BIS ROADSHOW

Evaluation - methodology, learnings and results

September 2021

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About BIS

The BSR Interreg project Baltic Industrial Symbiosis (BIS) promotes industrial symbiosis, a concept for sustainable regional development, across the Baltic Sea region. Industrial symbiosis means to connect companies from different industries in order to use one company's waste, in the form of e.g. energy, ingredients or materials, as a resource for the next company. The project establishes peer-to-peer exchange for industrial symbiosis practitioners. It develops new business and finance models and sets up the BSR Industrial Symbiosis Council as a platform for dialogue and policy learning.

The enterprises engaged throughout the project can explore their opportunities for industrial symbiosis. In Karlstad, Sweden, a resource stream is tested in a Living Lab; the full value chain of the resource is examined, and relevant actors take part in finding innovative solutions. In St. Petersburg, Russia, a new Living Lab is established. With facilities such as working space and warehouse, enterprises can experiment with the use and possible recirculation of residuals.

To build capacity among industrial symbiosis practitioners, managers and policy makers, the project provides training programmes. These programmes are targeted on actors from industry, clusters and business organizations, public administration bodies, and utility operators with the aim of developing the ability to continually identify local opportunities; providing knowledge and experience about facilitation tools and techniques, and; raising awareness of best practices for relevant business and policy innovations.

The project actively seeks to inspire stakeholders beyond the partnership from municipalities, regions and countries in the Baltic Sea Region to also pursue industrial symbiosis development to realise increases in cost-effectiveness in production and connected environmental and societal benefits. In the last phase of the project, BIS Roadshow events were implemented in order to present business cases, findings on training and education, findings from policy learning and through these numerous examples inspire replication of industrial symbiosis cluster development in Estonia, Latvia, Lithuania, Poland and Russia.

For more information please visit the project website https://symbiosecenter.dk/project/bis/

Roadshow Concept and Methodology

The BALTIC INDUSTRIAL SYMBIOSIS ROADSHOW was tailored to inspire stakeholders beyond the partnership from municipalities, regions and countries in the Baltic Sea Region to also pursue Industrial Symbiosis development.

The transnational value of the project is to pool experiences, knowledge and capacity to accelerate and increase efficiency of current Industrial Symbiosis policies and programmes within and beyond the project partner regions and countries.

Concept

The Baltic Industrial Symbiosis Roadshow was planned to *provide inspiration and with that energise* municipalities and regions in Estonia, Latvia, Lithuania, Poland, and Russia to also commence the development of Industrial Symbiosis policies, strategies and programmes. It is instrumental to communicating the project activities, outputs and results to a broader target group in the Eastern part of the Baltic Sea Region presenting a large number of cases, practices and solutions from the policy level, research and education and from the business level.

All BIS project partners contributed to the content development of the Roadshow through storytelling their experiences and lessons learned on industrial symbiosis implementation and policy development.

Methodology

Initially, the BIS Roadshow was conceived as seminar-combined-exhibitions with a duration of 1 – 2 days in each of the three Baltic Countries as well as in Poland and Russia, including a visit to the St. Petersburg Living Lab (see figure 1). But due to the Covid-19 pandemic, it was decided to implement the Roadshow as an on-line series of presentations in two parts; 1) for Russian stakeholders, and 2) for stakeholders in the Baltic Countries and Poland. For both parts the on-line sessions were combined with physical visits and meetings to the extent possible (see figure 2).

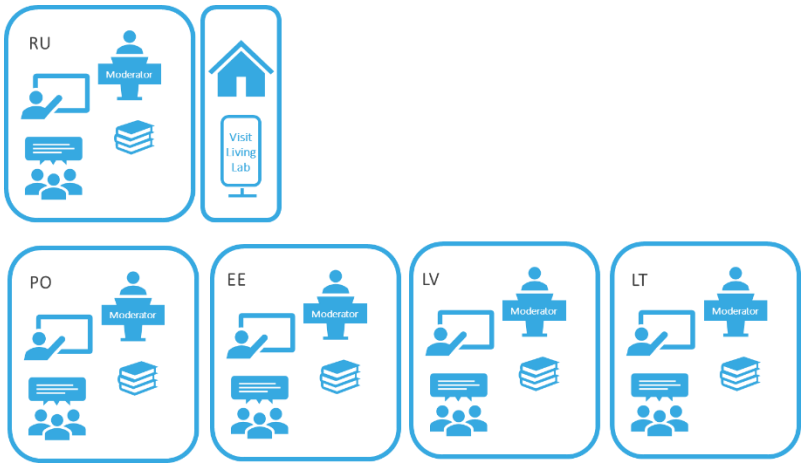


Figure 1 Roadshow as seminar-combined-exhibitions on-site

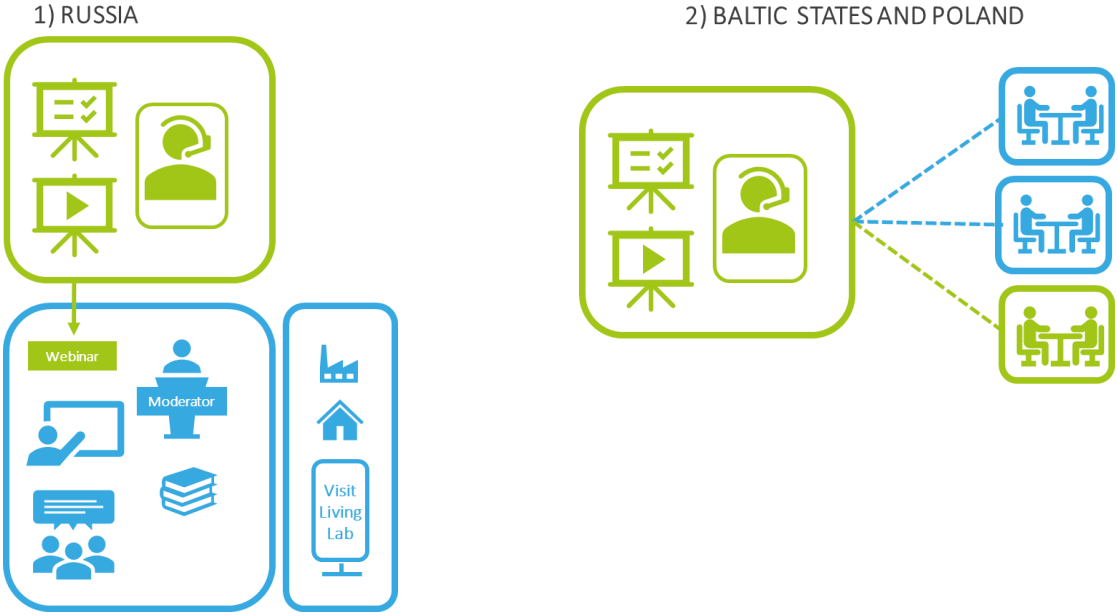


Figure 2 Hybrid Roadshow with online (green) and on-site (blue) activities

The idea of the hybrid roadshow was a design that contained a webinar with transmitted presentations by BIS-partners and/or videos. If possible, a local event should also be arranged. Participants at the local event should then join the webinar. There had to be a local moderator. When the virtual part of the program was finished, the local participants could then join a tour to local enterprises and/or Living Lab. If possible, a local exhibition should be arranged with posters, roll-ups, and BIS-publications for instance the Guide for Industrial Symbiosis Facilitators (toolbox), The special edition of the St. Petersburg Journal as well as the BSR Industrial Symbiosis Council

policy reports and other materials were to be displayed. Reports, videos and presentations should be available for download after the roadshow had ended.

In the Baltic States individual, focused meetings with the local Industrial Symbiosis facilitators, academia, enterprises, municipalities etc. in the weeks after the roadshow was planned. These meetings could be virtual.

The BIS Roadshow in Russia (part I)

Programme and activities

The Roadshow in St. Petersburg was held in a hybrid format within the framework of the XXI International Environmental Forum "Baltic Sea Day". For two days, March 23-24, 2021 representatives of authorities at various levels, scientists, experts and representatives of foreign countries discussed topical current issues of updating the Baltic Sea Action Plan and revising its goals until 2030, as well as project activities in the Baltic region, including the programs of cross-border cooperation and the Interreg Baltic Sea Region Program. Round tables and expert seminars were devoted to various issues relevant to the region.

The BIS project was part of the XXI International Environmental Forum "Baltic Sea Day"

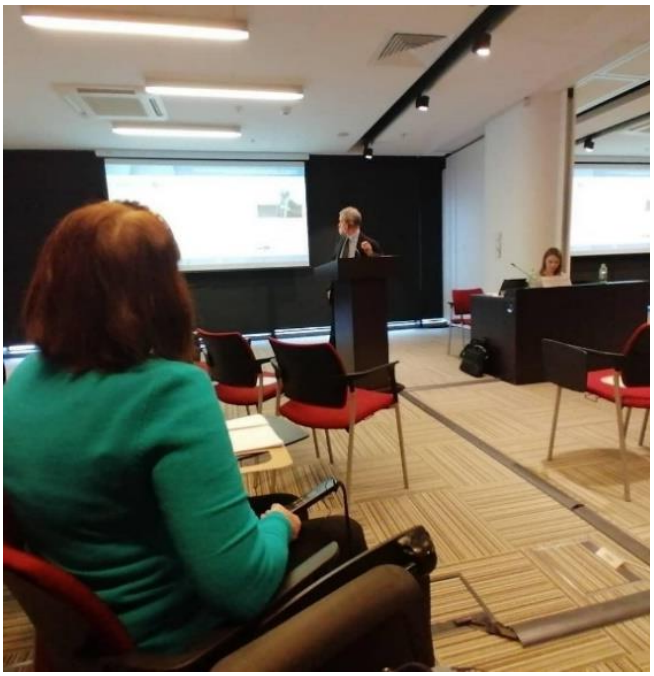
Round table

The round table "The Baltic Industrial Symbiosis Project for the implementation of the SDGs in the Baltic Sea Region" was devoted to the BIS project where partners and project participants from Denmark, Norway and Russia spoke about promoting the formation of industrial symbiotic chains in the Baltic Sea countries.

Find the Round Table Programme in Annex A.

The session was live streamed. A recording can be seen here: https://www.youtube.com/watch?app=desktop&v=ALEUIEWWyDI&ab_channel=ITStreamBroadcast

International event requires interpreters



The event was held in a hybrid format; expanding the audience by providing the facility to connect foreign speakers and listeners, as well as online broadcast live

”On line” presenter

”On site” presenter

After the session, some of the participants gathered next to the BIS roll-up before taking a tour to the Living Lab.

The St. Petersburg Living Lab is a visible example of industrial symbiosis development for all interested stakeholders to visit and be inspired by

Visit at the Living Lab in St. Petersburg

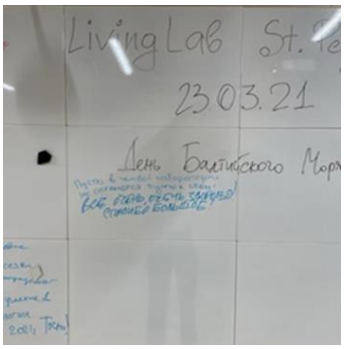
The round table participants were taken on a tour to the Living Lab in St. Petersburg which presents and implements the ideas of upcycling and industrial symbiosis. Furthermore, the participants had an opportunity to visit the production site of the first experimental shrimp farm in Russia, the production of recycled plastic benches and a mushroom farm where mushrooms are grown in used coffee grounds.

Within the tour, the participants visited the production site of the first experimental shrimp farm in Russia

'Smart environment' - the production of recycled plastic

Exposition "Industrial Symbiosis" in the Living Lab, which implements the ideas of upcycling and industrial symbiosis

A Russian coffee shop chain provides coffee waste for recycling. Here a test using coffee grounds for mushroom cultivation



"Kind wishes to the Living Lab team"

Results

Presentations, video and photos from the Baltic Sea Day forum and the BIS round table event can be found here:

http://helcom.ru/baltic_sea_day/2021_year

http://helcom.ru/baltic_sea_day/2021_year/BSD2021_materials_ENG

The Russian Roadshow in figures:

- 25-30 offline participants joined the round table, they represented research institutes, intergovernmental organisations, state and private companies etc.
- 40 participants visited the Living Lab. *"The Living Lab evinced a keen interest among the visitors… Many questions were posed to us and we received positive reviews and discussed ideas for cooperation"*, said Evdokia Lomagina, the Living Lab host from Tyreman Group.
- Page views of the Round Table Video pr. September 2021: 73 (English) and 204 (Russian)

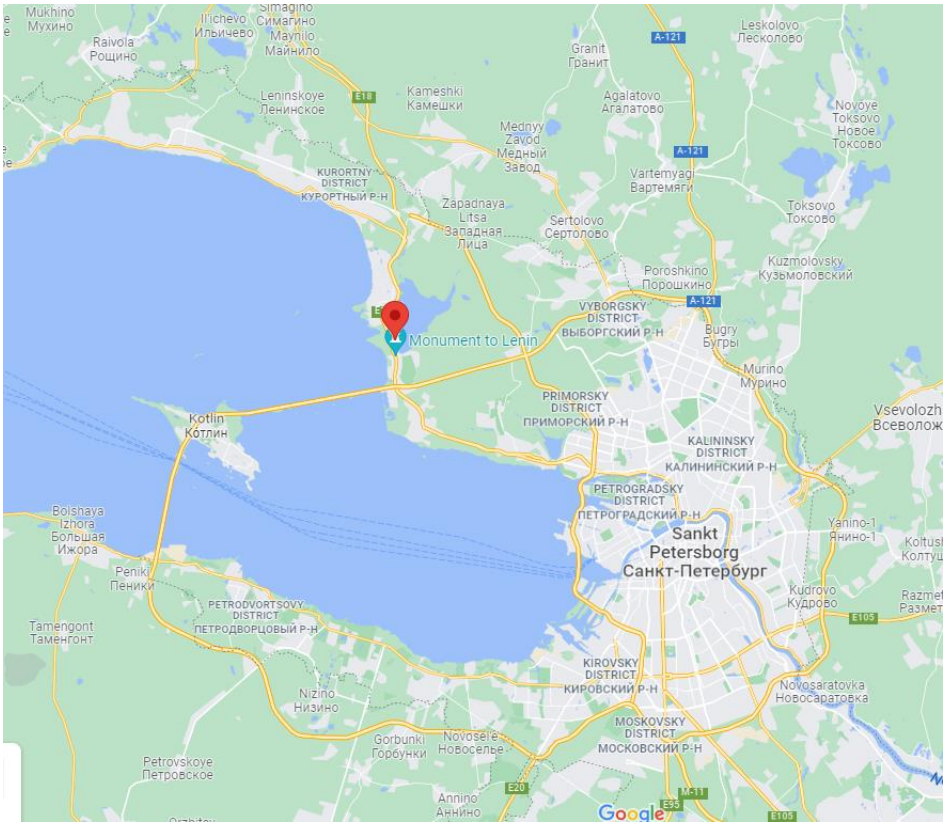
The BIS Roadshow in Russia (part II)

The "Clean beach" event

On September 11, 2021, the 8th educational campaign "Clean beach" was held in St. Petersburg. The format of the event includes not only the cleaning of the coastal areas of the Gulf of Finland, but also environmental training activities, among which the main one is the environmental quest. Participants go through exciting educational stations, gain new knowledge and skills, and learn the basics of separate waste collection.

The purpose of the campaign is the development of cooperation in the field of environmental protection, the formation of environmental responsibility of young people and the population, and the development of an environmental volunteer movement.

The first action took place in 2014 within the framework of the international project "The Year of the Gulf of Finland". Since then, "Clean Beach" events have been held in St. Petersburg, Russia, in Helsinki and Turku, Finland, and in Tallinn, Estonia; and every year they attract more and more participants and volunteers.



The event was held on the beach in the village of Tarkhovka in the Kurortny District of St. Petersburg.

This year, the event gathered a record number of participants (approx. 700) and attracted the attention of not only educational institutions, public organizations and municipal bodies, but also representatives of the business sector. 45 teams, representatives of 18 universities, 4 colleges, 3 public organizations and 14 companies took part in the campaign.

One of the two main stages of the event, the environmental quest, was dedicated to achieving the UN Sustainable Development Goals (SDGs) of the 2030 Agenda. Each of the participating teams had to take on the role of a delegation of a fictional country, which was tasked with preparing a report on the implementation of the SDGs by their country. Within the framework of the quest, Tyreman Group LLC introduced the participants to the project Baltic Industrial Symbiosis and the Industrial Symbiosis concept.

The second important stage of the action was the cleaning of the coastal area of the Gulf of Finland. Each of the teams had to put into practice the basics of separate waste collection.

As a result, the participants collected 800 kilograms of waste. 570 kg of these were collected separately: 53 kg of plastic, 202 kg of glass, 269 kg of metal, 5 kg of organic waste, 34 kg of cardboard, 7 kg of polyethylene. All waste was collected and transferred for disposal.

The teams competed among themselves, passing the stations and collecting waste in order to score as many points as possible and win one of three prizes. The prizes, white belt bags, were made of the utilized roll-up banners used at the previous “Clean beach” events in the spirit of “reduce, reuse and recycle”.

The BIS Roadshow in the Baltic Countries and Poland

Programme and activities

Webinar

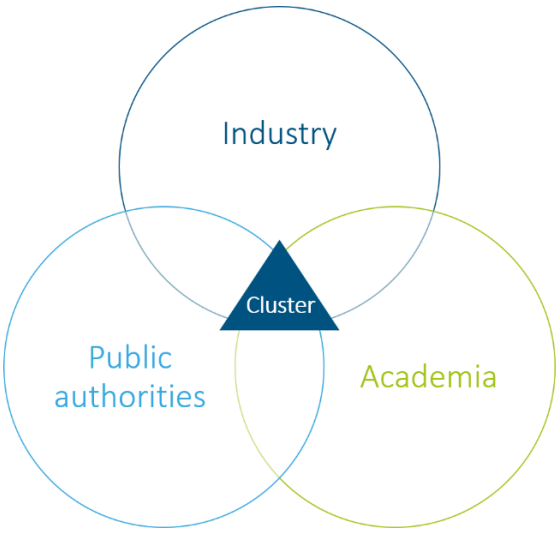
The Roadshow addressing the Baltic Countries and Poland was arranged as a webinar *"Discovering good practice examples of industrial symbiosis and bio-based business models"* by Trøndelag County Council and the associated partners from the Nordic Council of Ministers. This was a joint online event together with BSR Interreg project BalticBiomass4Value.

Find the webinar programme in Annex B.

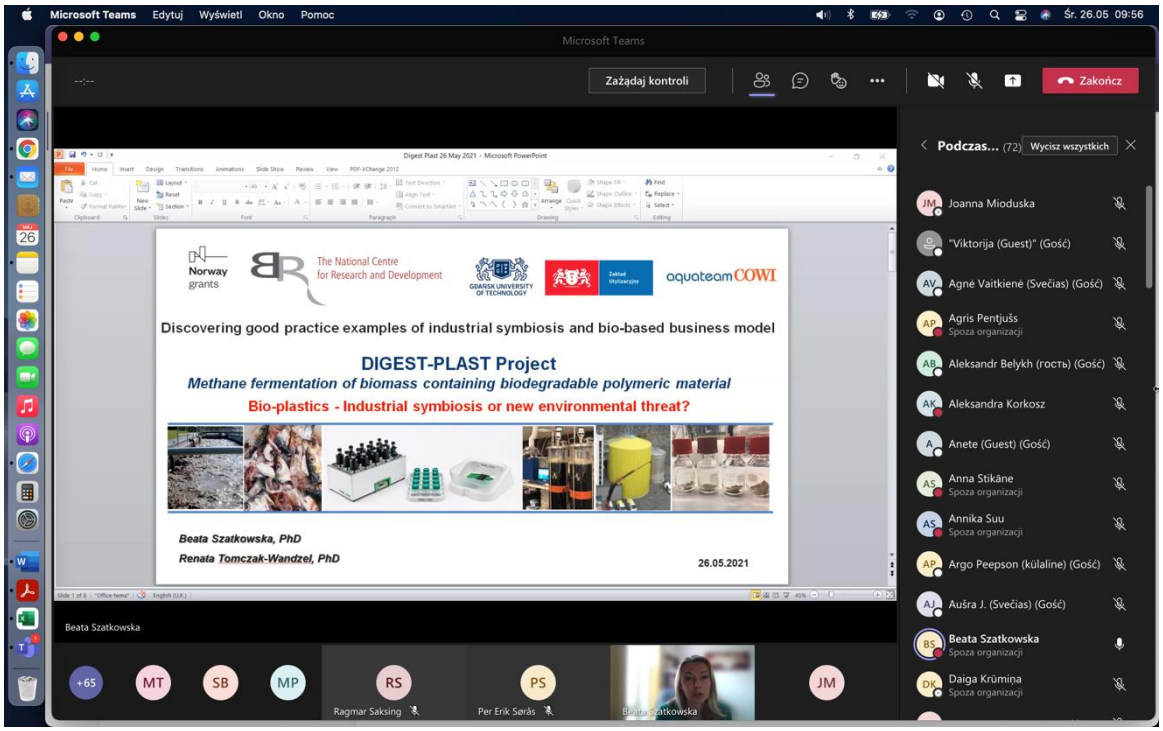
Roadshow as a webinar

Two Interreg Baltic Sea Region projects, the BIS project and the BalticBiomass4Value project, joined forces and presented recent findings on the implementation of industrial symbiosis and bio-based business models providing experiences that may help the industrial sector in the Baltic Sea area to speed up the transition and become more competitive in the international race towards capturing the markets embracing sustainability.

The aim of the event was to engage stakeholders from a triple helix constellation to facilitate the development of the industrial symbiosis mindset through storytelling experiences and networking enabling the exchange of knowledge and experience across borders.



During the first part of the event, representative of the Trøndelag County Council Per Erik Sørås (Norway) introduced tools prepared within the BIS project to help new actors in developing industrial symbiosis. Then representative of the Paper Province Magnus Persson (Sweden) shared his experience in organising living labs which are co-creative activities performed in the BIS project to demonstrate and test the resource stream with the material and stakeholders engaged in real life context. These introductions were followed by presentation of Lisbeth Randers on the activities of the Kalundborg Symbiosis (Denmark) and by presentations of Gdansk University of Technology experts Beata Szatkowska and Jan Hupka (Poland) about managing biodegradable plastics and marine pollution.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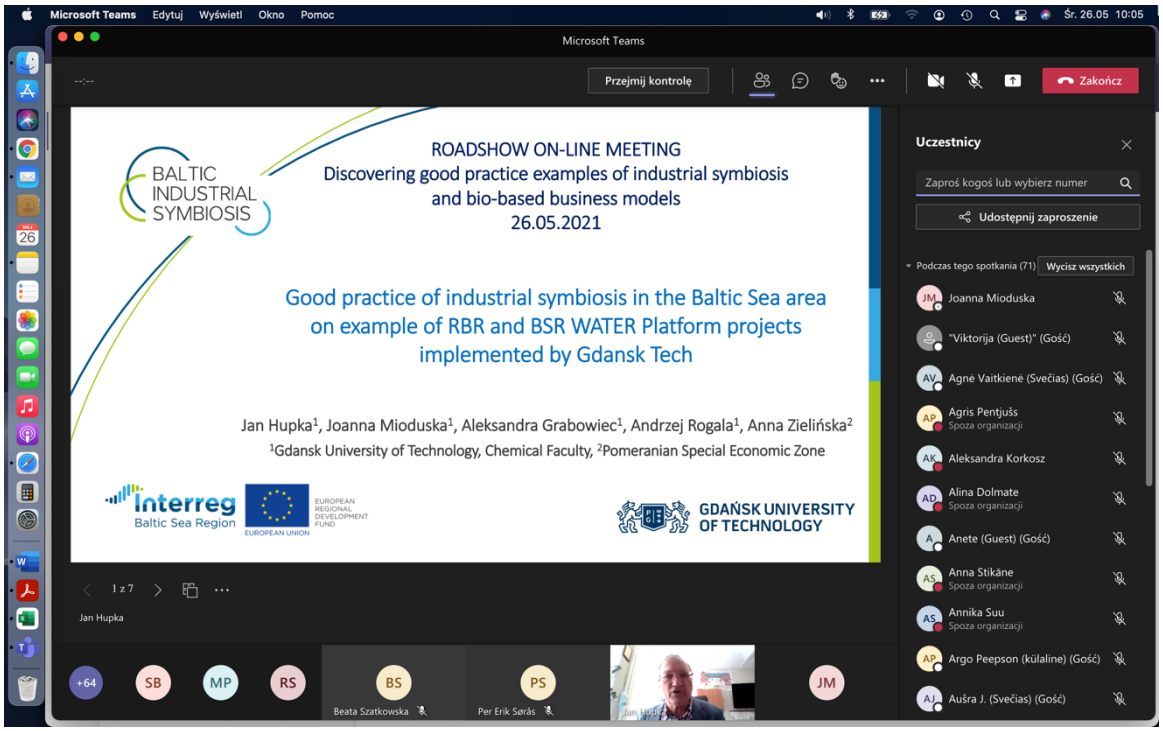
Agnė Vaitkienė (Svečias) (Gość)
Agris Pentjušs
Spoza organizacji
Aleksandr Belykh (гость) (Gość)
Aleksandra Korkosz
Anete (Guest) (Gość)
Anna Stikāne
Spoza organizacji
Annika Suu
Spoza organizacji
Argo Peepson (külaline) (Gość)
Aušra J. (Svečias) (Gość)
Beata Szatkowska
Spoza organizacji
Daiga Krūmiņa
Spoza organizacji
Norway grants
The National Centre for Research and Development
GDAŃSK UNIVERSITY OF TECHNOLOGY
aquateamCOWI
Discovering good practice examples of industrial symbiosis and bio-based business model
DIGEST-PLAST Project
Methane fermentation of biomass containing biodegradable polymeric material
Bio-plastics - Industrial symbiosis or new environmental threat?
Beata Szatkowska, PhD
Renata Tomczak-Wandzel, PhD
26.05.2021
Beata Szatkowska
Ragmar Saksing
Per Erik Sørås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Agnė Vaitkienė (Svečias) (Gość)
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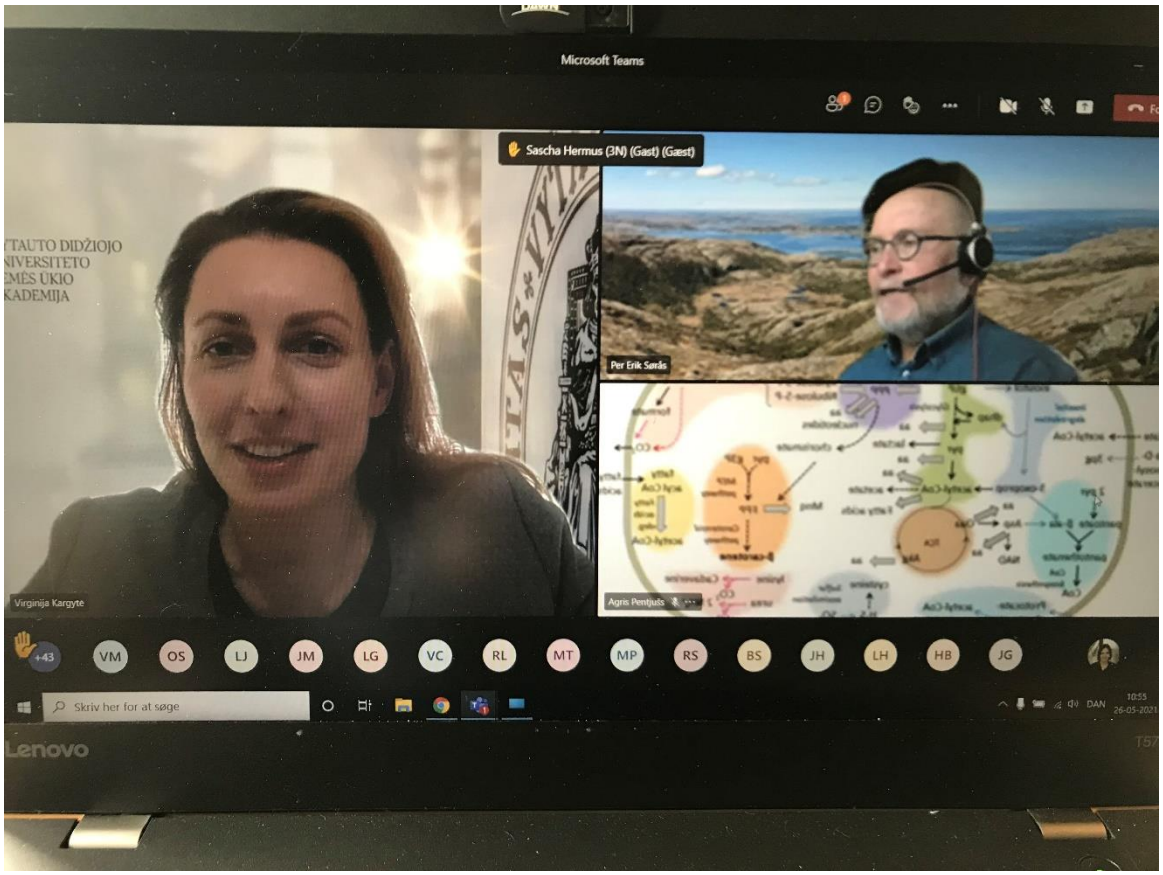
Aleksandra Korkosz
Alina Dolmate
Spoza organizacji
Anete (Guest) (Gość)
Anna Stikāne
Spoza organizacji
Annika Suu
Spoza organizacji
Argo Peepson (külaline) (Gość)
Aušra J. (Svečias) (Gość)
BALTIC INDUSTRIAL SYMBIOSIS
ROADSHOW ON-LINE MEETING
Discovering good practice examples of industrial symbiosis and bio-based business models
26.05.2021
Good practice of industrial symbiosis in the Baltic Sea area on example of RBR and BSR WATER Platform projects implemented by Gdansk Tech
Jan Hupka[1], Joanna Mioduska[1], Aleksandra Grabowiec[1], Andrzej Rogala[1], Anna Zielińska[2]
[1]Gdansk University of Technology, Chemical Faculty, [2]Pomeranian Special Economic Zone
Interreg Baltic Sea Region
EUROPEAN REGIONAL DEVELOPMENT FUND
EUROPEAN UNION
GDAŃSK UNIVERSITY OF TECHNOLOGY
1 z 7
Jan Hupka
Beata Szatkowska
Per Erik Sørås



The two moderators in action. The two Interreg projects cooperated to prepare the event and guide the participants through the Roadshow program

The second part of the event was dedicated to good practice bio-based business models developed within the “BalticBiomass4Value” project.

Participants were also introduced to the two Interreg projects by their coordinators Susanne Boesen and Virginija Kargytė. These presentations contained information on the achievements of these projects, produced results, and upcoming activities.

Find the BIS project partners presentations in Appendix D.

One-to-one Meetings

Following the webinar, the participants were invited to direct one-to-one dialog presenting the opportunity to take advantage from free consultancy support assisting everyone interested in circular economy and sustainable bio economy, invitation enclosed in Annex E. A list of institutions expressing interest in dialogue meetings is enclosed in Annex E. In addition, comes institutions who were in direct contact with Gdańsk University of Technology.

Unfortunately, only a few institutions compared to those indicating interest responded on the invitation (Annex E). However, follow up dialogues or one-to-one meetings were conducted both with institutions in Lithuania and Poland. Eventually, more institutions could have been involved if the Covid-19 pandemic had not prevented from more direct physical contact between the BIS project partners and Baltic institutions.

Two enterprises participated in one-to-one dialogues. The meetings were facilitated by Gdańsk University of Technology and Trøndelag County Council in cooperation with Vytautas Magnus University (BalticBiomass4Value) and held online as well as on site in Poland. Topics discussed at the meetings included: How to proceed with the establishment of industrial symbiosis? How to identify potential partners? How to go about mapping? The role of a facilitator. The role of a municipality, and many more. The results from the one-to-one dialogue meetings are described in the following.

Results

133 representatives of public authorities, academia and the business sector joined the **roadshow webinar.** A newsletter was published in June 2021 https://symbiosecenter.dk/roadshow-of-industrial-symbiosis-and-bio-based-business-models/

And shared on LinkedIn:
https://www.linkedin.com/feed/update/urn:li:activity:6800063386081103874
https://www.linkedin.com/feed/update/urn:li:activity:6803260198304681984

One-to-one meetings in the Baltic States (Lithuania)

Following the Webinar an online meeting with the city Mažeikiai, a meeting involving the mayor, Vidmantas Macevičius, his advisor Virgilijus Radvilas, Virginija Kargytė, Project Manager BalticBiomass4Value and Per Erik Sørås, WP4 leader BIS.

Mažeikiai is a city in northwestern Lithuania, on the Venta River. It has a population of around 43,500, making it the eighth largest city in Lithuania. The city is the administrative center of Mažeikiai district municipality in Telšiai County. It is the largest city that does not have its own county. In 1980 an oil refinery plant "Mažeikių Nafta" was opened. Today it is one of the largest industrial plants in Lithuania

The discussion evolved around the potential of utilizing the excess heat resulting from the operation refinery, in particular how to connect the plant to a district heating system. Also, the potential of using the excess energy resource in connection with other industries was discussed, encouraging the idea to connect the refinery to an industrial park to be co-located with the refinery, thereby forming a platform for an industrial symbiosis approach.

The experiences from industrial symbiosis operations in the Nordic countries were brought forward and references to various documents available through the BIS project was given, especially focusing on the “Guide for industrial symbiosis facilitators”, a document which could help the municipality on its way forward.

One-to-one meetings in Poland

In Poland, the Roadshow acted as a teaser for individual follow-up meeting with Municipal Waste Incineration Plant from Gdańsk - Port Czystej Energii, Co. Ltd., which was organized on June 1st, 2021. The meeting inaugurated the cooperation between Faculty of Chemistry and Port Czystej Energii Co. Ltd. During the meeting the possibilities of establishing future cooperation between the science and industry sectors were discussed.

As a result, talks are underway regarding possibilities of joint expanding of the activities of the university's research club within the field of circular economy and industrial symbiosis.

Additionally, the President of Port Czystej Energii Co. Ltd., Mr Sławomir Kiszkurno, declared an openness for organizing a research internship for students from Chemical Faculty.

Dean of Faculty invited Mr. Kiszkurno to join the Consultative Council of the Faculty of Chemistry at Gdańsk University of Technology. The Consultative Council is an advisory body for the authorities of the faculty, and its task is to organize the promotion of the faculty and help in establishing contacts and cooperation with local government organizations and economic units.

Follow up meeting, June 1st, 2021. From the left: Agata Kot-Wasik (Dean of Faculty of Chemistry, Gdańsk University of Technology), Sławomir Kiszkurno (President of Port Czystej Energii Co. Ltd.), Joanna Mioduska (BIS project coordinator at Gdańsk University of Technology).

As a result of the established cooperation, another opportunity for a joint meeting was the participation in the conference - the 3rd Local Government Forum on Municipal Economy (2-3 September 2021), which was attended by approximately 170 participants. President Kiszkurno, during his speech, mentioned the BIS project implemented by the Gdańsk University of Technology. He emphasized the rightness of activities within industrial symbiosis, which supports the implementation of the circular economy assumptions.

On the second day of the conference, participants were invited to visit the construction of the future waste incineration plant.

Visit to incineration plant under construction, Port Czystej Energii Co. Ltd., September 3rd, 2021.

Learnings and recommendations

The Baltic Industrial Symbiosis Roadshow events raised awareness among stakeholders from both public sector, private sector and academia in Estonia, Latvia, Lithuania, Poland and Russia on the Industrial Symbiosis approach.

By tapping into experiences and lessons learned on Industrial Symbiosis implementation and policy development from neighboring countries, they will pursue their efforts to enhance the spread of Industrial Symbiosis mindset in their municipalities, regions and countries.

It is possible to integrate online events such as a webinar with on-site conferences and locally guided tours.

It is important to have close partners locally if a hybrid event is to be arranged, and it is important to set aside plenty of time to plan the program and get expectations aligned.

It requires thorough preparation, an appropriate arrangement of screens, furniture and testing of the technical equipment in the conference rooms. Just as there should be a test before the webinar begins to ensure that presenters who connect to the webinar can be heard/seen.

Living Lab serves as a good showcase for the industrial symbiosis mindset, and there was a positive response from those who participated in the guided tour in connection with the road show in Russia. It is good to combine lectures / presentations with visits in real life so that you can 'see with your own eyes' and meet the actors who work with industrial symbiosis.

One-to-One Meetings as a follow up action is valuable and form the basis for establishing new collaborations between partners.

Annex A

PROGRAMME

Baltic Industrial Symbioses - project for SDG implementation in Baltic Sea region

Place of meeting: EXPOFORUM, Hall A1-A2

23 MARCH 2021, TUESDAY

Goal of the workshop: To present the positive effects of industrial symbiosis implementation in particular to achieve SDGs in the Baltic Sea region and to discuss the possibilities for increasing collaboration within industrial symbioses around the Baltic Sea. The workshop is part of the BIS project – Baltic Industrial Symbiosis. Website: https://symbiosecenter.dk/en/project/bis/

Moderator: Nikolai Pitirimov, St. Petersburg house property owners association

Opening.	
13.30–13.40	**Welcome Addresses** *Daria Akhutina, Senior Advisor, Head of Priority Area: Sustainable and Prosperous Region Council of the Baltic Sea States (CBSS)*
13.40–13.50	**BIS - Baltic Industrial Symbiosis,** Interreg Baltic Sea Region Programme 2014-2020 Susanne Boesen, Project manager
Session 1 Policy measures	
13.50–14.05	Mapping current policies supporting industrial symbiosis development in the BSR *Per Erik Sørås, Trøndelag County Council*
14.05–14.20	Building an ecosystem of industrial symbiosis in Russia through the development centers of industrial symbiosis, *Nikolai Pitirimov, St. Petersburg house property owners association*
Session 2. Business cases	
14.20–14.35	Sharing 50 years of experience on industrial symbiosis; how can we provide tools for getting started to set up your own initiatives? *Nadejda Ulstrup-Hansen, Kalundborg Symbiosis*
14.35–14.50	New industrial symbiosis - Living Lab *Tyreman Group*
14.50–15.00	Project «New life of old wardrobe» *Marina Lebedeva, Medina Art*
15.00–15.10	Pskov hydroelectric power station – Center for the development of eco-technology and industrial symbiosis in Russia *Daria Mironova, ITMO University*
Session 3. Collaboration within industrial symbioses around the Baltic Sea	
15.10–15.20	How can municipalities support the development of Industrial Symbiosis, *Per Erik Sørås, Trøndelag County Council*
15.20–15.30	Hazardous waste management in St. Petersburg, *Julia Samsonenko, SC "Ecostroy"*
15.30–15.40	Transformation of supply chains in the context of the development of industrial symbiosis, *Olga Kol, Saint-Petersburg State Economic University*
15.40–16.00	Discussion. **Wrap-up**
16.00–18.30	Excursion to *Russian Living Lab*

XXI Международный экологический форум
«День Балтийского моря»
Санкт-Петербург, 23-24 марта 2021г.

XXI International Environmental Forum
Baltic Sea Day
St. Petersburg, 23-24 March 2021

Annex B

Virtual session of two Interreg Baltic Sea Region projects:

Discovering good practice examples of industrial symbiosis and bio-based business models

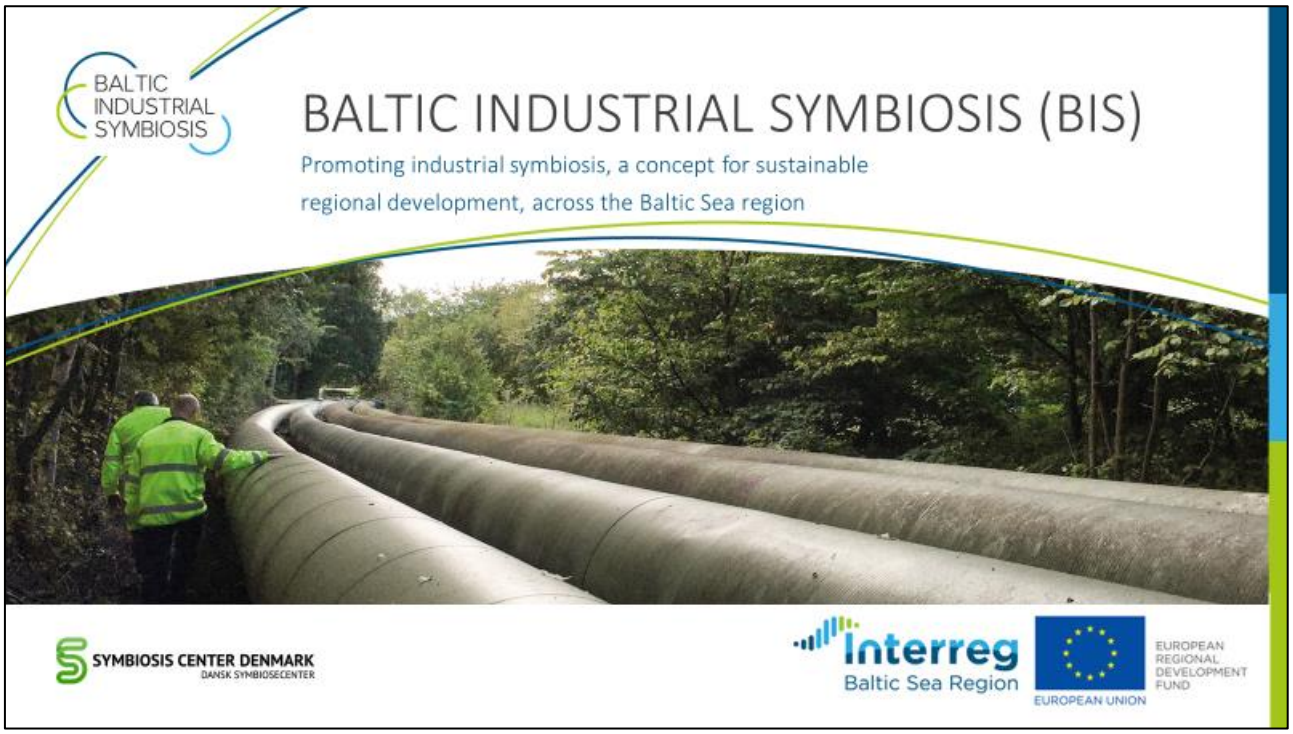
26 May 2021

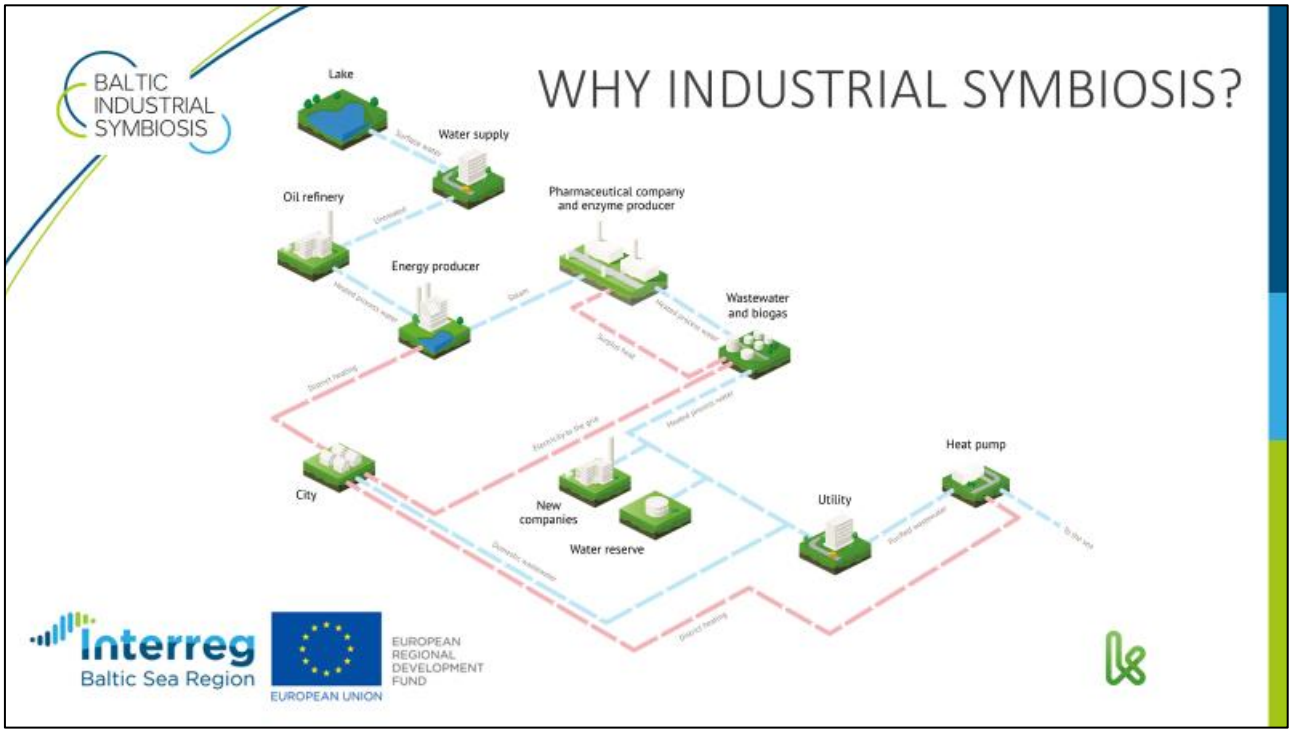
10:00 AM – 12:00 PM (EEST) / 9:00 AM – 11:00 AM (CET)

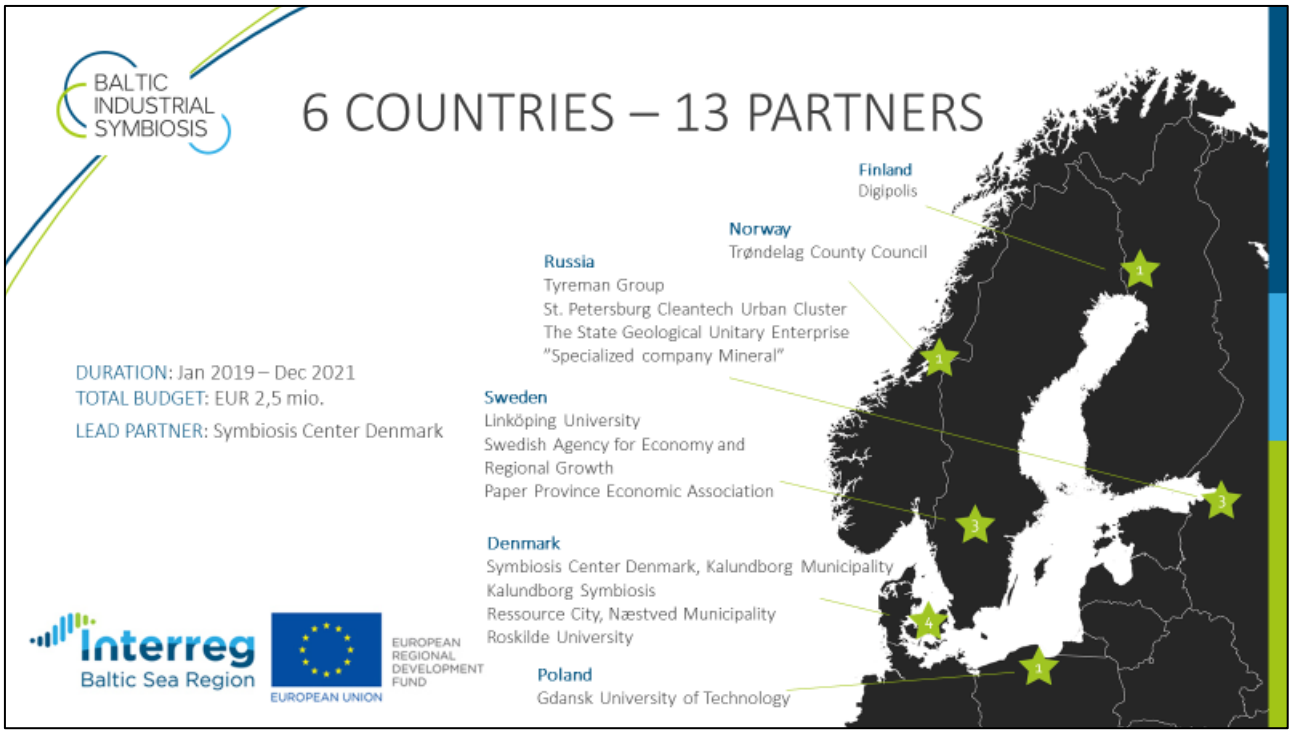
AGENDA

10:00 – 10:05 / 9:00 – 9:05	**Opening remarks** *Setting the scene, overall information about the virtual session*
10:05 – 10:15 / 9:05 – 9:15	**Keynote speech** **Jukka Teräs** *Nordic expert in industrial engineering and management, specialised in regional development, innovation environments, innovation promotion, technology transfer, issues related to non-metropolitan regions*
10:15 – 10:20 / 9:15 – 9:20	**Introduction to the "BIS – Baltic Industrial Symbiosis" project** **Susanne Boesen** *Project manager at Symbiosis Center Denmark*
10:20 – 10:35 / 9:20 – 9:35	**Tools helping new actors in developing industrial symbiosis** *Key policy framework, role of SMEs and municipalities, mapping facilitator's toolbox*
10:35 – 11:05 / 9:35 – 10:05	**Good practice examples of industrial symbiosis in the Baltic Sea area** *Examples of industrial symbiosis from Kalundborg (Denmark), Paper Province (Sweden) and Gdańsk University of Technology (Poland)*
11:05 – 11:10 / 10:05 – 10:10	**How to proceed, what sort of assistance can the BIS project offer for Baltic actors** **Per Erik Sørås** *Senior advisor at Trøndelag County Council (Norway)*
11:10 – 11:15 / 10:10 – 10:15	**Introduction to the "BalticBiomass4Value" project** **Virginija Kargytė** *Project manager at Vytautas Magnus University (Lithuania)*
11:15 – 11:35 / 10:15 – 10:35	**Bio-based business models for the replacement of fossil fuels with bio-based fuels and for the novel uses of bio-based materials for non-energy purposes** **Henrik Barth** *Assistant professor in industrial management at the Centre for Innovation, Entrepreneurship and Learning Research of Halmstad University (Sweden)*
11:35 – 11:55 / 10:35 – 10:55	**Good practice examples of bio-based business models in the Baltic Sea area** *Examples of 3B Bioenergie (German producer of organic fertiliser from the treatment of digestate) and Aloja-Starkelsen (Latvian producer of organic starch and plant-based products for home and industrial application)*
11:55 – 12:00 / 10:55 – 11:00	**Closing remarks** *Summarising of main ideas and follow-up opportunities*

Annex C
Leadpartner BIS project presentation from the roadshow in Russia




BALTIC INDUSTRIAL SYMBIOSIS
WHY INDUSTRIAL SYMBIOSIS?
Lake
Water supply
Oil refinery
Pharmaceutical company and enzyme producer
Energy producer
Wastewater and biogas
Heat pump
City
New companies
Utility
Water reserve
Interreg Baltic Sea Region
EUROPEAN UNION
EUROPEAN REGIONAL DEVELOPMENT FUND

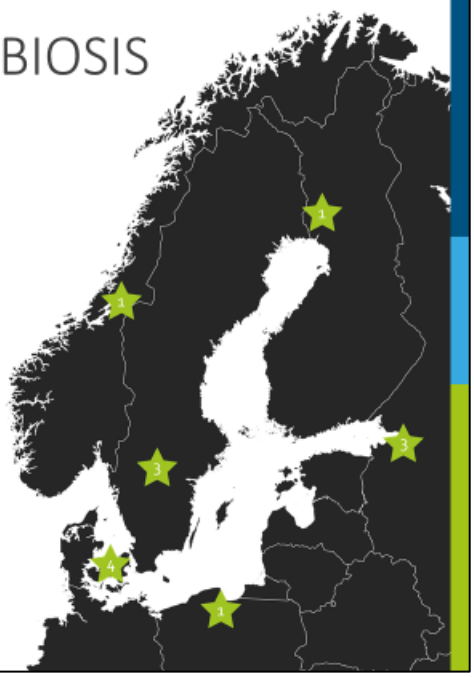

BALTIC INDUSTRIAL SYMBIOSIS
6 COUNTRIES – 13 PARTNERS
DURATION: Jan 2019 – Dec 2021
TOTAL BUDGET: EUR 2,5 mio.
LEAD PARTNER: Symbiosis Center Denmark
Finland
Digipolis
Norway
Trøndelag County Council
Russia
Tyreman Group
St. Petersburg Cleantech Urban Cluster
The State Geological Unitary Enterprise "Specialized company Mineral"
Sweden
Linköping University
Swedish Agency for Economy and Regional Growth
Paper Province Economic Association
Denmark
Symbiosis Center Denmark, Kalundborg Municipality
Kalundborg Symbiosis
Ressource City, Næstved Municipality
Roskilde University
Poland
Gdansk University of Technology
Interreg Baltic Sea Region
EUROPEAN UNION
EUROPEAN REGIONAL DEVELOPMENT FUND

BALTIC INDUSTRIAL SYMBIOSIS

TRANSNATIONAL SYMBIOSIS

BIS PROJECT ACTIVITIES

- Screening of enterprises
- Matchmaking events
- Peer-to-peer exchanges
- Living Lab
- Executive Training Programs
- BSR Industrial Symbiosis Council
- Baltic Industrial Symbiosis Roadshow



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EUROPEAN UNION
EUROPEAN REGIONAL DEVELOPMENT FUND

BALTIC INDUSTRIAL SYMBIOSIS

PEER-TO-PEER IN DENMARK SEPTEMBER 2019

- Using screening tool
- Screening local enterprises
- Knowledge sharing on symbiosis facilitation
- Workshops will all partners

PEER-TO-PEER IN NORWAY NOVEMBER 2019

- Excursion - visiting companies
- Peer review sessions

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BALTIC INDUSTRIAL SYMBIOSIS

PEER TO PEER – ON LINE

December 2020 | February 2021 | April 2021 | May 2021

DIGIPOLIS

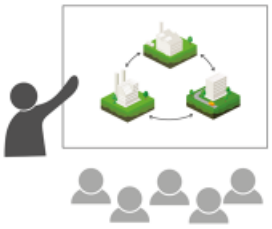
GDAŃSK UNIVERSITY OF TECHNOLOGY

TYREMAN GROUP

PAPER PROVINCE

BALTIC INDUSTRIAL SYMBIOSIS

BUILDING CAPACITY TO WORK WITH INDUSTRIAL SYMBIOSIS DEVELOPMENTS



To build capacity among industrial symbiosis practitioners, managers and policy makers, the project will provide executive **training programmes.**

On-line training programmes

Material like slides and audio-visual content developed and used in training programmes will be made publicly available for use in future training programmes

Interreg Baltic Sea Region
EUROPEAN UNION
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BALTIC INDUSTRIAL SYMBIOSIS
WE SHARE OUR TOOLS, GUIDES, CASES... WITH YOU!
BIS
GUIDE FOR INDUSTRIAL SYMBIOSIS FACILITATORS
Interreg
Baltic Sea Region
EUROPEAN UNION
EUROPEAN REGIONAL DEVELOPMENT FUND


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Baltic Sea Region
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www.symbiosecenter.dk/en/project/bis
Project Manager
Susanne Boesen
Symbiosis Center Denmark
Kalundborg Municipality
www.symbiosecenter.dk/bis
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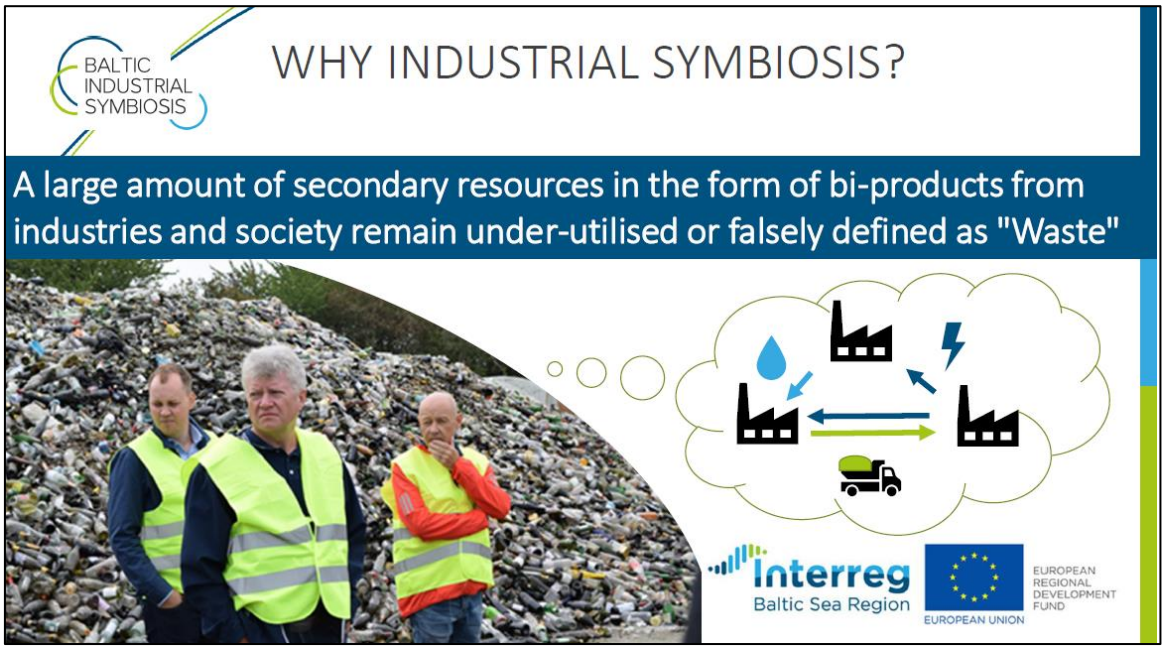
EUROPEAN REGIONAL DEVELOPMENT FUND
WITH FINANCIAL SUPPORT OF THE RUSSIAN FEDERATION
SYMBIOSIS CENTER DENMARK
DANSK SYMBIOSECENTER

Annex D

BIS partners presentations from the roadshow in the Baltic States and Poland

1) Introduction to the "BIS – Baltic Industrial Symbiosis" project, Susanne Boesen




BALTIC INDUSTRIAL SYMBIOSIS
6 COUNTRIES – 13 PARTNERS
DURATION: Jan 2019 – Dec 2021
TOTAL BUDGET: EUR 2,5 mio.
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Russia
Tyreman Group
St. Petersburg Cleantech Urban Cluster
The State Geological Unitary Enterprise
"Specialized company Mineral"
Sweden
Linköping University
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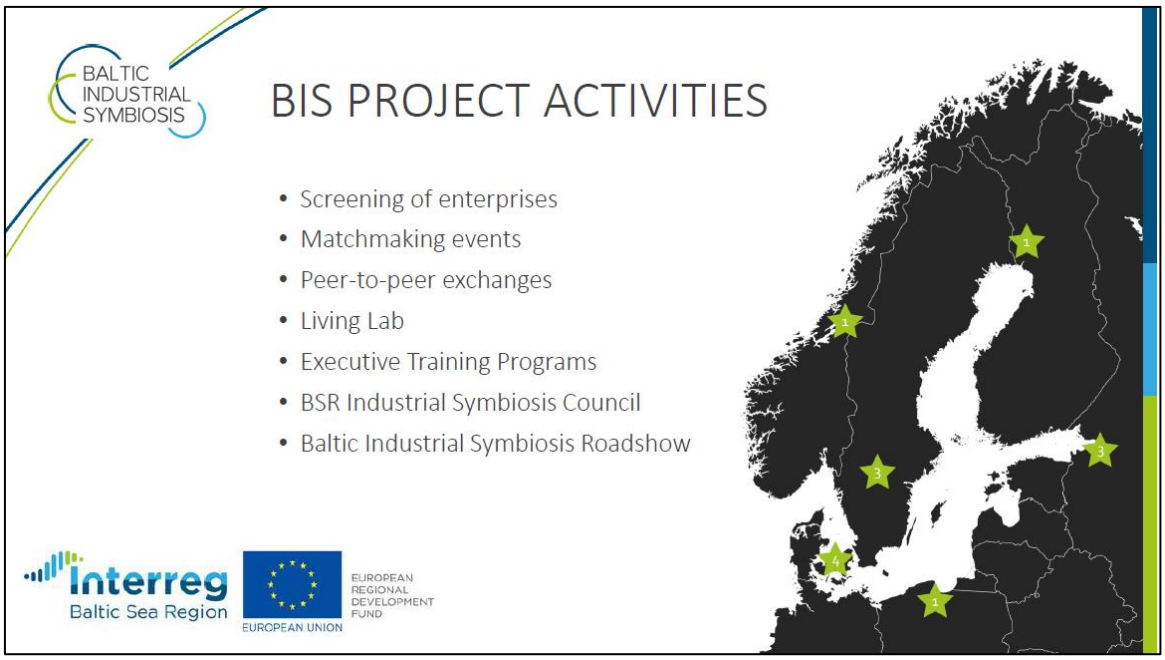
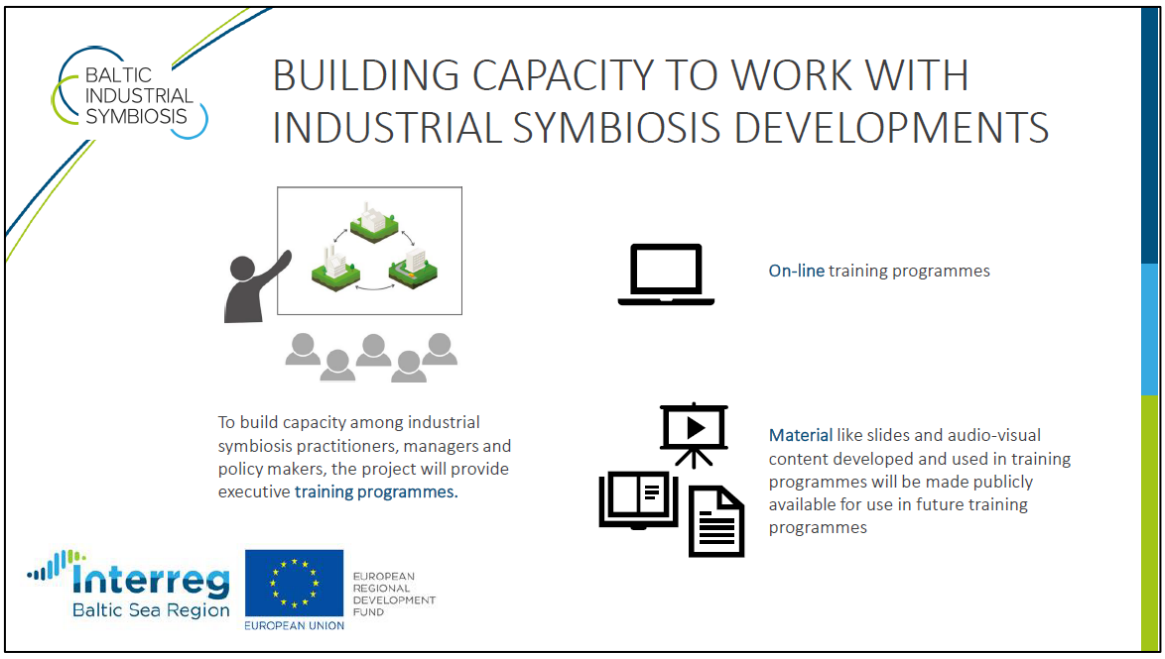
Paper Province Economic Association
Denmark
Symbiosis Center Denmark, Kalundborg Municipality
Kalundborg Symbiosis
Ressource City, Næstved Municipality
Roskilde University
Poland
Gdansk University of Technology
Interreg
Baltic Sea Region
EUROPEAN UNION
EUROPEAN REGIONAL DEVELOPMENT FUND


BALTIC INDUSTRIAL SYMBIOSIS
BIS PROJECT ACTIVITIES
• Screening of enterprises
• Matchmaking events
• Peer-to-peer exchanges
• Living Lab
• Executive Training Programs
• BSR Industrial Symbiosis Council
• Baltic Industrial Symbiosis Roadshow
Interreg
Baltic Sea Region
EUROPEAN UNION
EUROPEAN REGIONAL DEVELOPMENT FUND


BALTIC INDUSTRIAL SYMBIOSIS
SCREENING, MATCHMAKING AND LIVING LABS
- IDENTIFYING NEW BUSINESS OPPORTUNITIES
LIVING LAB
Interreg
Baltic Sea Region
EUROPEAN UNION
EUROPEAN REGIONAL DEVELOPMENT FUND


BALTIC INDUSTRIAL SYMBIOSIS
BUILDING CAPACITY TO WORK WITH INDUSTRIAL SYMBIOSIS DEVELOPMENTS
On-line training programmes
To build capacity among industrial symbiosis practitioners, managers and policy makers, the project will provide executive training programmes.
Material like slides and audio-visual content developed and used in training programmes will be made publicly available for use in future training programmes
Interreg
Baltic Sea Region
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EUROPEAN REGIONAL DEVELOPMENT FUND


BALTIC INDUSTRIAL SYMBIOSIS
WE SHARE OUR TOOLS, GUIDES, CASES... WITH YOU!
BIS
PlanMiljø
GUIDE:
HOW CAN MUNICIPALITIES SUPPORT THE DEVELOPMENT OF INDUSTRIAL SYMBIOSIS?
SYMBIOSES WITH ORGANIC RESIDUALS
SYMBIOSES WITH SECONDARY WATER
GUIDE FOR INDUSTRIAL SYMBIOSIS FACILITATORS
Interreg
Baltic Sea Region
EUROPEAN UNION
EUROPEAN REGIONAL DEVELOPMENT FUND


BALTIC INDUSTRIAL SYMBIOSIS
Interreg
Baltic Sea Region
EUROPEAN UNION
EUROPEAN REGIONAL DEVELOPMENT FUND
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Please visit the BIS Project website
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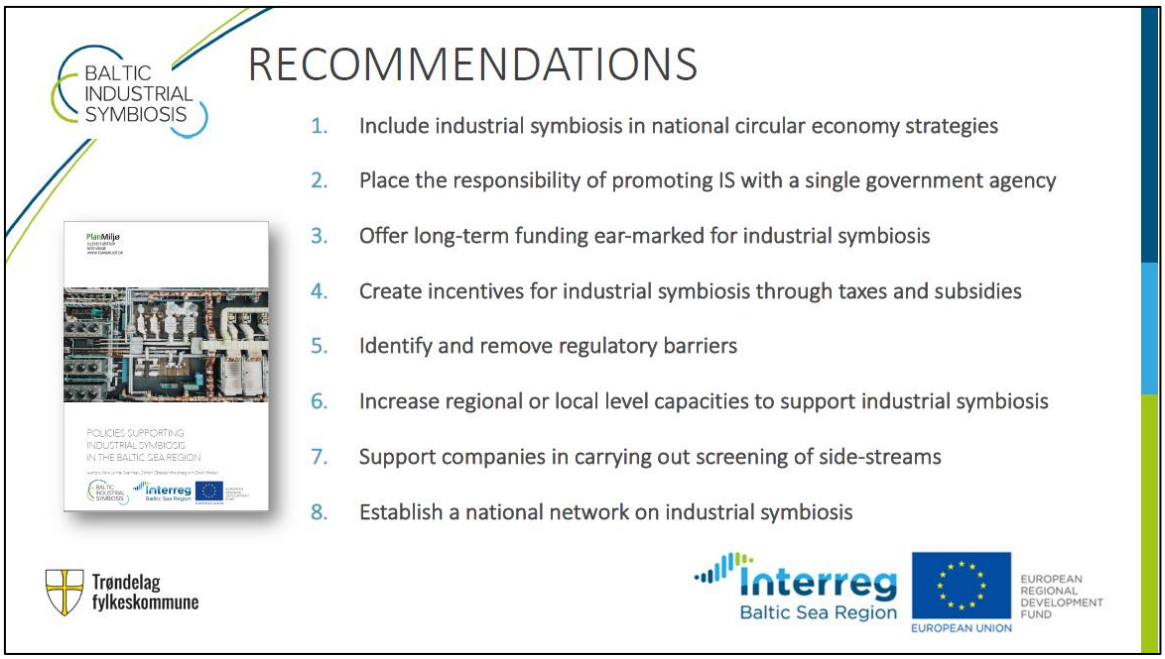
Project Manager
Susanne Boesen
Symbiosis Center Denmark
Kalundborg Municipality
www.symbiosecenter.dk/bis
WITH FINANCIAL SUPPORT OF THE RUSSIAN FEDERATION
SYMBIOSIS CENTER DENMARK
DANSK SYMBIOSECENTER

2) Tools for new actors in industrial symbiosis, Per Erik Sørås


BALTIC INDUSTRIAL SYMBIOSIS
POLICIES SUPPORTING INDUSTRIAL SYMBIOSIS IN THE BALTIC SEA REGION
Interreg Baltic Sea Region
EUROPEAN UNION
EUROPEAN REGIONAL DEVELOPMENT FUND
GOVERNMENTAL AUTHORITY
NATIONAL GOVERNMENT
REGIONAL GOVERNMENT
LOCAL GOVERNMENT
POLICY CONTEXT
STRATEGY
TARGETS
INDICATORS
SUPPORT & EFFECT INDUSTRIAL SYMBIOSIS
POLICY TOOLS
REGULATION
ECONOMIC INSTRUMENTS
RELATION BUILDING
CAPACITY BUILDING


BALTIC INDUSTRIAL SYMBIOSIS
RECOMMENDATIONS
1. Include industrial symbiosis in national circular economy strategies
2. Place the responsibility of promoting IS with a single government agency
3. Offer long-term funding ear-marked for industrial symbiosis
4. Create incentives for industrial symbiosis through taxes and subsidies
5. Identify and remove regulatory barriers
6. Increase regional or local level capacities to support industrial symbiosis
7. Support companies in carrying out screening of side-streams
8. Establish a national network on industrial symbiosis
POLICIES SUPPORTING INDUSTRIAL SYMBIOSIS IN THE BALTIC SEA REGION
Trøndelag fylkeskommune
Interreg Baltic Sea Region
EUROPEAN UNION
EUROPEAN REGIONAL DEVELOPMENT FUND

BALTIC INDUSTRIAL SYMBIOSIS

Interreg Baltic Sea Region

EUROPEAN UNION

EUROPEAN REGIONAL DEVELOPMENT FUND

BALTIC INDUSTRIAL SYMBIOSIS

RECOMMENDATIONS

- Collaboration
- Focus on resource efficiency
- Promote regional cooperation and support network activities
- Promote collaboration between actors located next to each other
- Support development projects and introduction of new products
- Develop digital skills and platforms

Trøndelag fylkeskommune

Interreg Baltic Sea Region

EUROPEAN UNION

EUROPEAN REGIONAL DEVELOPMENT FUND

BALTIC INDUSTRIAL SYMBIOSIS

RECOMMENDATIONS

- Business development
  - Mapping resources
  - Matchmaking
  - Testbeds
- Land Use Planning
  - Actively plan for industrial symbiosis
  - Provide relevant infrastructure
- Waste management
  - Ensure clean waste fractions
  - Facilitate dialogue across value chains
- Public procurement
  - Require reused and recycled materials
  - Designed for repair and maintenance

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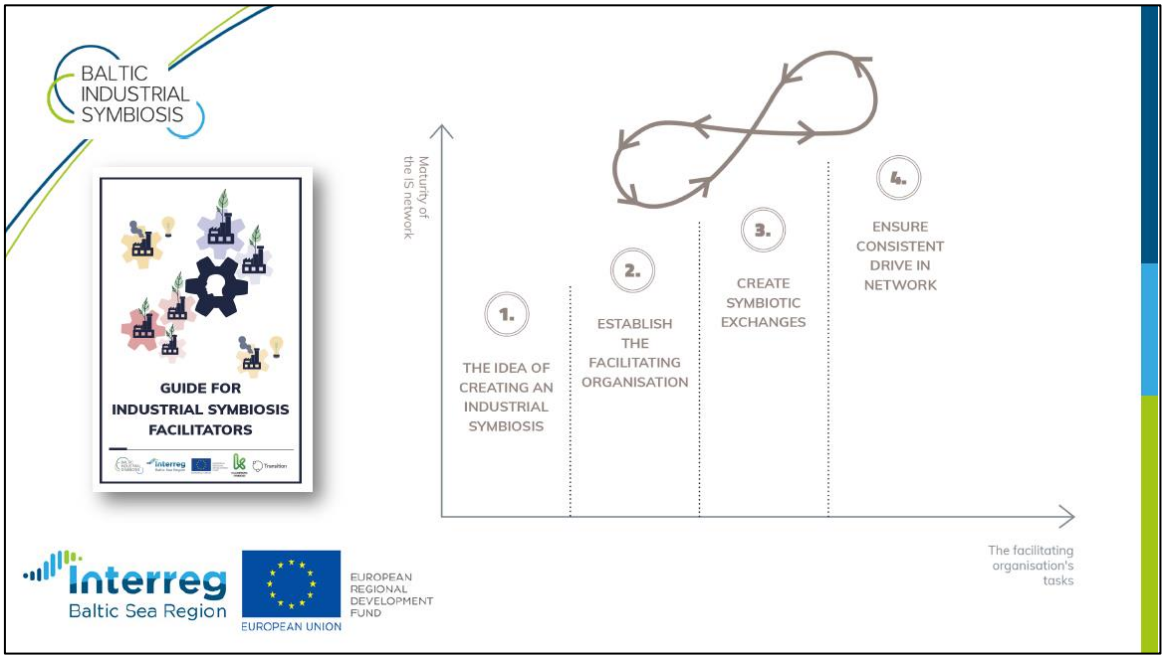
EUROPEAN REGIONAL DEVELOPMENT FUND


BALTIC INDUSTRIAL SYMBIOSIS
GUIDE FOR INDUSTRIAL SYMBIOSIS FACILITATORS
Maturity of the IS network
1.
THE IDEA OF CREATING AN INDUSTRIAL SYMBIOSIS
2.
ESTABLISH THE FACILITATING ORGANISATION
3.
CREATE SYMBIOTIC EXCHANGES
4.
ENSURE CONSISTENT DRIVE IN NETWORK
The facilitating organisation's tasks
Interreg
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BALTIC INDUSTRIAL SYMBIOSIS
END
persor@trondelagfylke.no
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Baltic Sea Region
EUROPEAN UNION
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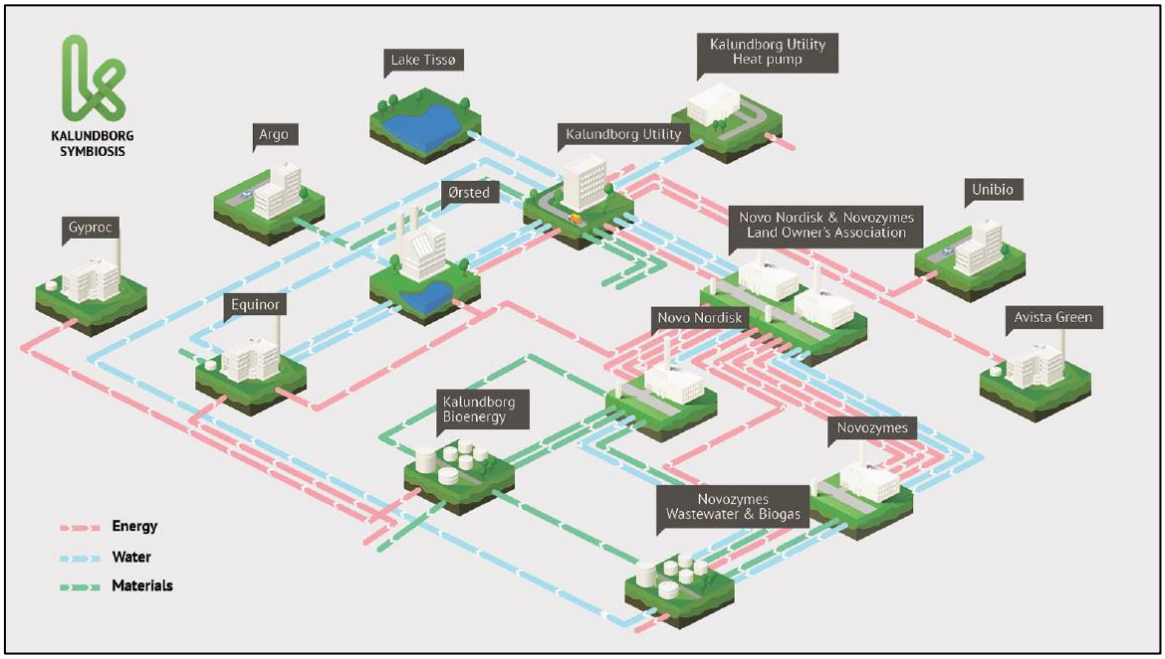
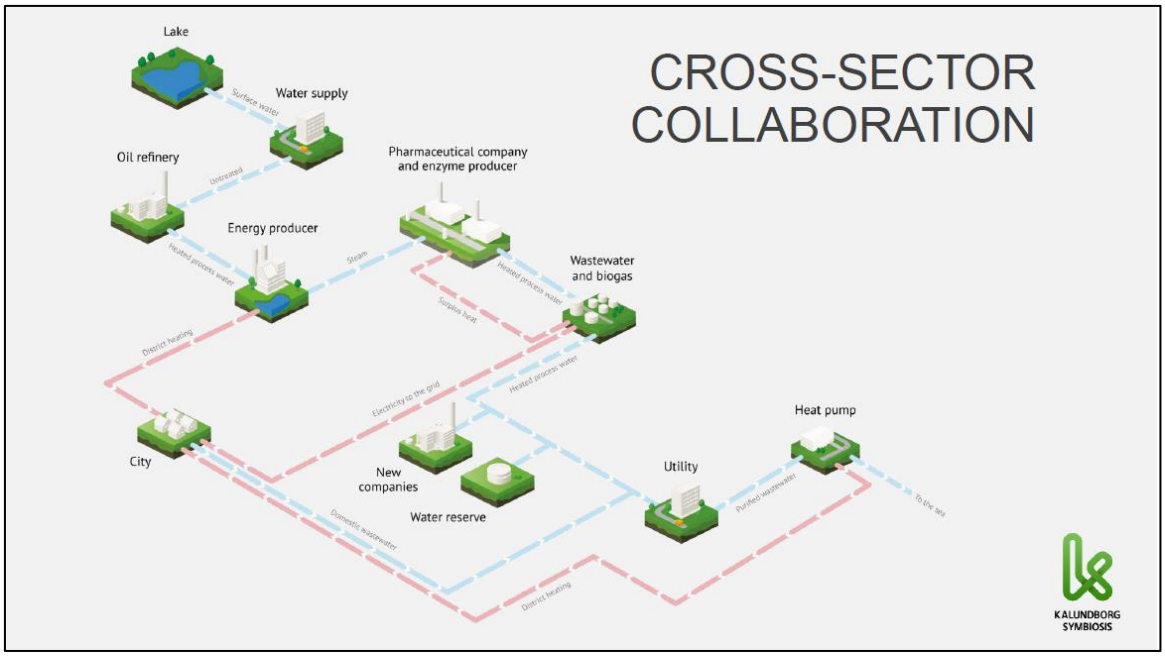
Trøndelag fylkeskommune

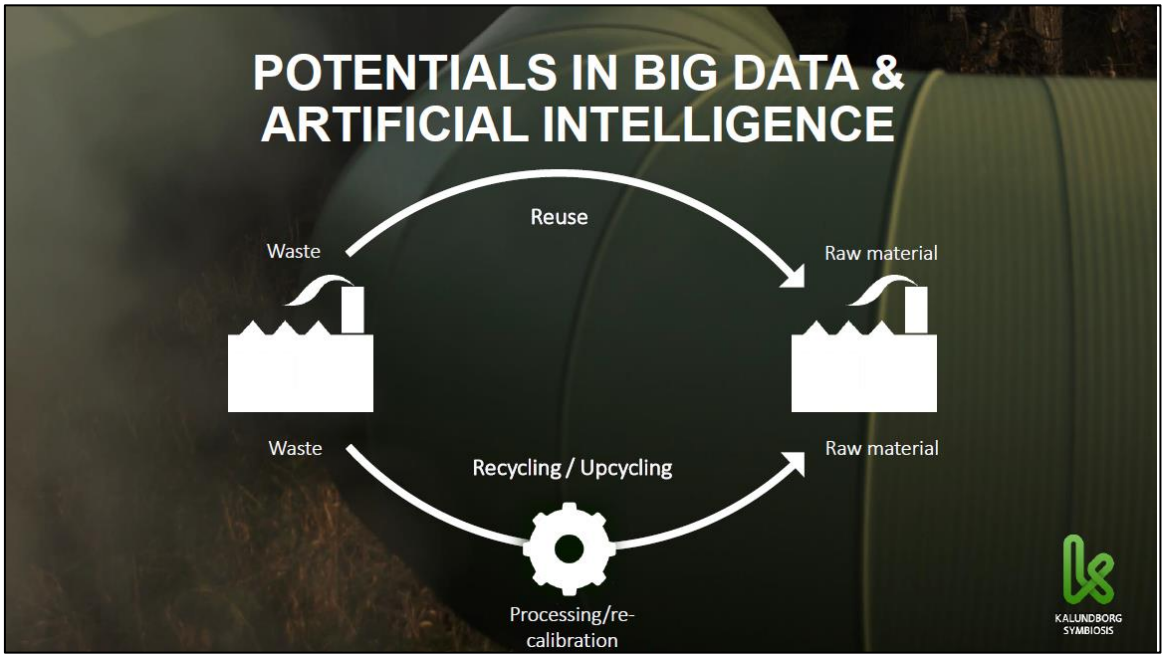
3) Kalundborg Symbiosis, Denmark, Lisbeth Randers

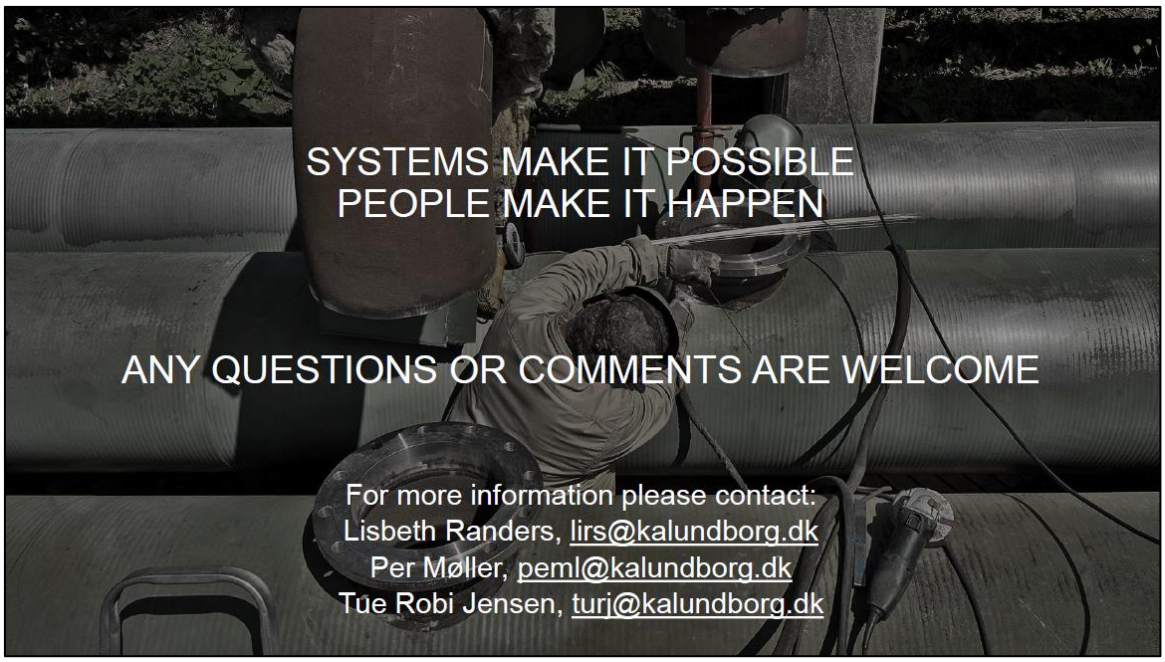

KALUNDBORG SYMBIOSIS
Lake Tissø
Kalundborg Utility Heat pump
Argo
Kalundborg Utility
Ørsted
Unibio
Gyproc
Novo Nordisk & Novozymes Land Owner's Association
Equinor
Novo Nordisk
Avista Green
Kalundborg Bioenergy
Novozymes
Novozymes Wastewater & Biogas
Energy
Water
Materials


CROSS-SECTOR COLLABORATION
Lake
Water supply
Surface water
Oil refinery
Untreated
Pharmaceutical company and enzyme producer
Energy producer
Heated process water
Steam
Wastewater and biogas
Surplus heat
District heating
Heated process water
Electricity to the grid
Heat pump
City
New companies
Utility
Purified wastewater
To the sea
Water reserve
Domestic wastewater
District heating
KALUNDBORG SYMBIOSIS


EXAMPLES OF LOCAL GROWTH
Over 2,3 billion USD invested by Novo Nordisk since the year 2000.
The investment has created 2.300 new jobs
Expanding the harbor in 2019 by 330.000 m2
KALUNDBORG SYMBIOSIS


HELIX LAB


POTENTIALS IN BIG DATA &
ARTIFICIAL INTELLIGENCE
Reuse
Waste
Raw material
Waste
Recycling / Upcycling
Raw material
Processing/re-
calibration
KALUNDBORG
SYMBIOSIS


SYSTEMS MAKE IT POSSIBLE
PEOPLE MAKE IT HAPPEN
ANY QUESTIONS OR COMMENTS ARE WELCOME
For more information please contact:
Lisbeth Randers, lirs@kalundborg.dk
Per Møller, peml@kalundborg.dk
Tue Robi Jensen, turj@kalundborg.dk

4) Paper Province, Sweden, Magnus Persson


Sweden
Norway
Finland
Bergen
Oslo
Stockholm
Tampere
Turku
Helsinki
Tallinn
Estonia
Latvia
Riga
Lithuania
Klaipeda
Kaunas
Vilnius
Gothenburg
Copenhagen
Denmark
United Kingdom
North Sea
Baltic Sea
PAPER PROVINCE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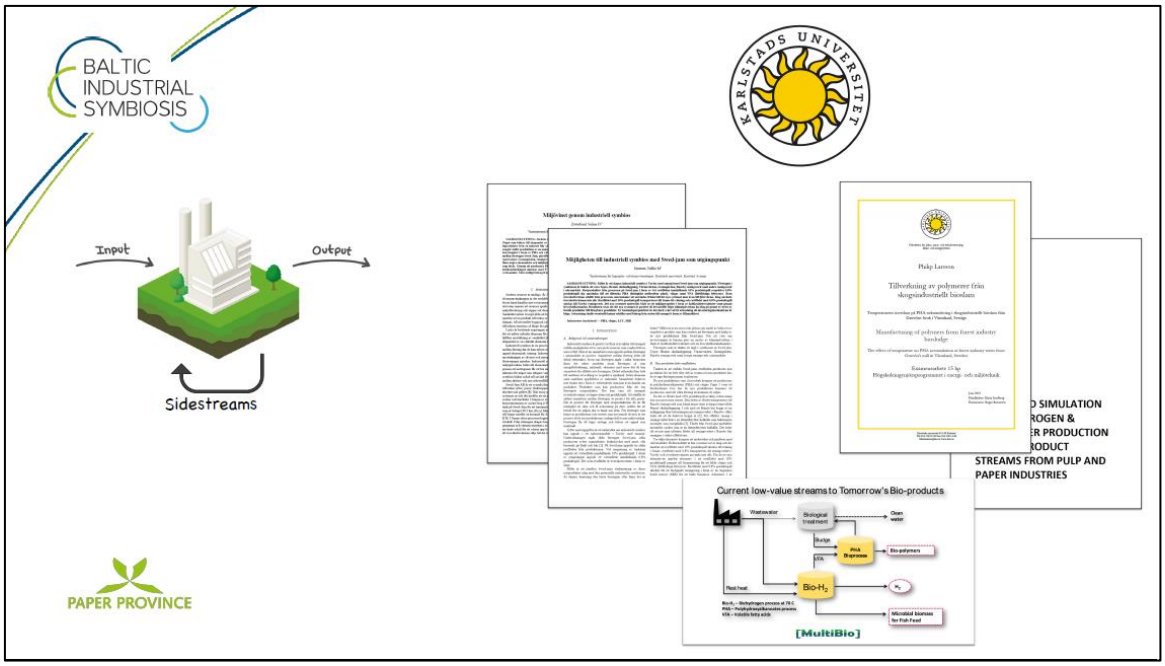
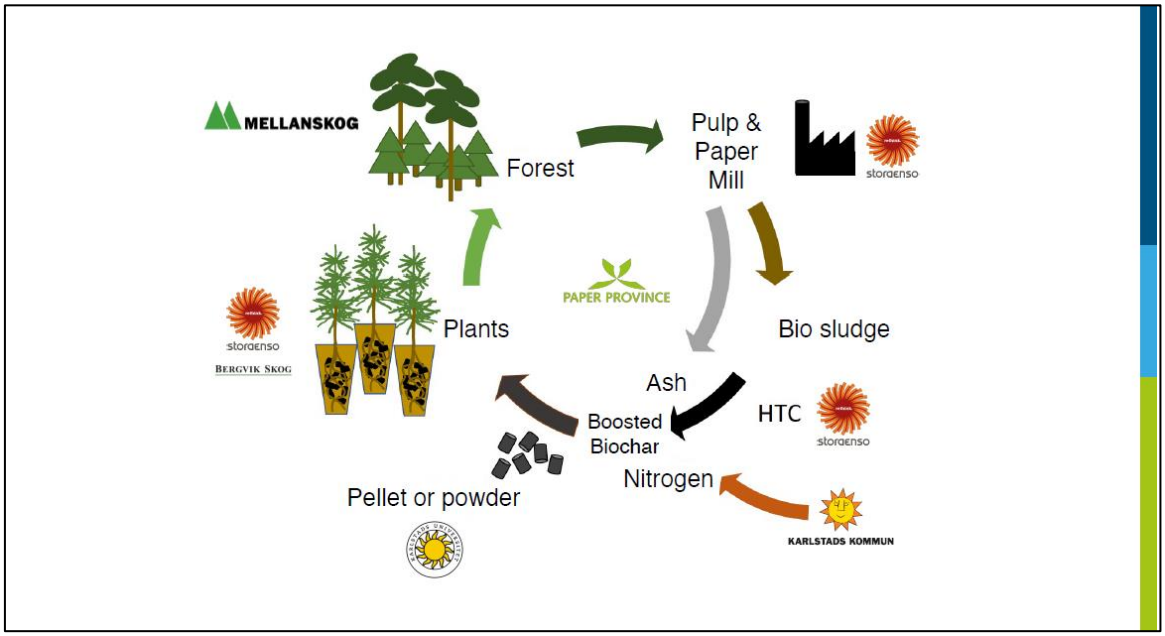
SOMAS
AFRY
storaenso
Valmet
TRITON
COWI
NORDICPAPER
PAPER PROVINCE
SVEASKOG
SWECO
ENERGI
ANDRITZ
BILLERUDKORSNÄS
BTG


A LEADING
FOREST
BIOECONOMY
HUB
BIOECONOMY STARTS
WITH A SEED


BALTIC
INDUSTRIAL
SYMBIOSIS
KARLSTADS UNIVERSITET
Input
Output
Sidestreams
Current low-value streams to Tomorrow's Bio-products
[MultiBio]
PAPER PROVINCE



IDEA AND PURPOSE

Living lab

Living lab is a co-creative activity performed in this project to demonstrate and test the resource stream with the material and stakeholders engaged in real life context*. By following the resource stream together, working co-creatively and hands on, we are more likely to understand different perspectives, find a common view and *identify possible gaps, opportunities and challenges to learn from.*

** All activites were redesigned to fit a digital format.*

usify.

BALTIC INDUSTRIAL SYMBIOSIS

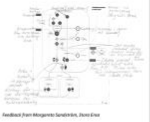
PREPARATION

METHOD FOR DATA COLLECTION

Interviews

With trigger material

Usify conducted video call interviews with the key stakeholders, using a first draft of the material journey as a trigger for discussion. To compensate for not being able to conduct observations at each locations the interviewees were asked to show and demonstrate some of the materials and key activities with photos.

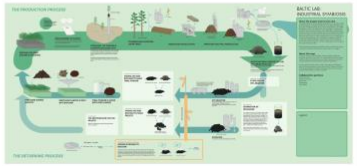


METHOD FOR SYNTHESIZING

Visual mapping

Purpose

As a part of the prepatory work for the living lab activities the insights from the interviews were visualized and mapped as a visual story. This helped create an overview of the resource stream and could work as a trigger material for further discussion.



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BALTIC INDUSTRIAL SYMBIOSIS

EXECUTION

LIVING LAB ACTIVITY

Day 1 – Insight

Introduction

We described the agenda, purpose and goals for the day.

Defined everyone's roles to set the stage for the day.

Follow the flow

Each participant got to present and familiarize themselves with each step of the resource stream through a pre-recorded video and verbal presentation.

Everyone had the opportunity to ask follow up questions and discuss any surprizing details or the process as a whole.

Go over visualization

A presentation was held to offer insight into the visualization of the material journey. Here the participants were urged to write down any questions for the second day of acitivites.

Technical support

Participants got a technical run through of the digital whiteboard tool Miro as the second day was focused on co-creative work.

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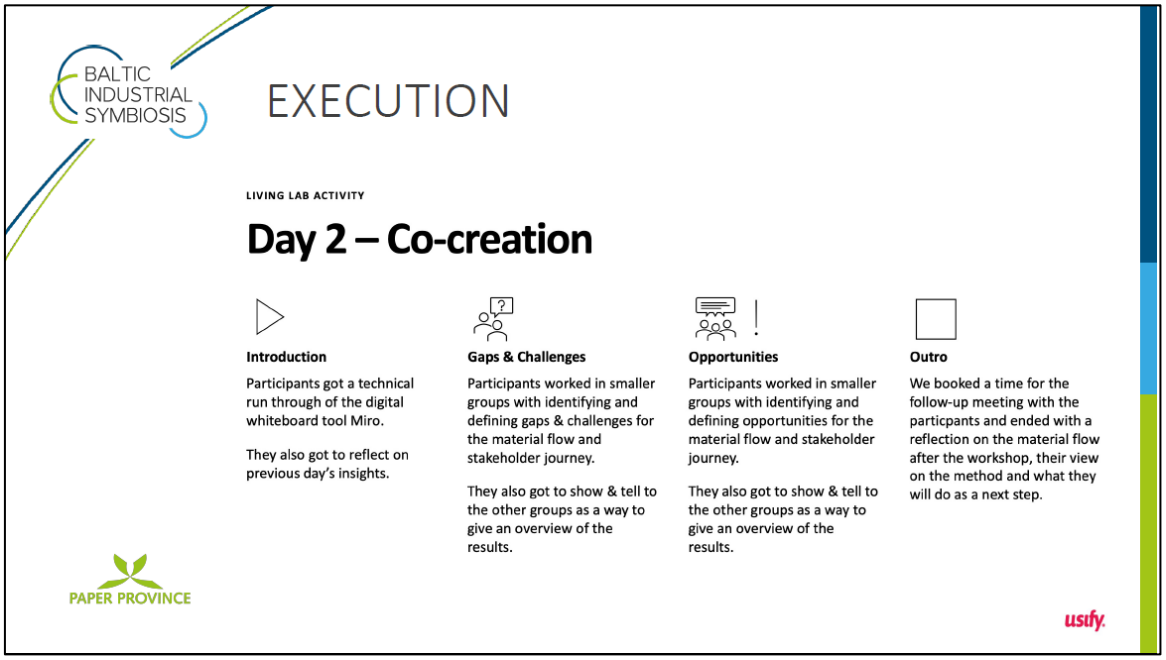
BALTIC INDUSTRIAL SYMBIOSIS
EXECUTION
LIVING LAB ACTIVITY
Day 2 – Co-creation
Introduction
Participants got a technical run through of the digital whiteboard tool Miro.
They also got to reflect on previous day's insights.
Gaps & Challenges
Participants worked in smaller groups with identifying and defining gaps & challenges for the material flow and stakeholder journey.
They also got to show & tell to the other groups as a way to give an overview of the results.
Opportunities
Participants worked in smaller groups with identifying and defining opportunities for the material flow and stakeholder journey.
They also got to show & tell to the other groups as a way to give an overview of the results.
Outro
We booked a time for the follow-up meeting with the particpants and ended with a reflection on the material flow after the workshop, their view on the method and what they will do as a next step.
PAPER PROVINCE
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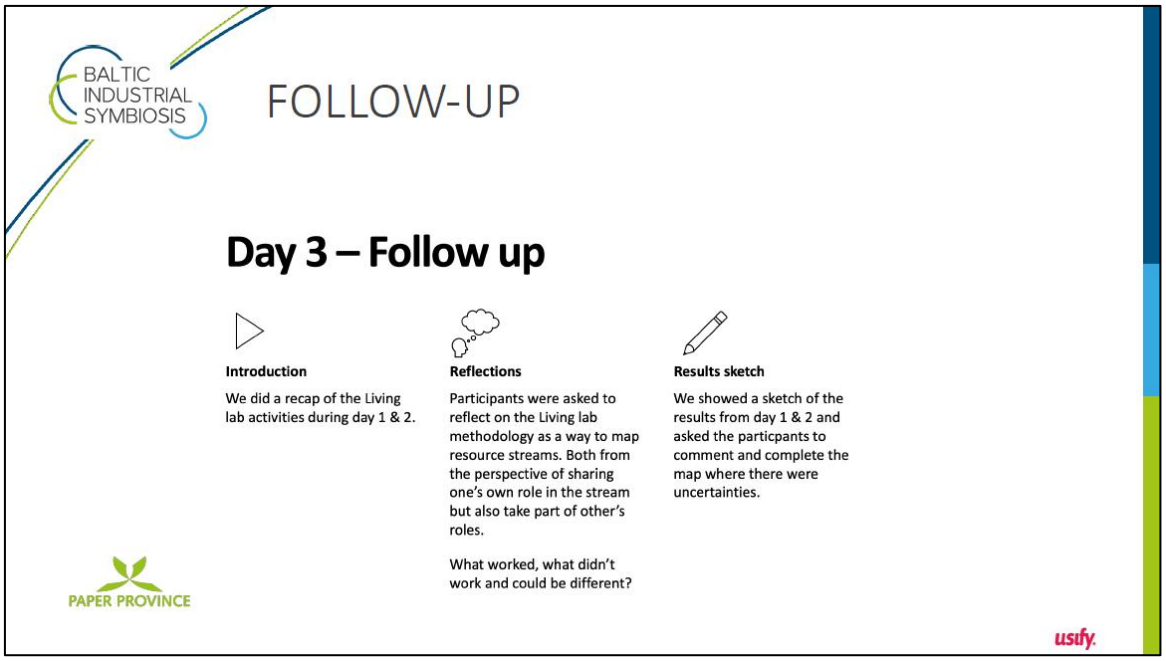
BALTIC INDUSTRIAL SYMBIOSIS
FOLLOW-UP
Day 3 – Follow up
Introduction
We did a recap of the Living lab activities during day 1 & 2.
Reflections
Participants were asked to reflect on the Living lab methodology as a way to map resource streams. Both from the perspective of sharing one's own role in the stream but also take part of other's roles.
What worked, what didn't work and could be different?
Results sketch
We showed a sketch of the results from day 1 & 2 and asked the particpants to comment and complete the map where there were uncertainties.
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usify.

5) Gdańsk Tech case on biodegradable plastics, Poland, Beata Szatkowska

Norway grants

The National Centre for Research and Development

GDAŃSK UNIVERSITY OF TECHNOLOGY

Zakład Utylizacyjny

aquateam COWI

Discovering good practice examples of industrial symbiosis and bio-based business model

DIGEST-PLAST Project

Methane fermentation of biomass containing biodegradable polymeric material

Bio-plastics - Industrial symbiosis or new environmental threat?

Beata Szatkowska, PhD

Renata Tomczak-Wandzel, PhD

26.05.2021

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Aquateam COWI AS

- Independent consultancy and R&D
- 34 years experience
- Expert link in technology transfer
- Operational experience worldwide
- Recognized by authorities
- Multidisciplinary expertise
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Areas of Expertise:

- Municipal wastewater
- Organic waste
- Industrial wastewater
- Municipal drinking water
- Algae and biofuels
- Process microbiology
- Contaminated soils
- Ecotoxicological studies
- Environmental risk assessment & monitoring
- Chemical use in process
- Oil & gas (PW, SW)

Aquateam COWI is a specialized R&D group operating in the water&sewage sector and waste management. The company has the status of a *research institute* and focuses on applied science. It carries out its own research projects and large-scale cooperation with other research institutions and universities.

General information

PARTNERS:
Gdańsk University of Technology, Faculty of Chemistry
Municipal Waste Utilization Plant in Gdańsk
Aquateam COWI AS – Norwegian partner

DURATION: 1.10.2020 – 31.10.2023

BUDGET: 1 324 780.34 EUR

KEYWORDS: natural resources, biodegradable plastics, anaerobic digestion, biogas, biomass

https://chem.migracja.pg.edu.pl/digest-plast

The subject of the project is methane fermentation of the organic fraction of waste from selective collection and the organic fraction separated from mixed **municipal waste**. Additionally, the project focuses on **biodegradable polymers**. Commonly introduced biodegradable polymers will undoubtedly have an increasing impact on the properties of the feed directed to bioreactors, and thus on the **efficiency of biogas** production, **digestate quality** and its susceptibility to composting, especially in terms of the presence of so-called **microplastics**, which are now very popular substitute for conventional polymers. DIGEST-PLAST project investigates possibilities of the organic fraction of municipal and industrial waste utilization for **renewable energy** (biogas) production. The project's concept expands problems presented in the implemented POM-BIOGAS project. Also it draws attention to the growing problem with the appearance of a biodegradable polymers in the surrounding environment, which fate during such processes like methane fermentation has not been thoroughly studied yet. The studies planed in the project will include the assessment of the tendency of conversion of biodegradable polymers to microplastics. Finally, the scope of the project will verify, how the presence of biodegradable polymers influences the course of methane fermentation. Since, biodegradable polymers are not collected separately from the waste stream and hence are not subjected to appropriate treatment to reveal their biodegradable nature, they may be considered harmful, similarly to microplastics. The aim of the project will focus on an enhancement of **biodegradable plastic decomposition during methane fermentation process**. Different **pre-treatment methods** will be suggested to optimise process flow. Additionally, the process scale-up will be demonstrated and the simplified method for estimation of fertilising properties will be developed.

Project WPs

WP 1 MARKET OF BIODEGRADABLE PLASTICS

- Task 1.1 Legal aspects of handling and disposal of biodegradable plastics in European Union, Poland and Norway
- Task 1.2 Mapping and assessment of biodegradable plastics in Pomerania Region

WP 2 FEED PREPARATION

- Task 2.1 Pretreatment methods of biodegradable plastics prior anaerobic digestion
- Task 2.2 Preparation and characterization of model feed with varying amount of biodegradable plastics
- Task 2.3 Establishment of design factors for the anaerobic digestion process when biodegradable polymeric materials are present in the biomass

WP 3 BIOGAS YIELD

- Task 3.1 Biogas potential of anaerobic digestion with biodegradable plastics - AMPTS test
- Task 3.2 Evaluation of biodegradable plastics fate during anaerobic digestion
- Task 3.3 Quality assessment of obtained biogas and its application potential

WP 4 PROCESS SCALE UP, PILOT INVESTIGATION

- Task 4.1 Process scale up – large laboratory + pilot investigation
- Task 4.2 Odor emission control in the fermentation process, reliable evaluation and minimization
- Task 4.3 Impact of basic process parameters on conversion of biodegradable plastics to microplastics

WP 5 DIGESTATE PROPERTIES AND USAGE

- Task 5.1 Digestate quality properties and microplastics presence evaluation - development of simplified method
- Task 5.2 Composting and characterization of digestate containing biodegradable plastics, within the Utilization Plant composting facility
- Task 5.3 Socioeconomic analysis of the digestate use from origin of feed with biodegradable plastics

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Bio-PLASTIC

Types of polymers in terms of biodegradation and the sources of their origin

Biodegradable polymers made of renewable resources (so-called "double green"): PLA, PHA, TPS, starch blends	Non-biodegradable polymers produced from renewable resources: Bio-PE, Bio-PP, Bio-PET
Biodegradable and petrochemical polymers: PBAT, PCL, PBS	Non-biodegradable and petrochemical polymers: (PE, PP, PET, PS, PVC)

bioplastics - either bio-based or biodegradable or both

bio-based - is (at least partly) derived from biomass (e.g. from corn, sugarcane, trees, algae etc.)
biodegradable - implies that microorganisms that are present in the environment can convert the material into natural substances (i.e. water, carbon dioxide or compost) without polluting the environment

5

European Bioplastics Association

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Bio-PLASTIC

- 335 million tonnes of plastic produced annually, in Poland alone it is 650 thousand tones
- nearly 1% - bioplastics
  - ✓global production capacity will increase from around 2.11 million tonnes in 2018 to around 2.62 million tonnes in 2023
  - ✓biopolymers such as PLA (polylactic acid) and PHA (polyhydroxyalkanoates) are the main drivers of this growth in the field of biodegradable plastics

6

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Bio-PLASTIC Industrial symbiosis or new environmental threat?

- It is expected that bio-plastics will be a part of organic fraction of municipal waste
- How will it affect the digestion/composting process?

high biogas production → desired in fermentation
good biodegradability → desired in composting plants

→ recommendations for proper segregation and legislation – eg. PLA going to organic fraction

interference of digestion microplastics generation

→ verification of the role of bioplastic and avoidance of next environmental threat – contribution to microplastics generation

Stakeholders: Utilisation Plant (biogas plant & composting facilities), Bio-plastic producers, Environmental policy makers

7

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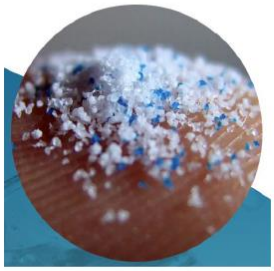
Thank you for your attention



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GDAŃSK UNIVERSITY OF TECHNOLOGY
Zakład Utylizacyjny
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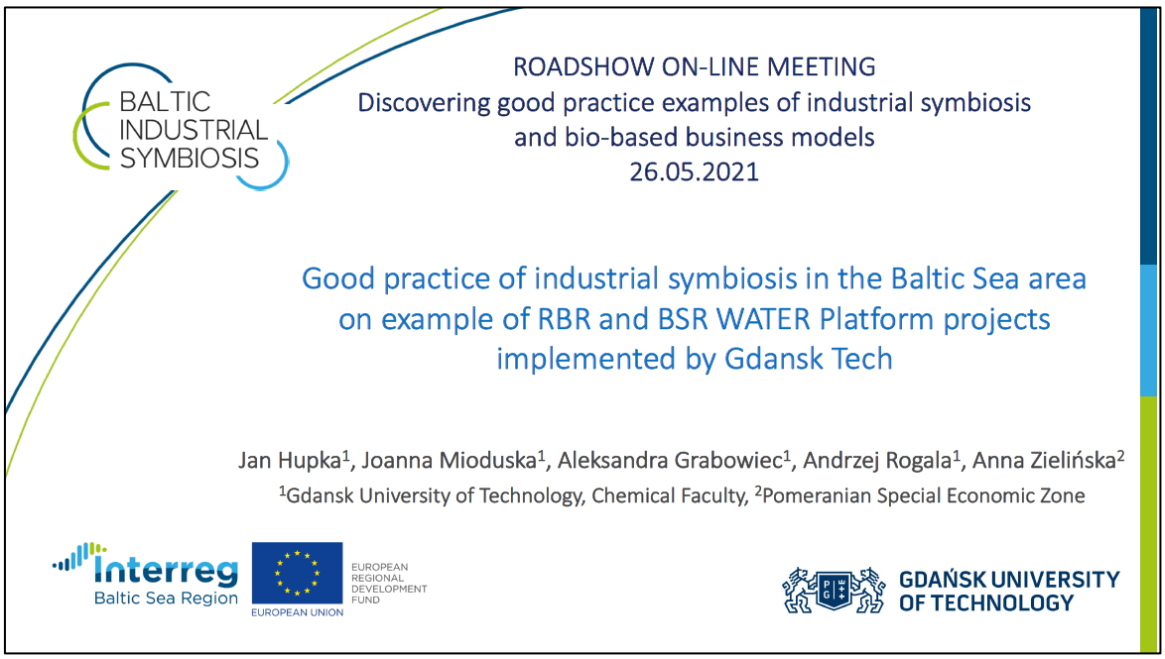
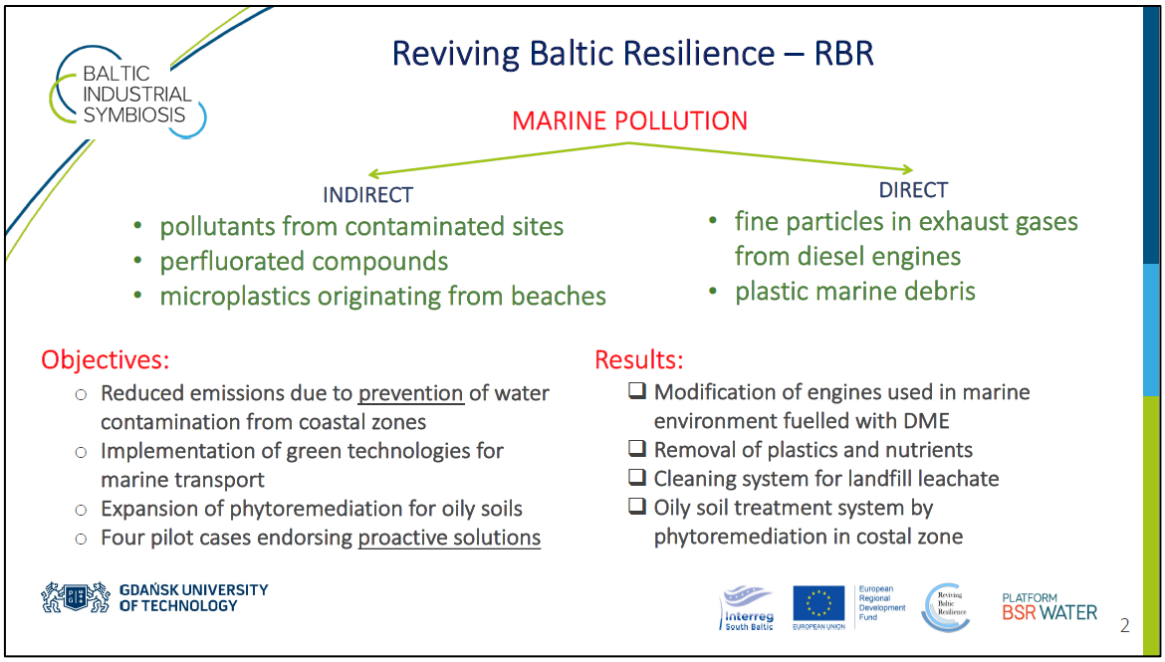
6) Gdańsk Tech case on marine pollution, Poland, Jan Hupka





Reviving Baltic Resilience – RBR

- Partners from 3 countries working on evaluation of solutions to diminish flux of pollutants from reaching the Baltic Sea
- Development and popularization of proactive technological solutions

Pilot Case 1.
Dual fuel system

Pilot Case 4.
Leachate treatment

COMMON GOAL THROUGH INDUSTRIAL SYMBIOSIS TO REVIVE BALTIC SEA

Pilot Case 2.
Microplastics

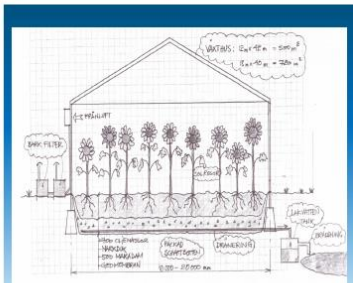
Pilot Case 3.
Phytoremediation

3

Modified diesel engine powered by dimethyl ether installed on Photon floating laboratory

Treatment of leachate from landfills using carbon filters

Limiting pollution, especially of plastics, including microplastics on beaches, and thus reducing their emission to the Baltic Sea

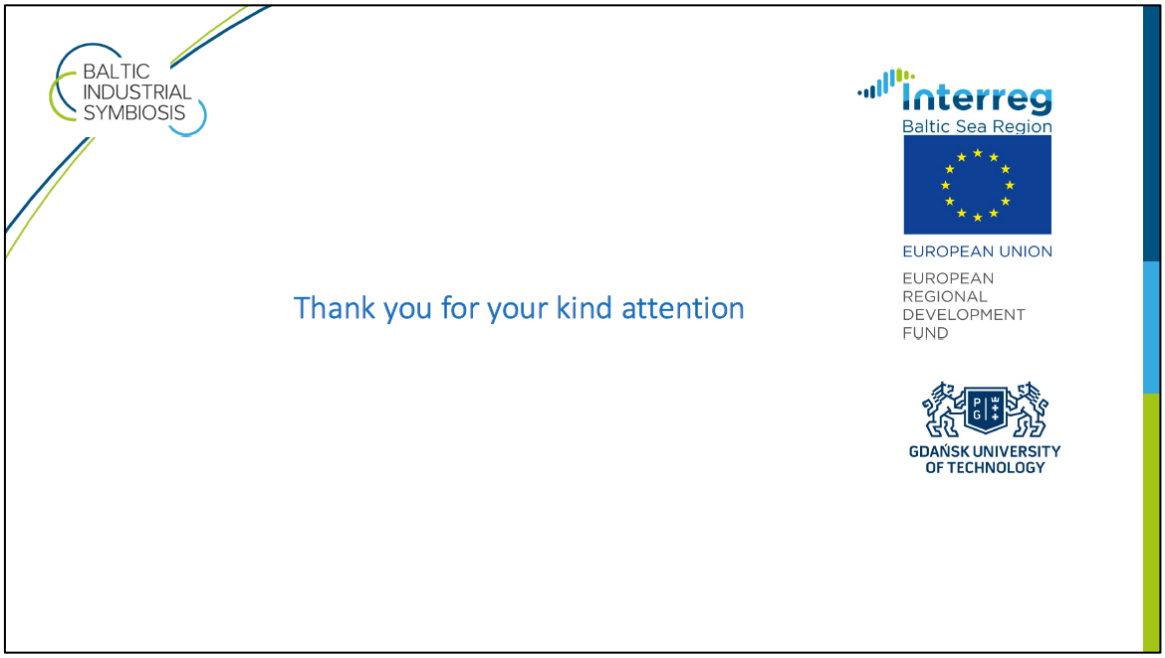


Phytoremediation of oily soils

4


Bringing together knowledge and innovation potential on a transnational basis
BSR WATER
Platform on Integrated Water Cooperation
Aim:
• enhancement of cross-sectoral cooperation in the water management field
• transnational experience exchange
• sharing of good practices and solutions
• developing comprehensive overview of the current and future policy contexts
PLATFORM BSR WATER
5


RBR contribution to BSR WATER Platform:
• Development of technologies enabling prevention of hazardous and unwanted particles (including micro-plastics) from reaching the Baltic Sea.
• Pilot investments demonstrating successful proactive methods and technologies - 4 different pilot cases.
• Cooperation of municipalities and academia.
• Promotion of industrial symbiosis through Cross-boarder Green Technology Cluster, administered by Pomeranian Special Economic Zone in Poland.
GDAŃSK UNIVERSITY OF TECHNOLOGY
6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SYMBIOSIS
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Interreg
Baltic Sea Region
EUROPEAN UNION
EUROPEAN
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FUND
GDAŃSK UNIVERSITY
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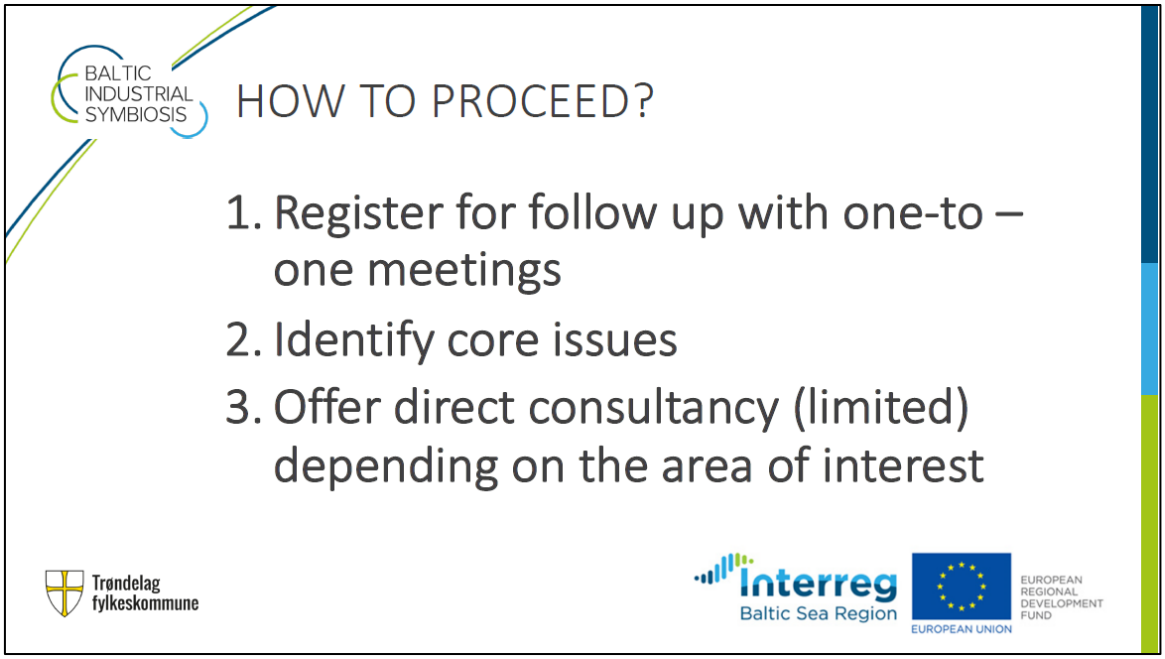
7) The BIS project assistance for Baltic actors, Per Erik Sørås

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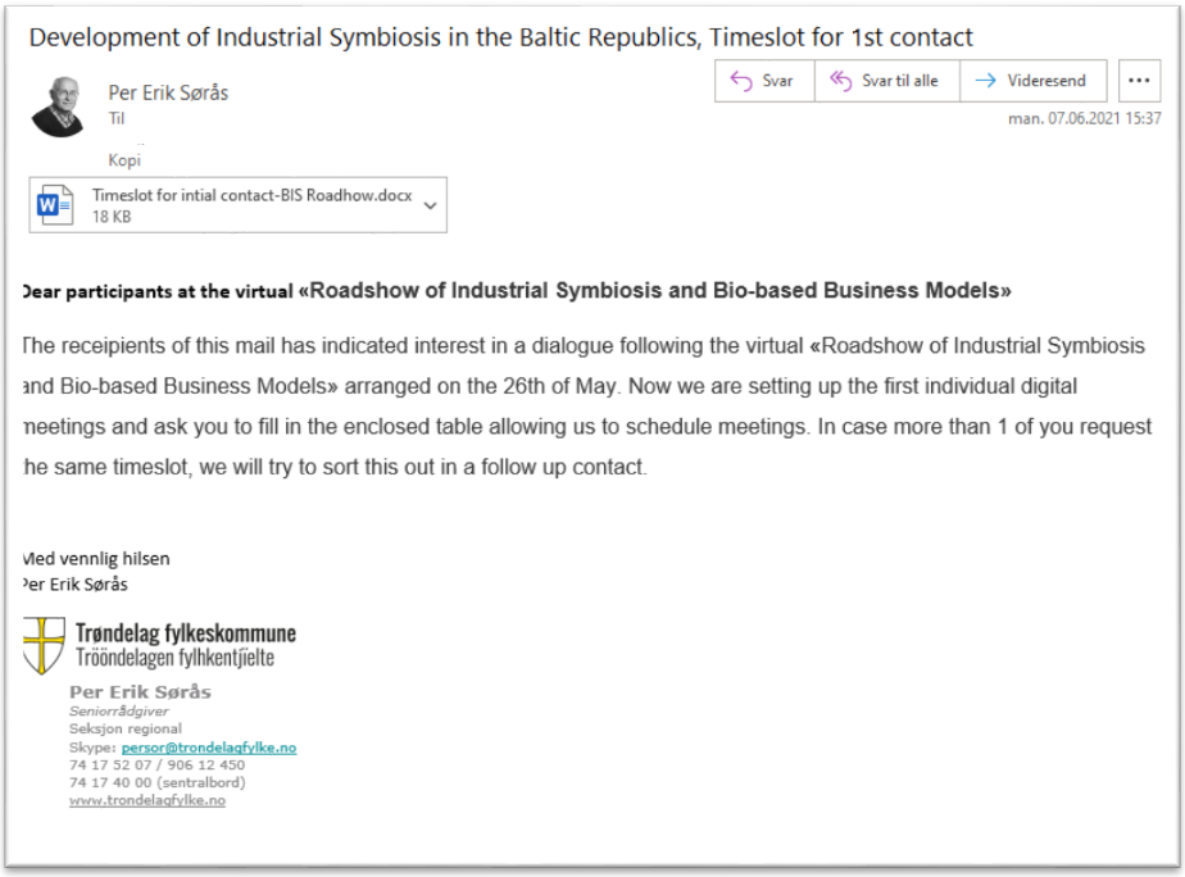
Annex E Institutions expressing interest in one to one dialogue

Country	*Organization*	*Sector*	*Activities*
Lithuania	Kaunas Technological University	Research and academic sector	Partly bio-based manufacturing (textile and leather products, chemicals, furniture); Waste management; Knowledge and technology transfer and / or consultancy services
	Mazeikiai District Municipality	Public sector	Local public authority, provision of public services / Waste management; municipality is responsible to organize the infrastructure for sustainable waste management
	Elektrenai municipality administration	Public sector	Architecture and landscaping, Culture Social support, Sports, Health, Education, Agriculture and land reclamation, Working together with families and interinstitutional cooperation, Crime prevention, Noise management
	Klaipeda Science and Technology Park	Public sector	Knowledge and technology transfer and / or consultancy services
	Forestry, veterinary science	Public sector	Biomass production (agriculture, fishing, forestry)
	Ministry of Agriculture of the Republic of Lithuania	Public sector	Biomass production (agriculture, fishing, forestry); Fully bio-based manufacturing (food products and beverages, wood and paper products); Bioenergy production (heat, electricity, transport fuels)
	MITA (Agency for Science, Innovation and Technology)	Public sector	Knowledge and technology transfer and / or consultancy services
	Lithuanian Agricultural Advisory Service	Public sector	Biomass production (agriculture, fishing, forestry)
	Cinskiu farm	Business sector	Biomass production (agriculture, fishing, forestry)
	Ferox Baltic (Consultancy company)	Business sector	Consultancy services
Latvia	CSRLatvia	Non-governmental organisations	Knowledge and technology transfer and / or consultancy services

	University of Latvia	Research and academic sector	Sustainability and environmental research with a focus on bio-waste
	CLEANTECH LATVIA	Non-governmental organisations	Waste management; Supply of specialised equipment and / or materials; Knowledge and technology transfer and / or consultancy services
	R Grupa / Vitu	Business sector	Biomass production (agriculture, fishing, forestry)
Estonia	Ministry of the Environment of Estonia	Public sector	Biomass production (agriculture, fishing, forestry); Waste management; Knowledge and technology transfer and / or consultancy services
	Cleantech ForEst	Non-governmental organisations	Knowledge and technology transfer and / or consultancy services
	Enterprise Estonia	Public sector	Knowledge and technology transfer and / or consultancy services

Invitation for one-to-one meetings



Development of Industrial Symbiosis in the Baltic Republics, Timeslot for 1st contact

Per Erik Sørås
Til

Kopi

Svar | Svar til alle | Videresend | ...

man. 07.06.2021 15:37

Timeslot for intial contact-BIS Roadhow.docx
18 KB

Dear participants at the virtual «Roadshow of Industrial Symbiosis and Bio-based Business Models»

The receipients of this mail has indicated interest in a dialogue following the virtual «Roadshow of Industrial Symbiosis and Bio-based Business Models» arranged on the 26th of May. Now we are setting up the first individual digital meetings and ask you to fill in the enclosed table allowing us to schedule meetings. In case more than 1 of you request the same timeslot, we will try to sort this out in a follow up contact.

Med vennlig hilsen
Per Erik Sørås

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