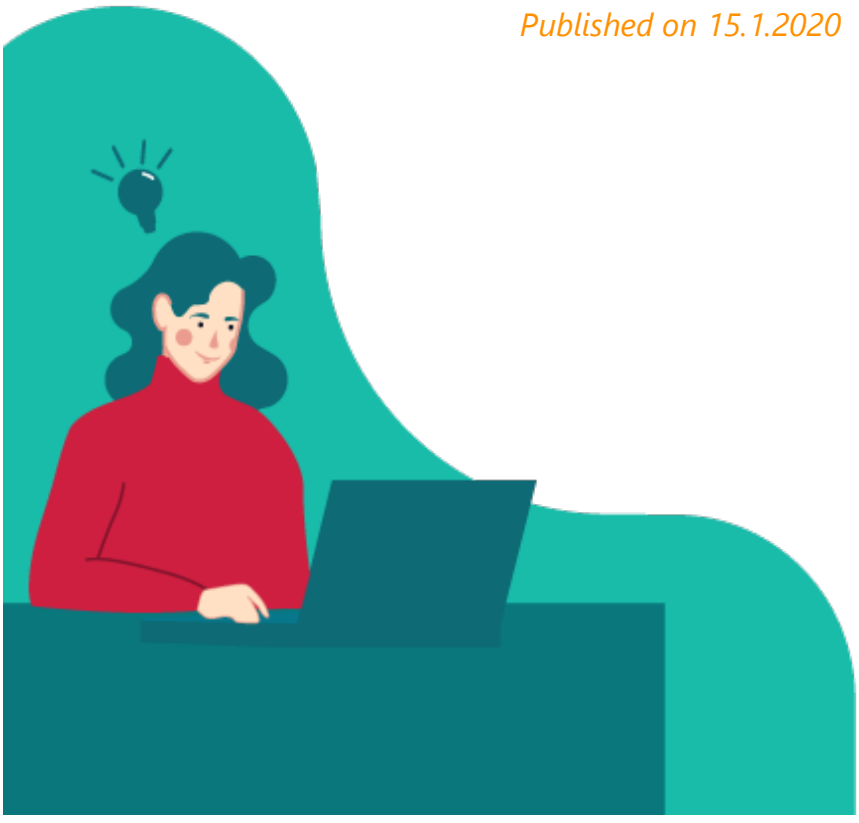
BIOBORD
PLATFORM

BIOBORD OPERATING MODEL

Guidelines for Biobord Network and Platform 2.0

Published on 15.1.2020



EU STRATEGY FOR THE BALTIC SEA REGION
FLAGSHIP

Interreg
Baltic Sea Region

EUROPEAN UNION
EUROPEAN REGIONAL DEVELOPMENT FUND

BIOBORD
PLATFORM

Table of Contents

1. Introduction 3
2. Biobord Network 4
   2.1 Mission: Biobord – Connecting Bioeconomy Developers 4
   2.2 Partner Regions 5
      2.2.1 Bioeconomy Campus in the Region of Central Finland 6
      2.2.2. INN Centre of Bioeconomy, Inland Region, Norway 8
      2.2.3 Bioeconomy Knowledge and Development Center, Świętokrzyskie region, Poland 10
      2.2.4 Latvian food and bioeconomy cluster in Vidzeme Region, Latvia 12
   2.3 Network Analysis 15
   2.4 Biobord Network Model 19
      2.4.1 Strategic Guidance and Steering 19
      2.4.2 Biobord Network Action Plan 19
      2.4.3 Operational Management 19
   2.4.4 Biobord Staff 20
3. Biobord Platform 21
   3.1 Concept of Innovation Hub 21
      3.1.1 Triple Helix in Biobord 22
      3.1.2 Quadruple Helix in Biobord 22
      3.1.3 Quintuple Helix in Biobord 22
   3.2 Platform Elements 23
      3.2.1 Keycloak User Account Management System 24
      3.2.2 Wagtail Content Management System 24
      3.2.3 Landing Page 24
      3.2.4 Forum 25
      3.2.5 Document Management System 27
      3.2.6 Helpdesk Ticketing System 28
   3.3 Overview of the Biobord Service Paths 29

3.3.1 User Profiles 29
3.3.2 Project Lifecycle Services 32
3.3.3 Network Building 32
3.3.4 Capacity Building 33
3.3.5 Matchmaking 33
3.3.6 Connection to Innovation Support 35
3.4 Organization of Data Protection 37
3.4.1 Data Flow at Biobord Platform 37
3.4.2 Data Protection Organization 38
3.4.3 Designation and Duties of the Data Protection Officer 39
3.4.4 Role of RDI2CluB Project Steering Committee 40
3.4.5 Annual Work Plan 41
3.4.6 Adjustment needs 42
4. Reference List 43
5. Terminology and Abbreviations 44
6. Connected Policies, Guides & Manuals 45
6.1 Biobord Platform Management Documents 45
Management document 1: Terms of Service 45
Management document 2: Privacy Policy 45
Management document 3: Data Balance Sheet 45
Management document 4: Quality Assessment Checklist for Service Cards 45
6.2 Guides for Members and Users of Biobord Platform 45
Guide 1: Innovation Hub Design Guide for New Members 45
Guide 2: Service Path Guide for Biobord Members 45
Guide 3: Communication Guide for Biobord Members 45
Guide 4: Platform Guide for Registered Users 45
6.3 Manuals on Biobord Platform Features 45
Biobord Manual 1: Keycloak User Account Management System 45
Biobord Manual 2: Wagtail Content Management System 45
Biobord Manual 3: Forum 45
Biobord Manual 4: Document Management System 45

1. Introduction

Biobord is an open virtual innovation hub for bioeconomy developers. The hub offers a platform and space for a community of individuals to pursuit innovative activity and entrepreneurship in bioeconomy. Biobord is developed in a partnership of four regions across Baltic Sea, Central Finland, Inland (Norway), Świętokrzyskie Voivodeship (Poland) and Vidzeme (Latvia). The development and piloting are supported by the Interreg BSR project 'Rural RDI Milieus in transition towards smart bioeconomy clusters and innovation ecosystems' (RDI2CluB) co-financed from the European Regional Development Fund.

To start with, this document provides an overview of the network connected by the Biobord platform. The Biobord network forms an international bioeconomy innovation ecosystem that can support the developers in commercialization of new bioeconomy products or services as well as improving the competitiveness, viability and sustainability of bioeconomy business. We strive to boost sustainable and profitable bioeconomy business with introduction of value-added products and services, application of new technologies as well as development of co-operation models, value chains and circular management of material and energy flows.

The Biobord Operating Model also gives an overview of the functionalities and service paths of the digital hub – the Biobord Platform. Moreover, the operating model contains a collection of practical manuals and guides for Biobord network members and users of the Biobord platform. The Biobord platform has been developed with an iterative, user centered, service design process. This document, Biobord Operating Model version 2.0, represents an upgrade of the platform, its service paths and management following the feedback collection and analysis from the first piloting round. Second upgrade is anticipated for August 2020 after the feedback collection and analysis from the second piloting round in spring 2020.

This later upgrade will guide the network activities and platform management after the piloting period as a long-term operating model. In course of the upgrades, the Operating Model will be enhanced with instructions related to new platform functionalities, good practices identified in piloting as well as the updates to the platform policies resulting from a network agreement on the long-term management of the platform. The network agreement will be modelled to enable new partners joining the network.

During the piloting phase, we are testing Biobord with different user groups and service cases, including project lifecycle, network management, matchmaking, capacity building as well as connecting developers with product and business development services. With these regional and international pilot cases, we are developing the platform and its operating model further based on the feedback and experiences of users. We plan to connect at least 400 bioeconomy experts to the platform via integrated activities of the regional hubs. Stakeholders and partners of the network are also invited to join the piloting to build the community of the innovation hub.

2. Biobord Network

This section introduces the mission statement of the Biobord network and the partner regions. In addition, an analysis of Biobord network as a basis for international bioeconomy innovation ecosystem is presented. Finally, our network management model for managing the network and platform and organization of data protection are outlined.

2.1 Mission: Biobord – Connecting Bioeconomy Developers

By 2030, the world will need 50% more food, 45% more energy, and 30% more water (Ministry of Employment and the Economy of Finland, 2014). The solution is bioeconomy that is based on the sustainable use of renewable resources as well as circular economy models. Bioeconomy utilizes clean technologies that enable the efficient use of natural resources and nutrients, while ensuring biodiversity and supporting climate change mitigation.

Our mission is to bring together bioeconomy developers to a joint table to solve global and local challenges with bioeconomy innovations. Biobord connects bioeconomy innovation networks around the Baltic Sea Region to share ideas, find partners and work together to create business opportunities in bioeconomy. Together we build knowledge and raise awareness on sustainable and viable bioeconomy business potential in the Baltic Sea Region.

Biobord is a place for you, if you are interested in viable and sustainable biobased business and networking with bioeconomy developers around the Baltic Sea Region. Find people with shared interests, team up and get support from our network of bioeconomy experts to build your business or launch your innovation to the markets.

Our growing network has been initiated by the following regions around Baltic Sea that specialize in bioeconomy:

- Central Finland
- Inland County in Norway
- Świętokrzyskie Voivodeship in Poland
- Vidzeme in Latvia
- Estonia

Together we are piloting Biobord.eu as a meeting, co-working and innovation forum for bioeconomy developers with a passion for rural viability and sustainability.

Join our journey and share your experiences with us to help us develop the Biobord.eu platform. We are piloting the platform as a part of RDI2CluB project in 2019-2020 to improve our service based on the user experiences.

2.2 Partner Regions

In the piloting phase, the Biobord network involves 12 partners around the Baltic Sea Region (partnership of EUSBSR Bioeconomy Flagship project, RDI2CluB).

- JAMK University of Applied Sciences, Higher education and research institution
- Regional Council of Central Finland, Regional public authority
- SSYP Kehitys Oy Ltd., Business support organization
- Inland Norway University of Applied Sciences, Higher education and research institution
- Inland County Council, Regional public authority
- Tretorget Ltd, Sectoral agency
- Regional Science and Technology Centre, Business support organisation
- Świętokrzyskie Voivodeship, Regional public authority
- Foundation for Education and Social Dialogue PRO CIVIS, NGO
- Institute for Environmental Solutions, Research institute
- Vidzeme Planning Region, Regional public authority
- Stockholm Environment Institute Tallinn Centre, Higher education and research institution

Figure 1. Biobord Network in the Piloting Phase 2019-2020

The partner regions and their regional innovation hubs are introduced here (2.2.1-2.2.4) in brief.

2.2.1 Bioeconomy Campus in the Region of Central Finland

Table 1. Basic Information of Bioeconomy Campus, Central Finland

Our Hub	**Bioeconomy Campus, Central Finland**
Member organisations	JAMK University of Applied Sciences (Institute of Bioeconomy); SSYP Kehitys Ltd (Business development agency) and SSYP Kiinteistöt Ltd (Building and premises management company); Vocational Institute of Northern Central Finland (POKE)
Hub type	Campus
Innovation Driver	Applied research
Co-operation model	Co-location and RDI project network
Annual RDI volume (MEUR) of members	JAMK (Institute of Bioecomony; Saarijärvi) 1,5 M€ POKE (Natural Sciences, Agriculture and Forestry; Saarijärvi) 0,2 M€
Staff	JAMK: 52 in Bioeconomy Campus POKE: 46 in Bioeconomy Campus
Established in	2014 as Bioeconomy Campus (150 year history as a campus for agricultural and natural resource management education)

Special knowhow and expertise of the Hub

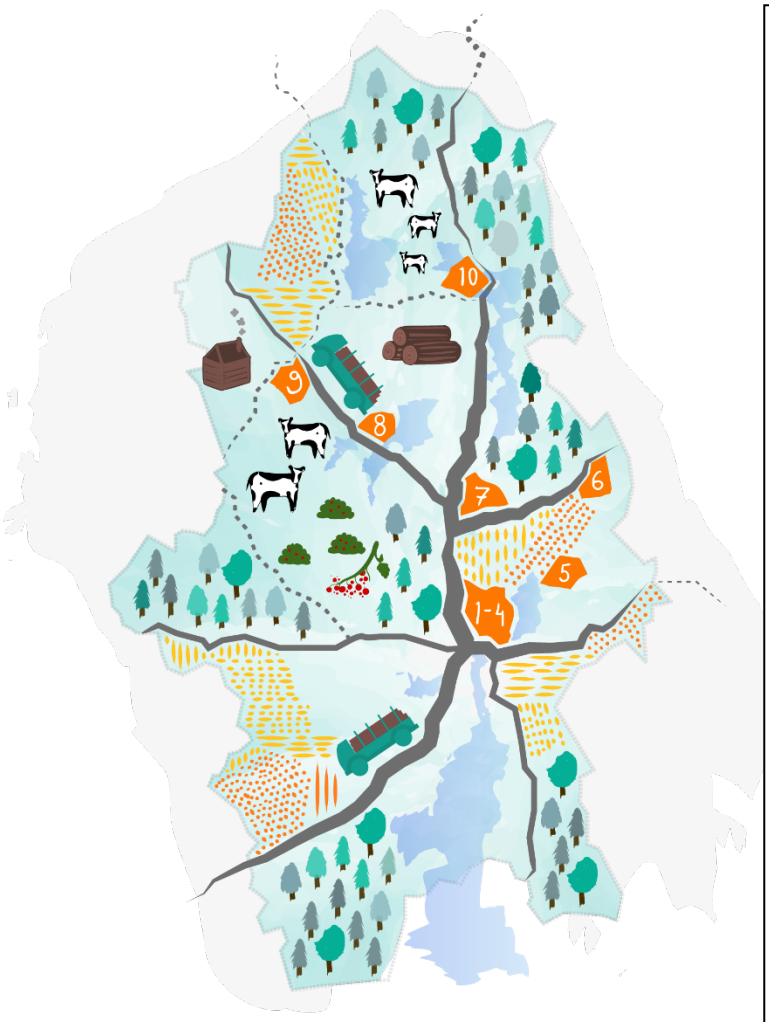
The Bioeconomy Campus is developed as a concrete meeting place for industry entrepreneurs, investors, researchers, developers and students with demonstration and pilot environments to illustrate the structures and functions of a future bioeconomy society as well as testing and prototyping services for development of new biobased products and services. Campus offers education in both higher and vocational level in selected areas in fields of natural sciences, agriculture and forestry.

The Institute of Bioeconomy is an active specialist, trainer and developer in the fields of rural entrepreneurship, agriculture, forestry, bioenergy and clean water. Our special competences include the operating and efficiency of bio heating boilers, the usability and properties of solid fuels, the development of bovine husbandry and the measurement and limitation of nutrient emissions in a rural environment. Our Degree Programmes include a Bachelor of Natural Resources (Agrologist) degree and a Master´s Degree Programme, Bioeconomy Development. Institute supports lifelong learning needs of working life via many other continuing education initiatives and services.

Regional Smart Specialisation Strategy in Bioeconomy

Central Finland Vision 2040: Knowledge in agriculture and forestry, sustainable and diverse use of renewable raw materials and the technologies enabling this are the strengths of the region. Local, sustainable production of energy increases the local economy. Clear water and water technologies create new business. Local, clean food has big markets also internationally.

The development of bioeconomy is based on smart utilization of the natural resources. The sector has a leading role in export. Regional strongholds for bioeconomy development include forest resources and sustainable forestry; traditional, strong forest industry and knowledge as well as high-level research and development. (Regional Council of Central Finland, 2014.)



1. Wood fiber research centre of VTT Technical Research Centre of Finland (Jyväskylä)
2. Kangas living lab for resource wisdom (Jyväskylä)
3. Kasvu Open Carneval - growth track mentoring and competition for SMEs (Jyväskylä)
4. University of Jyväskylä with laboratories and a Nanoscience Center (NSC) (Jyväskylä)
5. Recirculating aquaculture research site (Laukaa)
6. Konnevesi Research Station of the Department of Biological and Environmental Science at the University of Jyväskylä (Konnevesi)
7. Bioproduct mill and industrial ecosystem (Äänekoski)
8. Bioeconomy Campus (Saarijärvi)
9. Wood construction hub (Karstula)
10. Inventors week (Viitasaari)

Figure 2. Central Finland Bioeconomy Hotspot Map (illustration by Diana Pitkänen, 2019)

2.2.2. INN Centre of Bioeconomy, Inland Region, Norway

Table 2: Basic information on INN Centre of Bioeconomy, Inland region, Norway

Our Hub	**INN Centre of Bioeconomy**
Member organisations	INN - Inland Norway University for Applied Sciences (ALB - Faculty of Applied Ecology, Agricultural Sciences and Biotechnology); Statsbygg (Governmental property manager)
Hub type	Centre of Expertise
Innovation Driver	Applied Research
Co-operation model	Co-location and network
Annual RDI volume (EUR) of members	1,57 mill EUR
Staff	50
Established in	2017

Special knowhow and expertise of the Hub

Inland Norway University of Applied Sciences, Faculty of Applied Ecology, Agricultural Sciences and Biotechnology is focusing sustainable management and development in wildlife, fish, forestry, plants and livestock – including products and services originated in nature and biological material. The faculty offers R&D within our disciplines and education on Bachelors-, Masters- and PhD-level.

Inland Norway University of Applied Sciences is in process of establishing INN Centre of Bioeconomy. The purpose of the establishment is to strengthen the Inland University's research and education in Bioeconomy. Through the center, the University will offer research, development and innovation of international format.

INN Centre of Bioeconomy will connect the faculty's research resources and study programs more closely to the business community, policy instruments and relevant administrative bodies - regionally, nationally and internationally. The center will link the various institutes, clusters, networks and centers involved in bioeconomy and contribute to increased interdisciplinary research, using internal and external academic environments.

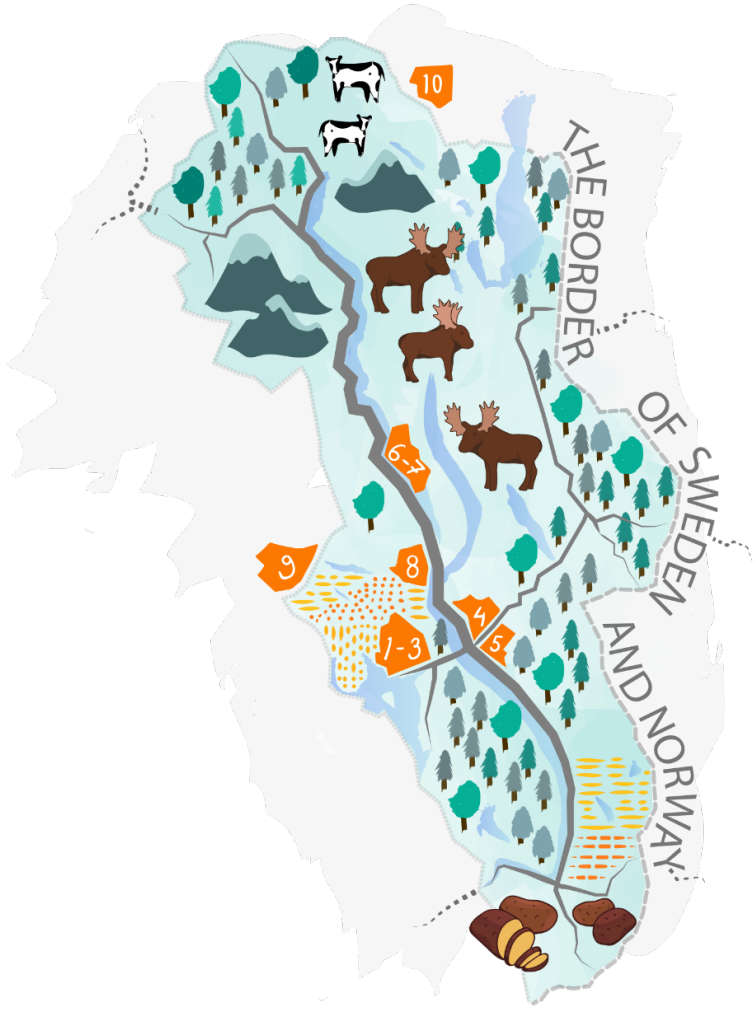
Regional Smart Specialisation Strategy in Bioeconomy

The Inland Region – a leading powerhouse for a sustainable bioeconomy in Norway.

Strategies:

- Develop and reinforce strong expert bioeconomy environments in all parts of the Inland Region.
- Initiate research, development and innovation projects/programmes (multidisciplinary/intersectoral/ international).
- Secure relevant and attractive expertise.

- Facilitate the effective establishment of bio-based industry and commerce.
- Work to attract investors and entrepreneurs.
- Work to increase market opportunities for bio-based products.
- Contribute to increased sustainable production in agriculture, forestry and inland fish of high quality and, wherever possible, based on inland resources.
- Work towards the sustainable and knowledge-based management of the region's bio-resources. Develop the region further within residual resources and the exploitation of return streams.
- Encourage more cluster projects and strengthen the interaction between stakeholders within innovation.
- Cooperation, simplification and coordination of the funding agencies for result-oriented funding allocation.
- Develop arenas for information, dialogue and cooperation further, including from an international perspective.
- Raise the level of awareness in society and business of the need to shift to a circular economy based on biological resources and expertise.



1. Heidner Biocluster for innovations in sustainable food production, Hamar
2. Biotechnology research center of INN
3. The Norwegian Forest Seed Station, Hamar University, Hamar
4. Glommen Skog SA (forest owners association)
5. Tretorget, Elverum
6. Living Lab for Zero Emission Building, Evenstad Campus of INN University
7. ALB Bioeconomy Centre, Evenstad Campus of INN University
8. INN School of Business and Social Sciences (HINN Rena)
9. Mjøsen Skog SA (forest owners association)
10. Røros Food

Figure 3. Hedmark Bioeconomy Hotspot Map (illustration by Diana Pitkänen, 2019), Note! Hedmark area is part of the new Inland region since 1.1.2020.

2.2.3 Bioeconomy Knowledge and Development Center, Świętokrzyskie region, Poland

Table 3. Basic Information of Bioeconomy Knowledge and Development Center in Świętokrzyskie Voivodeship, Poland

Our Hub	Bioeconomy Knowledge and Development Center
Member organisations	R&D (Regional Science and Technology Center); Business (Reslab Ltd.); Regional self-government authority (Marshal Office of the Świętokrzyskie Voivodeship); Media (Telewizja Polska S.A., Kielce branch); Science (PhD Anna Rabajczyk)
Hub type	Centre of Expertise
Innovation Driver	Policy
Co-operation model	Network
Annual RDI volume (EUR) of members	N/A
Staff	1 – administration
Established in	The letter of intent signed in 2019. The Center's daily operations will be governed by the reviewed Statute and Organizational By-laws of the Regional Science and Technology Center, expected to enter into force in 2019.

Special knowhow and expertise of the Hub

Bioeconomy Knowledge and Development Center, operating within the Regional Science and Technology Center, is expected to become the animator of bioeconomy and biobusiness development activities. The Center will be a place where business entities (SMEs) from production, services, consulting sectors can exchange their experience, know-how or establish direct cooperation between themselves and the following branches: R&D, local government, science, education and media.

The main goals of the Center are:

- assistance in SMEs projects' management planning and implementation,
- networking – finding and maintaining contacts within triple helix,
- introducing the bioeconomy as a part of new RIS.

Regional Smart Specialisation Strategy in Bioeconomy

Bioeconomy is already part of four out of seven smart specialization of the Świętokrzyskie Voivodeship (resource-efficient construction industry, modern agriculture and food processing, sustainable energy

development, health and health-promoting tourism). However, as the region has started working on the 'Development Strategy of the Świętokrzyskie Voivodeship 2030+' in 2019, it is planned to put more stress on unlocking the full potential of the region through sustainable development of the regional bioeconomy.

1. Regional Municipal Waste Installation "Promnik" for RDF production, Promnik
2. Green Energy Block in Połaniec Power Station
3. Defro, Production and R&D on 5th generation furnaces for gasification of pellets, Strawczyn
4. Sawmill Olczyk, Krasocin
5. Seed-Arboretum Farm, Sukowo-Papiernia
6. Kielce Trade Fairs, Kielce
7. Arabian horse breeding, Michałów
8. Regional Centre for Science and Technology, Chęciny
9. Solar Power Plant Tuczępy 1 and 2, Dobrów

Figure 4. Świętokrzyskie Voivodeship Bioeconomy Hotspot Map (illustration by Diana Pitkänen, 2019)

2.2.4 Latvian food and bioeconomy cluster in Vidzeme Region, Latvia

Table 4. Basic Information of Latvian food and bioeconomy cluster in Vidzeme Region, Latvia

Our Hub	Latvian Food Bioeconomy cluster
Member organisations	Public sector organization: • Vidzeme Planning Region (regional development institution/ public) Companies: • Ltd Aloja-Starkelsen • Ltd Valmiermuižas alus • Ltd Felici • Ltd Konso • Ltd Very Berry • Ltd Dimdiņi • Ltd Skrīveru Saldumi • Ltd Rāmkalni Nordeco • Ltd EKOTRI R&D organizations: • Institute for Environmental solutions • Institute of Agricultural Resources and Economics • Institute of Horticulture • Vidzeme University of Applied Sciences + 15 Associated partners in the cluster network (SMEs and University)
Hub type	Cluster
Innovation Driver	Businesses, with the support of R&D members and Vidzeme Planning Region
Co-operation model	Membership
Annual RDI volume (EUR) of members	N/A
Staff	1 part-time Managing director of the cluster
Established in	Cluster established as a network in 2010, current legal status formalized and cluster as a membership organization established in 2015

Special knowhow and expertise of the Hub

Cluster facilitates the development and market uptake of high value added and healthy food & beverages products, promotes knowledge and technology transfer between cluster members, develops and implements new projects and helps cluster members to internationalize their activities and find business and research partnerships abroad.

Cluster core members and network participants are companies focusing on healthy, high value added, organic and gourmet niche food and beverages production, public support organizations, universities and R&D institutions focusing their research activity in bio-economy areas.
Main priority focus areas of the cluster are:

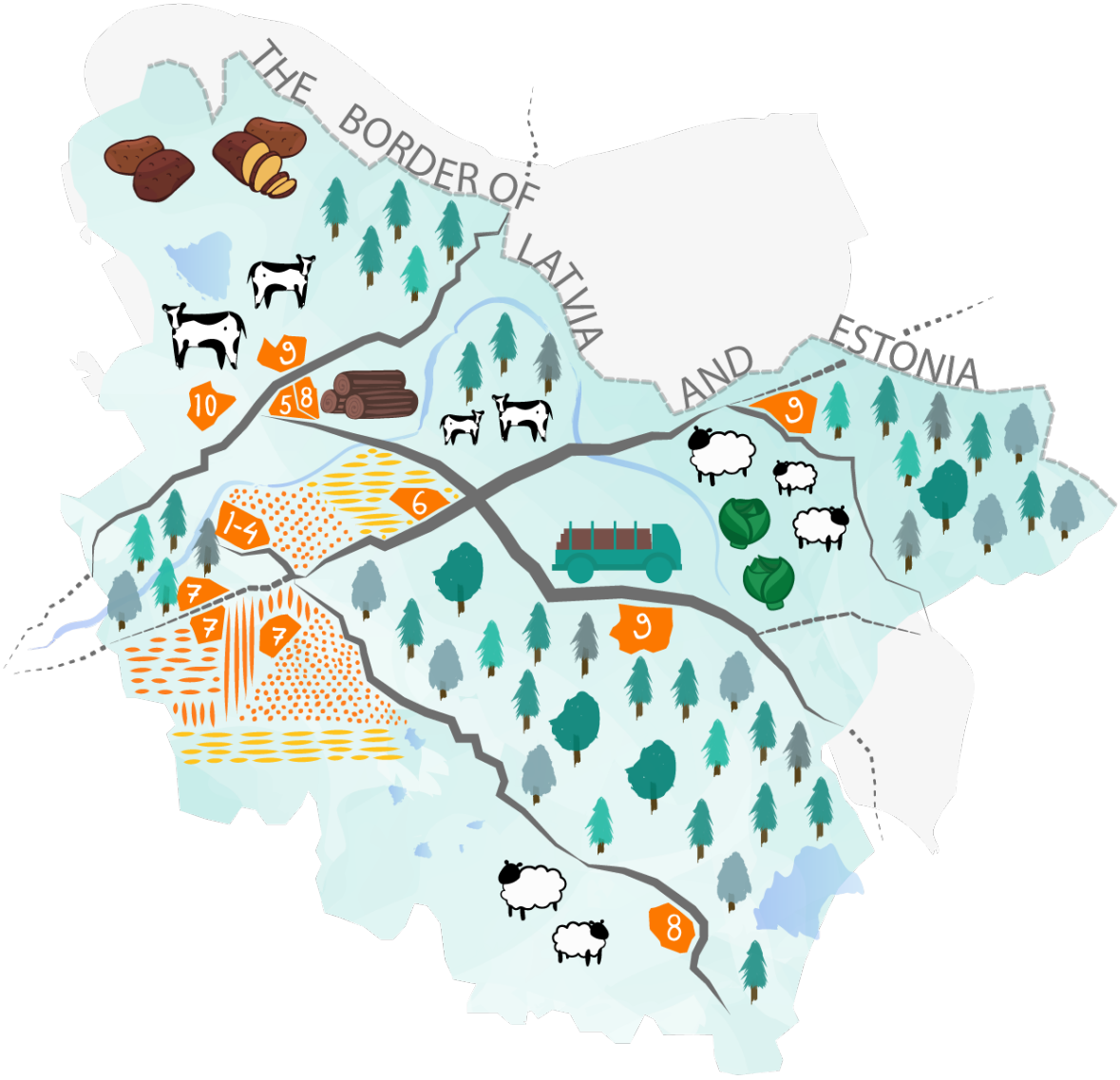
- Product and technology development;
- Networking, training and knowledge transfer;
- Internationalization

Cluster companies have strong knowhow in craft, organic, natural, high added value and healthy food and beverages product development, production and export. SMEs and R&D members have developed strong knowledge in the fields of plant-based products (vegetables, fruits and berries, medicinal and aromatic plants, plant-based proteins, plants and crop selection, plant genetics) and are increasing the use and valorization of valuable production side-streams.

Regional Smart Specialisation Strategy in Bioeconomy

Priorities of Latvia National Bioeconomy Strategy (LIBRA) 2030 (adopted in 2017) are investments in research, innovations, and skills; reinforced policy interaction and stakeholder engagement; enhancement of markets and competitiveness in bioeconomy; stimulation of sustainable, efficient, and "green" economy. LIBRA is a long-term strategy for Latvia RIS3 direction "Knowledge-intensive bioeconomy". This strategy outlines the development objectives, directions, and conceptual measures of bioeconomy. Strategy implementation is coordinated by the Ministry of Agriculture.

In the Vidzeme Region Sustainable Development strategy 2030 and Vidzeme Development Programme 2015-2020, Vidzeme planning region has outlined a regional smart specialization areas corresponding to the nationally defined RSI3 area " Knowledge-intensive bioeconomy": High added value wood-based products; Healthy food and beverages production; Biomass usage for energy and chemical conversion.



1. Institute of Agricultural Resources and Economics
2. Institute for Environmental Solutions
3. Vidzeme Planning Region
4. Riga Technical University Cēsis branch
5. Vidzemes University of Applied Sciences
6. Stora Enso Wood Products GmbH
7. Latvian wood construction cluster
8. Investment and Development Agency of Latvia (LIAA) Business Incubator
9. Food Bioeconomy Cluster
10. ZAAO Ltd. (waste management services, education centre)

Figure 5. Vidzeme Bioeconomy Hotspot Map (illustration by Diana Pitkänen, 2019)

2.3 Network Analysis

In order to analyze the Biobord network potential, the regional hubs have carried out a mapping of their connected bioeconomy innovation ecosystem. The bioeconomy innovation ecosystem (BIE) diagram depicts the network build around a bioeconomy innovation hub extending to regional, national and international levels. As per innovation ecosystem theory, the system involves innovation services related to access to support, talent, capital, expertise and networks. The mapping method has been described in more detailed in the connected document 'Guide 1: Innovation Hub Design Guide for New Members.'

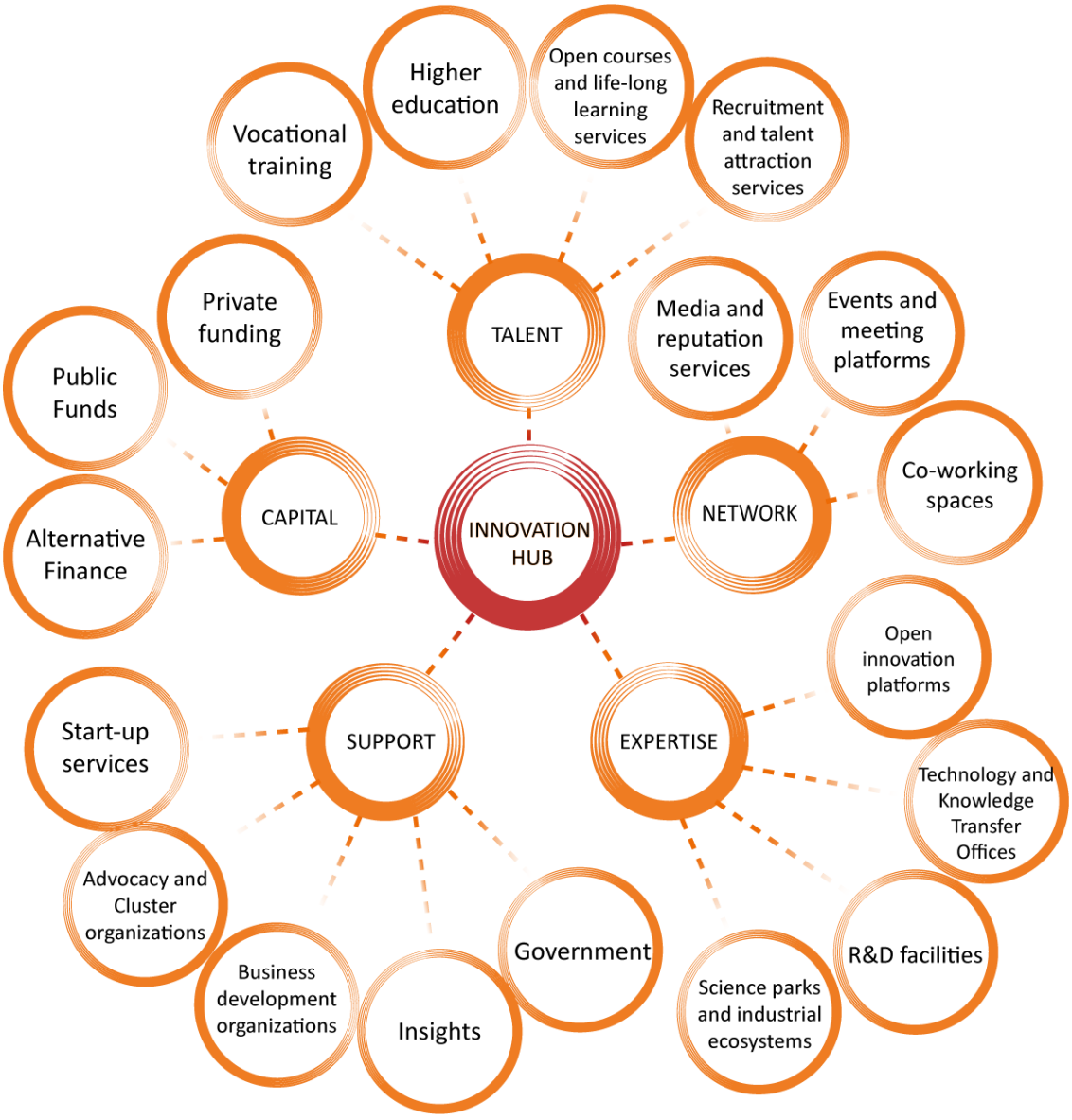


Figure 6. Bioeconomy Innovation Ecosystem

Each of the hubs connected in the Biobord network carried out the bioeconomy innovation ecosystem mapping on their existing partnership and co-operation networks. The results indicate that the total ecosystem comprises of 484 organizations connected via the four hubs. The resulting network has a quite balanced structure of different innovation ecosystem services with the highest share of 'Support' actors (27 %) and the lowest share of 'Capital' services (15 %).

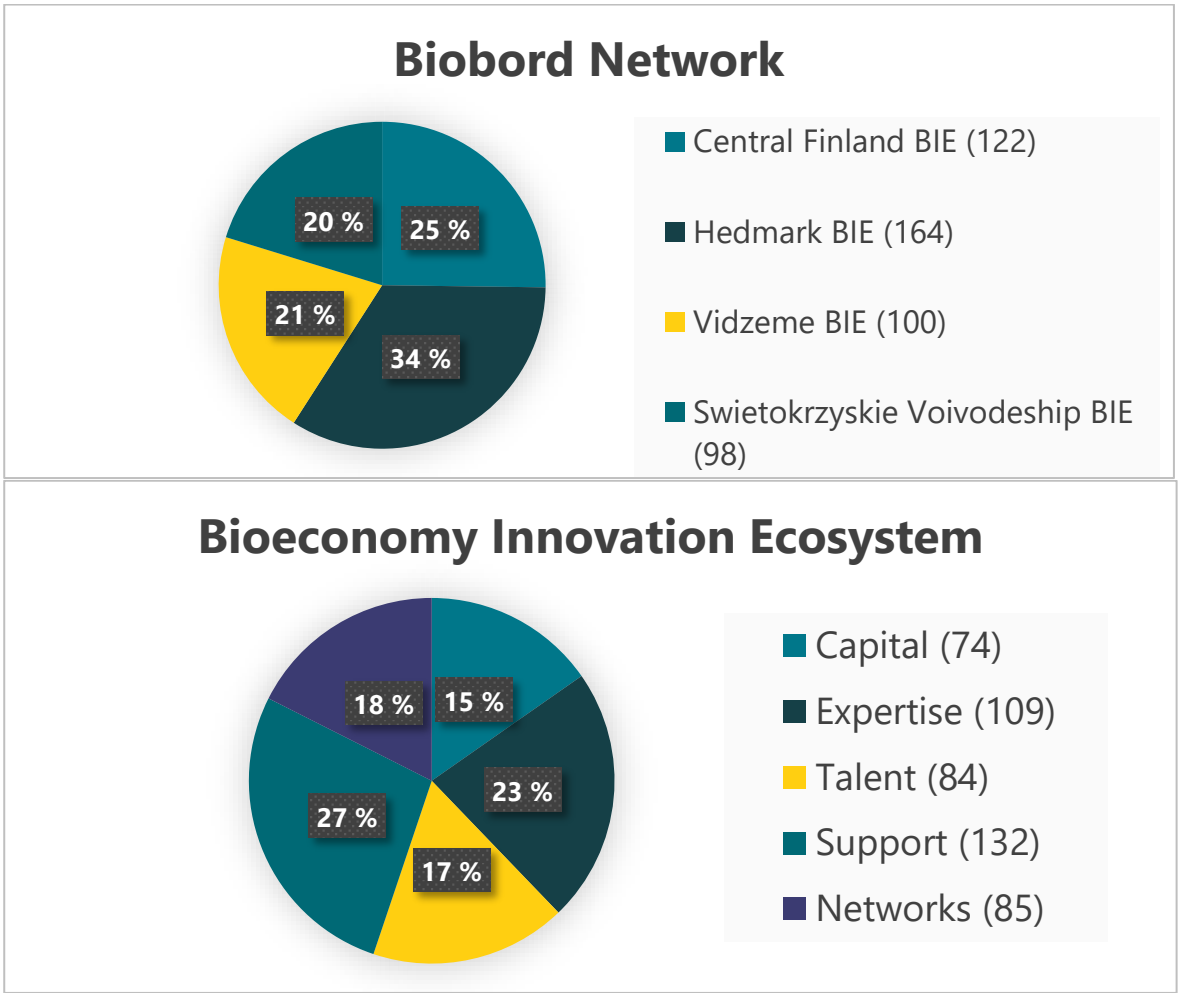


Figure 7. Bioeconomy Innovation Ecosystem of the Biobord Network (Mapping RIS data collected in 2018, RDI2CluB)

As the methodology was newly created, there were some regional variations in the compilation of the statistics. Therefore, the regional comparisons are not fully reliable. However, they do give an indicative picture of the main connections of the hubs and their own emphasis of partners. This allows us to make some tentative conclusions on the RIS network profiles of the regional hubs as well. Nevertheless, it should be noted that the number of connections does not give a full view of the quality of the co-operation, but an indication of the co-operation potential and focus of network building.

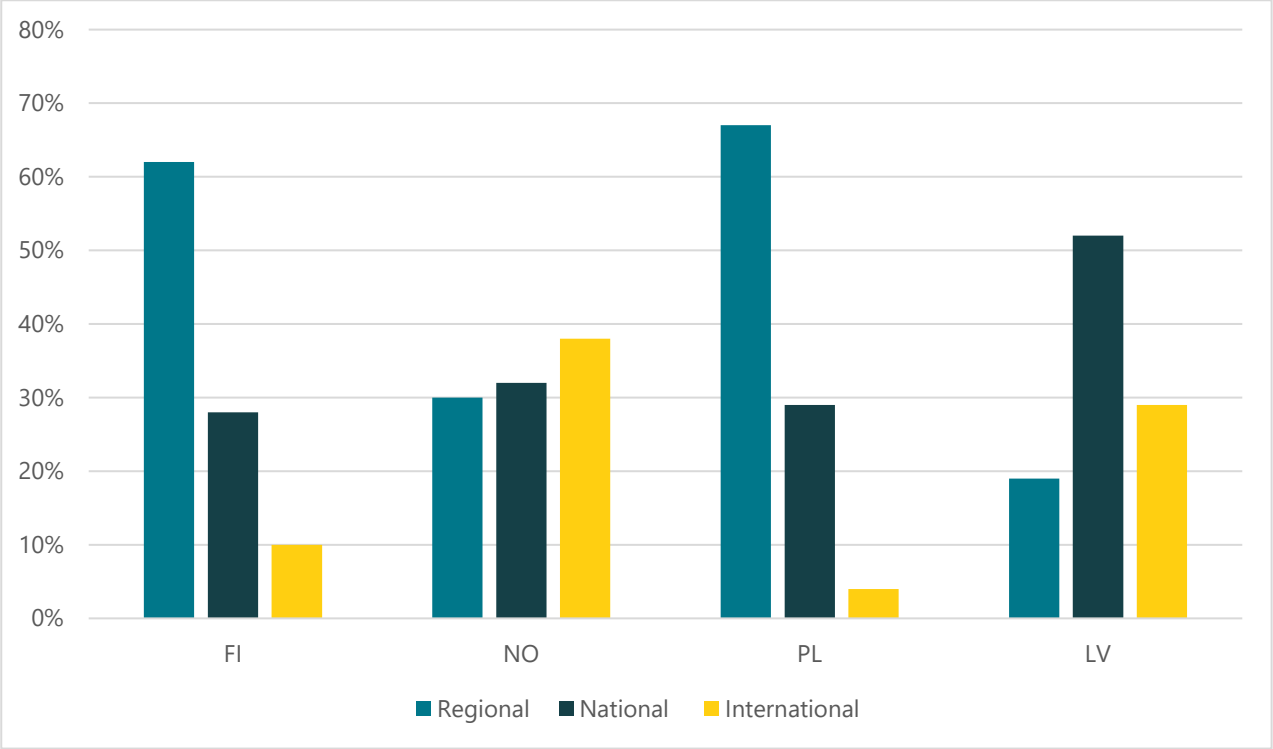


Figure 8. Geographic scope of the networks of the Hubs with percentage of network partners on regional, national and international spheres. (Mapping RIS data collected in 2018, RDI2CluB)

In Figure 9, a comparison of the regional hubs' bioeconomy innovation ecosystem connections is presented. The percentages show the share of the hub's connections that represents certain innovation service profile and international connection. The data on the connections of the regional hubs paints a picture of the focus areas and development level of regional bioeconomy innovation ecosystems and may reveal some gaps in the regional networks.

Looking at the regional hubs and their connected network, INN Centre of Bioeconomy, Inland County, Norway, has a high share of international partners in their network (38%). They have also the strongest connection to capital and expertise. Bioeconomy Campus, Central Finland is well connected regionally (62 %) and has the strongest connection to talent and networks. Bioeconomy Knowledge and Development Centre in Świętokrzyskie Voivodeship has the highest share of support connection (48 % of their network) and a strong regional focus (67 %) indicating both their role as a promoter of bioeconomy as a smart specialization strategy for the region, and the hub's early stage of development. As a nationally established cluster, the Latvian Food Bioeconomy Cluster has a strong national focus in their network along with a strong international connectivity. Connections to expertise (26 %) and support (35 %) compile the most significant share of the network actors of Latvian Food Bioeconomy Cluster.

Internationalisation level

- 1. INN Centre of Bioeconomy (38 % of BIE)
- 2. Latvian Food Bioeconomy Cluster (29 % of BIE)
- 3. Bioeconomy Campus (10 % of BIE)
- 4. Bioeconomy Knowledge and Development Centre (4 % of BIE)

Capital

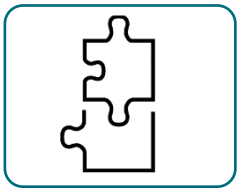
- 1. INN Centre of Bioeconomy (29 % of BIE)
- 2. Bioeconomy Campus (11 % of BIE)
- 3. Bioeconomy Knowledge and Development Centre (9 % of BIE)
- 4. Latvian Food Bioeconomy Cluster (5 % of BIE)

Expertise

- 1. INN Centre of Bioeconomy (34 % of BIE)
- 2. Latvian Food Bioeconomy Cluster (26 % of BIE)
- 3. Bioeconomy Campus (16 % of BIE)
- 4. Bioeconomy Knowledge and Development Centre (7 % of BIE)

Talent

- 1. Bioeconomy Campus (24 % of BIE)
- 2. Bioeconomy Knowledge and Development Centre (18 % of BIE)
- 2. Latvian Food Bioeconomy Cluster (18 % of BIE)
- 4. INN Centre of Bioeconomy (12 % of BIE)



Support

- 1. Bioeconomy Knowledge and Development Centre (48 % of BIE)
- 2. Latvian Food Bioeconomy Cluster (35 % of BIE)
- 3. Bioeconomy Campus (23 % of BIE)
- 4. INN Centre of Bioeconomy (13 % of BIE)

Network

- 1. Bioeconomy Campus (26 % of BIE)
- 2. Bioeconomy Knowledge and Development Centre (17 % of BIE)
- 3. Latvian Food Bioeconomy Cluster (16 % of BIE)
- 4. INN Centre of Bioeconomy (12 % of BIE)

Figure 9. Comparison of Regional Hub-centered Bioeconomy Innovation Ecosystems

2.4 Biobord Network Model

The information presented here is relevant in the piloting phase of Biobord platform until the launch of the new operating model in August 2020. In September 2020, a network agreement will be signed with interested partners to sustain a continuous networking model and platform. The final, sustainable, networking model and management structure for Biobord will be outlined based on piloting experiences.

2.4.1 Strategic Guidance and Steering

Biobord network members are all members of the RDI2CluB project steering committee that guides the development of the Biobord platform with input from RDI2CluB Advisory Board. The Advisory Board involves such members as the Nordic Council of Ministers as a leader of EUSBSR PA Bioeconomy, Baltic Sea States Subregional Co-operation (BSSSC) and The Baltic Institute of Finland as the leader of EUSBSR PA Innovation. The Advisory Board has webinars and meetings 3-4 times per year, while the Steering Committee meets once every six months.

2.4.2 Biobord Network Action Plan

Biobord network has established a Joint Action Plan that guides the international activities of the network. The Joint Action Plan aims to support the smart, sustainable and inclusive growth of the bioeconomy in five Biobord member regions. The JAP includes transnational actions and measures, to be implemented in a cross-regional partnership of at least two partners from two regions. The plan is elaborated as a roadmap and is connected to the European Union, EUSBSR, national and regional policies and strategies, aiming to promote regional development, innovation and bioeconomy in the partners' regions.

2.4.3 Operational Management

A working group of selected Biobord network members called 'Biobord Developers Group' is planning, coordinating and implementing the service design process, including piloting and upgrading, of the Biobord platform and its operating model. JAMK University of Applied Sciences is managing the technical development of the platform, while Tretorget is responsible for the design of the operating model. PRO CIVIS is coordinating the feedback collection and analysis for upgrading the model and platform. Members of the 'Biobord Developers Group' include:

- JAMK University of Applied Sciences, Higher education and research institution
- Inland Norway University of Applied Sciences, Higher education and research institution
- Tretorget Ltd, Sectoral agency
- Regional Science and Technology Centre, Business support organisation
- Foundation for Education and Social Dialogue PRO CIVIS, NGO
- Institute for Environmental Solutions, Research institute
- Vidzeme Planning Region, Regional public authority

2.4.4 Biobord Staff

Biobord staff is formed out of a group of the Forum facilitators. At all times, there are at least two facilitators appointed for Central Finland, Inland, Świętokrzyskie Voivodeship and Vidzeme as well as one facilitator from Estonia. The Biobord Staff has specific rights, roles and tasks in operating the open forum activities of Biobord and activating the platform community and users. Biobord staff is operating starting from the second piloting round launch on JAN 15, 2020. All Biobord staff members have the right to request a new category or a change in category. They are also able to add 'tags' and 'cabinets' in DMS under the main categories.

The aim and purpose of the staff is to introduce the Biobord usage to new users and to help the new users in navigating the platform and utilising the service paths relevant for them. Biobord staff's role is to guide users on the use of forum, give recommendations on the possible use of the platform and to share easy tutorials. It is important that staff members set an example of an active use of the Biobord by discussing, reacting on topics, networking and connecting relevant people from their own region. Staff members can divide the tasks with their regional team, but all regions are expected to take part in all roles.

Biobord staff commitments

- Welcoming all new users to the Biobord platform and guiding them in the use of the forum. Aim is to engage new users in a discussion on to get to know what the expectations the users have and give recommendations on the possible use as well as shares tutorials with users
- Making and actively sharing tutorial topics at 'Biobord User Support' in English and regional languages
- Marketing Biobord in regional networks
- Introducing themselves at the 'Open Biobord Forum' and activating others in their hub to utilize the matchmaking service of the 'Open Biobord Forum' and 'Biobord On Stage'
- Reacting to the topics posted in the 'Open Biobord Forum' and connecting the people with matchmaking calls with relevant network members from their region with a quick response time.
- Setting an example for new users on forum conducts, building trust and interactions.
- Participating in the feedback collection and analysis on pilot round 2
- Collecting and reporting user stories on success cases

3. Biobord Platform

3.1 Concept of Innovation Hub

In the Biobord network, our approach is to connect different fields of knowhow with the traditional bioeconomy business and entrepreneurs via development of an innovation hub. Innovation hubs are social communities, workspaces or research centers that provide subject-matter expertise on technology trends, knowledge and strategic innovation management, and industry-specific insights. These hubs enable active knowledge transfer between researchers and business experts, as well as industry, government and representatives of academia. (Toivonen, T. & Friedereci, N. 2015; Gryszkiewich, L. & Friedereci, N. 2014.)

Figure 10. Innovation Hub (illustration by Diana Pitkänen, 2018)

Innovation hubs deliberately stimulate collaborative innovation activities in a variety of ways. Co-location and co-working principles are some of the basic methods they apply. Innovation hubs also share online spaces and collaboration technologies. Hubs regularly apply methods considered part of the open innovation paradigm, such as crowdsourcing, co-creation, design thinking, service design, user innovation or their variations. (Toivonen, T. & Friedereci, N. 2015; Gryszkiewich, L. & Friedereci, N. 2014.)

The innovation hub is a meeting place that brings together the needed talent for generating ideas and for developing the ideas further. In the innovation hub, bioeconomy start-ups can build their business plans with the help of the hub's services and expertise. Along the innovation path, the entrepreneurs get tools and support for product development and commercialization. The testbeds, laboratories and pilots provide an opportunity to test and validate the products. New business ideas spark from creative encounters between people of diverse knowhow. (Toivonen, T. & Friedereci, N. 2015; Gryszkiewich, L. & Friedereci, N. 2014.)

Developing an innovation hub in a rural context is challenging due to the limited number of actors, lack of diverse expertise and distances. In Biobord, we propose to build an innovation hub via capitalisation of regional and inter-regional networks as well as digitalisation. Digitalisation can connect local hubs together to provide a larger pool of expertise, talent and resources for bioeconomy innovation around the Baltic Sea. A digital platform, Biobord, offers a virtual transaction and meeting space. The connection of the hubs together is not enough, but the hubs need to build also their regional networks for capitalizing on the urban-rural connections and the bioeconomy innovation ecosystem surrounding them.

3.1.1 Triple Helix in Biobord

The triple helix model of innovation refers to various interactions between academia, industry and governments to foster economic and social development. Triple helix interactions are often the base for institutions like technology transfer offices and science parks. In Biobord network, there is a triple helix base in each of the four regions, where one partner represents academia, another represents the regional government, while a third partner represents the interests of the business sector. The user profiles of Biobord involve the actors of the triple helix and allow their interplay and co-operation. (Grundel & Dahlström, 2016.)

3.1.2 Quadruple Helix in Biobord

A quadruple helix system is a widening of the triple helix system by including a fourth helix, civil society, in the innovation system. While the traditional triple helix system has a top-down perspective, the quadruple helix system is more of a bottom-up system with a participatory approach. Civil society is invited to a dialogue on the regional development strategies. Civil society can be a resource for SME's adapting to market demands without the risks involved in product development, by user oriented or user driven open innovation, in other words making the consumers part of the innovation process. The consumers join the open innovation process for development of new products and design of better services. (Grundel & Dahlström, 2016.) In Biobord, the user profile 'supporter' is focused on potential to connect the civil society actors to the operations of the innovation hub.

3.1.3 Quintuple Helix in Biobord

A quintuple helix approach functions as a way towards the socioecological transformations of society into a bioeconomy. Developing a sustainable approach to bioeconomy requires information and understanding of the state of the natural environment, the availability and renewal of natural resources as well as the interactions affecting the ecosystems and their services. In quintuple helix, the innovation process is depicted as a connection of knowledge and knowhow from policy, business, academy, society and natural environment. A broader perspective is taken in response to environmental or societal challenges to head towards sustainable economic, social and environmental development. (Grundel & Dahlström, 2016.)

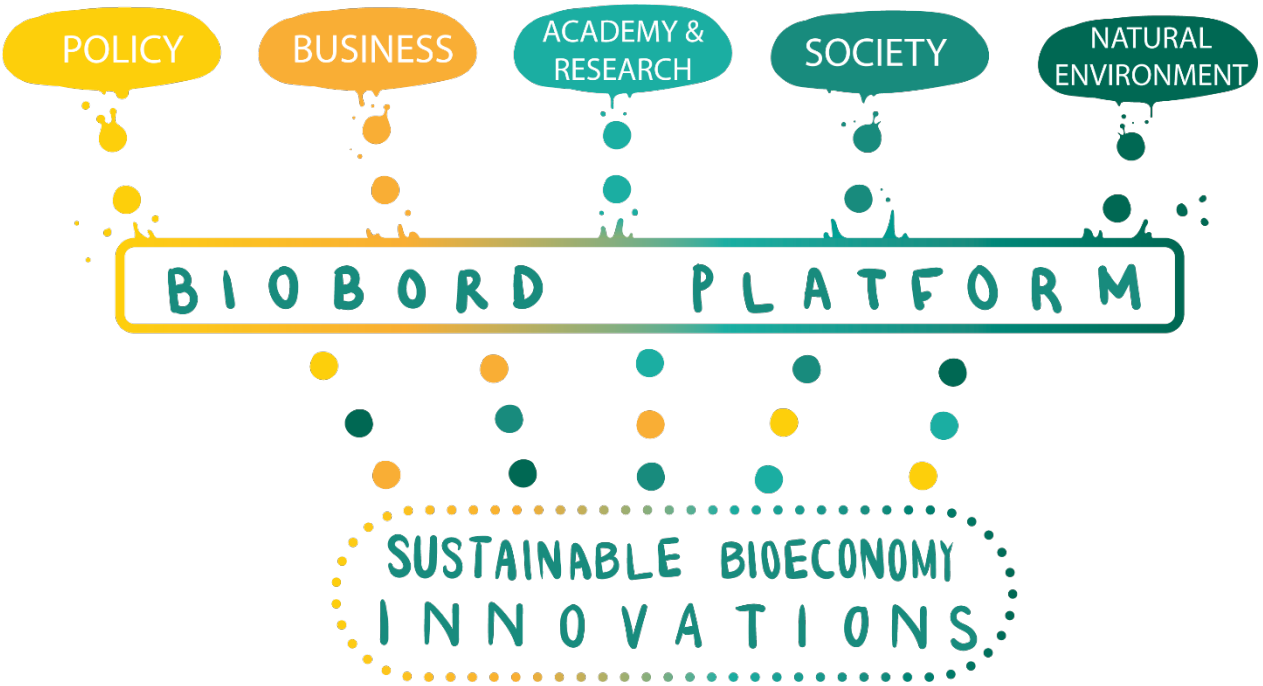


Figure 11. Quintuple Helix of the Biobord (illustration by Diana Pitkänen, 2019)

In Biobord, sustainable use of natural resources is a core value for the network operations. Our network involves strong expertise on e.g. applied ecology, sustainable agriculture and forestry, water protection and renewable energy.

During our piloting phase, four applied research and networking pilots are implemented to test the added-value of the Biobord platform for scaling and connecting regional pilots to international context. The data from these pilots is to be integrated to the platform with an interactive story-telling tool that connects the data to the UN Sustainable Development Goal targets and indicators. The potential to utilize this tool as a standard approach to measurement of the impact of the network activities will be evaluated in course of the pilot.

3.2 Platform Elements

Biobord platform consists of the following elements:

- Keycloak User Account Management System
- Wagtail Content Management System
- Landing page
- Forum
- Document Management System

- Helpdesk ticketing system

3.2.1 Keycloak User Account Management System

Biobord platform users can manage their user account settings through Keycloak, which is known as identity and access management service. Each registered user can use Keycloak to do the following:

- Edit account related information
- Change the password
- Enable the two-factor authentication
- Monitor and manage all active sessions
- Read the list of all available roles and access permissions for different parts of web platform

For guidance on the use of Keycloak, detailed instructions are available as 'Biobord Manual 1: Keycloak User Account Management System'.

3.2.2 Wagtail Content Management System

Each member organisation of the Biobord network has been given rights to the Wagtail Content Management System (CMS). In the CMS, the network members can upload data and images to the landing page and catalogues of news and services. The system enables the network members to add news and services as well as manage the data on their regional hub and connected organizations.

For guidance on the use of Wagtail, detailed instructions are available as 'Biobord Manual 2: Wagtail Content Management System'.

3.2.3 Landing Page

Landing page is the access point to the Biobord platform and its features. It is a webpage with timely information, guidance to the platform and introduction to the Biobord network of bioeconomy innovation hubs. It also serves a purpose of marketing the network and shared the main results of the Biobord network. Landing page includes a 'Network Map' and catalogues of 'News' and 'Services'.

Placed on a separate sub-page under the landing page, the **Network Map** is a map element with category-based search features on bioeconomy innovation services. The member hubs of the Biobord network can share information on their innovation services and infrastructures via the map-based search engine. The map shows the innovation hubs connected to the network and displays their innovation services and infrastructures as information cards.

The information cards on the services and infrastructures have been tagged with pre-agreed categories to facilitate the search. The unified card design enables a simple visualization of the innovation services connected to each regional hub. Cards are available also as a catalogue on a separate page with same search features.

The information is mainly static and updated when relevant by the responsible editors from the regional hubs. Each network member has rights to the Wagtail Content Management System where the service information can be updated.

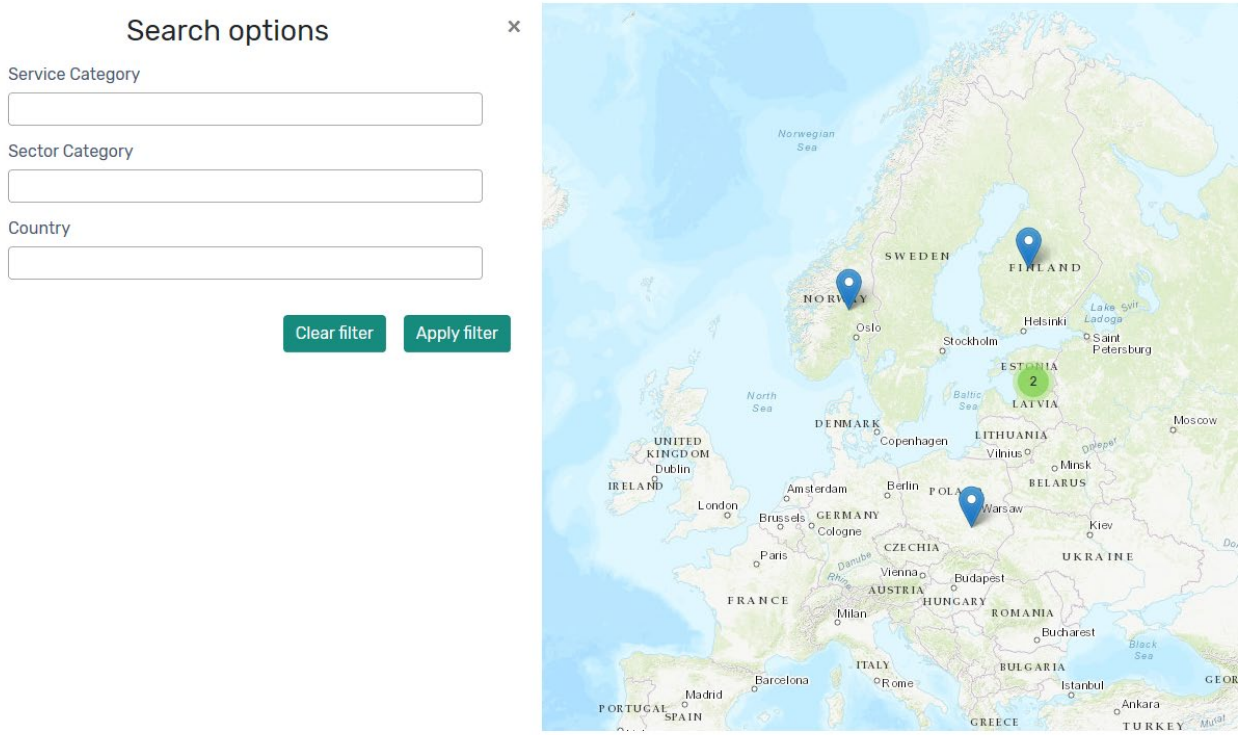


Figure 12. Network Map

Also, within the landing page, the user can find **Catalogues of News and Services** as separate sub-pages where the news items and service cards are archived. The news items and service cards can be searched and sorted with different category tags. In the news catalogue, the relevant news items can be searched with filters on dates, hubs and bioeconomy sectors. In the service catalogue, the filter includes bioeconomy sectors, service types and hubs. As mentioned, the same search filters for services are also applicable in the Network Map.

3.2.4 Forum

Forum is a networking, information sharing, matchmaking and co-working area. The forum is divided into different categories for different activities and user groups. The category can have open and closed content depending on the user group's needs. The registered users are able to get involved in the discussions and create content to the topics open to them. The discussions are possible under shared topics, private messaging and chat.

Forum is developed with Discourse open access service. Registration is organized with Keycloak to enable one registration to all systems connected with Biobord platform. In order to create or comment

the topic and join the discussion, you have to be registered to the platform. For guidance on the use of the Forum, detailed instructions are available as 'Biobord Manual 3: Forum'.

Users of the forum have different levels of rights for viewing, replying and posting topics. The rights can be altered with category specific settings. Table 5. defines the various user types, roles and rights in the Forum.

Table 5. User types, roles and rights in the Forum

User Type	Role and Rights
Staff: Administrator	Staff members are official representatives of this community. Staff members involve administrators and moderators. Administrators can: • Create closed groups • Create categories and subcategories and tailor their settings
Staff: Moderator	Moderators can edit all posts and/or preapprove the posts of the users.
Registered user	Can start topics in open categories and post replies to topics.
Closed Groups	Members of closed group are registered users that can see selected closed categories. Depending on the category settings, they can also start topics and reply to posts.
Non-registered users	Can read open content but cannot post replies or start topics.
Facilitator	Registered user appointed to plan, lead and initiate the discussion and activities of an open of closed category.

The members of the Biobord network have the right to introduce new forum categories based on the needs of their networks, projects or other target groups. The establishment of a new forum category is explained in the section 4.2 of this document. The categories that are included in the piloting phase starting on January 15, 2020, are presented in Table 6.

Table 6. Forum categories in action on January 15, 2020

Categories	Open/ Closed	Description (in brief)
Biobord User Support	Open	Find user guides, tutorials and tips for forum co-working here. Please share your questions and feedback on using Biobord Forum; our Biobord Staff is committed to answering to your questions as soon as possible.

Open Biobord Forum	Open	Open Biobord Forum is a networking, matchmaking and teambuilding area for bioeconomy developers to find new opportunities, expertise and partners.
Biobord On Stage	Open	Biobord on Stage provides you information about the online events of Biobord Network. The events are announced in this discussion area.
Biobord Network Actions	Open	Biobord Network Actions is for international co-operation in bioeconomy development.
Biobord Network Lounge	Closed	Biobord Network Lounge is for the network members to share information and plan the facilitation, marketing and activation of the Biobord Forum and platform. Share you best practices, ask for assistance from network colleagues and propose ideas for improving the forum activities!
RDI2CluB	Closed	RDI2CluB category is for the interaction and co-working of working groups under RDI2CluB project. The category is closed for the members of the RDI2CluB project team. The category is the main communication channel for coordination of tasks, meetings and events of each working group.
Regional Forums	Open	3 regional hubs have started an open forum for regional piloting • Bioeconomy Campus (see chapter 2.2.1) • INN Centre of Bioeconomy (see chapter 2.2.2) • Bioeconomy Knowledge and Development Centre (see chapter 2.2.3)
Closed pilot groups	Closed	Closed pilot groups are testing e.g. project based team working and network management. The closed groups include: • BeUBio (BSR project) • Grouse monitoring network (INN with international network) • Pohjoisen Pooli (network of bridge builders from Central Finland) • BIND (innovation support project from Central Finland)

3.2.5 Document Management System

A document management system (DMS) is a system used to track, manage and store documents and digital resources. In Biobord, DMS is a resource library that connects to the Forum categories, providing a resource cabinet for Forum categories to store, share and manage the documents related to the activities of the forum category. Apart from the matching category and cabinet structure, the DMS also features same tags for marking documents than the open, international forum categories.

All registered users have rights to view and share documents in the cabinets where they have user rights. Therefore, open cabinets are open to all users while if a group is closed, only the members of the closed groups can see and create content.

Resources that can be shared and stored include documents, presentations and pictures. The facilitators of the forum groups, and the Biobord Staff for the joint open access categories, will coordinate the agreement of the open access principles, language restrictions and other conducts for the category and related cabinet in DMS. The group can agree on a specific 'Creative Commons' license for stipulating the rights to share, use and build upon the shared documents and resources. The facilitator should also advise on the naming of the documents and/or tagging, if relevant.

3.2.6 Helpdesk Ticketing System

Biobord Forum is integrated with a Helpdesk ticketing system for the users and facilitators to use when needing assistance from the Biobord administrators, or when wanting to report a problem. The administrators from JAMK University of Applied Sciences are committed to responding to the problem in the earliest convenience.

There are three types of tickets available in the Helpdesk:

- Report a problem
- Request a new category
- Request a change in category

The 'report a problem' ticket is available for all registered users to get assistance from the administrators. The tickets for creating a new category or requesting a change in a category are only for the Biobord Network Members. They enable the facilitators to define their categories, adjust tags and cabinets as well as create closed or open groups in the forum.

The detailed description of the information requested in the category tickets is available in the connected document, Guide 2: Service Path Guide for Biobord Members.

3.3 Overview of the Biobord Service Paths

Biobord has five distinctive service paths that are piloted in 2019-2020 to gain more insights into the good practices on implementation of each service path. Furthermore, the network will evaluate and upgrade the functionality of Biobord to deliver these outlined services. Detailed instructions for building the service paths are presented in the Guide 2: Service Path Guide for Biobord Members. Here we present an overview of the service paths as well as the user profiles.

3.3.1 User Profiles

User profiles are defined to better address and understand the motivation and needs of the user groups. The user profiles are grouped to three groups: 1) Bridge builder; 2) Developer and 3) Supporter.

Bioeconomy Bridge Builder

Bridge builders use the Biobord.eu platform as a tool in their work. They use the platform to find new connections and to connect actors. Business bridge builders can manage and grow their network with the help of the platform. The regional authorities can lead smart specialization processes of a network of RIS actors with the help of the platform. They can also utilize the platform to manage the project lifecycles from planning to impact generation.

Table 7. User Profile: Bioeconomy bridge builder

User profile	**Bioeconomy bridge builder (Coach) – Hub manager, connector and facilitator.**
Personality, skills and aptitudes	• Actively participating in networking events regionally • Extrovert with a wide network and connections in the region • Active social media content creator • Competences in management, business development and innovation support
Roles	• Facilitator of co-operation between actors from academia, business and government • Provider of platforms and meeting places for dialogue and information exchange on bioeconomy development. • Network builder and connection manager that guides people to right contacts and sources of capital, talent, support and expertise. • Planner, coordinator or manager of regional or business development projects.
Professional profile	• Regional development agents • Business development agents • Innovation brokers • Technology and Knowledge Transfer officers • Cluster organisations

	• Business advocacy organisations
Motivation	• Looking to solve challenges and break barriers in the development of regional bioeconomy business. • Looking to strengthen smart specialization processes including triple helix co-operation • Looking to support innovative bioeconomy SMEs, start-ups and pilots in the region to commercialize their ideas into products, services and improved processes. • Looking for strategic partnerships and networks outside the region. • Looking for new opportunities, partners and market leads for their partners.

Bioeconomy Developer

Bioeconomy developer has an idea for a new biobased product or service, an aspiration to start or build a bioeconomy business venture or a challenge in making the business more viable or sustainable. At the Biobord.eu platform, the developer can find innovation support for projectization or commercialisation of an idea. They can also get connected with talent and expertise to build a team or get support for business development. Developers can find solutions for their challenges via participation to the capacity building and peer learning groups of the forum or with connections to right experts.

Table 8. User Profile: Bioeconomy developer

User profile	**Bioeconomy Developer (Player) – Actors with ideas, resources, needs, challenges and solutions.**
Personality, skills and aptitudes	• Goal-oriented, looking for solutions and development potential • Lacks networks, but willing to team-up with people who share the same aspirations • High knowhow and skills on a specific field of bioeconomy • Technology, business or research focused
Roles	• Developer of new inventions and business ideas • Bioeconomy forerunner with innovative products and services • Highly specialized expert in bioeconomy fields • Entrepreneur with a challenge in making the business more viable or sustainable
Professional profile	• Entrepreneurs and experts from innovative bioeconomy SMEs • Entrepreneurs in biomass production (farmers, foresters) • Students with entrepreneurial aspirations • Start-ups • Researchers (applied research)

Motivation	• Looking for new business models to ensure viability or renew operations of the traditional (family) business • Looking for competences, development partners and information to test, pilot and commercialize a new product or service • Interest in building a own business • Interest in developing sustainability of business operations • Interest in accessing new markets or customer segments

Bioeconomy Supporter

Bioeconomy supporter has a value-driven interest to the development of bioeconomy in the regional or even global context. The supporter follows discussion and leads on sustainable and local bioeconomy products and services to support his or her sustainable lifestyle and personal aspirations. Supporter is an active advocate for bioeconomy development, shares information on innovations and local entrepreneurs in social media, makes environmentally conscious decisions as a consumer, or even invests in start-ups or crowdfunding calls.

Table 9. User Profile: Bioeconomy supporter

User profile	**Bioeconomy supporter** (Fan) – End-users of innovative products and services
Personality, skills and aptitudes	• High education and competences in fields such as information technology, design, brand management and marketing • Active in civil society, NGOs and social media • Value-driven interest to bioeconomy and sustainability
Roles	• Consumer and customer with interest in value-added bio-products and services • Opinion leader, messenger, early adopter and initiator • Provider of market signals and information on added value to consumers • Followers and multiplier of message • Private funding with investments and crowdfunding
Professional profile	• KIBS (Knowledge Intensive Business Services) expert • Media • NGO advocate • Local politicians • Business angel, private investor
Motivation	• Passionate about sustainable development, climate change mitigation and biodiversity • Aspiration for sustainable living and lifestyles • Looking to influence local, regional, national and global development • Looking to support promising and innovative start-ups

3.3.2 Project Lifecycle Services

Project Lifecycle is a service path targeted for bridge builders as the coordinators of the project. However, the project target groups, beneficiaries and implementers can include a variety of user profiles. With the help of the forum and DMS, the bridge builders can attain tools and a platform for planning, management and scaling of a project involving multiple actors and organizations in regional, national or international context. The project can be for example product or service development project, research pilot, case study, demonstration, RDI project or other activity of agreed period and action plan.

Figure 13. Biobord service path of project lifecycle management

3.3.3 Network Building

Network building is a service path targeted for bridge builders. With the help of the Forum, DMS and the Network map, the Biobord offers a tool for managing and connecting multiple target groups and networks. It also enables finding new connections and opening dialogue with the networks. The forum can be utilized as a platform for regional dialogue boosting triple helix co-operation, especially in the rural regions where distances between the actors hinder regular meetings face-to-face.

Ideally, a bridge builder could connect all the groups, projects and teams he or she is coordinating to the same platform and get a one-glance view of the new development and actions at the dashboard. This would make connecting people and information between the groups effortless. Direct messaging to different groups, group-based chat discussions and tagging of groups to the forum topic enable effective and targeted communication to various teams and reference groups.

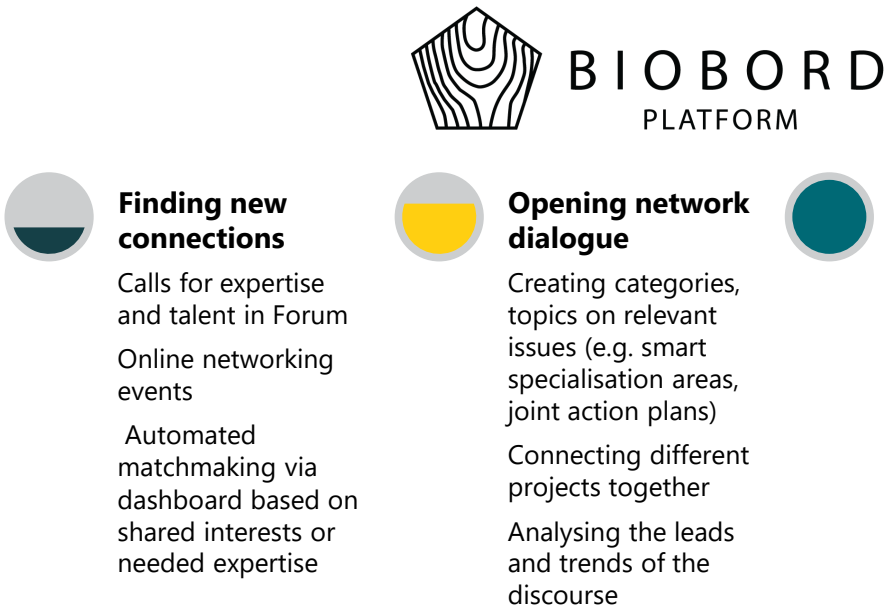


Figure 14. Biobord service path of network building

3.3.4 Capacity Building

Capacity building service path is targeted for bridge builders with an ultimate target group of developers and/or supporters. The capacity building service path utilizes the forum and DMS for education, expert consultation, information and best practice sharing as well as peer learning via application of digital learning solutions.

The forum enables creation of a peer-learning group with common challenges or aspirations for change and development. The group can interact freely together learning from each other and supporting each other with implementing the lessons learned. The experts' input can be injected into the learning process as interactive materials including video consultation, virtual tours, podcasts and webinars.

As the speed of change is ever faster, the true measure of ability to learn will be the ability to network and co-operate. In the Forum, we can connect different peer learning groups and open learning services to enable wider team building, partner finding and access to expertise and innovation support. We can enable and support the development of regional and international learning platforms where people come together to solve joint challenges, learn from each other's best practices and find partners in developing their business. The international connections as well as the higher connectivity between SMEs of the region enables joint challenges to become joint learning activities and finally new business opportunities.

3.3.5 Matchmaking

Matchmaking service path is most relevant to developers, although the bridge builders also play an important role as connectors of developers to the service. In the forum, the 'Open Biobord Forum' and 'Biobord On Stage' facilitated by the Biobord Staff are offering a matchmaking service for finding new opportunities, expertise and partners.

Activities of Open Biobord Forum

Open Biobord Forum is a networking, matchmaking and teambuilding area for bioeconomy developers to find new opportunities, expertise and partners.

Whether you are looking for help with your business idea or partners to a research pilot, this is a forum for you. Look for and share timely announcements on funding opportunities and possibilities of getting involved in projects, pilots, networks and ventures.

In the 'Open Biobord Forum', you can search for new contacts. If you are looking for expertise, partners or talented professionals for a project or business venture, just post a topic where you describe what you are looking for. You are also welcome to share your expertise and introduce yourself at the Forum.

For solving your business challenges with fresh ideas, new technologies and innovation, you are also welcome to post your call for innovation. The growing network of bioeconomy developers may just entail the right solution for you – or we may jointly establish a group to solve it. In case you have no luck right away, no worries. Our Biobord Staff will be in contact with you and help you in your quest.

Discussion in this category is only in English.

TIPS FOR USERS:

- To help others find your post, kindly use our joint matchmaking tags https://forum.biobord.eu/tags in your topics. How to use Tags in Biobord Forum?
- Check out our 'Biobord User Support' category for more tutorials on using the Forum.
- You are welcome to download documents related to your proposal or call -and review other documents at OPEN BIOBORD FORUM CABINET of the Biobord Document Management System
- For more information, please contact any of our Biobord Staff with private message or chat.

Activities of the Biobord On Stage

Biobord on Stage provides you information about the online events of Biobord Network. The events are announced in this discussion area. After the event, the materials are shared and discussion on outcomes may continue under the event topic. Events include Hubs on Stage -events hosted by the Biobord network members, as well as tailored events for bioeconomy developers to network and find connections.

Hubs on Stage is an online event that brings the regions of the Biobord Network to the stage with their specific cases. The hubs will take turns in hosting this 60-minute event during September 2019- June 2020. Hosting region can share their best practices or introduce new initiatives to the network. The event should contain an interactive section with development questions for the network. The event can also be used for getting feedback for a development plan or idea.

Joint in and get to know new contacts and competences from the network. 'Hubs on Stage' is taking place every second Tuesday of the month at 3.00 pm FI/LV/EE time and 2.00 pm NO/PL time. The specific event announcement will be shared under this category.

Tailored events: The stage is open for bioeconomy companies looking for information on and contacts to the Baltic Sea markets. Whether you are looking for international partners or thinking about starting exporting venture, we'll assemble an expert panel to hear your case and give you feedback and guidance on the way forward.

'On Stage' events are 45 -60 minutes online events with a 15-20 minutes presentation from the company following feedback and discussion with the invited panellists. Currently, our pool of experts is focusing on Finland, Norway, Poland, Latvia and Estonia.

Send us a private message via Biobord to describe your case and well help you to set up an 'On stage' event for you within 30 days. We will also jointly agree whether the event is open or limited access.

3.3.6 Connection to Innovation Support

The service path of innovation support is most relevant to developers looking for support in developing their ideas into commercial products or services. The services can be searched from the 'Network Map' or the service catalogue. More information is available via contacting the relevant contact persons. Types of innovation services and the available service cards are depicted in Figure 15.

Laboratories

- Standardised Laboratory for Boiler Heater Testing tests with biomasses (FI)
- Complex water ecosystem analysis and sustainable management of water resource (LV)
- CULINARIUM offers specialized knowledge in seasonings and tailored food product development (LV)

Test-beds

- Forestori (FI)
- Field and wetland with automated water monitoring (FI)
- RTU Design Factory Cēsis (LV)
- Prototype workshop for new products in fishing and processing (FI)

Pilots

- Carbon Action Pilot Field (FI)
- Insect farming container pilot (FI)
- Research pilot on growing beds produced with industry sidestreams and recycled materials (FI)
- Zero-emission building pilot (NO)
- Testing of growing technologies for medicinal and aromatic plants (LV)

Incubator

- Innlands UAS pre-incubator for students (NO)
- JAMK UAS pre-incubator for students (FI)
- THE TASTE OF NATURE "Chefs' Creative Workshop (LV)

Idea Generation

- Demola Jyväskylä (FI)
- Innovation brokerage, Tretorget (NO)
- Transnational innovation brokerage system, Vidzeme (LV)
- Vidzeme Innovation Week (LV)
- Bioeconomy Knowledge and Development Centre (PL)

Figure 15. Examples of Innovation Services connected to the Biobord Network

3.4 Organization of Data Protection

The organization of Data Protection is described here as it is valid for the lifetime of the RDI2CluB project. For the life after the project, an update of the operating model will be made and published by August 2020.

3.4.1 Data Flow at Biobord Platform

Biobord is a web platform hosted in Amazon Web Services (AWS) in Stockholm, Sweden. Platform has the following publicly viewable pages as presented in figure 16: Landing page, services subpage, news subpage, discussion forum. First three services can be viewed without user registration and authentication. Discussion forum has both public and non-public categories and only public categories can be viewed without user authentication. All non-public services require registered user to enter credentials (username and password) in order to use them.

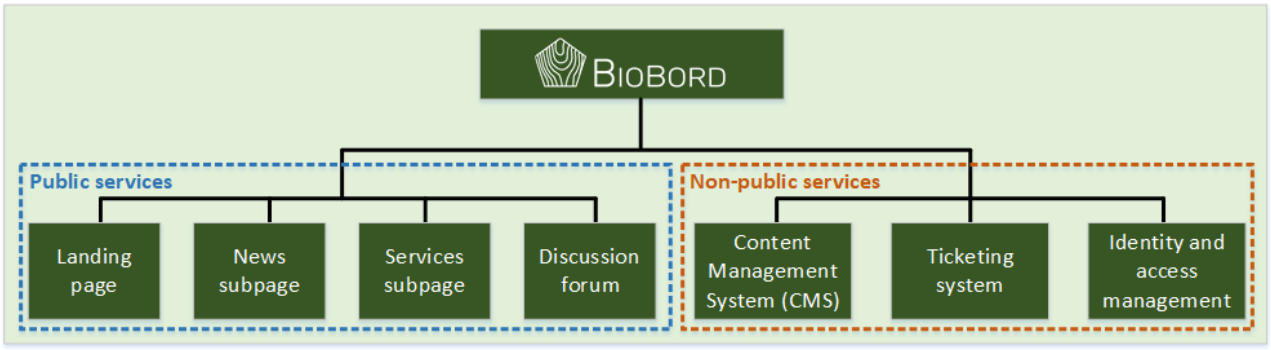


Figure 16. Biobord web platform structure

Registered user information is handled in identity and access management service. User is required to login to any of the services once and after successful login user session is established. Active user session enables user to view any service which requires authentication in Biobord. User can change user account settings any time by logging in to identity and access management service.

Non-public services have two access conditions that must be met in order for user to use the service:

- User must have a registered user account
- User must belong to a user group which has access rights to the service

All non-public services act as a client service for the identity and access management service. Each time user wants to login to the platform, login form is presented by the identity and access management system. As a part of a login process, identity and access management system checks user credentials and informs the client service for successful or unsuccessful login event.

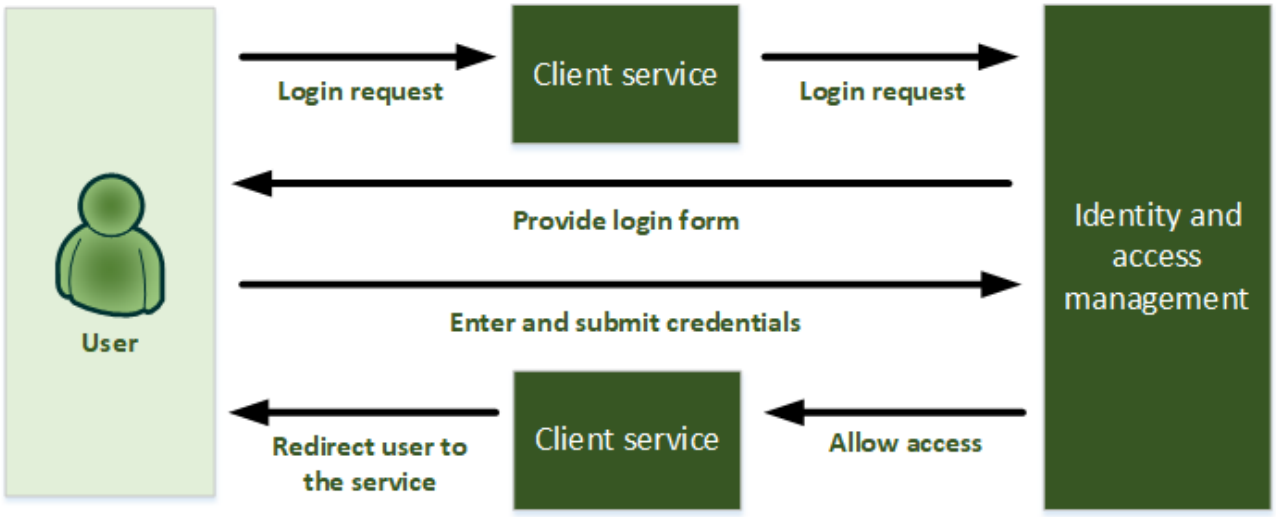


Figure 17. User data flow in authentication process

3.4.2 Data Protection Organization

At JAMK University of Applied Sciences, we have allocated the responsibility for data protection management in relation to the national Finnish and EU legislation, the wide scope of the work on data protection and the fact that it involves every person in our organization. The aim of our data protection organization is to take work on data protection as part of the operative activities of our organization and to report on matters such as new projects relating to personal data processing.

The responsibilities, obligations and rights relating to personal data are defined according to roles. The data controller and the data processor are distinguished from one another and determined according to the circumstances. *The data subject* is the person whose personal data is under discussion, in this case the registered Biobord user.

For all personal data files, a description of file or privacy policy must be produced. This document contains information on the controller but also on the person in charge of matters related to the data file or the controller's representative who oversees the services related to the rights of data subjects. The fact that the controller appoints a data protection officer does not affect the controller's responsibility for the data file.

The Data Protection conducts in Biobord platform have been assigned in line with the overall data protection principles of JAMK University of Applied Sciences. However, this document is limited to viewing the data protection protocol and system with regards to Biobord platform administrated by JAMK University of Applied Sciences.

3.4.3 Designation and Duties of the Data Protection Officer

The EU General Data Protection Regulation obligates certain controllers to appoint a data protection officer. A data protection officer must be designated in any case where:

- the processing is carried out by a public authority or body;
- the core activities of the controller or the processor consist of processing operations which, by virtue of their nature, require regular and systematic monitoring of data subjects on a large scale; or
- the core activities of the controller or the processor consist of processing on a large scale of special categories of data, or of personal data relating to criminal convictions and offences.

With regards to Biobord Platform, the data protection officer at JAMK University of Applied Sciences assigned to the task for the duration of the RDI2CluB project are Anna Aalto as the project manager of RDI2CluB project and Antti Häkkinen as the expert in charge of the technical development of the platform. The data protection officers have independent position in the organization. They report directly to the RDI2CluB Steering Committee and the respective directors of the JAMK Institute of Bioeconomy and JAMK Institute of Information Technology. The data protection officers are involved on daily basis in the operative management and user guidance on Biobord platform.

The data protection officers have received expert consultation on data protection law and practice with regards to application for Biobord Platform. They are also supported by the data protection organization of JAMK University of Applied Sciences in specific questions concerning application of data protection processes. During the RDI2CluB project lifetime, the data protection officers have dedicated work time for the daily management of the Biobord platform, including data protection related tasks. The data protection officers are administrators of the Biobord Platform having access to the personal data and processing operations.

The data protection officer is obligated to maintain secrecy. He or she may not be dismissed or penalized for performing the tasks of the data protection officer, and he or she may fulfil other tasks and duties in addition to those of the data protection officer, as long as any such tasks and duties do not result in a conflict of interests.

The data protection officer has the following tasks:

- The implementation and application of the General Data Protection Regulation in the organization
- Participation in the management of data protection risks
- Provision of information and advice to the organization in all matters related to data protection
- Supervision of the production, availability and maintenance of documentation
- Monitoring the implementation of the notification obligation
- Support of and monitoring of the performance of the data protection impact assessment
- Cooperation with the supervisory authority
- Construction of a data protection awareness program and personnel training

- Support of the realization of the rights of data subjects
- The appropriate observation of risks involved in processing operations
- Planning and implementing operation control
- Reporting to organization management on the state of data protection and the related needs for development
- Participation in other tasks supporting data protection appointed by organization management

In order to maximize support to the controller, the data protection officer should be able to perform the abovementioned tasks and the related planning, monitoring and reporting duties as independently as possible. Being aware of the current state of the organization's data protection is a crucial part of the controller's accountability.

The data protection officer produces an annual report that includes all matters related to data protection and personal data processing. This 'Data Balance Sheet' gives an overall picture of the current state of the personal data processing and data protection at the organization. It helps the management to monitor and assess the organization's current state and allocate resources to its development.

With regards to the Biobord Platform, the Data Protection Organization comprises the following persons:

- Data Protection Officer, Anna Aalto (Project Manager of RDI2CluB)
- Contact person for register-related matters, Antti Häkkinen
- RDI2CluB Project Steering Committee as a monitoring and advisory group

In addition to the regular and specified tasks, the organization may oversee operative data protection tasks, such as responding to requests from data subjects, producing data protection impact assessments and requirement specifications in product development and acquisitions. Contracts are attached with a separate annex on data security in which responsibilities have been divided on a case-by-case basis, for example between different suppliers and partners.

3.4.4 Role of RDI2CluB Project Steering Committee

RDI2CluB Project Steering Committee represented by 12 partners is acting as a monitoring and advisory group for the data protection in Biobord platform during the project lifetime until end of September 2020. The Project Steering Committee Rules of Procedure have been stipulated in the 'Quality assurance and monitoring plan' of the RDI2CluB.

The RDI2CluB Project Steering Committee meets twice a year with meetings schedules for December 10, 2019, and May 2020 as online meetings carried out via Zoom web meeting platform. JAMK University of Applied Sciences is chairing the meetings while the secretary duty is alternating between other partners.

The following issues concerning data protection are brought to the agenda of the Data Security Group:

- Review of the Customer register privacy statement
- Review of the Data Balance Sheet (incl. risk register)
- Review of notification of anomalies (and responses)
- Review of the annual work plan for data protection monitoring

3.4.5 Annual Work Plan

The regular and specified tasks of the Data Protection Organization have been defined in the yearly calendar presented in Figure 3. The regular tasks include meetings of the Data Security Group, review and revision of data protection documentation, assessment of training needs, risk assessment and reporting to management. The Data Security Group meets two times a year.

Data Protection Organization is in charge of operative data protection tasks, such as responding to requests from data subjects, producing data protection impact assessments, requirement specifications in product development and acquisitions, definitions of contract obligations and tasks related to the monitoring of personal data processing.

In addition to the regular and specified tasks, the Organization may be in charge of operative data protection tasks, such as responding to requests from data subjects, producing data protection impact assessments and requirement specifications in product development and acquisitions. Contracts are attached with a separate annex on data security in which responsibilities have been divided on a case-by-case basis, for example between different suppliers and partners.

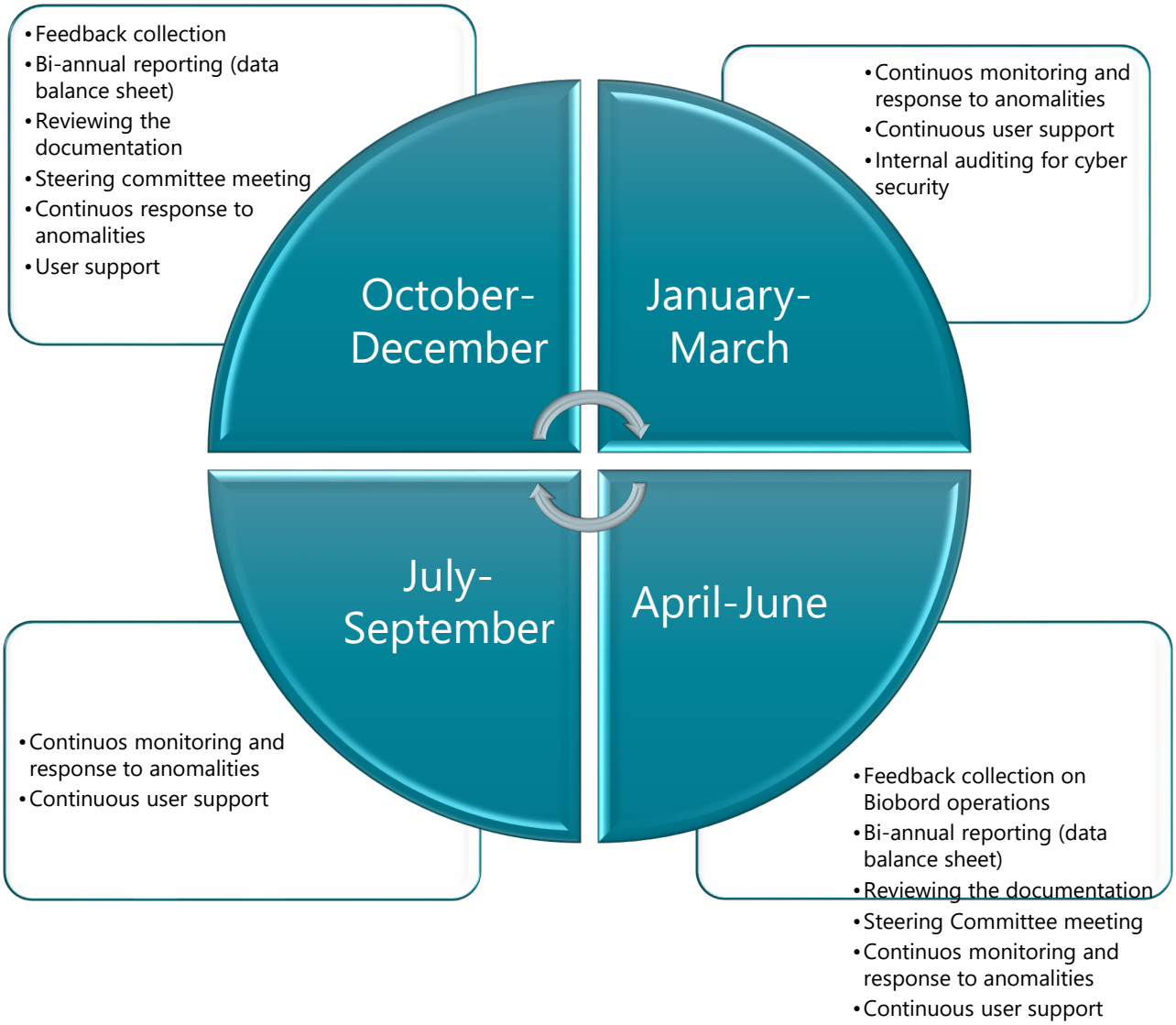


Figure 18. Annual Work Plan for the Data Protection Organisation

3.4.6 Adjustment needs

A management board for the Biobord network will be organised among the partnership based on a network agreement. The board will gather twice a year and maintain the role of the RDI2CluB Steering Committee as the monitoring and advisory group for the data protection in Biobord platform. The exact membership of the Board as well as the roles of the members will be clarified by the end of the RDI2CluB project.

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5. Terminology and Abbreviations

BIE	= Bioeconomy Innovation Ecosystem
BSR	= Baltic Sea Region
EUSBSR	= EU strategy for Baltic Sea Region
IPR	= Intellectual Property Rights
PA Bioeconomy	= Policy Area Bioeconomy (One of 13 EU Strategy for the Baltic Sea Region's Policy Areas included in the Action Plan)
RDI2CluB	= 'Rural RDI milieus in transition towards smart bioeconomy clusters and innovation ecosystems - Project developing Biobord.
RIS	= Regional Innovation Strategy or Regional Innovation System
RIS3	= Regional Innovation Strategies for Smart Specialization
S3	= Smart Specialization Strategy
SME	= Small and Medium sized Enterprise

6. Connected Policies, Guides & Manuals

6.1 Biobord Platform Management Documents

Management document 1: Terms of Service

Management document 2: Privacy Policy

Management document 3: Data Balance Sheet

Management document 4: Quality Assessment Checklist for Service Cards

6.2 Guides for Members and Users of Biobord Platform

Guide 1: Innovation Hub Design Guide for New Members

Guide 2: Service Path Guide for Biobord Members

Guide 3: Communication Guide for Biobord Members

Guide 4: Platform Guide for Registered Users

6.3 Manuals on Biobord Platform Features

Biobord Manual 1: Keycloak User Account Management System

Biobord Manual 2: Wagtail Content Management System

Biobord Manual 3: Forum

Biobord Manual 4: Document Management System