Baltic Science Network

Connecting Through Science

Study on Research Cooperation in the Baltic Sea Region: Existing Networks, Obstacles and Ways Forward

Executive Summary

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Interreg Baltic Sea Region
EU Strategy for the Baltic Sea Region FLAGSHIP
EUROPEAN UNION
EUROPEAN REGIONAL DEVELOPMENT FUND

Further details on the publication

Name of the project	Baltic Science Network
Affiliation of the project	Interreg Baltic Sea Region Programme funded project
Title of the publication	Study on Research Cooperation in the Baltic Sea Region: Existing Networks, Obstacles and Ways Forward
Affiliation to the Project Work Package	Work package 5.1
Month & year of the publication	September, 2017
Author of the publication	Visionary Analytics with support from the Ventspils High Technology Park

Project in brief

Baltic Science Network (BSN) serves as a forum for higher education, science and research cooperation in the Baltic Sea Region (BSR).

BSN is a policy network gathering relevant transnational, national and regional policy actors from the BSR countries. The Network is a springboard for targeted multilateral activities in the frame of research and innovation excellence, mobility of scientists and expanded participation. These joint activities are modelled with an overall aim to ensure that the BSR remains a hub of cutting-edge scientific solutions with the capacity to exploit the region´s full innovation and scientific potential. The activities are envisaged to serve as examples of best practice and as basis for the policy recommendations drafted by the Network.

The platform is tailored to provide advice on how to enhance a macro-regional dimension in higher education, science and research cooperation. Recommendations jointly formulated by the Network partners address the European, national and regional policy-making levels.

BSN is a flagship of the EU Strategy for the Baltic Sea Region under the Policy Area Education, Research and Employability, as well as one of two cornerstones of the Science, Research and Innovation Agenda of the Council of the Baltic Sea States.

Disclaimer: This working paper is based on input from stakeholders and BSN partners and does not necessarily reflect the views of all participating Member States and organisations.

Objectives and scope

What are the main obstacles for expanding research cooperation in the Baltic Sea Region (BSR) within the Framework Programmes (FPs)? This is the main question tackled in the present report. Geographically, the BSR covers the following two groups of countries: (a) Estonia, Latvia, Lithuania and Poland (EE, LV, LT and PL); and b) Denmark (DK), Finland (FI), Germany (DE) (Hamburg, Berlin, Brandenburg, Schleswig-Holstein and Mecklenburg-Western Pomerania Länder) and Sweden (SE). Particular focus is on the participation patterns of researchers from EE, LV, LT and PL in FPs and on the analysis of underlying mechanisms of FPs (rather than strengths and weaknesses of the national R&I systems).

Methods and data

The analysis relies on the following data collection and analysis methods:

- Desk research of previous studies and evaluations, monitoring data of FPs and legal documents governing implementation of the FP7 and Horizon 2020 (H2020).
- 22 interviews with top-notch researchers from EE, LV, LT and PL who participated and did not participate in the FP7 and H2020.
- Four case studies of research networks within the BSR.
- Survey of researchers from EE, LV, LT and PL who participated in FP7 and/or H2020. Invitations to participate in the survey were sent to 1889 randomly selected researchers where 288 filled in the questionnaire (response rate equals 15 %).
- Analysis of the results of an International workshop that took place in March, 2017 in Riga, Latvia.

Findings: *How successful are EE, LV, LT and PL (and new EU Member States generally) in Framework Programmes?*

Since the early 90s, FPs have gradually opened up and provided targeted incentives for researchers from post-communist Central and Eastern Europe to join European networks and common R&I projects. Nevertheless, participation in FPs of new EU Member States (EU-13) in general and of LV, LT and PL specifically, remains limited (EE being an important exception). The EU-13 has received less than 5% of the FP6, the FP7 and H2020 budget. In fact, all EU-13 countries have collectively secured less funding from the FP7 than the top five organisations from the EU-15. Furthermore, in contrast to initial expectations, the new EU Member States (with the notable exception of EE) are not catching up with the EU-15.

Findings: *What are the main obstacles to participation in Framework Programmes?*

A combination of factors explains the relatively low levels of participation in FPs:

- *Size of R&I systems*. There is a positive strong correlation between FP contributions and indicators representing the relative size of an R&I system (such as gross domestic

expenditure on research and development; top-10 percent most cited publications, etc.). This suggests that, metaphorically, the islands of excellence in LV, LT and PL are too few and too small to deliver the same number of excellent proposals and projects as centres of excellence in the leading EU regions. Nevertheless, given the size of the national systems and the level of R&I excellence, researchers from LV, LT and PL should be able to secure notably higher funding from FPs. This does not apply to researchers from EE, who perform in the FPs rather well, given the relative size of the national research and innovation (R&I) system.

- *Capacities to deliver excellent proposals*. Success rates and quality scores of submitted proposals are lower in the EU-13 (and EE, LV, LT and PL) compared to EU-15 averages. For most types of actions in H2020, the median normalised quality scores of EE, LV, LT and PL are close to or slightly above quality thresholds (and the quality score for proposals from EE are significantly higher than those from LV, LT and PL). This suggests that a significant share of the proposals are considered "good enough", but only a small share are "excellent enough" to receive funding. The above does not apply to proposals submitted for prestigious European Research Council grants and Research and Innovation Actions, where median quality scores are well below quality thresholds. This suggests that significant capacity building is necessary before researchers from LV, LT and PL can expect to secure a substantially higher share of funding from said actions. Researchers see lack of experience and staff necessary for proposal writing as the most significant obstacles in this respect. Researchers (and administrative staff) have limited opportunities to engage in learning-by-doing because they are still relative newcomers to FPs. Furthermore, competitive national funding of R&I has only recently gained traction in LV, LT and PL. A long history of allocating a large bulk of national funding for research through competitive schemes in EE may have contributed towards building the capacities of EE researchers to successfully compete in FPs, which was not the case in LV, LT and PL.
- *Motivation to participate*. While participation in FPs is highly regarded, investment in the relevant capacities and processes is not a top priority for most organisations. This is due to different strategic orientations (e.g. a predominant emphasis on teaching in a significant share of universities in LV, LT and PL) and self-selection not to participate due to a perceived lack of R&I excellence or other pre-conditions (e.g. networks, infrastructure, etc.). Furthermore, very low success rates in FPs imply that investments into the capacities necessary for the coordination of proposal writing are very risky and therefore not highly attractive.
- *Networks*. A number of participants from EE, LV, LT and PL have joined large European networks during the FP6 (or earlier) and have since collaborated in a number of successive projects with the same consortium. This route to participation in FPs has a number of benefits for the insiders. However, well-established networks hamper the participation of outsiders. Prospective project coordinators from EE, LV, LT and PL face immense difficulties in setting up their own networks with renowned centres of excellence and/or when competing with established networks. Furthermore, individual organisations reportedly face difficulties in joining established networks that reduces their chances of successful participation even further.
- *Funding per successful participant* from EE, LV, LT and PL comprises 38-55% of the average funding per participant from the EU-15. This is due to the following factors:

- Researchers from EE, LV, LT and PL are usually partners rather than coordinators of projects and tend to carry out peripheral tasks, which entail a lower share of the project budget.
- Project coordinators from EE, LV, LT and PL more frequently apply to calls with lower budgets and on average receive better evaluation scores for these types of proposals.
- Rules for calculating project costs matter. Most FPs use actual salaries of researchers to calculate personnel costs. Since researchers from EE, LV, LT and PL are underfunded compared to their peers in the EU-15, their personnel costs are proportionally lower. Furthermore, calculations of indirect costs as a percentage from direct costs (that include personnel costs) further amplify the differences. In addition to direct financial implications, this also creates a sense of unfair treatment among researchers, because remuneration for similar work differs beyond differences in price levels of EU regions and countries.

These findings may be interpreted through a prism of the Matthew effect, whereby the established centres of excellence are building their comparative advantage at a rate that increases or maintains the distance between "leaders" and "followers". An accumulation of comparative advantage can explain the large (and growing) concentration of FP funding: the top-500 organisations in the FP7 made up only 1.7% of successful participants, but received 60% of the total funding; similarly, the top-3 organisations from EE, LV, LT and PL received over 10 % of FP7 funding for their respective countries. These centres and islands of excellence embarked on a virtuous circle: a) early on started participating in FPs and invested in the necessary processes and competences; b) attracted competitive funding for ambitious R&I projects that boosted their excellence as well as reputation; c) developed strong and tried networks with other leading institutions; d) used their excellence and reputation to attract top researchers; e) continue to rely on elaborate proposal writing processes, trusted networks, research excellence, reputation and excellent researchers to secure additional funding from subsequent FPs and national or regional programmes. The accumulation of these comparative advantages poses two major challenges. First, the number of centres of excellence in the EU-15, let alone the size and number of islands of excellence in EE, LV, LT and PL is insufficient to secure Europe's global competitiveness. Second, the logic of accumulating comparative advantages in several organisations puts newcomers at a relative disadvantage.

Findings: *What is the level of cooperation in the Baltic Sea Region?*

There are strong arguments to be made in favour of regional R&I cooperation. It can facilitate the utilisation of complementarities, knowledge spill-overs, mobilisation of critical mass, create public and club goods (such as shared infrastructures and a regional brand of R&I excellence). Furthermore, a truly integrated research area within the BSR could contribute to deepening integration within the ERA by:

- Contributing to network building and knowledge spill-overs between centres of excellence in leading regions and islands of excellence on the periphery.
- Tackling the asymmetric relationships between leading and catching-up regions and facilitating a two way flow of people, ideas and good practices.
- Structuring existing cooperation into sustainable partnerships and networks.

Yet the available evidence suggests that the BSR as an integrated research area has not yet emerged. There is established cooperation between the Nordic countries; EE, LV, LT and PL also tend to cooperate with direct neighbours. However, both groups of countries tend to cooperate more frequently with R&I centres in the UK, Germany, the Netherlands and France rather than within the BSR.

The building of an integrated research area in the BSR faces several challenges. First, the BSR includes regions with vastly varying levels of R&I capacities. This hinders the utilisation of synergies, plans for the development of joint infrastructures or the development of the BSR brand as a leading R&I region. Second, in the absence of a strong political commitment and regional governance structure (such as NordForsk that facilitated structuring of the Nordic R&I area) in the BSR macroregion, bottom-up structured cooperation may take decades to emerge. So far, cooperation between researchers in this macroregion has been project-driven and has not necessarily led to structured partnerships.