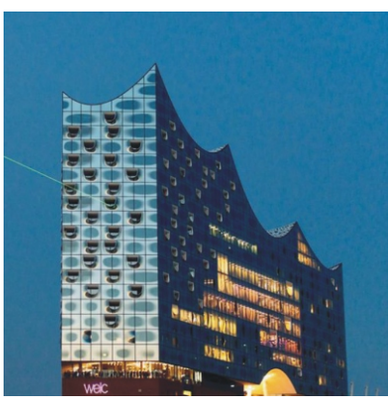
Baltic Science Network

Baltic Science Network Learning Experiences



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Baltic Science Network - Learning Experiences

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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 modelled as examples of best practice which form basis of 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 members 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 paper is based on input from stakeholders and BSN partners and does not necessarily reflect the views of all participating Member States and organizations.

Baltic Science Network Learning Experiences

CONTENT

1.The Baltic Science Network Project - an introduction

The recently published FP9 proposal "Horizon Europe" strongly emphasizes the relevance of research and innovation in the EU, underlining the importance of unlocking the innovation potential of the research, and the research infrastructures, both in scientific research and research-industry collaboration. Ministries all over the EU developed strategies for intensifying collaboration, including the shared use of arge-scale research infrastructure, the exchange of researchers and early-career scien-tists, and joint participation in supra-regional, EU-wide competition. Certainly, having a strategy for one's own region is a good starting point - however, how much more can be won, if neighbours join for-ces and collaborate especially in fields were transna-tional cooperation brings an added value? Would everyone not benefit from joint efforts to align scien-ce policies rather than address the issues in isolation?

The macro-regional concept arose from a wish for a collective response to common societal challenges where national and regional answers are not considered sufficient anymore. However, the Baltic Sea Region (BSR) features different levels of research and innovation performance. Existing facilities are not equally distributed and interconnected. Countries in the region face similar problems in national higher education and research systems (globalization, economic crisis, demography, technological progress, etc.). At the same time, society expects research and innovation policy and R&D activities to respond to the challenges facing society at large, such as climate change, energy and resource efficiency, food supply, welfare, health and demographic change. To tackle common problems and exploit the full potential of research and innovation, transnational cooperation and a joint presentation of interests is needed.

One of the most competitive, innovative science macro regions in the world is the Baltic Sea Region. It offers an excellent structure of leading universities and research institutions. So far, science policy in the BSR was organized and pursued mainly from a regional, national or European; angle a macro-regional dimension was missing in this field. Despite the fact that various sectorial networks exist, there was a lack of a political coordination framework in the field of higher education, science and research policy covering the whole BSR.

To fill this gap the "Baltic Science Network" (BSN) was established. The BSN is a policy network gathering relevant transnational, national and regional policy actors from all 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. 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 members address the European, national and regional policy-making levels. The BSN shows that the Baltic Sea Region has the potential to serve as a role model for other macro regions and the EU as a whole. It allows to combine and utilize the strengths of EU15 and EU13 countries in order to foster research and innovation and bridge the innovation gap where necessary. The BSN highlights the importance of transnational cooperation for developing a prosperous, knowledge-based European society ready to manage future challenges.

Today, almost all science policy-relevant organizations from all states bordering the Baltic Sea, including Russia and Norway, are members of the BSN. This includes ten regional or national science ministries, a major national research funding organiza tion, a science policy think tank, as well as the Council of the Baltic Sea States and the Nordic Council of Ministers. The perspective of higher education institutions is represented in the BSN through the two existing university networks Baltic University Programme (BUP) and Baltic Sea Region University Network (BSRUN), along with three universities explicitly nominated by their national governments. Also, the BSN closely collaborates with related projects such as Baltic TRAM (Transnational Research Access in the Macro Region). The EU perspective of the BSN is reflected in the involvement of BONUS, a macro-regional research funding programme of the EU, and the EU Baltic Sea Strategy (EUSBSR), where the BSN is a flagship of the Policy Area Education, Research and Employability. However, also other policy fora, such as the first Science Ministerial of the Council of the Baltic Sea States (CBSS) and the Baltic Sea Parliamentary Conference (BSPC) have recognized the value of the BSN.

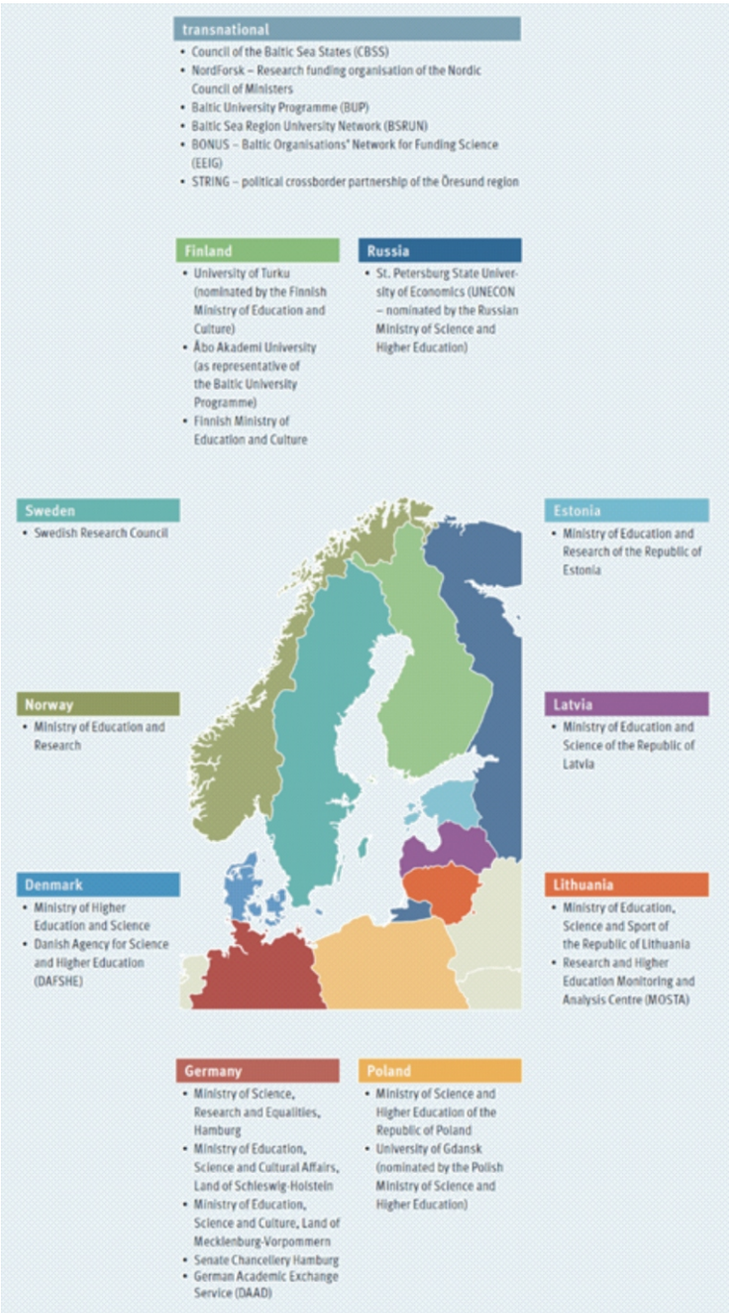

Fig.1: Members of BSN (source: wbv Media GmbH & Co. KG, Bielefeld)

1.1. How it all started

In 2016, the Baltic Science Network (BSN) was established as the first transnational forum for research policy in the Baltic Sea area under the leadership of the Hamburg Ministry of Science, Research and Equalities. At the outset, the BSN partners had intensive brainstorming sessions, specifying how a macro-regional research perspective for the BSR could be shaped and what it could consist of. As a result, the BSN decided to focus on five topics:

1) research and innovation excellence,
2) academic and researcher mobility,
3) widening participation in the EU research funding programmes,
4) best practice learning,
5) joint articulation of the science policy interests of the Baltic Sea macro region.

Within three years, new innovative concepts, tools and strategies for more intensive transnational science cooperation have been developed on these topics.

In the analysis phase, the BSN partners carried out detailed studies and hosted regional, national, and transnational workshops to identify common problems and challenges in national higher education and research systems.
The results of this first phase built the basis for further proceeding: defining areas of joint interest and developing joint recommendations for strategies and research areas, mobility tools and tools for widening participation. The BSN consistently arranged meetings and consultations with stakeholders from the partner countries to align the next steps with their needs. Good opportunities to communicate the BSN's outcomes to relevant interested parties opened up at the Fehmarnbelt Days 2016 and 2018, the 7th and 8th Strategy Forum of the EUSBSR held and the CBSS Baltic Sea Science Day in St. Petersburg, Turku and Riga.

To increase the BSR visibility in the EU, the BSN produced a policy paper on the upcoming EU framework program (FP9 / Horizon Europe) and a position paper on tackling widening participation in esearch and innovation from the BSR perspective. The BSN, in cooperation with the Baltic TRAM project, organized a high-level political conference in Brussels, where important input was received from experts at the EU level. Representatives of the EU Commission, higher education, research institutes, NGOs and development agencies shared their expertise and experience on developing transnational research collaboration, enhancing growth and economic development by strengthening connections between science and industry. The inputs provided during the discussions revealed that the BSN is on the right track.

1.2.What the BSN wants

The BSN aims to forge the geographic proximity of the Baltic Sea Region into closer academic relations, better framework conditions for more intensive cooperation in research and higher education at political level, and to articulate BSR interests more clearly in Brussels.

Baltic Science Network wants

- To provide science and research policy actors of the Baltic Sea Region with an overall coordination framework to develop and implement science policy in a macro-regional dimension. This also ensures a better representation of macro-regional interests at EU level.
- To develop transnational strategies, incentives and programmes to support higher education, research and innovation and to develop R&I excellence.
- To ensure equal opportunities for excellent research.
- To attract best talents and increase mobility for a competitive ERA.
- To enhance synergies of funding programmes for the BSR and expand existing research funding structures in the BSR.
- To introduce new ideas for "widening participation" in order to decrease the participation gap between EU13 and EU15 countries in the BSR.

In the field of science, research development and RIs, all BSR countries have one common objective: there should be close cooperation between countries in the long term. Therefore, the BSN laid the founda tions for closer, more connected collaboration to achieve this common goal. To ensure effective strategy implementation and establish a common science policy for the BSR in focused areas, the BSN counts on further commitment of the partners.

2. Perspectives from the BSN partners

This part is to most parts based on interviews with five BSN WP-leaders and a SWOT survey among partner organizations. Interviews were made with all work package leaders in summer and autumn 2018. In October 2018, a SWOT survey was posted by e-mail to each BSN partner and associate partner organization.

Each organization was asked to fill in the survey. The interviews and surveys are summarized in this section, focusing on the project itself and windows of opportunities for the BSN project. Nine returned SWOT-answers were compiled and are found in Annex 1. The section also includes ten windows of opportunities.

2.1. The Project: processes and the multi-stakeholder partnership

The BSN process. The Forming-Storming-Norming-Performing is a frequently used model of group processes and performance, introduced in 1965 by Bruce Tuckman.[1] The model is still widely used, and in many different contexts. One can apply elements of this model for the BSN project partnership, even if these elements are not apparent on a distinct and linear time scale. Below is a highly simplified version of the model, serving as a structure to present some features of the BSN-project process.

Forming-Storming - or orientation and hesitation: Some features were identified during the start-up phase of the project. The BSN project has opened a new road for cooperation in the BSR, as it exposed the situation where a forum for international cooperation for the science policy professionals at national ministries was lacking. Cooperation at the BSR-level was new for some partners, and the multi-stakeholder character of the partnership created some initial confusion. More opinions and hesitation aired, one of them was about the value added of BSR-level coope ration for the scientific community.

Consequently, and as a prerequisite for a smooth process, partners underlined the importance of having all partners on board from the beginning, and on the same level. As one example, they mentioned that a pre-study could have been made, providing an overview presentation of the different research systems in the BSR, and to show the challenges the project will face. The basic project structure was acknowledged as robust enough for a good implementation: "A good project and transnational strategy work needs to be founded on clear aims, an operational plan and efficient management". For this, the coordinating partner receives credits from partners.

Norming-Performing - or cohesion and solutions. When looking at comments on the activities and the outcomes of the BSN project, it becomes evident that the process has been strongly forward leaning. Partners underline that strategies and reports produced by the project partners are for implementation and should lead to pilots and concrete actions, and in close alignment with the existing guidance issued by key European, Baltic Sea Region, Nordic and Baltic political forums.

1 B. Tuckman. 1965. Developmental Sequences in Small Groups. Psychological Bulletin 63(6): 384-399

Even if there were different opinions among the partners about the multi-governance approach to the BSN partnership, some partners clearly underline the importance of this partnership in the project. The decision-making process may have taken a longer time, but on the other hand the issues were analyzed from different points of view. Furthermore, there are opinions saying that the BSN project would have benefitted from the involvement of an even broader partnership, in order to create a feeling of ownership of the strategies (e.g. funding organizations). Partners mentioned that they have developed a better understanding of research policy-related problems in the BSR countries, and with good relations and a cooperation forum in place, working and lobbying together can become even more successful.

One practical example of cohesion, here exemplified as the institutionalizing process of the BSN, is the presentation of a first draft of the statutes for the BSN at the partner meeting in Stockholm, November 2016. At the same meeting, the role of a WP or activity leader was described. The discussion about the BSN network activities and structure has continued at subsequent project meetings. In Gdansk, April 2018, it was agreed on the rules of procedure, and the process continued with the development of the statutes for cooperation after the INTERREG BSR project.

The partnership. When forming the partnership for the BSN project, the intention was to involve ministries responsible for research in the BSR countries, and to include one partner representing universities. It is noted as a drawback, however, that ministries from several countries were missing in the partnership. The German Federal Ministry of Education and Research is not among partners, which would be important especially regarding the relations to the EU. In Sweden, Poland and Finland the ministries are represented by an organization delegated by the ministry. However, commitment is shown through an associate partnership. In Russia, the St Petersburg State University of Economics was appointed by the ministry to become an associate member.

The varying background of the participating organizations has further widened the multi-stakeholder approach. Some partners mention that the multi-stakeholder approach has created value added for the project, as it creates an opportunity to know a wider circle of people from other ministries, agencies and universities. There is also an opposite way of analyzing the situation, with the notion that too much focus has been on strategizing and visioning among operational implementers of political guidance. Accordingly, the preparation of joint actions to put the guidance in practice should be the key focus among operational implementers.

The roles of each partner in the project have varied, with appointed tasks and responsibilities for activities and outcomes, whereas the role of the associated partners has been on reviewing and commenting. The BSN partnership widened during 2018, as the German Academic Exchange Service (DAAD) became partner to the project. DAAD showed a high interest in sharing expertise with the other BSN partners, specifically in the work on mobility issues.

For many partners a sense of mutual understanding has developed during the project work, with learning from and with other partners. For them this process has been a positive surprise, even better than initially expected. Finally, some partners mention that this project has been a great personal learning journey.

2.2 Windows of opportunities

Scientific excellence and internationalization. An often-heard opinion is that science is global and, therefore, a macro-regional focus is not relevant. In the BSR, however, scientific cooperation between researchers has a long history, as for many researchers it is the first step towards internationalization. Today, the most prominent cooperation is found among researchers in the Nordic countries, but over the years, also Nordic and Baltic research cooperation has increased. In wider co-operation activities, researchers often work together in the EU research Framework Programme (FP) projects. The BONUS programme (Art. 185) is the best example of a macro-regional scientific cooperation. Marine research is a good example, where common interests have made this joint research programme possible. In other scientific fields, common challenges and missions may also exist, which could be widened to the whole macro-region. Research themes mentioned by the BSN partners, as well as by researchers, for such macro-regional cooperation are the UN Sustainability Goals,Climate change, ICT and Educational research. There are also high expectations on the three BSN-themes: Life Sciences, Welfare State, and Photon and Neutron Science.

By definition, mostly big universities with a big pool of researchers can reach the excellence status. Smaller countries, such as the Nordic and the Baltic countries, as well as more limited scientific areas, face a different situation in reaching the category of excellent research. Therefore, and due to limited resources of a small country, international cooperation becomes very important to be successful on the EU and the global levels.

One of the positive outcomes of the BSN project is the development of three potential tools for researchers´ mobility inside the Baltic Sea Region. With the focus on young researchers, the activities could include joint conferences and summer schools. Doctoral programmes could include modular content from different countries, starting with the production of learning materials, e.g. short sequences about infrastructure, equipment, such as MaxLab, Petra, and Solaris.

Window: The BSN project is very well in line with the strategies to create excellence and a critical mass in different scientific areas.

Window: Identify common research challenges and missions, which could be widened to the whole macro-region.

Window: Redirect strands of existing mobility programmes specifically towards the Baltic Sea Region, or look for fresh funding for new programmes.

Funding programmes. The above-mentioned BONUS has been the most successful joint research-funding programme, established by FP and funded by Member States and EU. The creation of this marine research programme was possible because the Baltic Sea is a joint concern for all countries in the Baltic Sea Region. The EU COST funding scheme has been a successful mechanism for the establishing of contacts and networks between researchers. Creating within COST a mechanism of network building in selected BSR research priority areas could help to prepare joint BSR projects and programs. For small countries, such kind of actions can help establish a critical mass of excellence needed for successful grant competition at EU level. These pilot actions could be established in the three selected areas, Life Sciences, Welfare State, and Photon and Neutron Science.

Seed money schemes are in place in several BSR countries. As examples, one can mention the seed money scheme in Hamburg and the Swedish Institute's seed money facility. The seed money facilities could be coherently informed about, to make it possible for researchers from the BSR countries to pool the grants. Such facility could support cooperation in situations where researchers make new contacts, visits to different infrastructures or libraries, or for the planning of a new project. For countries this could be an easier option than a common BSR-wide "pot", as in this model each country could finance its own researchers, and money transfer across national borders is not needed.

Window: Introduce a COST action in the three selected areas, Life Sciences, Welfare State, and Photon and Neutron Science.

Window: A network of seed money facilities could diversify and increase the efficiency of the funding opportunities.

Infrastructure. In parts of the BSR, there are several world-class research infrastructure centres, whereas in other parts research infrastructure is less developed. In some cases, though, the EU Structural Funds have helped to decrease this gap. At present, the situation of mapping research infrastructures, especially the middle-size infrastructures, and delivering the information would be helpful for researchers in order to increase cooperation. For this purpose, the existing European-wide activities such as ESFRI Roadmaps, the MERIL database, and national research infrastructure roadmaps as well as bilateral and multilateral cooperation activities are helpful. However, a BSR-level forum for strategic discussions on the efforts and plans to purchase new infrastructure is missing.

In general terms, the problems faced are not related to big research infrastructures, as all big infrastructures in the region have their information and access policies in place and they are available to researchers. It is rather the problem of sustainability of middle-size and small infrastructures, which should be in focus. In the Eastern part of BSR, EU Structural Funds have been used for construction and modernization of research environment, but at the same time there is often a lack of highly qualified human resources and funding to cover the operational costs. In case of small infrastructures, the host organizations do not normally have dedicated funding (or staff) for external users. In such cases, there is no single solution for everybody, but it is clear that additional funding is needed to expand access.

Window: Safeguard the international use of middle and small sized infrastructures in the BSR.

Window: Introduce a forum for BSR level strategic discussions on e.g. new infrastructures.

Policy level cooperation. Most BSN partners give a strong support for the continuation of the Baltic Science Network as a forum for BSR-level cooperation for the science policy professionals. The BSN project has paved the way for this cooperation and should continue and be further developed. One of the foreseen activity areas is cooperation with Brussels, as a joint voice of the BSR countries will receive more attention in the European Commission to the BSR than each country alone. Moreover, there is an increased competition between regions developing, which is one more reason to have a common BSR-representation. As example is mentioned a developing EU initiative PRIMA-programme (cf. BONUS) where the Mediterranean region with some African countries make efforts to become stronger.

Some of the BSN partners consider the BSR level joint position papers very helpful to make macro-regional problems visible to the highest level of policy making in the EU, whereas others are more hesitant. The partners supporting the activities think that the joint position papers and similar BSN activities should continue, and should reach the highest level of policy making in the EU. These papers and other BSN information should also reach other existing, relevant organizations in Brussels, such as scientific attachés and e.g. IGLO and similar organizations. Having representation in e.g. the programming committees would be one more way for the BSN to increase the BSR visibility in the EU.

The EU Strategy for the BSR is another policy-making arena where the BSN visibility could be further developed. The updating of the present EUSBSR Action Plan will start in spring 2019. Concrete results from BSN action plans should be implemented during the coming period. Furthermore, science and research could be introduced as a Horizontal Activity in the Action Plan of the EUSBSR, and so support the implementation of the BSN actions.

Decisive for the future of the BSN is to involve more ministries in the activities. The BSN could test some of the developed pilots for research cooperation. The foundations are laid, and background materials have been produced by the BSN.

Window: Continue the joint work for an increased visibility of the BSR in the EU.

Window: Introduce Science as a new Horizontal Action in the EUSBSR.

Window: Involve more BSR science ministries in the BSN through concrete projects.

2.3 Unexpected spin-offs

Cooperation projects often have unexpected outcomes, direct or indirect, which were not indicated in the project plan itself. These could be new project ideas coming up among some of the partnership members or co-operation with new stakeholders in unexpected new areas. It could also be expressed as new challenges or activities for the project partners, such as presentations at conferences, articles, experts' views etc.

The BSN can already show some of these unexpected spin-offs. The first example is the cooperation of the BSN with the Estonian EU presidency (2017), which through the focus on research and excellence showed a good example of cooperation for a win-win situation. The second example is the signing of an intention to cooperate by the Academies of Sciences of the three Baltic States and the Academy of Science in Northern Germany. The third example is the developing cooperation Hanseatic League of Science (HALOS) between universities, infrastructure and regional representatives in Sweden, Denmark, Germany and Norway.

2.4 Learning at the institutional level

Institutional learning, also referred to as organizational learning, is the ability of an institution to gain insight and understanding from experience through observation and analysis, and a willingness to examine successes and failures. Institutional learning is also defined as a learning process, which combines the personal, collective and organizational (systems thinking) levels. It implies ways of solving new practices as a change from the present situation. The organization needs to have an openness towards the unknown, as institutional learning will includenew knowledge, new skills and new procedures. This is becoming more and more evident in organizations taking part in international, regional and global examine such as projects and networking. New group settings come together to work towards new goals. This new situation affects all participating entities of an organization, also administrative or financial offices, as the administrative procedures often change within and between financing programmes.

Internationalization. One significant aspect of the BSN project is that it has opened an opportunity for a new group to cooperate internationally in the Baltic Sea region. BSR ministers have formats for Balticon common issues already in place, but international cooperation is not necessarily part of the everyday work at other levels in the organization. There are, as an example, no existing formats for expert meetings. The BSN project has made it possible to be acquainted with the work principles of other professionals, to identify cultural differences and to learn lessons from the differences.

Other BSN partners have welcomed the opportunity to internationalize at the organizational level. The BSN project allowed MOSTA to make the contacts with ministries, research councils and universities in the BSR countries. These contacts become beneficial for the institutional learning and cooperation in the future. Working together in the project has shaped a better knowledge about the BSR countries´ research policy as well as the regional policy issues. Being in the project has also allowed MOSTA to learn how to work with a large number of partners that sometimes have different interests and opinions.

Similarly, it is mentioned that the BSN project has allowed CBSS to explore the commitment of the partners to the values and goals advanced by the CBSS, most prominently, its long-term priority "Sustainable and Prosperous Region", so the institutions assembled by the Network will definitely be considered as valuable partners once modelling future collaborations.

Furthermore, CBSS mentions that, as the organization is based on two main strands, the political dialogue and practical cooperation, BSN has served as an excellent test bed for finding out in more detailed terms the reasons for smooth or at certain times chalenging implementation of high-level guidance. Understanding the day-to-day working practices of a multilateral project with a great diversity helps to hone the future model of the CBSS work.

There are some examples where project administration has created challenges for the project partners. One partner mentioned an example of learning regarding the financing of INTERREG projects, based on the principle of reimbursement. For this partner, it has meant that if funds are not reimbursed in the same financial year, they cannot be used for the project activities by the partner institution. Therefore, there had to be non-typical ways to participate in the project without violating the requirements. In another case, the problem of transferring funds across the national borders and in other currencies has led to the development of new routines in the institution.

The partnership. The large number of partners and partners representing different background institutions have created some confusion during the BSN-project´s first phases. Among weaknesses were mentioned that cooperation with many international partners can be very fruitful, but at the same time, the decision-making process can take longer than expected due to the large number and the diversity of the partnership. However, most respondents had gained insight into the strength of a multi-stakeholder partnership, as it turned out that the variety of partners helped in gaining a better understanding of science cooperation in the BSR. As a conclusion, one can say that in the beginning there was hesitation towards the involvement of different partners (ministries, universities, organizations appointed by the ministries), whereas later the multi-stakeholder approach has been considered the best option in regard to the aims and concrete outcomes of the BSN-project.

In general terms, and in order to have a well-working regional cooperation, all partners need to share the interest towards the indicated activities. In the case of the BSN project, however, to cooperate regionally is in addition dependent on political commitment of all BSR countries. The involved partners should have very distinct mandates for their participation in order to enable successful implementation of the project´s goals.

The personal contacts established among the representatives of the ministries of the BSR countries have improved the exchange of information and have boosted confidence within organizations. The foundations for future cooperation and BSN activities have been laid, as the project has filled a white spot on the map of BSR-level cooperation. Judging from the project implementation phase *"the BSN partnership can go far, because it goes together and does it in a rather smooth and highly interactive pace".*

3."The Voice of Universities" Analysis and reflections

3.1 Methodology

This section reflects the opinions of researchers and university leaders gathered through surveys and workshops organized by the Baltic University Programme (BUP) in the period from December 2016 to November 2018. The responses are summarized below within three areas: research cooperation, mobility and research funding in the BSR.

The first survey was posted by e-mail to BUP-related researchers in December 2016 and again in January 2017. This survey was identical with the BSN-survey for the mapping of barriers for research cooperation (BSN WP3.1.) which was done in autumn 2016.

The Baltic University Programme (BUP), active since 1991, is the biggest university network in the BSR, and connects researchers, academic teachers and students in more than 200 institutions of higher education in the 14 countries belonging to the drainage area of the Baltic Sea. In total, more than 120 university leaders and researchers, representing a wide range of disciplines, from humanities, life sciences, technology and social sciences, have participated in the surveys and workshops. This section represents the opinions of these persons.

The results were presented and further developed in a workshop, which took place at a BUP meeting in March 2017 in Lviv, Ukraine, and where participants looked into research cooperation, especially from an eastern European perspective. The second survey was e-mailed in September 2017 to university leaders. The aim of the survey was to obtain an up-to-date overview of university views on Baltic Sea regional cooperation. The outcomes of the survey were presented at the planning meeting for the 5th BUP Rectors' conference in October 2017. The second workshop, "International Cooperation a Major Factor for Success - Research, Innovation and Mobility" was organized as part of the BUP Rectors' Conference, in January 2018. A final discussion, focusing on the recommendations, took place in November 2018, at the meeting of the BUP international board and the national coordinators.

3.2 Main messages

3.2.1 Research cooperation

Conditions for cooperation in the BSR which would bring an added value for researchers at universities could be defined in very general terms, as mentioned in the survey directed to researchers: *"a first necessity is a suitable budget, a second that it fits to the field of expertise, third that it fits to the current project portfolio"*. Cooperation, more specifically, should include *"good quality joint publications, along with concrete research projects, connections and possibilities for young researchers and access to modern equipment"*.

The most interesting research environments and cooperation mentioned are those, which include researchers with common interest, sufficient resources and work skills, and credible publication records. In addition, the respondents mentioned mentors, international networks, intercultural communication and unique databases. Different ways of cooperation were also referred to, such as projects including post-doctoral fellows supervising masters and PhD students and projects combining basic research with societal goals. Joint papers and research applications were underlined as important activities. Focused multinational seminars and summer schools for students and young researchers were identified as very useful ways of cooperation.

Preferred research areas are the challenges, which are shared by many countries, or where the study question in itself requires research to be executed in different places. Additionally, a good fit of scientific skills, resources and even personal characteristics is needed. Geographical proximity is mentioned as one natural reason for cooperation, and one example of this kind of cooperation mentioned is research on environmental protection, where neighbouring countries often share the same problems. Research areas where BSR-wide cooperation is ongoing or is planned show a wide range, from political culture and history, Baltic Sea governance, democracy research, urban development, to the Baltic Sea environment, water management, land use, agricultural land, food systems, and climate change, tourism in the BSR, energy security issues, energy transitions and mate rials science. The themes mentioned by researchers fit under the wide umbrella of sustainability science, or even Baltic Sea-regional sustainable development. The themes also resonate well with the planned mis sions in the new Horizon Europe programme, as well as their relation to the United Nations Sustainable Development Goals.

Academic-academic vs. multi-stakeholder cooperation. Researchers traditionally preferred research cooperation with other universities and researchers (70% of respondents in survey 1), whereas coopera tion with a multi-stakeholder approach, together with actors in the public and private sectors was supported by 30% of the respondents. Multi-disciplinary and multi-stakeholder cooperation was identified as a situation where different competencies are combined, and is one way to improve the results. The connections in the triangle academia-business-society are methodologically created to fit the post-normal research paradigm where knowledge is created in cooperation between different stakeholders, e.g. cases where the traditional cause-effect paradigm is not serving well. Several possible models for multi-stakeholder cooperation were mentioned, ranging from cooperation of academic basic research with universities of applied science, to cities and industry.

Comments on own resources. Challenges in relation to international research cooperation were also identified within the universities. Insufficient resources were mentioned in several answers. In the first place, the challenges focused on funding, but also on other resources, such as time for doing research and, in many cases, human resources and capacity. Due to inflexible structures at universities, the examples ranged from difficulties to manage funding to impossi-

bilities to consider reduced teaching duties for teachers receiving research funding. Furthermore, difficulties were identified especially among researchers from former Soviet countries, concerning different science traditions, history and lacking language skills. Some respondents mentioned a lack of personal contacts between researchers as well as lack of knowing research groups in other BSR countries. For many it is also lack of experience of applying and running projects.

Recommendation: Focus on the most pressing societal and research challenges, and with the involvement of as many BSR countries as possible. Increase the exchange of students within these scientific areas.
Recommendation: Bridge the gaps between EU and non-EU countries, and so increase the potential of research within the BSR.

3.2.2 Mobility

With the assumption that the intention is to change the trend "from brain drain to brain circulation," it becomes relevant to promote the BSR as the region for mobility, according to the conducted workshops and surveys. At the same time, the BSR could also attract more students and researchers from other parts of the world. Therefore, it would be important to promote this region both in the BSR countries and globally.

In many BSR countries, students and researchers have numerous opportunities for academic mobility around the world. Consequently, several respondents mention that many options already exist for mobility, and mobility as such is not a problem. Problems can occur either because of rigid educational structures, or because of administrative procedures.

Mobility organized as separate, short-term mobility programmes for teachers and young researchers was proposed in the surveys to be included in e.g. the BUP network. Further, it was underlined that support for doctoral students' short-term visits (pilot studies), conferences, summer and winter schools are useful instruments to support mobility. These activities are popular among the potential participants, and would give value added to the training.

The role of publications was underlined several times also in relation to mobility, including short-term mobilities. These mobilities are the moments when researchers can focus on a new contact, infrastructure, laboratory, database or library. Therefore, there should be a requirement that also short-term visits (1-3 months) are combined with a publication (for instance as part of ongoing research work).

Recommendation: Networking in academic training at MSc and PhD levels is likely to be more productive than trying to lure established researchers to come along.
Young researchers, participating in summer schools, workshops and conferences recognize good laboratories with good equipment and establish contacts early in their careers.
Recommendation: Harmonize the mobility opportunities and diversify mobility tools in the Baltic Sea Region.

3.2.3 Funding

Researchers support the establishment of new research-funding programmes directed to the Baltic Sea region (BSR), but also indicate that there is a need to review the existing possibilities. EU or Nordic research- is commonly used in the BSR but, unfortunately, not all countries are eligible. Therefore, unfortunately, Nordforsk, BONUS or similar programmes should be created.

As the BONUS programme leans excessively towards natural sciences, there is space for a social science-oriented programme focusing on the BSR. The extension of existing programmes and establishment of new ones could become an incentive for a positive step towards enhancement of university-industry and business cooperation, as well as social and cultural development, notably by strengthening interdisciplinary research.

A change of the science policy (in some countries) is needed to ensure a bigger (sufficient) basic financing. Respondents mention cuts in basic funding of research in e.g. Finland and Estonia, and this lack is becoming evident as it does clearly move the level of knowledge and excellence backward. Therefore, *"Sufficient national basic funding for universities is needed to ensure a good starting level, as a good national basic funding level is of highest importance to reach a good international level in science. There are no shortcuts here".*

Bridge the gap for cooperation between EU countries and non-EU countries: Universities in non-EU countries are generally not competitive for standard EU funding, even if there are several exceptions. Barriers in international cooperation also include differences in education systems, different research cultures and language barriers.

Recommendation: The Baltic Sea Region definitely needs strong internal and external promotion programmes.
Recommendation: Secure a good national level of basic research funding and secure an excellent higher education.

4. Lessons learned

4.1 Reflections on the learning experiences

The BSN project has opened several new avenues for research and research policy cooperation within the BSR. There is now a good number of studies published and activities proposed, to follow up in coming years. This report summarizes the learning experiences of the project partners and the voices of the "grassroots", the researchers and the leaders at universities in the BSR.

The expression *critical mass* emerges several times in the surveys and interviews. It refers to the need for a critical mass in the context of many small countries acting together, in order to give a joint voice to research in the BSR and, consequently, to have a bigger say in a wider constellation such as in EU and even in global competition for attractiveness or for funding. The same situation applies to universities. The BSR hosts a number of small universities, which are performing well, but these universities remain under the radar in rankings. Together they could make a difference through pooling their expertise, in order to reach larger visibility on the international arena.

Several of the windows of opportunities mentioned by BSN project partners and the recommendations by universities are almost identical, pointing at shared concerns and ideas.

Funding is a core concern for many BSN partners and for the researchers, and is underlying also other aspects of research cooperation. The concern for funding of research activities is seen e.g. in the proposals for mobility activities and funding of infrastructures. The BONUS programme is the outstanding good example in the BSR, established by FP and funded by Member States and the EU together. The thematic focus of BONUS, the Baltic Sea itself, is of common concern for all countries and a common research challenge. Finding such common challenges - or missions - is mentioned both by universities and by BSN partners as examples for successful BSR-wide cooperation. Similar expressions are found in the opportunities to make full use of the research capacity of the whole BSR, as well as in the context of widening participation.

The Baltic Sea region has a long history of successful cooperation in various areas. The BSN project has filled a white spot on the map of cooperation, through the engagement of new groups, and a multi-stakeholder and multi-level partnership. The process to start up a new activity or activities is likely to take more time than the span of one project.

4.2 Key messages

Do's and don'ts for transnational strategy development

+ Continue the strong support for the reduction of the innovation gap within the BSR.
+ Support and encourage scientific excellence in the BSR.
+ Build on the good track record of the BSN analysis of various research cooperation aspects and mobility trends.
+ Involving the relevant stakeholders in the multi-stakeholder partnership has provided benefits and value added to the BSN process.

- Avoid the impression that the BSR is a low priority region.
- Bridge national differences in the organization of research, and research cooperation.
- Do not miss the opportunities of the new cooperation involving ministries in the BSR.

Do's and don'ts for transnational funding/incentive schemes

+ More and diverse mobility programmes among BSR researchers lead to more exchange and more value added for research for the region, and a stronger network of researchers in the BSR.
+ The BSN creates good examples for other macro-regions.
+ Develop a network of seed money facilities to increase the efficiency of the funding opportunities.

- Avoid the problem of the "common pot", let the process take time.
- Do not avoid involving the relevant actors early in the processes.
- Concentrating on only some research topics or infrastructures will leave out a large part of the scientific community.

Do's and don'ts for joint political action/representation of common interest

+ Continue the BSN work to give a joint voice to research cooperation in the BSR.
+ Continue the work for the improvement of the BSR visibility as an excellent research region.
+ Representing the common interest for the BSR can boost cooperation among the partners.

- The BSN may fail to achieve some of its goals if promotion of the BSN's goals is not included in the national positions of BSR countries.
- Overcome the many different interests in the BSR countries. Although the BSR countries declare support for the BSN, not all of them are actively involved in the BSN activities.

4.3 Good examples

Transnational strategy development - Foster and encourage more research cooperation.

Good practices and examples:

* The involvement of stakeholders (decision-makers and "users") into the strategy-building process. If stakeholders perceive ownership of the strategy, it is much easier to receive acceptance at the next stages of strategy implementation.
* The BSN Communication Strategy, which is based on a dense layer of guidance and rules issued by various bodies of relevance to the Baltic Science Network.
* Other examples: BONUS program, MAX IV (joint beamline FIN, EST, SE), and RACIRI, the joint summer school organized by the Röntgen-Ångström Cluster (DE-SE). Bilateral agreements such as Röntgen-Ångström has national financing from both sides (DE-SE). The problem of moving money over national borders was solved, as both countries pay the costs of their own researchers. Bilateral cooperation is also ongoing between Germany and Russia, e.g. within the framework of the Ioffe Röntgen Institute (IRI).

Transnational funding/incentive schemes - Create better framework conditions.

Good practices and examples:

* BSN mapping and continuous discussions on the ways forward in joint initiatives, for future coordination and funding options and their further offered opportunities.
* The development of a BSN mobility tool in a pilot mode. It gives the opportunity of showcasing the advantages of such a tool to stakeholders to be involved on further levels and, thus, makes the long-term implementation of the tool and its sustainability more feasible.
* Other examples: BONUS, NordForsk, Seed money tool in Hamburg, Swedish Institute.

Joint political action/representation of common interest - Make the region visible.

Good practices and examples:

* The discussions of very concrete mobility tools for the BSR and the involvement of DAAD benefits the output.
* The BSN policy papers.
* The selection of the channel to be used to communicate the "joint message" (Send from a high-level in order to reach also high-level decision-makers).
* Communicating the "joint messages" to the countries' representations e.g. at EU institutions, and raising visibility at an international event (conference, seminar).
- Other examples: BONUS programme. Existing policy papers.

Annex 1: SWOT survey compilation

1a SWOT compilation of the Do's and Don'ts for transnational strategy development - Foster and encourage more research cooperation.

Strengths

- The BSN project involves key players for making the political decisions on the science policy issues in the BSR countries.
- Growth in strength of the BSR as a region through a stronger voice and visibility as an excellent science region.
- The unanimous support for the necessity to reduce the innovation gap within the BSR.
- The existence of modern RIs, which could form stronger clusters in support of scientific excellence.
- Adequate know how of the BSN expert groups on research, research environments and research funding in the field.
- Availability of several strategic guiding documents issued by key transnational and European forums.
- Many talented scientists and researchers in the BSR, thus leverage of critical mass for certain activities (e.g. solving problems in the region).

Weaknesses

- All BSR countries are not fully committed to cooperate, and the BSR not recognized as priority region.
- National differences in organization of research and research cooperation, and disparities in research funding.
- Funding allocation for new initiatives is troublesome.
- Little support from the scientists themselves in the proposed areas of cooperation.
- Too narrow expertise in the BSN expert groups (the research field should be widely represented).
- There was not enough time reserved for the strategy work.
- Without a transnational strategy, the activities will be very fragmented and carried out without specific aim.

Opportunities

- The potential of the EU-13 (infrastructure and competences) has grown significantly, which could further enhance the competitiveness of the BSR.
- A good opportunity for economically less developed countries to learn from their partners and boost their performance.
- Increased cooperation creates some very beneficial relations for partner countries.
- Better transnational use of infrastructure (e.g. middle-size).
- Build on the good track record of the BSN analysis of various research cooperation aspects and mobility trends. Following the transnational strategy enables closer cooperation of partners and bigger economic impact, also smooth knowledge transfer.
- Encourage researchers to cooperate in the Baltic Sea Region.
- Preparation of joint actions to put the guidance into practice should be key focus of operational implementers.

Threats

- Some of the partners are not committed to the project at the political level, as several ministries are not on board or only observers. This can prevent successful implementation of the strategy in the BSR.
- The implementation and impact of the strategy is not followed up, or if necessary adjustments are not made.
- The strategy is not compatible with political priorities, as priorities might change with time.
- Competition among scientists: human and funding resources invested in funding applications, although the success rates in many programmes are low.
- Other EU programmes, or other programmes only between selected countries.
- Lack of interest among researchers.
- Too much focus on strategizing and visioning among operational implementers of political guidance hinders effective tackling of the implementation gap. Strategic guidelines should be the responsibility of the political and high-level leadership.

1b SWOT compilation of the Do's and Don'ts for transnational funding/incentive schemes - Create better framework conditions (mobility, funding, network etc.).

Strengths

- The BSN supports the BSR as an excellent region for science and research cooperation. The scientific cooperation of the BSR remains relevant, with mobility and networking as core topics to discuss and to act on.
- There is a demand from the academia for more mobility tools and funding opportunities, offering many talented scientists and researchers in the BSR better conditions for cooperation.
- More mobility programmes among BSR researchers lead to more exchange and more value added for research for the region.
- There is a diversity of funding schemes, mapped by the BSN, accessible to the Baltic Sea Region stakeholders, so there is no one-size-fits-all approach governing the macro-regional cooperation.
- Modern research infrastructure in the BSR efficiently used.

Weaknesses

- Cooperation is more oriented in the direction from the EU-13 to the EU-15; the level of cooperation and interest is not always equivalent.
- Transnational funding might not be balanced between the countries (existing gap regarding funding capacity and economic potential between countries within the BSN).
- National return of investment is not guaranteed for participating states; limited pool of institutions and experts, differences in research development in countries.
- Financing; different rules in different countries.
- The people discussing and approving the financing must have a mandate to agree on the funding. The right people have to be at the table when money is distributed.
- The problem of the "common pot": Financers and actors have different principles. The process will take time.
- The bottom-up approach is violated in the definition of the areas of cooperation. Research cannot be steered from above.

Opportunities

- Proposals including some new, innovative tools. Learning from one another by creating more favourable conditions for mobility. To enlarge the mobility possibilities.
- Successfully implemented mobility tools can create a stronger network of researchers in the BSR.
- Opportunities for doctoral students/post-docs to conduct research in another country. This creates a spillover effect for common research projects, publications, share of the infrastructure, etc.
- Good example for other regions for regional synergy and problem solving.
- Better integration of EU-13 in networks, also regarding funding applications.
- FP9 should enable combination of structural and research funds.
- Include financers and universities in planning of a new funding scheme; they must be able to see the benefits.
- The message of the value added of BSR cooperation should be spread by all actors: e.g. benefit for research on this exact field, national level, organizational level, researcher level, impact on researchers´ career etc.

Threats

- Lack of funds and not enough financers committed from the beginning.
- The funding sources are not yet defined, and a majority of the countries are not willing to put their own funding into newly developed schemes, which can lead to a situation where proposed schemes are not implemented at all.
- Duplicating existing programmes: Consider existing funding schemes, specific needs and resources in different countries.
- Changes in (political) priorities.
- Too complicated bureaucracy.
- The programme is not available for all researchers: Large-scale RIs concern only materials science or life sciences.
- The cooperation between BSR countries is not strong enough for a new programme.

1c SWOT compilation of the Do's and Don'ts for joint political action/representation of common interest - Make the region visible.

Strengths

- The joint "voice": The BSR will be more visible when countries cooperate.
- The political support of the BSR countries to engage in a united action.
- The CBSS format is mutually beneficial for the implementation of the BSN objectives and the strengthening of the BSR.
- Political leadership of the BSR has worked to offer comprehensive, thorough and sound guidance for the operational implementers of various domains.
- Joint political actions can attract more funding, talents and opportunities for the BSR.
- The existing of critical mass and modern RI in the BSR.
- Visibility of the BSR as an excellent science region.

Weaknesses

- Although the BSR countries declare support for the BSN, not all of them are actively involved in the BSN activities. Many different interests in the BSR countries.
- All actors do not have the mandate from the leadership of their own organization.
- The challenges of multi-level governance.
- Very general content of the policy papers, with a risk that they become political statements without real actions.
- Is another transnational strategy or an action plan the right answer to the remaining challenges? Pay attention to what specific value it would deliver in comparison to the existing body of BSR specific as well as European key vision and action documents.

Opportunities

- Higher impact through joint action: the BSN has a good say for its positions in the EU, or other formats.
- Finding and representing the common interest for the BSR can boost cooperation among the partners. More and different opportunities for international cooperation for a more visible region.
- Use high-level country representatives to promote the message in the international context.
- Prepare new actions in close alignment with the existing dense body of guidance issued by key European, Baltic Sea Region, Nordic and Baltic political forums.
- Everyone who receives financing from a BSR project should know and communicate from which source
- they received funding and how it serves the Baltic Sea Region.

Threats

- The BSN project may fail to achieve some of its goals, if the promotion of the BSN's goals is not included in the national positions of the BSR countries.
- The common interest does not always correspond with the national interests. Some countries would not join for political reasons.
- The reason for cooperation is only funding, not solving the real problems.
- Different types of institutions have a different "level" of authorization to express commitment statements, e.g. one needs to differentiate between governmental statements and statements made by single organizations.
- The cooperation between BSR countries is not strong enough.
- Lack of interest among researchers.

Annex 2: Partner list: Members of the Baltic Science Network

Country	Institution(s)
Germany	Ministry of Science, Research and Equalities, Hamburg
	Ministry of Education, Science and Cultural Affairs, Land of Schleswig-Holstein
	Ministry of Education, Science and Culture, Land of Mecklenburg-Vorpommern
	Senate Chancellery Hamburg
	German Academic Exchange Service (DAAD)
Estonia	Ministry of Education and Research of the Republic of Estonia
Latvia	Ministry of Education and Science of the Republic of Latvia
Lithuania	Ministry of Education and Science of the Republic of Lithuania
	Research and Higher Education Monitoring and Analysis Centre (MOSTA)
Poland	Ministry of Science and Higher Education of the Republic of Poland
	University of Gdansk (nominated by the Polish Ministry of Science and Higher Education)
Denmark	Ministry of Higher Education and Research
	Danish Agency for Science and Innovation
Sweden	Swedish Research Council
Finland	University of Turku (nominated by the Finnish Ministry of Education and Culture)
	Abo Akademi University (as representative of the Baltic University Programme)
	Finnish Ministry of Education and Culture
Norway	Ministry of Education and Research
Russia	St. Petersburg State University of Economics (UNECON - nominated by the Russian Ministry of Education and Science)
Transnational	Council of the Baltic Sea States (CBSS)
	NordForsk – Research funding organisation of the Nordic Council of Ministers
	BUP - Baltic University Programme
	BSRUN - Baltic Sea Region University Network
	BONUS - Baltic Organisations' Network for Funding Science EEIG
	STRING - political crossborder partnership of the Öresund region

Annex 3:List of studies/surveys: BSN reports and working papers

… in reversed chronological order

- Susanne Grahl, Izabela Raszczyk, Angelika Kędzierska-Szczepaniak (2019), The Baltic Sea Region - A Science Powerhouse (WP 3.5, WP 4.4, WP 5.3)
- Leif Eriksson (2019), Joint Programming in a Macro-regional Setting (WP 3.3)
- Aivars Timofejevs, Valdis Avotiņš, Vitolds Škutāns (2019), Roadmap for Transnational Utilisation of Existing and Planned Research Infrastructure (WP 3.4)
- Blanka Thees (2019), Creating unique and sustainable value through Scientific Excellence in Photon and Neutron Science in the Baltic Sea Region (WP 3.2)
- Tomas Andersson (2019), Mobility Funding Instruments (WP 4.3)
- Asta Juškienė, Paulė Gumbelevičiūtė, Tadas Juknevičius (2018), Research and Higher Education Monitoring and Analysis Centre (MOSTA) (WP 6.1)
- Jyrki Heino, Fredrik Björkling, Thomas Frahm, Toivo Maimets, Osvalds Pugovičs, Gintaras Valincius, and Krzysztof Bielawski (2018), Scientific Excellence in Life Sciences in the Baltic Sea Region (WP 3.2)
- Zane Šime (2018), Working Paper of the Welfare State Expert Group "Fostering Sustainable and Inclusive Labour Markets in the Baltic Sea Region: A Life Course Perspective" (WP 3.2)
- BSN Position Paper (2018), Baltic Science Network Position Paper "Tackling Widening Participation in R&I from the Baltic Sea Region Perspective" (WP 5.2)
- BSN Policy Paper Regarding FP 9 (WP 2.3)
- Susanna Sepponen, Solveig Roschier, Marika Bröckl, Jenni Mikkola and Mari Hjelt (2018), Researcher Mobility Tools for the Baltic Sea Region (WP 4.2)
- Ministry of Education and Research of the Republic of Estonia (2018), Drivers for Participation in Transnational Research Cooperation, Recommendations for Increasing Participation of Low Performing Countries and Regions in Transnational Research Activities (WP 5.2)
- Kazimierz Musiał, Tom Schumacher (2018), Scientific Excellence: Joint Potentials in the Baltic Sea Region - an Explorative Study (WP 3.2)
- Key Messages of BSN studies in the 1st phase (2018), Baltic Science Network Brings the Baltic Sea Region Towards Enhanced Functional Proximity and Inclusive Excellence
- Gintaras Valinčius, Tadas Juknevičius (2017), Challenges to Researchers' Mobility in the Baltic Sea Region (WP 4.1)
- Visionary Analytics with support from the Ventspils High Technology Park (2017), Study on Research Cooperation in the Baltic Sea Region: Existing Networks, Obstacles and Ways Forward (WP 5.1)
- Indra Giraitė, Tadas Juknevičius (2017), Overview of the Best Practices of Researchers' Mobility Programmes (WP 6.1)
- Kadri Ukrainski, Erkki Karo, Margit Kirs, Hanna Kanep (2017), Participation in ERA and Baltic Sea RDI Initiatives and Activities: Analysis and Policy Implications for Widening Participation of Strong and Moderate Innovators (WP 5.2)
- Josephine Them Parnas (2017), Challenges and barriers to research cooperation in the Baltic Sea Region (WP 3.1)
- Tom Schumacher (2016), International Mobility of Researchers in the Baltic Sea Region

All BSN publications are available online at
http://www.baltic-science.org/index.php/publications.

Additional references

DAAD, DZHW (2017): Wissenschaft weltoffen. Bielefeld. W. Bertelsmann Verlag.
Available online at http://www.wissenschaftweltoffen.de/publikation/wiwe_2017_verlinkt.pdf

Annex 4:List of abbreviations

Baltic TRAM	Baltic Transnational Research Access in the macro-region
BONUS	Baltic Sea research and development programme
BONUS-EEIG	BONUS Secretariat (European Economic Interest Grouping)
BSN	Baltic Science Network
BSPC	Baltic Sea Parliamentary Conference
BSR	Baltic Sea Region
BSRUN	Baltic Sea Region University Network
BUP	Baltic University Programme
CBSS	Council of the Baltic Sea States
DAAD	German Academic Exchange Service
DESY	Deutsches Elektronen-Synchrotron
ERA	European Research Area
ESIF	European Structural and Investment Funds
ESS	European Spallation Source
EU	European Union
EU13	EU13 Countries that joined the European Union in 2004 or later
EU15	EU15 Countries that joined the European Union before 2004
EUSBSR	European Union Strategy for the Baltic Sea Region
FP9	9th EU Framework Programme for Research and Innovation
H2020	Horizon 2020 (9th Framework Programme for research and innovation)
HALOS	Hanseatic League of Science
LEAPS	League of European Accelerator-based Photon Sources
LENS	League of advanced European Neutron Sources
LINX	Linking Industry to Neutrons and X-rays
MAX IV	Synchrotron radiation facility in Lund (SE)
MOSTA	Research and Higher Education Monitoring and Analysis Centre
NGO	Non-governmental organisations
OECD	Organization for Economic Co-Operation and Development
PNPI	St. Petersburg Nuclear Physics Institute
PNS	Proton and Neutron Science
PPP	Public-Private Partnership
R&D	Research and Development
R&I	Research and Innovation
RÅC	Röntgen-Ångström Cluster
RACIRI	Collaboration of the Röntgen-Ångström-Cluster (RÅC) and the Ioffe-Röntgen-Institute (IRI)
RDI	Research, Development and Innovation
RI	Research Infrastructure
RIS3	Research and Innovation Strategies for Smart Specialisation
SEWP	Spreading Excellence and Widening Participation
STRING	Southwestern Baltic Sea Transregional Area
WP	work package
XFEL	European X-Ray Free-Electron Laser


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