to respond to a new challenge that the university currently faces, i.e. positioning of the university in the Internet, positioning of various lines of research, positioning of the best practices of academic entrepreneurship.

The present research also demonstrates that members of the academia highlight five additional factors that they would like to change:

- Delegation of powers and responsibilities is extremely important. So is the increased influence on university development. Support to the grassroots initiatives should become the key change in management.

However this has not been achieved yet. Many staff members note in their interviews that *“development of the university depends on the will of the leadership only”*, that *“strategic decisions are made by the rector and the academic council, and we only deal with finished documents and decrees that are to be executed”*.

Initiatives coming from the members of the academia do not always find support and often fade away without finding their application. Probably it happens due to the absence of clear mechanisms for working with initiatives and with groups that come up with ideas:

- *“I know many cases when an initiative emerges, but no support is rendered to it, and it simply dies out”*

- *“My enthusiasm is a back bone for everything, I see no support on the part of the management”*

- *“I doubt that the management is aware of the actual state of affairs at particular departments. The management only sees what is presented to them by the heads of departments. It this information mainly includes various indicators, but not a real-life situation”*

- Members of the university academia understand that the university should be entrepreneurial, but they do not know how to make it entrepreneurial and how to undergo their own transition.

Oftentimes members of the academia stand against the changes, because the goal of the change is not clear to them:

- *“The system is not streamlined, only point injections take place”*

- *“Somebody earns money, somebody deals with training. There is no connection between the processes that run within the university”*

Such crucial for the entrepreneurial university notions as ‘project’, ‘competence’, ‘commercialization’, ‘start-up’ are widely used as a formal addition to the activity, which they are used to.

Many respondents did not provide a clear answer for the question about the TUSUR mission and strategy. However, they note the fact that everybody at the university promotes his or her personal interest, without being guided by the TUSUR mission and strategic objectives. This is pointed out as a weakness that impedes bringing about the common future.

- The university can become a player in the regional innovative system, only if there is a shared understanding of the strategic goal which is the creation of an entrepreneurial university.

The goal of establishing an entrepreneurial university is not recognized and accepted by the TUSUR members of academia. It is stated that TUSUR is an entrepreneurial university, but this statement is not perceived as a goal. People consider it as a kind of trademark, 'a tidbit to show off'. Members of the academia trace the contradictions between what is declared and what happens within the university: *'We have an active PR campaign, do our best to be treated as an innovative university. It is a good marketing mix, but within the university it does not feel like the forefront of innovations'*.

When discussing a transition to the entrepreneurial university model and development of academic entrepreneurship, all representatives of the academia unambiguously refer it to the university mission and strategic goal. Herewith, neither of respondents could cite the mission of the university, having underlined that "the university mission statement is on the management table, everything is written there".

Responding to the question about the university mission, all the academia members note that our mission is likely to be similar to the other universities' missions: 'probably, it is something along the standard lines: to teach, to train engineers'.

Since the university purport that is highlighted in the mission is at the same a landmark, a call for action and a motivator, being unfamiliar with the university mission can be treated as an absence of landmarks for the members of the academia. It can be elicited that every member of the academia acts based on their own perceptions, without being guided by the university mission.

- Horizontal links, communications, and projects jointly implemented by representatives of different branches of knowledge enrich internal environment of the university. Such favorable internal environment enhances consistency of efforts made by various university divisions on the path towards an entrepreneurial university.

The academia is sure that "every division 'is stewing in its own juices', there are no joint research areas or projects. We are acquainted with each other, but there is no common cause".

- *'Communication between departments is limited to the budget discussion – how much money you and I have etc. Horizontal bonds are not streamlined'*.

- *"Coordination of actions undertaken by structural divisions and university staff depends on the task that they jointly accomplish"*.

The academia tells about the absence of forum for fruitful communication: *'The most acute problem is that people today remain of the same opinion, though today there is a great variety of websites and portals, where discussion is undoubtedly possible. The more opinions we have, the better the strategy we develop. Unfortunately, there is no forum for the joint discussion at TUSUR'*.

- Members of the academia note that a new code of ethics should emerge and it should correspond with the entrepreneurial university model and values of the academic entrepreneurship.

Some representatives of the academia note, that *'we need clear 'rules of the game' in transition to the entrepreneurial university model, we need principles and values shared by everyone and corresponding to the academic entrepreneurship'*. Answering the question 'In which format can academic entrepreneurship principles be presented?', respondents say that *'a common body of norms, values and principles of the academic entrepreneurship is required. It can be formulated as a Code of ethics, for instance'*.

## CONCLUSIONS

1. The goal of creating an entrepreneurial university has not been recognized and accepted by majority of the university staff. It is claimed that TUSUR is an entrepreneurial university, but the academia does not perceive this claim as a task ahead of them, seeing it as a title only.

2. Members of the university staff note that there are contradictions between proclaiming that an entrepreneurial university is being built and the real situation when the staff is excluded from this process. University employees note that external strategy of positioning the university as entrepreneurial does not make internal environment more innovative and dynamic.

3. The research results demonstrate that when the academia's values and objectives are ignored, one of the main risks on the way towards creating an entrepreneurial university is that "entrepreneurial university" model may turn into nothing but a formal attachment to the academia's everyday work.

4. The academia representatives are interested in forming the new mission together, in order for scientists to feel their involvement in bringing about the university future and their responsibility for it.

5. The goal of ensuring the continuity of engineering and scientific culture in the academic community requires transferring the principles, norms and working tools to the next generation of scientists and engineers. Above-mentioned norms and tools allowed tackling 'impossible tasks' in the framework of USSR megaprojects, where

Tomsk State University of Control Systems and Radioelectronics participated. On the other hand, the goal also requires focusing attention on new research areas, identifying new key problems and positioning the university on the global research map. Resolution of these two tasks will become a basis for transition to the entrepreneurial university model and will contribute to the university's leadership in new research areas, generating innovations and exerting influence on the formation of new innovative market segments. A new generation of scientists, who take the values of academic entrepreneurship into consideration and have other career strategies, is needed to meet this challenge.

6. A connection between scientific research at the university and work in the innovative company that was founded by the young scientists, needs to be maintained and made part of career strategy for young leaders of the academic community. On the other hand, considering the establishment of start-ups by some young scientists, it should be highlighted that career of a contemporary researcher is becoming hybrid - competences of both researcher and entrepreneur are formed simultaneously.

The task of the university is to distinguish successful academic entrepreneurship careers and make it 'serial', so that as many members of the academia and students as possible could follow this way.

7. Interviews with the academia representatives have demonstrated that the university future can be perceived in different ways:

- to concentrate all the university efforts in order to make it to the top ten universities in the country, to become a national research university.
- to place a stake on fundamental education, to develop those departments that have scientific potential.
- to develop TUSUR as a leader in one particular branch of science and technology.

The academia considers it important to formulate the university principles of foresight and strategic planning.

8. It is a typical situation for the academic entrepreneurship, when research and development and entrepreneurship are brought together within the university structure and activities of the professors.

9. Displaying results of research and development carried out by faculty and students of the university in the Internet is becoming one of the key tasks. In Russia people are hesitant about displaying the results of any activity in the Internet, as they are concerned about losing primacy in a scientific discovery or development. The situation is aggravated by the fact that for a long period of time engineering universities such as TUSUR had been dealing with defense industry orders and almost all R&D results were secret. Today this logic prevents many professors from finding new partners in foreign universities and from displaying their R&D results to attract potential private and public investors. A new policy of university positioning in the Internet needs to be elaborated and web-space use culture is required for the university to join international networks, cooperate with Russian and foreign companies, be an active player in the international market of educational services and influence the development of innovative markets.

10. The academia needs to formulate the principles, norms and values of academic entrepreneurship.

## **POLICY IMPLICATIONS AND DIRECTIONS FOR FURTHER RESEARCH**

Important questions and directions for further research can be formulated as follows:

1. How does the academia accept the Triple Helix model?

Studying the 'revolution' that is to take place in the academia's mind and self-identification in the space of 'university-industry-government' interaction are of critical importance, since it would allow understanding the nature of values and goals transformation and increasing the efficiency of transition towards entrepreneurial university model in the Triple Helix framework.

2. How can changes in the university management transform the academia's values and objectives?

As the academia, discussing the changes within the university, accepts the management as a single engine, all the changes have a short life cycle, since they are met with great resistance of the academic community. This happens primarily because the academia does not understand the reasons and goals of these changes.

The recent university policy of establishing advanced research groups, orientation at research internationalization and support of academic entrepreneurs and innovative infrastructure gave an impetus to strengthening the horizontal bonds within the academia. New research areas and establishment of start-ups by professors and students require exchange of experience, intensive communication and new policy in the field of knowledge management. However, from the standpoint of management changes, the strengthening of horizontal bonds means a drastically increased responsibility for one's actions and for the university future. In this situation the best examples of research and entrepreneurship will not be "appointed" by the management. Instead, they will be distinguished by exclusive competences and achievements in research and commercialization of R&D results.

The academia's orientation at new results, understanding that research is only a part of innovative process and the university is only one of the players along with industry and government will allow transforming the goals and values of the academic community. It is a very long process, but its launch will allow identifying the regularities and the link between changes in management and transformation of the academia's goals and values.

3. New rules and principles of the academia, which are focused on entrepreneurship and provide knowledge capitalization.

4. Career strategies of young academic leaders.

In order to implement the entrepreneurial university model within the Triple Helix framework, it is necessary to study the best practices in young researcher careers and, based on these best practices, formulate the career strategies aimed at achieving leadership in academic entrepreneurship.

5. Transfer and exchange of principles and norms contributing to academic entrepreneurship development between different generations of scientists.

6. What instruments can help the university to increase its knowledge capitalization? The role of university websites in dissemination and capitalization of the new knowledge.

7. Alumni business network as an instrument for implementation of regional and global initiatives.

8. Mechanisms for transfer of values and objectives of academic entrepreneurship to students and young researchers.

9. What should be the code of ethics for the academic entrepreneurship?

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