



BSR Stars S3

– Learning and conclusions for the BSR S3 Ecosystem

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1. BSR Stars S3 project

BSR Stars S3 was a BSR Flagship project under EUSBSR PA Innovation, running for three years (May 2016-April 2019). Its focus has been smart specialisation within the bio-, circular and digital economy in the Baltic Sea Region. The project explored methods and tools that enable cross-sectoral cooperation between innovation actors (companies, researchers and the public sector) with an emphasis on improving innovation capacity at the macro-regional level. By selecting and testing different tools and methods, the project has gained valuable insights into mechanisms that support actors from different innovation communities, and across different BSR regions, to work together and generate new ideas, partnerships and innovation opportunities.

As such, the project offers a **unique perspective into transnational S3 activities within the BSR.**

BSR Stars S3 has generated a wide range of methods, reports and events related to innovation collaboration. The major themes have been **stakeholder involvement** and **innovation ecosystem management**. This report focuses on a selection of the BSR Stars S3 activities with possible scope to upscale and / or transfer learning and methods to other BSR geographies or economic sectors. These are:

- Matchmaking events
- Transnational business coaching
- Transnational Innovation Voucher pilot
- S3 Accelerator Camp
- Transnational research-to-business platform
- Digital Innovation Ecosystem Management Tool

The report seeks to capture key messages from the BSR Stars S3 project with the aim of diffusing learning, supporting up-take of relevant tools and methods and accelerating the innovation capacity and performance of the macro-region's S3 ecosystem.

Finally, the report provides a vision of the **"BSR S3 ecosystem" - a new strategic framework at the macro-regional level to support capacity building for Smart Specialisation across the BSR capitalising on the learning and results of S3 projects across the macro-region.** Underpinning this a new Interreg BSR project was elaborated, focusing on the development of a BSR S3 Platform to build capacity for S3 across the BSR and to set out a new and ambitious agenda in adopting a value chain orientation, in connecting innovation assets across the macro-region. This is in line with the expected next wave of the EU's policy framework for Smart Specialisation under priorities for growth and innovation within the post-2020 Cohesion Policy, focusing on inter-regional collaboration through aligning regional S3 priorities.

2. BSR Stars S3 pilots selected for further analysis of the mechanisms which support a stronger S3 orientation across the BSR

Matchmaking events

Several regional matchmaking events for bio- and circular ecosystem actors were organised during the BSR Stars S3 project. The matchmaking event is a method to foster cooperation between research, business and public sector actors, as well as to identify the regional strengths and various actors involved in a regional innovation ecosystem. E.g. regional authorities can utilise matchmaking events to support the cooperation of stakeholders within a selected S3 field.

Key recommendations:

- Event should be planned in cooperation with other main actors and projects within the field.
- The event should include workshops and concrete level discussions and interactive sessions, rather than long presentations.
- Workshops should focus on concrete real-life challenges identified by the research, business and public sector actors.
- Enough time should be reserved for both free and guided networking.

Transnational business coaching

The transnational business coaching programme was designed and delivered to over 100 companies in the Baltic Sea Region. The aim was to support companies to make best use of the commercial potential of their research. The programme brought together business coaches from different regions to facilitate discussion and learning.

The Coaching programme was delivered in four main stages for the companies: 1) Suitability assessment; 2) Assessment of SME gaps and needs; 3) Action plan development; and 4) Action plan implementation. Companies were assessed to identify their skills and resources gaps. Following this assessment, companies were grouped by their individual needs and interests to receive the most suitable coaching to fit their needs. Usually the participating company needed support in areas such as business plan development, marketing or building the leadership and managerial skills.

Key recommendations:

- Business support organisations could exchange coaches transnationally. A pool of coaches available for transnational coaching could be developed.
- Use existing transnational networks (e.g. Enterprise Europe Network)
- Transnational coaching sessions for innovative SMEs could be part of a conference targeted at the business sector.

Transnational innovation Voucher pilot

The BSR Stars S3 project made efforts to connect key Nordic Research and Technology Organisations (RTOs) and their testbeds by offering SMEs access to testbeds across borders with the support from Innovation Vouchers, with a value up to 10.000 EUR. Based on an open call by the Nordic Council of Ministers, the transnational innovation vouchers were piloted in 2018-2019 with the following companies and institutions:

- Dagsmark Petfoods Ltd. (FI) had an extrusion processing test undertaken of selected raw materials for dog dental sticks at the pilot plant at Danish DTI
- Paptic Ltd (FI) was supported in testing a novel fiber-based packaging material at the RISE's Swerea textile testbed in Sweden
- Kvanne Industrier AS (NO) undertook a test at RISE Built Environment testbed in Sweden of the physical properties of prototypes for sound insulation in efforts to improve manufacturing of high-performance industrial doors
- Biocluster AS (NO) undertook a test at RISE Processum in Sweden on the feasibility of production scale-up of single cell proteins.

Transnational voucher pilot provided some lessons for further transnational activities:

- SMEs were able to carry out tests they could not have done in their home country, which helped to speed up product development, and increased awareness of test opportunities across borders.
- A network of Nordic RTOs/testbeds was created, and RTOs/testbeds increased their awareness on challenges that need to be addressed to realize a macro-regional testbed infrastructure. Nordic RTOs (GTS Denmark, RISE, SINTEF and VTT) decided to put together a joint Memorandum of Understanding for future cooperation.
- Further exploration of the compatibility, supply and willingness of different providers is needed to generate a strong testbed ecosystem, which is well-communicated and clearly aligned to the demand and innovation needs of industry.

The voucher pilot has demonstrated that a networked testbed infrastructure can significantly deepen the geographical reach of both 'supply-side' innovation actors (the RTOs and testbeds) and 'demand-side' stakeholders (industry / SMEs) to develop clear foundations for a stronger value chain orientation and open innovation culture. Furthermore, early evidence suggests that a demand-driven approach can accelerate the SME product development cycle and boost competitiveness. The BSR stands to benefit significantly from further exploring and deepening this approach across sectors / domains of shared competence and expertise. This is highly compatible with an interregional approach to S3, whereby an interregional S3 framework can direct efforts to navigate this rather complex environment, as well as provide support and resources to secure its development. This model of operation has a strong open innovation character and challenges the norms of operating within national boundaries. The pilot has demonstrated that the BSR S3 ecosystem could be significantly boosted by adopting a stronger approach to networking its testbed infrastructure

S3 Accelerator Camp

S3 Accelerator Camp was organized in Vilnius, Lithuania for the BSR Stars S3 partner regions Skåne (SE), Tampere (FI), Trondelag (NO) and Vilnius (LT) to develop solutions to regional bio- and circular economy challenges. The format of S3 Accelerator Camp was developed using business acceleration and value chain support methods that engaged experts from different regions in transnational teamwork with support from professional facilitators.

The Accelerator Camp provides opportunity to analyse regional challenges effectively and develop potential solutions through deliberation and learning with other regions. Before the Camp, each region identified a challenge, which was discussed by relevant experts from other regions. An example of one challenge identified was: “How to develop a bioeconomy cluster engaging SMEs of the region to cooperate?”

The following tools were used for onsite teamwork at Accelerator Camp:

1. Problem tree analysis

Transnational teams analysed the provided challenge and applied the Problem tree analysis method. Result – each team created a problem breakdown tree of their specific case. The core problem was identified and problem statement elaborated. Then teams identified causes for the core problem and chose one preferred line of causes based on importance to the problem. Teams defined one primary cause to be addressed further with a specific solution.

2. Identification of best possible solution for the primary cause of problem statement

Each team member suggested minimum three possible solutions, the accumulated pool of solutions was developed, and solutions were rated by each member of the specific team.

3. Identification of customer, benefits, and initial structure of project pitch

Teams used NABC (Need-Approach-Benefit per cost-Competition) model to define the project logic, key aspects and structure. Teams discussed and identified their potential customer and quantified benefits of proposed solution in order to prove its advantage over other existing alternatives. A brief pitch was prepared and presented to all participants using NABC structure.

4. Solution Prototyping

Teams identified key elements of the selected solution and developed a visual prototype using various materials, including papers, scissors, glue and pens. Visual prototype was developed.

5. Measure and validate

Teams presented the visual prototypes of their solutions to other teams and collected feedback. Team-to-team discussions were organized for more detailed feedback and expertise sharing from other teams, using questions and answers on specific aspects of the solution. Suggestions for improvement were collected.

6. Final Pitch

Teams presented their solution according to universal NABC presentation template to the Acceleration camp audience, with questions-answers and feedback provided by participants.

Key benefits of the BSR S3 Accelerator camp methodology identified during the project:

- The method increases chances that a project idea or regional problem will be effectively analyzed and presented within the owners' organization as well as to external stakeholders on the level adequate to clearly communicate the problem and solution, before more expensive next steps, e.g. consultancies are contracted or a solution is selected without fully understanding the problem, causes and alternatives.
- Teamwork engages different stakeholders and uses a structured analysis. It provides data, and evidence-based proofs, transdisciplinary approach as well as documented cause-effect relationships supporting the collective intelligence and cognitive decision-making process while defining the best alternative solution.

Transnational research-to-business platform

The BSR Stars S3 project developed an existing research-to-business (E-science gateway) platform of Lithuanian R&D equipment and services to better utilize the BSR research, development, and innovation infrastructure. As a result, some R&D services of Norwegian University of Science and Technology as well as University of Tampere (Finland) were added to the platform to incorporate business entities and research institutions into larger entities for greater synergy and cooperation.

MITA, the Lithuanian Agency for Science, Innovation and Technology made an online questionnaire to 60 Lithuanian companies which were registered at the platform. The companies that participated welcomed the transnational dimension provided by the BSR Stars S3 project. The major challenges in adding a transnational dimension are mobilising actors and providing efficient communication to fit the specific needs of the companies.

Online innovation ecosystem management tool

The Council of Tampere Region elaborated a prototype of a **real-time innovation ecosystem visualization tool** that was piloted within circular economy. The digital tool was created to support regional innovation management and provide a real-time overview of the regional circular economy. Regional innovation ecosystems are particularly significant in the development and implementation of the circular economy, where stakeholders along the production and consumption chain must work closely together to increase the use of renewable products and reduce the consumption of raw materials and energy.

The tool uses data from multiple sources to provide information on the region's circular economy actors and their interactions, the ecosystem structure, key stakeholders and emerging circular economy themes. The online software visualizes data in an easily understandable, user-friendly form, using information from both open databases (the internet) and private databases (e.g. closed national databases). Some of the data is retrieved by web crawling, i.e. the tool uses circular economy keywords to process website information. Through web crawling, the tool categorizes circular economy actors, such as companies, into different ecosystems by analyzing the terms used on their websites. The pilot tool has three levels of observation:

- **Topics:** Highlights key circular economy actors in different thematic areas (e.g. bioenergy, nutrient recycling, bio-based products)
- **Flows:** Outlines the different flows of, e.g. raw materials and waste
- **Projects:** Shows connections between actors working in ongoing collaborative circular economy projects (planned for the commercial version of the tool).

The visualization allow for an analysis of ecosystem development, including of growing and declining thematic areas, and both strong and missing links between actors. The ecosystem tool makes ecosystem data transparent and available and contributes towards ecosystem-based development and management.

The predicted benefits of this tool are far-reaching. For example:

- supporting business investment decisions by providing a stronger evidence base of status and location of networks, projects and material flows. The tool will bring together (otherwise) ‘scattered’ approaches to identify new insights and opportunities across the region’s CE sector
- Promoting the value of an S3-supported, CE ecosystem approach to further motivate CE actors to collaborate and generate new innovation-driven opportunities across the sector
- Helping to identify missing links / actors in CE VCs – data generated from the tool can uncover new opportunities, in a ‘real-time’ setting, which will allow innovation actors to respond to new / emerging opportunities

With the tool’s strong emphasis on promoting a strong ecosystem dynamic, it is highly relevant to BSR CE stakeholders to build awareness of, and capacity for, this type of innovation collaboration. This innovation dynamic could transform how the BSR’s CE ecosystem functions and performs and marks a potential shift in the innovation dynamics of collaboration, away from the more linear approach. Furthermore, assuming this tool and approach could be upscaled to a wider geographical setting across the BSR, there is potential to draw in a wider range of CE innovation actors – and to generate a new momentum for innovation performance and investment.

The S3 ecosystem tool also promotes the value of pooling resources, exposing a wide range of stakeholders to the benefits of sharing data and creating new value from this data. As such, this is a clear example of how data-driven innovation can boost industry performance.

With the tool in its prototype phase, significant testing work is still required, not only to ensure the availability, access and reliability of the data but to capture the added value which this generates for the CE sector in Tampere. An additional challenge here concerns the willingness of the private sector to share data which otherwise offers a specific competitive advantage. This is a common challenge for data-driven innovation and is something, which merits further investigation at the macro-regional level.

The tool’s transferability to other BSR geographies is highly dependent on the data environment – e.g. data availability, access and sharing, as well as the technical tools for data management. Several other regions have intimated interest in the tool and its possible transferability potential. This will be highly dependent on the data environment - e.g. concerning data access and compatibility with different regional data systems.

A significant opportunity exists to further explore the potential of this tool as a source of transnational collaboration for the CE sector.

3. Suggested steps forward: Moving from projects to a S3 ecosystem orientation across the BSR - S3 ecosystem programme

The EU's policy framework for Smart Specialisation is widely expected to focus on interregional collaboration through aligning regional S3 priorities and innovation investment efforts. Furthermore, a new EU instrument is proposed which would accelerate industry investment in innovation, through aligning interregional funding efforts. Early piloting activities, such as in the BSR Stars S3 are already showing positive signs that transnational efforts to 'join forces' in areas of related smart specialisation can generate scaled up innovation efforts, accelerate cross-regional value chains, create stronger innovation investment and generate new market opportunities. This requires a collective reflection on how best to mobilise the resources at our disposal.

Much of the BSR's existing S3 interregional efforts are project-focused, with significant efforts attached to timebound activities. We have not always had the opportunity to reflect on how to better align these efforts to create a more sustainable footing for our innovation partners – industry, the research community, the social economy sector and our public investment frameworks.

As the EU embraces a new interregional approach to S3, the BSR can respond to this opportunity and can play a pioneering role in creating a macro-regional response which will deliver new benefits for our regions and our macro-region.

The EU's proposed post-2020 direction emphasises the role that collaborative innovation plays in enabling SMEs to gain a foothold in international markets through connecting industry to value chain opportunities. Regions across the BSR are already playing an active role here through a number of EU initiatives such as Thematic Smart Specialisation Platforms, the Vanguard Initiative and European Strategic Cluster Partnerships. In addition, a number of successful BSR projects have shown that the macro-region has particular strengths in mobilising joint efforts from innovation stakeholders across science, technology, academia, industry and public policy.

However, these efforts are not sufficiently embedded in the macro-regional context. The BSR S3 ecosystem offers a route to harnessing and 'grounding' innovation in the BSR's territory, where performance can benefit from stronger concentration of efforts and greater citizen engagement.

The BSR S3 ecosystem will help regions to get inspiration for new type of collaboration, improve capacity building and create opportunities for more complete innovation value chains for different S3 focus areas. The now ongoing projects have a need for the Managerial level cooperating (and understanding) that enables interregional co-operation. Building on the BSR current approach to S3, the BSR S3 ecosystem will deliver a strategic orientation to S3 In setting out the foundations and investment effort for the BSR's S3 ecosystem, there is a need to generate a vision of the value. The below offers a flavour of the types of benefits which can be achieved:

- **Maximising innovation performance** – all BSR regions and partners bring their own assets, ambitions and challenges to this collective action. This is the starting point in building the foundations for collective action and success. Generating added value depends on a shared understanding of how each region stands to benefit from a stronger approach to interregional collaboration. The BSR value chain mapping exercise will play a key role in influencing this. The acid test questions for each region is: *what more can be achieved for my region (and for the BSR) as a consequence of enhanced collaboration?*

- **The BSR macro-region as an S3 driver** – the EU’s interregional S3 agenda offers an opportunity for the BSR to demonstrate the added value of macro-regional strategies. In the current debate concerning the EU’s post-2020 period, the BSR has an opportunity to highlight the continued need for EU support and investment for macro-regions as engines of EU growth
- **Enhancing the BSR’s profile, visibility and attractiveness** as a partner of choice for international innovation cooperation within and beyond the BSR, as well as a location for innovation-focused and industry-driven investment - this is a benefit for the BSR as a whole, as well as for constituent partners
- **Strengthening the BSR’s industrial performance through an S3 ecosystem** – international evidence continues to demonstrate that the industrial ‘winners’ from globalisation are connected to global value chains – i.e. partners and networks which facilitate scaled-up responses to innovation, underpinned by cross-sectoral dynamism, an increasing focus on digitalisation and investment leverage. This ‘value chain’ orientation across the BSR enables improved targeting of efforts to connect companies to both EU and global chains, and to strengthen the expertise and ambitions of the BSR’s industry base. Existing BSR programmes and initiatives offer a ‘launch-pad’ to reinforce and accelerate efforts which will bring innovation actors together from across the BSR
- **The BSR’s S3 ecosystem supporting the skills agenda** – stronger S3 collaboration across the macro-region will provide new and rich insights into skills gaps and future skills needs. This will also support efforts to address skills security across the BSR and improving the evidence base for how the BSR can direct efforts for future skills investment. This will be essential in supporting both industrial transition efforts and in fully harnessing the human capital potential of the macro region.
- **Making the case for how the S3 ecosystem connects to BSR citizens** – the EU’s growth agenda is often criticised for being too distant from the day-to-day concerns of EU citizens. A more connected BSR (supported by the S3 ecosystem) offers an opportunity for greater mobility across the macro-region (for both accessing employment opportunities as well as goods and services). These ‘quality of life’ issues are important drivers across the policy spectrum. S3 has a key role to play in making industrial growth relevant to citizens’ lives. There is clear scope for the BSR’s future approach to S3 to open up engagement with the social economy sector, as a valued contributor to the macro region’s innovation agenda.
- **S3 as a tool to optimise investment for innovation** – the EU’s ‘investment deficit’ challenge is multi-faceted not least in mobilising financing for new investments. A range of measures to address this are expected in the post-2020 programming period. Regional efforts to amass and mobilise large-scale finance are often met with governance and complexity obstacles. The post-2020 S3 is expected to address these obstacles through interregional innovation investment partnerships, driven by industry.

4. Key learning and recommendations

BSR Stars S3 project has provided the partners and stakeholders with a rich variety of joint learning and tools related to S3 implementation. At the wider policy level, there are also some key recommendations, regarding transnational collaboration in the BSR region:

- It is relevant to **involve and connect stakeholders** across disciplines and across borders to enable the identification of innovation ecosystems in S3 priority fields. In BSR Stars S3, this was supported by organizing regional, national and transnational matchmaking events that were promoted efficiently among various related networks. The digital Innovation Ecosystem Management tool pilot is a first step towards a real-time identification of innovation ecosystem stakeholders, their interlinkages and development needs.
- The **involvement of the business sector** is crucial for enhancing smart specialisation. S3 requires cooperation with business promotion organizations and professional knowledge on how to attract businesses. In BSR Stars S3, matchmaking events had concrete level workshops, networking sessions and possibilities to discuss concrete cooperation possibilities with relevant research and public sector representatives. Transnational business coaching and innovation vouchers provided support for business development and internationalization.
- BSR Stars S3 project has offered rich insights into areas where BSR partners are already building capacity to work together across regions. However, these efforts require significant alignment in order to generate a more harmonized approach to joint working efforts. The new Interreg S3 Platform project **“BSR S3 Ecosystem”** will offer BSR regions with opportunities to coordinate existing tools and efforts and make them more accessible to a wider range of BSR innovation actors.
- Critically, this effort must be well-communicated to innovation stakeholders across the BSR and must seek to engage them in further developing this activity. This will require both a **strategic approach to communications and coordination of efforts**.
- The S3 ecosystem coordination effort calls for **strong political leadership**. Some of the projects have shown that innovation efforts across borders can be very difficult to mobilise in the absence of endorsement and support from senior policy makers and political leaders.
- Furthermore, aligned BSR efforts for S3, through an ecosystem ‘model’, provide new opportunities to **showcase the macro-region’s good practice beyond the BSR**. This creates new potential to position the BSR as an innovation leader for the EU, with the aim of boosting industrial interest in investing in innovation opportunities.