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CHALLENGES IN ESTABLISHING MULTIPURPOSE VIRTUAL KNOWLEDGE ALLIANCE TO STRENGTHEN THE EDUCATION IN ENERGY SECURITY

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Abstract: The paper presents the specific features of the international projects aimng to establish and develop digitally based knowledge alliance between universities and industrial entities, as a tool boostering the acquisition of competences and experience in sensitive fields as energy security. The development of collaborative virtual alliances has been considered as an opportunity for provision of the fastest advisory and education services by networking the scientists, the researchers, the developers, the lecturers and the students. From the other hand, the challenges faced during the project cycle are also presented in terms of the necessary pre-conditions for effective virtual collaboration and exchanges. The strengths and the weaknesses of such projects are also identified through evaluating the raising issues of outcomes' ownership, multicultural remote project management, data management and coordination as well as educational alignment. Last but not least the vulnerabilities and the fragile sustainability of the virtual knowledge alliances, as potential risks that must be initially mitigated, have been also discussed.

Keywords: virtual knowledge alliance, networking, education in energy security, sustainability, vulnerability

INTRODUCTION

"We must make energy diversification a strategic transatlantic priority and reduce Europe's dependency on Russian energy," said NATO Secretary-General Anders Fogh Rasmussen in March 2014. Even before the Ukrainian energy crisis and the attacks on the fuel convoy of the Alliance in Afganistan and Pakistan the energy security became a key priority of the NATO energy agenda. The dynamic changes of the energy markets and the emerging IoT technologies in managing energy grids designed the need for a definitive update of the energy security policy. But the real change seemed to be much more difficult and time-taking than the political statements, agenda-setting, and programs outlining.

KEY STATEMENTS

The reason of facing difficulties are not related so deep with the usual political concerns of the leading countries in EU and the global energy market as a whole, neither might be simply explained by the numerous energy consumption scenarios defining target values for 2020, 2030,

2050, tending from apocalyptic future to utopism. It is maybe easier to apply the very conventional approach of searching the reasons for hard and longlasting changes in the energy security field which explains the identified challenges as a projection of the international relations developments in the last decade, with climate changes issue or with the fast-changing technologies introduced in the energy sector, which implicitly drive both to progressive and efficient management models and to brand new types of threats for the energy systems and relevant critical infrastructure.

As Julijus Grubliauskas (2014) reminded, NATO adopted a "Green Defence" framework and stood up a group of experts – the Smart Energy Team (SENT) has been set up from six Allied and two partner countries. Supported by the NATO Science for Peace and Security (SPS) Programme, SENT seeks to identify the best 'smart energy' solutions and to provide recommendations for improving NATO's standards and practices.

The SENT group is the very first attempt of Allied countries to reorient the energy security priorities from the utility sector, consumption and environmental line to the deepest than ever need of knowledge-base collaboration to achieve energy efficiency, consumption behavioral change, environmental awareness, secure energy-smart interconnected grids, etc. The Alliance considered that the adequate approach for reaching the above-mentioned results is dealing with a new type of training and education efforts and research priorities.

Part of this new understanding of the energy security is the establishment of the NATO Energy Security Centre of Excellence in Lithuania having nowdays a lead role in the energy security policy. The SENT initiative serves as a cooperation mechanism established between the Alliance with partnering universities and research institutes, where most innovative technologies are conceived.

Knowledge Alliances (KA) are transnational, structured and result-driven projects, notably between higher education and business. Knowledge Alliances are open to any discipline, sector and to cross-sectoral cooperation. The partners share common goals and work together towards mutually beneficial results and outcomes. The results and expected outcomes are clearly defined, realistic and address the issues identified in the needs analysis. At theoretical level the SENT group and the Excellence center involving wide range of stakeholders at individual, organisational and systemic level can be defined as *Knowledge Alliance,* more over having clearly defined short and long-term goals in NATO energy agenda and in Green defence framework where the targeted impact refers to the achievement of technological, behavioural, managerial and policy-making changes in 21st age corresponding to the Grubliauskas' (2014) conclusion that *"NATO's role in energy security will remain modest, yet it is an essential part of the Alliance's modern toolkit. Energy issues have simply become too intertwined with other security developments to allow NATO to ignore them. In the globalized world of the 21st century, the Atlantic Alliance cannot afford a blind spot".*

Indeed, the KA practice in energy security is not so new as it seems to be. An overview of the most efficient cooperations shows that "what has made it possible for the energy industry to succeed today in historically the most difficult of circumstances is (…) the qualitatively new phenomenon of strategic alliances amongst industry leaders that have emerged from the need to reply to the incredibly complex engineering tasks combining economic, political and social elements in a manner impossible to disentangle." (Cutler, R.,2006)

Essential for the success of such alliance is the understanding that the specific competencies and the accumulated knowledge from different players, being integrated with the empowerment of the policy-makers and governmental representation, are the driving force for solving complex chained problems concerning the energy security.

A remarkable example is the Caspian Sea Region, where the conventional practice of public-private partnership has been replaced by the establishment of international consortia. The last incorporate industrial owners, governmental units, engineering trusts of academic researchers and high-experienced field officers and also NGOs representatives.

The sustainability or the fragility of such alliances depends on the information and knowledge transfer between the participants and the fast but profound market monitoring, the level of technological development by introducing innovative solutions, combined with best practices and lessons learned from previous projects and initiatives. Last but not least the success depends on the sharing of goals, risks, decision-making and resources involved, all these coordinated in political and social-cultural complex international environments.

The virtual component in establishing such alliances has a significant role in providing the necessary tools for building and maintaining the architecture of the alliance. But it must be noted that the virtuality of the alliance functioning and management brings together both opportunities but also threats. Smart technologies require educational alignment of the key staff of the consortia, strong technical and information skills, preparedness for intercultural communication and development of strong linguistic competences. From the other side it cannot easily ignore the pressure coming from the relationship between the energy and the environmental sectors at global level, which requires from the KA participants not only transparent procedures and governance but careful dealing with public expectations (usually more or less abstractly represented by the leaders of involved NGOs).

In terms of the strategic line of each energy security alliance the saim argument can be found in Cutler's work where he states that the "*cooperative energy security is an empirical category of analysis that has normative content. It motivates a rapprochement between the international energy agenda and the international environmental agenda, resonating with studies of multilateralism and learning. Its three necessary components are the guarantee of secure transport, an investment-friendly financial climate, and political stability. These components represent transparencies of the three classical economic factors of production: land, capital, and labor*" (Cutler, R.M, 2006).

In this relation the challenges in front of the KA in energy security can be divided first to internal and external for the consortia structure:

• Internal challenges include all the aspect of distribution of responsibilities, empowerment, decision-making, dealing with public and private interests of the KA partners, quality and quantity of the resources involved in the KA and the expected results and benefits;

• External challenges are dealing with the global market trends, technological improvements and innovations, international relations and diplomacy, information centers and owners, lobbying abilities, political and economic stability and level of environmental sensitiveness of the society as well as the vulnerability of the consortia from cyber and other form of terrorism and organized crimes and/or national law enformcement;

As a horizontal hybrid perspective outlining the establishment and the development of the KA in energy security, we identified the need for permanent competence improvements and new skills development which can be solved by the systematic knowledge transfer in the consortium and externally with other consortia with similar strategic goals. This leads us to the conclusion that KA in energy security acts both as a tool is a collaborative multi beneficiary platform and as a highly adaptive and fast-changing entity - a "node" in the trans-consortia collaborators' net, within the global energy network.

CONCLUSION

The balance in structuring and maintaining strategic KA, as well as the ability to deal with the private and national interest of the partners and the external collaborators, the acquisition of knowledge and the provision of its outputs seems to be the unique winning strategy of establishing and pursuing energy security priorities. The virtual architecture must be considered as natural for such type of alliances but without ignoring the virtual vulnerability of the partners' networking in the contradictive transnational environment, where the accumulated benefits might be both seen as risks and achievements.

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