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Industrial Networking through Academic Cooperation

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Julia Ziyatdinova graduated from Kazan State Pedagogical University in 1999. Her major areas of study were foreign languages and she finished her University course with honors and qualification of teacher of English and Turkish. She continued her training and obtained PhD in Education degree in 2002. The topic of her PhD study was titled "System of Character Education in the US Schools: Current State and Trends for the Development". She also received additional minor degrees in Management (1998) and Psychology (1999) in Kazan State Technological University.

Julia joined the team of Kazan State Technological University as an instructor at the Department of Foreign Languages and the School of Foreign Languages "Lingua" in 1999 and was rapidly promoted to the position of Associate Professor at the Department of Foreign Languages in 2003. Her teaching career was perfectly balanced by the experience of a translator and an interpreter. She is a well-known person at Kazan international conferences and other events for her high quality consecutive and simultaneous interpreting, such as interpreting for the Academy of Sciences of the Republic of Tatarstan.

The new milestone in Julia's career was the position of the Chair of Department of Foreign Languages for Professional Communication in 2007, when she took over all the responsibilities related to foreign language training at Kazan State Technological University. The teaching and research priorities of her department were then focused on professional and intercultural communication for students in a technical university, professional translation and creation of foreign language environment at a university.

Because of her talents and activities, Julia became one of key figures in university international life. When Kazan State Technological University obtained the new status of a National Research University and joined the list of Top 30 Russian universities, Julia was offered a position of a Head of University International Office. She took over this position in April 2011 and rapidly gathered a strong team of

professionals to face the challenges of the new university status and transformed International Office into University International Affairs with two offices covering all the aspects of internationalization.

In addition to her intensive career, Julia is also the Director of Center for Intercultural Communication – a company within the University structure offering excellent language training services for students and adult employees.

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Abstract

Modern industrial clusters represent a complex of various companies and enterprises engaged in the same branch of industry; they unite their efforts to achieve common goals and complement each other. A cluster approach is popular in the leading industrial regions of Russia. This paper focuses on the internationalization practices of a Russian regional petrochemical cluster which combines oil refining, processing, and oil producing companies, as well as technical and industrial parks, universities and research institutions. The goal of this cluster of organizations is to produce research that can be applied to real-life situations in the petrochemical industry.

Today the strategic goal of the cluster development is to broaden its international networking into the Asia-Pacific region, where Vietnam was selected as one of the targeted countries for integration with industry due to active regional and national agreements and projects. Here we should mention that 40 percent of crude oil and around 25 percent of natural gas Vietnamese companies produce together with their Russian partners. In this respect the need for qualitative engineers for joint projects attains greater importance. However, a general problem the cluster faces is the need for successful approaches for Asia. The reason is that efficient practices for Europe had poor effect in Asia-Pacific as different intercultural aspects and various details had to be considered to ensure success.

This paper describes new practices which have been implemented to solve this problem. First, a Russian research university engaged in research for the cluster was selected as a site which helps the cluster with challenging process of internationalization. Next, a representative office of this Russian university was established in Vietnam to balance cultural, linguistic, psychological, and administrative issues. This office employs Vietnamese graduates of this university and coordinates cooperation between Russian and Vietnamese partners.

The paper explains a novel approach for arranging international networking in industry through establishing academic linkages between educational and research centers. The authors show a step-by-step process of this networking, including the visit of Russian regional authorities to Vietnam to overcome administrative barriers, cooperation of Russian and Vietnamese engineering universities, joint research, and as a result joint industrial projects negotiated by the leaders of the industrial companies during the visit of the cluster companies to Vietnam.

Introduction

The modern world is witnessing widespread international linkage in research, innovations, technologies, and engineering. In terms of global challenges and competition, implementation of innovative projects and marketing research results are often facilitated by the creation of research and production chains that involve various organizations. Russia has successfully adopted world practices in creating such chains on a national level as innovative clusters. The cluster approach for furthering industrial development is regulated by a series of fundamental documents on strategic planning[1].

Clustering makes it easier to unite efforts in industry and education, to enforce economic development, and to improve national living standards. On a regional level, local universities introduce and utilize the cluster policy to provide their educational services to students and

young specialists. In Russia, the experience of integrating industrial platforms for educational purposes is widely spread among engineering institutions – colleges and universities. For instance, students of engineering programs are required to undergo an internship at industrial enterprises of the region and perform a capstone project to demonstrate the new competencies they have obtained within the internship period. While regional academic-industrial cooperation through cluster partnership demonstrates positive results for training highly qualified specialists at present, it should involve international experience in order to remain up-to-date in the forthcoming years.

However, the idea of expanding clustering to an international level brings up the series of potential issues that arise from the collision of interests of two (or several) international partners, along with problems related to the differences in management and organizational structures of the partner organizations, such as legal regulation of international activity, patenting, authorship rights, and others. These issues are major, and underneath them there is a row of minor aspects which determine the readiness of cluster participants for international cooperation. The authors believe that in many cases the psychological readiness and willingness of the participants have a strong impact on the effectiveness of any project. This paper demonstrates that the readiness of the industrial partners to overcome obstacles that can limit the success of their international projects could be cultivated by academic cooperation. Long term collaboration in education builds trust in relationships, since education is the area of interaction when parties cannot rely only on their formal agreements. In this respect, the personal attitudes and a degree of belief between the partners play an important role as well.

The research described in this paper focuses on a model of international cooperation between a Russian engineering university and its Vietnamese colleagues, and the ability of that consortium to attract industrial partners in Vietnam and Russia. It demonstrates that international academic collaboration could become a target-oriented mechanism of enhancing industrial growth and its internationalization.

Regional Innovative Clusters in Russia and Their Academic Linkages

In 1998, Michael Porter wrote about innovation clusters: "Promoting cluster formation in developing economies means starting at the most basic level. Policy-makers must first address the foundations: improving education and skill levels"[2].

Clusters are regional conglomerates of industrial enterprises, innovative companies, universities, and research organizations. The indispensable condition for providing competitive growth of a cluster is attracting qualified engineers who are competent in specific industrial spheres as well as in multicultural communication. Therefore, universities are critical components to the success of innovative clusters, in their role as the centers of expertise and qualification. Further, engineering universities can provide solutions for even broader challenges that the innovative clusters may face.

One of the biggest innovative and production clusters in Russia is located in the Republic of Tatarstan, a region in the Russian Federation located 500 miles to the east of Moscow. The Republic is well known for its chemical, petrochemical, oil producing companies and mechanical engineering enterprises. The Republic is a leader in integrating the representatives from an industrial sector into a cluster which unites dozens of huge and medium projects in the area of petrochemistry, mechanical engineering, business services, human resources training, and others. Along with industrial companies, the cluster includes a number of academic and research institutions, national research universities, technology transfer centers,

and industrial and IT parks. A wide range of organizations facilitates a complete chain, working from an original idea and the product development, up to the development of innovative production technology[3].

Prospects of International Cooperation

While the cluster has a well-designed inner hierarchy and stable schemes of cooperating with domestic partners, international expansion for many of the residential companies is still challenging. In practice, international governmental policies affect partnership relationships between enterprises and academic institutions. Today, the strategic goal of the Republic's cluster development is to broaden its international networking into the Asia-Pacific region. Vietnam was selected as one of the target countries for integration with industry due to its multiple regional and national agreements and projects. For instance, 40 percent of crude oil and around 25 percent of natural gas Vietnamese companies produce together with their Russian partners; the largest Russian and Vietnam oil producing companies signed a Memorandum of Understanding (MoU) to facilitate their joint work. In 2015, other important documents were signed, specifically a Plan of Investment, an MoU on revamping the power plants in Vietnam, an agreement between railway companies, and others.[4]

However, even after critical documents have been signed by both parties, it is important to consider different aspects of establishing international cooperation between industrial companies. First of all, attracting industrial companies to an international partnership implies more responsibilities and a new level of partnership. When a company joins any international project, new issues and challenges appear, induced by the differences in legal and regulatory systems of the partners as well as cultural and mentality patterns. Challenging questions that arise include: How can we best align the R&D documents between the international partners? What is the gap between the regulatory grounds of the countries? What is the best way to negotiate when European and Asian ways of thinking collide?

Russian companies have certain experience in developing collaboration with, for example, their partners from the European industry. However, practices that had been effective in partnerships within Europe had not been effective in the Asia-Pacific region, as different intercultural aspects and various details had to be considered to ensure success. One of them is location. Asian countries are geographically distant from the European part of Russia and it is quite time-consuming to support friendly connections while around 4,000 miles away from the partners. Interactive tools for communication that are in common use with the European or American colleagues, such as Skype video calls, are not well accepted by partners from Asia, where personal meetings are preferable.

Fruitful cooperation requires efficient mechanisms of doing business in Asia-Pacific considering the differences between European and Asian culture. The academic sphere could become a platform for enterprises to develop their internationalization initiatives.

Academic Cooperation Promotes Industrial Networking

The experience of Russian universities demonstrates that it is easier for academic institutions to establish international linkages in the R&D sector – each academic institution has a number of partners to implement its international programs or to perform research. When an institution of this kind is involved in a more complex cooperation (a cluster) it can distribute the benefits it gains from international partnership and share the positive experience with its industrial partners. In this respect, the cluster provides a full product chain from fundamental

research to marketing a new product. In addition, the cluster has a full cycle of professional education, from academic courses at universities for training the qualified engineers or researchers to professional training of personnel at cluster companies.

In order to manage the abovementioned issues successfully, a Russian research university engaged in R&D activities for the cluster was selected to be a site which assisted the cluster in the challenging process of internationalization. This university has effectively developed partnerships with educational institutions in different parts of Vietnam. Some relationships have been recently established and are only in the very beginning; others are well-developed and characterized by sustainable linkages with academic and research divisions. The research university is focused on chemical engineering and petrochemistry. This is the reason why it becomes an important element in the structure of the cluster. The relative profile of the university programs underlines its interest in firm connections with engineering universities and institutions. The closest Vietnam partner of the research university is located in the northern part of the county and has a similar academic background. In addition, it is also engaged in cooperation with industry and promotes the ideas of engineering education.

The highlight of the Vietnamese system of education is that various universities are monitored and supervised by different authorities. Many educational institutions report to the Ministry of Education and Training, but some are governed by the Ministry of Industry and Trade. Correspondingly, the engineering institutes and colleges that the Russian research university cooperates with are supervised by these government bodies. Besides being in charge of engineering education in the country, the Ministry is responsible for the regulation, promotion, management, and growth of industry and trade. In this way, the engineering institutions are directly connected with industry from both sides – in Russia and in Vietnam. Moreover, Russian engineering programs are most popular among Asian students, as demonstrated by the data in Table 1 [5]. Therefore, Vietnam represents the one of the most promising directions for Russian education services.

Table 1: Percentage of Foreign Students from Non-CIS Countries at Russian Universities in Certain Programs within 2013/2014 Academic Year

Academic Program	The Baltic States	Eastern Europe and Balkans	Northern Europe	Western Europe	**Asia**	Middle East and North Africa	Africa (except for North Africa)	Latin America	North America and Oceania
Automation and Control	3.7	1.0	0	1.1	**58.7**	11.8	16.3	7.5	0
Chemical Engineering and Bioengineering	1.1	3.1	0	0.6	**53.2**	16.8	21.9	2.9	0.3
Environmental Engineering and Protection	7.6	3.7	0.3	1.6	**40.8**	6.3	30.9	8.9	0
Information Technologies	3.6	3.0	1.8	1.9	**44.2**	17.8	23.9	2.2	1.6

Taking these considerations into account, it was reasonable to begin industrial networking with developing interactions in academic sphere since both Russian and Vietnamese

universities were strongly linked with industry in the respective country.

The first step on the way to enhancing international cooperation in industry through academic networking was establishing a representative office of the research university in Vietnam. The partner university in Vietnam supported the idea and offered its facilities for the needs of the office. It was a critical decision since now the international partners were able to overcome communication and cultural barriers. The office balances the cultural, linguistic, psychological, and administrative issues and differences between European and Asian educational institutions. It employs Vietnamese graduates of the Russian university and coordinates cooperation between Russian and Vietnamese partners.

The representative office promotes engineering programs of the Russian university and helps students from Vietnam apply for scholarship to study in Russia. It selects, consults, and motivates candidates to improve their proficiency in engineering. For instance, in 2014, 12 students from Vietnam won the government scholarship and were enrolled to the research university. At present, they do their PhD research in different areas of engineering, including Chemical Engineering, Process System Engineering, Mechanical Engineering, Engineering System Control, Information Technologies, and others. After they defend their thesis, the PhD students will be engaged at the partner university in Vietnam to train prospective engineers for the Vietnamese industrial sector[6].

The next step was direct negotiations between industrial enterprises of Russia and Vietnam. With this intention, the President of the Republic of Tatarstan, the highest administrative official in the Republic, came to Vietnam together with the leaders of industrial enterprises, businessmen, and rectors. The parties concluded that the efficient implementation of joint industrial projects required the targeted training of specialists, who had to be competent in a certain professions and capable to work in a multicultural environment, being aware and respectful towards the traditions, culture, and customs of a partner country. As a result, the Russian-Vietnamese Intergovernmental Commission declared to increase the Russian education quota for Vietnamese students. By 2020, Russian government will support 1,000 students from Vietnam annually, compared to 550 and 800 scholarships granted in 2014/2015 and 2015/2016 academic year respectively.

This will increase the share of students from Vietnam in Russian engineering programs of the research university. The Russian Master's Degree programs in engineering, in turn, include short-term internships at industrial companies. The research university distributes its students for internship among the industrial companies which participate in the cluster. Thus that would have a dual effect: a student from Vietnam is directed by his or her home university for training in Russia, where he or she undergoes an internship on a real industrial site and studies innovative technologies. After graduation, the student comes back to Vietnam and is ready to work on joint Russian-Vietnamese projects.

The academic activity of the research university determines the growing interest of Russian industrial companies towards Vietnam. The participants of the innovative cluster intend to arrange a more detailed business mission of Russian entrepreneurs and industrial leaders to Vietnam. The research university together with its representative office has developed a program to fit the interests of the cluster. The strong point of the program is meetings with those governmental authorities which are directly involved into specific field of industry or in charge of promoting these industrial branches.

Today, after two years have passed since the office was established, everyone agrees that this

idea was courageous and challenging. The outcomes of the project are valuable and the future benefits are promising.

Conclusion

The governments created a great potential for the growth of industrial cooperation between Russia and Vietnam. Several long-term and large-scale Russian-Vietnamese projects have been launched. However, these projects require the support of the developed peripheral infrastructure − project design institutes, suppliers, service providers, partner organizations, and others. These peripheral agents need to be linked together in order to ensure efficient cooperation. Networking is the mechanism that provides for the smooth aligning of all the participants of a project. International networking in industry to a great extend depends on properly trained and qualified personnel. Therefore, the academic institution as a part of innovative cluster could become a center coordinating not only international collaboration in engineering education, but industrial enterprises from different parts of the world doing research for joint projects and training specialist for industrial companies.

To the present, the university together with its representative office has implemented many joint events and projects. Among them there are the following: an agreement to engage Vietnamese graduates of the Russian engineering programs for teaching at the partner university in Vietnam or in Russian-Vietnamese projects; a scientific conference in Vietnam arranged by the Russian university and the Vietnam Academy of Science and Technology in which united scientists from different corners of the world and could meet the researchers who work for the industrial companies in Vietnam; a course of Russian language for future PhD students from Vietnam run by faculty of the research university, and others. The sustainable academic cooperation enables the further development of industrial cooperation.

This paper discussed the ways for internationalization of innovative clusters using networking opportunities of engineering education and universities. This approach will help industrial companies to step forward into the international level provided by academic cooperation of their cluster universities. Cooperation with outer partners, including the international ones, could be beneficial for all the participants of the cluster. A Russian-Vietnam international cooperation was selected as the case study for this paper due to the intensive academic and industrial linkages between these countries.

Our experience demonstrates that the cluster model easily aligns with academic networking, as the cluster itself could be represented as a complex of networked elements – including industrial or business companies. In turn, the academic network smoothly ‘absorbs’ a cluster and utilizes its resources to reach mutually beneficial goals. At present, academic cooperation has created a fertile ground in Vietnam for developing industrial networking supported by close cooperation of educational institutions and joint research.

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