

D4.2

Report on the
BIOEAST OIC design
process and
implementation

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Disclaimer

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Abbreviations

AI	Artificial Intelligence
BBSK	Banská Bystrica Region
BIC	Bioeconomy Industries Consortium
CEE	Central and Eastern Europe
CTR	Click-through Rate
EC	European Commission
EFI	European Forest Institute
EU	European Union
IBF	Irish Bioeconomy Foundation
OECD	Organisation for Economic Co-operation and Development
OI	Open Innovation
OIC	Open Innovation Challenge
R&D	Research and Development
SRIA	Strategic Research and Innovation Agenda
TRL	Technological Readiness Level
TWG	Thematic Working Groups

Introduction to the project

BOOST4BIOEAST is a Coordination and Support Action funded by the European Commission developed to support the BIOEAST Initiative with the aim of empowering national stakeholders in the Central Eastern European and Baltic countries for the development of national bioeconomy action plans and to build long-lasting structures and spaces of dialogue for national and macro-regional cooperation. The project will enrich knowledge on the bioeconomy and stimulate related research and innovation across the macro-region.

1 Introduction

This report provides a comprehensive description of the design process and implementation of the BIOEAST Open Innovation Challenge (OIC), an initiative created to foster collaboration and accelerate innovation in the bioeconomy across the BIOEAST macro-region. The OIC was conceived as a structured, participatory mechanism to identify pressing challenges in agriculture, forestry, and related sectors, and to mobilize diverse actors to propose practical, scalable solutions.

The report outlines the rationale behind the BIOEAST OIC and its role in promoting open innovation as a driver of sustainable transformation. It describes the methodology designed to ensure transparency, inclusiveness, and impact, detailing each stage of the process: from the initial design and engagement of BIOEAST HUBs and Thematic Working Groups (TWGs), to the development of communication strategies, launch of the open call, and evaluation of submitted solutions. Special attention is given to the collaborative approach that enabled the identification of eight thematic areas, each addressing critical technological, social, and environmental challenges.

This deliverable also includes the list of BIOEAST OIC winners and the next steps for their participation in the BIOEAST OIC pitching events, among other prizes. By documenting this process, the **report aims to provide a reference framework for similar initiatives seeking to strengthen innovation ecosystems and accelerate the bioeconomy transition involving multiple stakeholders and actors.**

2 Rationale

The BIOEAST OIC was built on the open innovation concept, which emphasizes the value of sharing knowledge and collaborating across different actors and sectors. Understanding these concepts is therefore essential, as it provides a common basis for recognizing the OIC's role in unlocking innovation through collaboration.

2.1 Innovation

The term innovation has evolved over time with several definitions. In general terms, innovation is the practical implementation of ideas that results in the introduction or improvement of goods and services. Innovations are based on the results of new technological developments, new technology combinations, or the use of new knowledge.

The Organisation for Economic Co-operation and Development (OECD)/Eurostat (2018) defines innovation as "a new or improved product or process (or combination thereof) that differs significantly from the unit's (or actor's) previous products or processes and that has been made available to potential users (product) or brought into use by the unit (process)."

Social innovation extends the concept to solving complex social and environmental challenges. The Stanford Graduate School of Business (n.d.) describes social innovation as the process of developing and deploying effective solutions in support of social progress. Solutions often require the active collaboration of actors across government, business and non-profits.

2.2 Open Innovation

Chesbrough (2003) introduced the concept of Open Innovation (OI) as a distributed process that leverages knowledge flows across organizational boundaries, incorporating both internal and external ideas and technologies. External ideas and technologies are absorbed by the organization (outside-in open innovation), and internal ideas and technologies are externalized (inside-out OI).

Unlike traditional closed innovation models, which rely primarily on internal research and development (R&D) for ideation and product development, open innovation promotes collaboration beyond internal resources, encouraging partnerships with external entities such as startups, universities, and customers (Jain, 2023).

To succeed, organizations must effectively mobilize and share knowledge across functional, departmental, and geographic silos—isolated structures that restrict communication and collaboration—often requiring new workflows and structures to incentivize collaboration (Chesbrough, 2023).

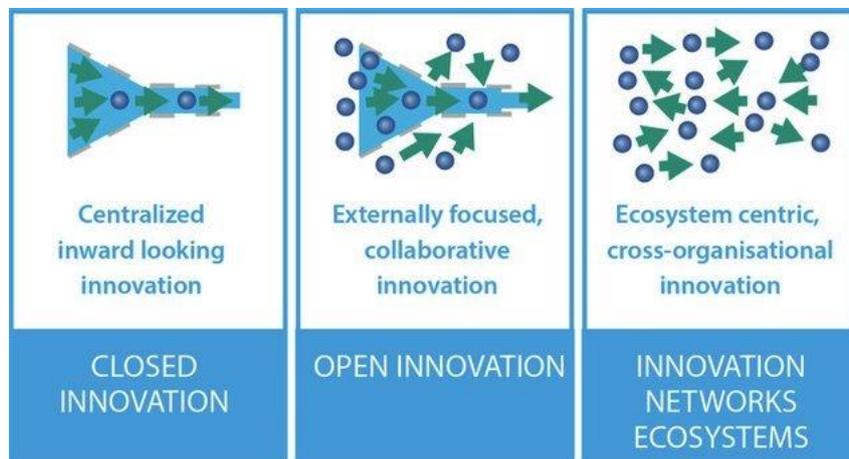


Figure 1. The evolution of innovation (European Commission (EC), 2013)

According to Jain (2023), some of the benefits of OI are:

- **Access to a broader pool of ideas and expertise:** OI enables organizations to tap into external sources of knowledge. This approach provides access to diverse ideas, specialized expertise, and resources that may not be available internally.
- **Accelerated development and implementation:** By collaborating with external partners, organizations can speed up innovation processes. Leveraging external

capabilities and shared knowledge helps reduce bottlenecks and accelerates the transition from concept to practical application or market deployment.

- **Greater flexibility and adaptability:** Engaging in OI fosters agility in responding to emerging scientific challenges, policy priorities, and technological trends. By integrating external insights, organizations can adapt quickly to new opportunities and evolving stakeholder needs.
- **Enhanced competitiveness and impact:** OI strengthens competitiveness and societal impact. Access to a wider range of perspectives and expertise supports the creation of more innovative solutions, contributing to leadership in science, technology, and market relevance.

2.3 Open Innovation Models

Depending on the objectives, strategy, and structure, OI initiatives can take different forms or combine multiple models (Brant & Lohse, 2014; Nayak et.al., 2022). **Inbound OI** refers to leveraging external sources of knowledge and innovation—such as research institutions, startups, or industry partners—within an organization’s processes. **Outbound OI** focuses on using external pathways to develop and commercialize innovations, for example by licensing technologies or sharing research outputs. The **coupled innovation process** combines both inbound and outbound approaches, where organizations collaborate to co-create new knowledge and solutions rather than simply exchanging existing resources.

2.3.1 Open Innovation Challenge

OICs, as well as hackathons and crowdsourcing initiatives, are a common example of inbound open innovation, enabling organizations to access diverse ideas and expertise from external contributors. These challenges are designed to gather innovative ideas and identify solutions to specific problems (Brant & Lohse, 2014). They can take various forms, ranging from public events open to anyone, to private competitions involving selected partners. The focus may be on solving a well-defined issue or encouraging a broader range of creative proposals.

An OIC operates as a structured competition where challenges are published, and participants, submit solutions. The ultimate goal is to foster collaboration and unlock innovation potential through a dynamic, game-like approach, leading to the creation or improvement of products, processes, and services.

Key conceptual elements of an OIC are (adapted from Xavier, 2022):

- **Problem:** the well-defined description of an undesired or harmful matter or situation requiring a solution.
- **Challenge:** a technical problem to be solved. It may be related to e.g. process bottlenecks, product performance, raw material availability, market drive, or regulatory barriers. The BIOEAST OIC is composed of **Themes** representing different challenges.

- **Solution:** an invention, device, material, process, product, tool or innovation of any kind, able to overcome the barriers identified in the challenge when implemented.
- **Solution provider:** those that submit solutions.
- **Challenge owner:** those who submit the Challenges. In the BIOEAST OIC, Challenge owners are also called **Theme owners**.
- **Technological Readiness Level (TRL):** a measurement system used to assess the maturity level of a particular technology (Figure 2).

TRL 1	Basic principles observed and reported
TRL 2	Technology concept and/or application formulated
TRL 3	Analytical and experimental critical function and/or characteristics proof-of-concept
TRL 4	Component and/or breadboard validation in laboratory environment
TRL 5	Component and/or breadboard validation in relevant environment
TRL 6	System/subsystem model or prototype demonstration in a relevant environment (ground or space)
TRL 7	System prototype demonstration in a space environment
TRL 8	Actual system completed and "flight qualified" through test and demonstration (ground or space)

Figure 2. Description of the eight TRLs (NASA, 2025)

3 The BIOEAST Open Innovation Challenge

The BIOEAST OIC was designed as a strategic initiative to accelerate innovation in the bioeconomy across the BIOEAST macro-region. It aimed to serve as a platform to bring together diverse stakeholders and foster collaboration among them to address pressing technological, managerial and social challenges in the different sectors of the bioeconomy.

Key objectives of the BIOEAST OIC include:

- Stimulate innovation at national and BIOEAST levels.

- Serve as a channel for key bioeconomy actors and stakeholders to express their needs and challenges and raise awareness on them.
- Serve as a discovery mechanism for already available or potential future solutions to solve bioeconomy challenges.
- Mobilise talented bioeconomy actors: students, startups, research institutions, companies, and associations to propose innovative solutions.
- Provide opportunities for innovators to gain visibility, connect with key stakeholders, unlock pathways for further development, and bring them closer to national and EU-level public & private investors.

At the core of the BIOEAST OIC are the BIOEAST HUBs, which in their role as key bioeconomy national networks, supported by the TWGs bringing the thematic and cross-country perspective, had the task of identifying critical problems and opportunities for advancing the bioeconomy taking the role of Challenge owners or identifying them.

As part of the strategic planning process, the main benefits of the BIOEAST OIC were identified for both Challenge owners and Solution providers (Table 1).

Table 1. Benefits of the BIOEAST OIC for Challenge owners and Solution providers

Benefits for Challenge owners	Benefits for Solution providers
<ul style="list-style-type: none"> • Connect with innovative solution providers. • Find solutions to support solving specific barriers and problems. • Better understand market and technology trends. • Attract talent to the HUBs and TWGs. • Gain visibility for the HUBs and TWGs and their stakeholders. • Give visibility to key topics. 	<ul style="list-style-type: none"> • Pitch their solutions to relevant investors. • Meet key bioeconomy stakeholders from the BIOEAST HUBs and TWGs and explore collaborations. • Engage with like-minded professionals, researchers, and organisations. • Expand their personal network. • Gain wide recognition. • Receive additional benefits.

3.1 Key roles

The design and management of the BIOEAST OIC entailed a coordinated effort among several BOOST4BIOEAST project partners, each playing a critical role in ensuring the success of the call (Table 2).

Table 2. Roles for the BIOEAST OIC design and management

Team	Role	Partners
BIOEAST OIC organising team	Oversee the design and operational management of the OIC process, including definition of the themes, launch of the call, design and implementation of the evaluation process, and development of guidelines.	EFI (lead), AKI, BIC, IBF, ÖMKI.
BIOEAST OIC communications team	Design and develop the BIOEAST OIC communication and dissemination campaign and materials, including website, communication materials, social media campaign, application form, etc.	EFI, TRUST IT, APRE, AKI, BIC, IBF, ÖMKI.
HUBs and TWGs	Provide feedback on the BIOEAST OIC design, provide input for the identification of the themes and their elements, identify additional awards for winners, dissemination of the call, overseeing the evaluation process at a HUB level.	AA, EIHP, HPK, CR HUB, CZU, EMÜ, BME, AKI, LBTU, VMU, ZUM, MARD PL, IERiGZ PIB, ICEADR, INCDSB, MARD SK, NPPC, NLC, CC, MKGP

4 BIOEAST Open Innovation Challenge Methodology

The BIOEAST OIC process methodology was developed in alignment with its strategic objectives and through a participatory, collaborative approach, ensuring it reflected the current bioeconomy challenges and needs in Central and Eastern Europe (CEE). At the same time, it guaranteed effective dissemination, broad outreach, and transparency across all stages of the process. The steps of the methodology process are listed in Figure 3.



Figure 3. BIOEAST OIC process steps and timeline

4.1 BIOEAST Open Innovation Challenge design

4.1.1 Definition of the BIOEAST OIC scope

A key step in the design process was the engagement and onboarding of the BIOEAST HUB and TWG coordinators. This involved clear communication of the BIOEAST OIC objectives and expected benefits to ensure active participation throughout the process and a comprehensive understanding of all its stages. This process included dedicated sessions held at the HUB Coordination Body meetings on 28 February and at the project's Annual Meeting in Bucharest on 23 April 2025.

These sessions included interactive exercises using Mentimeter for gathering insights from participants on potential challenge topics, potential challenge owners, type of solutions, potential additional awards, dissemination channels to be included in the OIC.



Figure 4. Results of Mentimeter exercise for designing the BIOEAST OIC

Building on the inputs gathered during the sessions, summary guidelines were prepared and shared with HUBs and TWGs providing definitions and explanations of key design elements (Appendix 1). Based on the key OIC elements defined in the guidelines, HUB and TWG coordinators were requested to submit proposals for key challenges relevant to their context. Elements requested in this step were:

- **OIC design:** potential challenge owners, problem, challenges, and type of solutions desired.
- **Partnership building:** potential supporters and suggested additional awards.
- **Dissemination channels:** relevant channels for call dissemination.

For identifying the challenges, the following tiered activities were proposed:

a) Internal identification by HUB management team/TWG coordinators (minimum requirement)

In this approach, the HUB management team and TWG coordinators internally identified and gathered the different elements. Challenges were defined based on HUB/TWG-level issues, leveraging the management team's understanding of the country/macro-regional context. In this case, challenge ownership rested with the HUB/TWG itself or the organizations to which the management teams or coordinators belong.

b) Consultation with key stakeholders

The HUB management team and TWG coordinators presented the challenges identified in the previous step to key HUB/TWG stakeholders to validate them, received feedback and gave them opportunity to propose their own challenges.

c) Internal design workshop

An internal OIC design workshop was organized by the HUB management team/TWG coordinators gathering interested stakeholders to co-design the challenges.

To support the identification of the challenges, other relevant project outputs were recommended as sources:

- **Bioeconomy-related competencies identified in T3.3:** this document gives an overview of the competencies needed for a transition towards the bioeconomy.
- **National priority areas identified in T4.1:** the document shows a compilation of relevant bioeconomy, sustainability and sector relevant strategies and action plans in each country, identifying their goals and priority areas.
- **Challenges identified by TWGs for the Strategic Research and Innovation Agenda (SRIA) updates.**
- **Challenges identified by HUBs for the development of their bioeconomy Action Plans.**

A total of 40 challenge proposals covering a range of topics were received. EFI analysed the proposals and clustered them in eight overarching themes based on commonalities and shared focus areas. For each theme, key elements to be featured in the call were defined (Table 3).

Table 3. BIOEAST OIC theme elements

Theme element	Description
Problem statement	Gives background information of the current needs and gaps, and the urgency and scope of the theme.
Key issues to be addressed	Breaks down the problem into specific focus areas. Lists priority topics or sub-challenges that participants should consider when proposing solutions.
Type of solutions	Description of what kind of ideas or innovations were expected with examples of acceptable solutions, scope (e.g., technical, social, digital), and TRL.
Who can apply?	Type of organisations eligible to apply to the theme.
BIOEAST HUBs and TWGs engaged in the theme	HUBs and TWGs involved in the theme as Challenge owners or supporters.

Additional awards	Theme specific awards to be granted.
Challenge owners	Organisations involved in the theme design and that will evaluate the applications.
Supporters	Organisations supporting the BIOEAST OIC by providing additional awards and/or in the communication and dissemination.

On 6 June 2025, an OIC design workshop with the participation of the BIOEAST OIC organising team, BIOEAST HUBs and TWGs was held. The agenda of the design workshop included:

1. Overall scope of the BIOEAST OIC
2. Presentation of the eight proposed themes and feedback from HUBs and TWGs
3. Evaluation process design
4. BIOEAST OIC timeline and next steps
5. Q&A

Based on the feedback received, the themes and their elements were refined, presented and discussed during a HUB Coordination Body meeting on 20 June, and then sent to HUBs and TWGs for a final review. The final BIOEAST OIC themes are shown in Figure 5 and complete information on each theme can be found in Appendix 2.



Figure 5. BIOEAST OIC themes

4.1.2 Prizes

An important element of the BIOEAST OIC design was the identification of the prizes for winners which involved the contributions of project partners and HUBs and TWGs. The prizes included:

a) Participation to the BIOEAST pitching events

The winner of each theme was automatically eligible to receive funding to cover their travel expenses for attending one of the BIOEAST pitching events which will be organised throughout spring 2026 in Hungary, Slovenia, Estonia, Bulgaria, and Czechia.

The BIOEAST pitching events aim to mobilise private investments and other sources of capital towards BIOEAST stakeholders, thereby enhancing the macro-region's bioeconomy growth potential at both proof-of-concept (start-up) and growth (scale-up) stages. Participants will have the opportunity to network with key bioeconomy stakeholders and to showcase and defend their business cases to both local and European investors, potentially unlocking new funding and partnership opportunities.

b) Prizes offered by the Bioeconomy Industries Consortium (BIC)

- The highest scoring non-commercial actor (e.g. university, research institute, etc.) will receive a one-year free Associate BIC Membership.
- The highest scoring company will be invited to a free pitching session, where they will have the opportunity to present their business and expertise to BIC members and explore opportunities for collaboration.
- Both of these winners and also the second highest scoring solution, will be invited to the next BIC Matchmaking Event in Brussels on 11 February.

c) Theme-specific awards

BIOEAST HUBs and TWGs offered additional benefits to selected applicants which included dissemination and visibility opportunities in relevant channels, invitation to events, co-testing opportunities, etc. Theme-specific awards are listed in Appendix 2.

4.1.3 Communications campaign

The communications campaign was designed to provide the necessary tools and channels to widely disseminate the BIOEAST OIC across CEE and to reach the target audiences. The BIOEAST OIC had the HUBs and TWGs as main multipliers leveraging contacts across their networks.

The communications campaign had the main objectives described in Table 4.

Table 4. Communications campaign objectives

Objective	Description
Raise Awareness	Visibility and promotion of bioeconomy topics and the open call
Engage Stakeholders	Mobilize target groups to participate
Promote Knowledge Exchange	Cross-sector dialogue and learning
Position the CEE Region	BIOEAST as an innovation hub for bioeconomy

Showcase Impact	Communicate solutions and success stories
Support Community	Build ongoing networks for bioeconomy innovation

The key target audiences of the BIOEAST OIC were students, researchers, and start-ups and companies. An analysis of their main needs, challenges, and preferences was made to ensure that the communications campaign conveyed messages that are relevant and impactful (Appendix 3).

To support HUBs, TWGs and project partners in the dissemination of the call to the key target audiences, a dissemination toolkit was prepared. The toolkit included:

- a) Digital flyer
- b) Social media cards and suggested text for social media posts
- c) Email templates targeting different target audiences
- d) Email banner

The organisations and networks reached were added to a dissemination list to monitor outreach and follow-up.

To facilitate communication with potential applicants, a dedicated email address (bioeastoic@efi.int) was available to receive questions and queries.

4.1.4 Communication materials and tools

Website

BIOEAST maintained a dedicated landing page on the website as the main entry point for all official information about the BIOEAST OIC. The OIC page is accessible through this link: <https://bioeast.eu/open-innovation-challenge/>. One month before the call launch, the BIOEAST OIC webpage featured a *Save the Date* announcement and a [news article](#).

The BIOEAST OIC website was developed in three main steps:

1. Creation of wireframes
2. Design of graphic mock-ups
3. Development of the landing page on the BIOEAST website

Each step was approved by the BIOEAST OIC organising team to ensure that the page included all relevant information for application.

The final BIOEAST OIC landing page included:

- a) The BIOEAST OIC description and objectives
- b) Benefits of participating
- c) The scope of the call including a dedicated page for each of the themes
- d) The type of solutions the BIOEAST OIC is looking for

- e) Who can apply?
- f) Prizes
- g) Instructions on how to apply, including a link to the application guidelines (Appendix 4) and the online application form
- h) Timeline of the call
- i) Frequently asked questions
- j) BIOEAST OIC supporters

In addition to the OIC landing page, the team developed eight additional pages, one for each theme, describing their scope.

Digital flyer

The digital flyer served as a concise and visually engaging tool to raise awareness about the OIC, provide essential information such as purpose, benefits, key dates, application guidelines, and encourage participation. By including a clear call-to-action and directing audiences to the official website, the flyer aimed to facilitate easy access to further details and application procedures.

BIOEAST Open Innovation Challenge

Seeking innovative solutions for bioeconomy challenges in Central and Eastern Europe
Participate in the BIOEAST Open Innovation Challenge (OIC) and be part of the solution to boosting the bioeconomy in the BIOEAST macro-region!

THE BIOEAST OIC

The BIOEAST OIC is a collaborative initiative, and a unique platform to accelerate bioeconomy innovation across the BIOEAST macro-region in key bioeconomy sectors. It brings together diverse bioeconomy actors to drive meaningful impact. Innovators from the BIOEAST countries are invited to submit their solutions to help close innovation gaps in the following themes:

Resilient small and medium-sized farms

Biomass logistics

Biowaste reduction and valorization

Sustainable bioenergy

Innovative wood technologies

Monitoring agri-food and forestry systems

Stakeholder engagement and collaboration

Raising awareness of the circular bioeconomy

BIOEAST HUBs, acting as challenge owners, will evaluate and select the most suitable solutions.

WHY PARTICIPATE

Successful applicants will have the opportunity to:

- Participate in pitching training sessions and matchmaking events in BIOEAST countries
- Meet key bioeconomy stakeholders of the BIOEAST HUBs and Thematic Working Groups and explore collaborations
- Engage with like-minded professionals, researchers, and organizations
- Expand their personal network
- Gain wide recognition
- Receive additional benefits offered by BIOEAST HUB stakeholders'

HOW TO APPLY

Review the themes description → [Here](#)
Read the application guidelines thoroughly for complete information about eligibility and evaluation → [Here](#)
Submit your solution through this application form → [Here](#)

Application will be open
from 15 September to
31st October 2025

For more information visit us on:

www.bioeast.eu

Supported by:

BOOST4BIOEAST project

BIOEAST HUBs

BIOEAST Thematic Working Groups

Funded by the European Union

About BOOST4BIOEAST project:

[about us](#)

Figure 6. BIOEAST OIC digital flyer

Email banner

The email banner served as a visual element in email signatures to enhance visibility and expand outreach.



Figure 7. Email banner

Social media

A social media campaign aimed to increase visibility, engage target audiences, and drive participation through strategic use of LinkedIn, Facebook and X. The campaign included regular posts highlighting key dates, benefits of joining the challenge, the BIOEAST OIC themes, and messages tailored to the key audiences using social media cards with concise messages. All posts were aligned with the overall communication strategy to ensure consistency and maximize outreach and following an editorial calendar.



Figure 8. Example of social media card

Additionally, to amplify the call on social media and leverage the extensive network of BIC, BIC launched a paid LinkedIn campaign to increase visibility and engagement among relevant potential applicants. The campaign delivered strong results generating 8,842 impressions and 158 clicks. The average Click-through Rate (CTR) of 1.79% was more than three times higher than the industry benchmark (0.52%), demonstrating excellent audience engagement and relevance.

Email templates

Email templates were developed and tailored for key target audiences, highlighting the main benefits for each group to ensure relevant and targeted messaging. Each template included all necessary application details and was designed for distribution through relevant networks to promote the OIC. The templates allowed for further customization as needed.

Newsletter

The BOOST4BIOEAST project published Newsletter No. 4, dedicated to the BIOEAST OIC, for dissemination among newsletter subscribers to raise awareness about the call, share key information, and encourage participation.



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Editorial – Driving Bioeconomy Innovation

The BIOEAST Open Innovation Challenge: The 5W Overview

Why Participate and How to Apply

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Timeline and Key Milestones

Figure 9. BOOST4BIOEAST 4th Newsletter

Informative webinar

To further support dissemination and stakeholder engagement, a webinar dedicated to the BIOEAST OIC was organized, providing an overview of the initiative, its objectives, and application process. The session aimed to clarify requirements, address participant questions, and encourage involvement from relevant actors across the BIOEAST region. The recording of the webinar was made publicly available on the BOOST4BIOEAST YouTube channel and shared in the BIOEAST website and social media to ensure broader access among potential applicants.

4.2 Open call

The BIOEAST OIC call was officially launched on 15 September 2025, with an initial deadline of 31 October 2025. To allow for broader outreach and increased participation, the deadline was extended to 15 November 2025. Applications were submitted online through a dedicated application form linked to the BIOEAST OIC website. During this stage, all communication tools and channels were actively utilized to ensure maximum visibility and engagement.

4.3 Evaluation process

The evaluation process mobilised the HUBs or TWGs involved in each of the themes. These HUBs/TWGs designated one or more organizations to act as theme owners, which were the evaluating organizations. These organisations included the HUB/TWG coordinator’s organization and/or relevant HUB/TWG stakeholders. Each evaluating organization then appointed one or more individuals, referred to as evaluators, who were responsible for assessing the submitted applications.

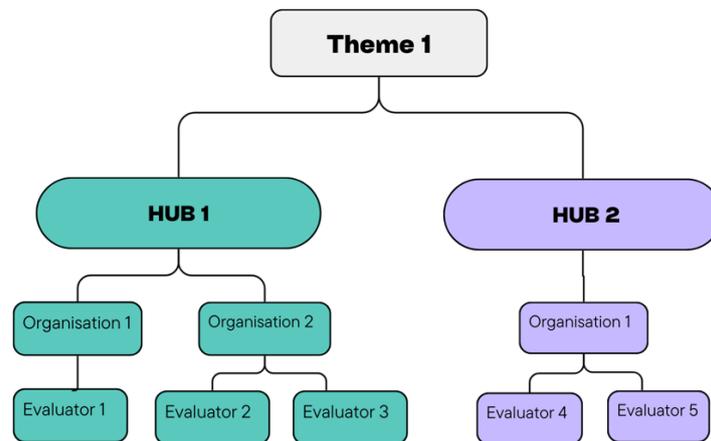


Figure 10. Example of the designation of evaluators for a theme

Evaluation guidelines with the description of the process were developed and shared with the HUBs and TWGs involved.

4.3.1 Conflict of interests

A conflict of interest was defined as any situation where an applicant and an evaluator belonged to the same organization or had any other form of association. Before starting the evaluation, all evaluators were required to declare potential conflicts of interest through an online form. No conflicts of interest were identified during the process.

4.3.2 Evaluation of eligibility criteria

Only applications that meet the eligibility requirements proceeded to the evaluation stage. The first step in the assessment process was an eligibility check. This initial review was conducted by the BIOEAST OIC organising team, based on predefined eligibility criteria (Table 5).

Table 5. Eligibility criteria

Eligibility criteria	Description
Country	Applicants must be residents or nationals of BIOEAST countries only: Bulgaria, Croatia, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Slovakia, and Slovenia.
Language	Applications must be submitted in English.
Submission deadline	Only applications submitted before the official deadline were accepted.
Duplicate submissions	If two applications from the same applicant were found to be very similar, only the most recent version was be evaluated.
Completeness	Only complete applications were considered eligible.

4.3.3 Evaluation of award criteria

Eligible applications were forwarded to the HUBs and TWGs involved to be assessed against the established award criteria (Table 6), ensuring that each application is reviewed in alignment with the thematic priorities and objectives of the BIOEAST OIC. Each HUB coordinator oversaw the evaluation of applications submitted to the themes in which they were involved.

Table 6. Award criteria

Award criteria	Description
Adequacy of submitted solution	Does the proposed solution match the theme? Does the proposed solution address the problem and key issues to be addressed?
Quality of the submission	Is the proposal clear, logical and well structured?
Novelty	Is the proposed solution innovative, significantly different and better than the currently existing and available?
Impact	Impact of the solution according to the following parameters: economic, social and environmental.
Capacity of implementation	Capacity of the team and feasibility of implementing the solution.

4.3.4 Scoring

An evaluation form was provided to HUB and TWG coordinators to be distributed to evaluators for rating the applications according to the award criteria and using a rating scale from 0 to 5 (Appendix 5). Each HUB coordinator collected the completed evaluation forms, which contained a rating for each application per evaluator. If an organization had multiple evaluators, the ratings were averaged to obtain a single score per organization. When a HUB or TWG was represented by multiple organizations, the ratings per organization were averaged to obtain the final rating per HUB as shown in the example in Figure 11. Alternatively, HUBs and TWGs were suggested to organize a HUB/TWG-level consensus meeting to score the applications.

HUB coordinators submitted a final HUB-level rating for each application to EFI. EFI then calculated the overall final rating for each application by averaging the ratings provided by all HUBs involved in the evaluation of the respective theme.

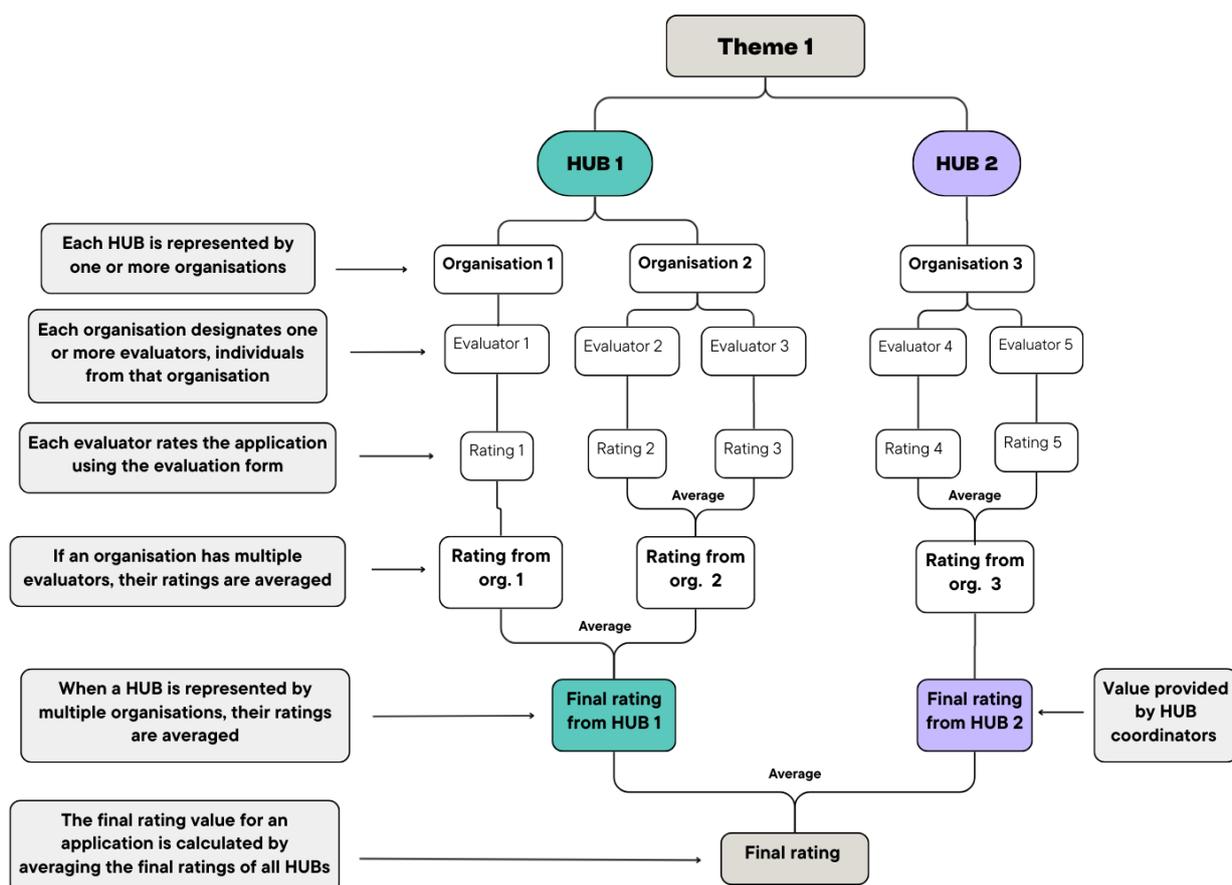


Figure 11. Rating process example

4.3.5 Selection of winners

Based on the final rating of each application, EFI prepared a ranking list for each theme. Applicants with the highest scores in each theme were designated as preliminary winners. The preliminary list of winners was shared with evaluators for their review and giving them the opportunity to raise any issue that needed further consensus. Due to a technical tie in Theme 1, two applications were selected as winners of the theme.

4.3.6 Results and announcement of winners

The BIOEAST OIC received 40 applications in total, of which 36 were deemed eligible. Submissions came from all BIOEAST countries (Table 7). Most applicants were start-ups, followed by researchers (Table 8), and the proposals addressed 7 out of the 8 thematic areas (Table 9).

Table 7. Number of applicants per country

Country	Number of applicants
Hungary	6
Slovakia	5
Croatia	5
Czech Republic	5
Romania	4
Bulgaria	4
Estonia	2
Lithuania	2
Slovenia	1
Poland	1
Latvia	1

Table 8. Number of applicants per type of organisation

Type of organisation	Number of applicants
Start-up	13

Researcher(s)	9
SME	7
Student(s)	3
Scale-up	2
Other	2

Table 9. Number of applicants per theme

Themes	Number of applicants
Theme 1: Resilient small and medium-sized farms	11
Theme 3: Biowaste reduction and valorisation	11
Theme 6: Monitoring agri-food and forestry systems	4
Theme 8: Raising awareness of the circular Bioeconomy	3
Theme 5: Innovative wood technologies	3
Theme 2: Biomass logistics	2
Theme 7: Stakeholder engagement and collaboration	2
Theme 4: Sustainable bioenergy	0

The originally envisioned date for the announcement of the winners on 20 December 2025, had to be postponed due to the additional time required to reach consensus on the selected application for one of the themes. After the list of winners was validated by the HUBs, TWGs, and the BIOEAST OIC organising team, winners were announced through a [news piece](#) on the website and social media on 23 January 2026. Moreover, information about the winners' solutions and their teams will be featured in the BIOEAST OIC webpage.

The BIOEAST OIC winners per theme are:

Theme 1: Resilient small and medium-sized farms

- **Autonomous weeding robot, light-weight and solar powered, with revolutionary contactless weeding method providing an effective and affordable alternative to manual labor, herbicides and tilling.** The weeding robot is suitable for challenging

terrains and hard/dry soils and by harnessing the power of Artificial Intelligence (AI) combined with off-the-shelf sensors, it is affordable even to small and medium farmers who can become more competitive, profitable and resilient to climate change by reducing chemical use, manual labor dependency, while fostering soil and plant health.

Solution Provider: Smart Farm Robotix, Bulgaria

- **POMARIS – Mycelium-Bound Nutrient Pellets for Regenerative Farming** is an innovative, biodegradable, mycelium- and biochar-based nutrient system designed to improve soil health and farm resilience through slow nutrient release, soil regeneration, and carbon retention.

Solution Provider: MycoNest (Hungary), with advisory input from researchers affiliated with the SLU and Aarhus University

Theme 2: Biomass logistics

Smart BIOHUB Network for Efficient Biomass Collection and Logistics in Banská Bystrica Region (BBSK) introduces a regional network of BIOHUBs across the BBSK to optimise the collection, pre-processing, and logistics of biodegradable waste and biomass.

Solution Provider: BioPark Slovakia, Slovakia

Theme 3: Biowaste reduction and valorization

Future-shaping fats and oils, sustainably made is a start-up that develops environmentally friendly fats and oils through fermentation, using a proprietary yeast platform to convert low-value industrial side-streams, such as sawdust, food waste, and agricultural residues, into high-performance lipid ingredients to replace palm, coconut, and animal fats.

Solution provider: ÄIO, Estonia

Theme 5: Innovative wood technologies

KNOFmowa is a modular, free-standing partition wall that can be assembled and disassembled multiple times, without screwing. Materials for KNOFmowa are made from locally collected surplus materials (old furniture, industrial waste wood and plastic).

Solution provider: KNOF, Slovenia

Theme 6: Monitoring agricultural and forestry systems

HAWK EYE is a novel, technology-driven approach to monitoring and controlling pesticide residues in agricultural production with multispectral and hyperspectral drone imaging and accompanying software that determines the presence of illegal plant protection products in organic farming and prohibited ones in conventional production.

Solution provider: DIGITAL AGRO / AGRIGENTUM d.o.o; ALGO EKO d.o.o; and SPARTIUM CONSULTING d.o.o., Croatia

Theme 7: Stakeholder engagement and collaboration

Stakeholder Collaboration for Ecosystem Service Valuation - Regionalwert Leistungen CZ introduces a multi-stakeholder approach and digital platform that quantifies and monetises farms' ecosystem services and uses the results to structure dialogue, collaboration and decision-making among farmers, value-chain actors, policymakers and citizens.

Solution provider: Czech Organics s.r.o., Czech Republic

Theme 8: Raising awareness of the circular bioeconomy

Digital Platform for Circular Economy Training, Stakeholder Collaboration, and Sustainable Energy Design is a multi-faceted initiative designed to accelerate the adoption of the circular bioeconomy.

Solution provider: The University of Life Sciences "King Mihai I", Romania

4.4 Awarding

All winners were contacted to be awarded with the prizes described in section 4.1.2.

As for the participation in the BIOEAST pitching events, OIC winners will be offered the chance to receive 30 minute one-on-one online sessions prior to their respective pitching events, with an IBF representative and/or local partner in attendance, which will comprise a dry run 5 minute PowerPoint presentation from the perspective pitcher and will be followed by questions and feedback on different investment readiness elements of the pitch, such as business elements, market readiness and a focus on long-term sustainability based on their presentations. These sessions will be offered and agreed in advance of the pitching event as to give time to implement feedback to fine tune their presentation for the pitching event. Realistically, the dry run sessions will be organised in a way that all pitchers of the same event will be grouped in contiguous sessions, in order to allow for the organisers to book the necessary in house experts for a given time slot, as well as enable some parallel considerations deriving from comparison and relative performance and relevance for the local context.

5 Conclusion

The BIOEAST OIC successfully demonstrated the value of collaborative, participatory approaches for strengthening innovation ecosystems across the BIOEAST macro-region. Through the coordinated efforts of HUBs, TWGs, project partners, and a wide range of applicants, the OIC enabled the identification of pressing bioeconomy challenges and the mobilisation of practical, innovative solutions tailored to those needs. The engagement across countries and stakeholder groups highlights both the relevance of the themes selected and the interest for building macro-regional partnerships.

The implementation process has provided important lessons for future innovation initiatives. As a next step, the BIOEAST OIC team will continue to accompany the winners through tailored support measures and awarding. Looking ahead, special attention will be given to further developing opportunities for students and young innovators, ensuring that their creative potential is fully integrated into future innovation cycles.

6 References

- Brant, J., Lohse, S. 2014. The Open Innovation Model (Innovation and Intellectual Property Series). International Chamber of Commerce. Available at: <https://iccwbo.be/wp-content/uploads/2012/03/20140325-The-Open-Innovation-Model.pdf>
- Chesbrough, H. 2023. Twenty Years of Open Innovation. MIT Sloan Management Review. Available at: <https://sloanreview.mit.edu/article/twenty-years-of-open-innovation/>
- Chesbrough, H. W. 2003. Open Innovation: The New Imperative for Creating and Profiting from Technology. Harvard Business School Press, Boston, MA.
- European Commission. 2013. Open Innovation 2.0 Yearbook 2013. Publications Office of the European Union. Available at: <https://www.urenio.org/wp-content/uploads/2008/11/2013-Open-Innovation-Yearbook-2013.pdf>
- IdeaScale. 2024. What is open innovation? Available at: <https://ideascale.com/blog/what-is-open-innovation/>
- Jain, N. 2023. What is Open Innovation? Definition, Types, Model and Best Practices. IdeaScale. Available at: <https://ideascale.com/blog/what-is-open-innovation/>
- NASA Earth Science and Technology Office. 2025. Technology Readiness Levels (TRLs). Available at: <https://esto.nasa.gov/trl/>
- Nayak, R., Nguyen, T., & Rahman, M. 2022. Open innovation challenges: A structured approach to collaborative problem solving. Journal of Open Innovation: Technology, Market, and Complexity, 8(4), Article 212. Available at: <https://www.sciencedirect.com/science/article/pii/S2199853122011209>
- OECD/Eurostat. 2018. Oslo Manual 2018: Guidelines for Collecting, Reporting and Using Data on Innovation, 4th Edition. OECD Publishing, Paris/Eurostat, Luxembourg. doi: <https://doi.org/10.1787/9789264304604-en>
- Stanford Graduate School of Business – Center for Social Innovation. Defining Social Innovation. Available at: <https://www.gsb.stanford.edu/experience/about/centers-institutes/csi/defining-social-innovation>
- Xavier, A., Torre, A., Neves, S. (2022). Operational Handbook for OIC Kickstarting. Available at: [10.5281/zenodo.6780044](https://zenodo.org/record/6780044)

7 Appendices

Appendix 1. BIOEAST OIC guidelines for HUBs and TWGs

Table of content

1. Introduction
2. Open Innovation
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5. Role of the HUBs and TWGs in the BIOEAST OIC
 - a) BIOEAST OIC Design
 - b) Building partnerships
 - c) Dissemination
 - d) Awarding
6. How to start?
7. Next steps

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1. Introduction

About this document

This document aims to support HUBs and TWGs of the BOOST4BIOEAST project in the initial design phase of the BIOEAST Open Innovation Challenge (OIC). It introduces key OIC concepts, provides an overview of the BIOEAST OIC and its main processes, outlines the role of HUBs and TWGs and the steps that need to be followed.

This document will be complemented with further guidelines to support the deployment of OIC activities following the identification of challenges.

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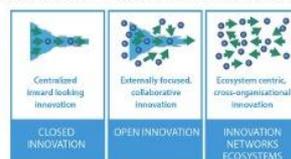


2. Open Innovation

Open Innovation (OI) is a mindset toward innovation favouring knowledge flows across organizational boundaries, involving companies, sectors, regions, and society at large.

OI is the exercise of looking beyond the internal research and development departments of the organization and considering novel sources of ideas and solutions, inside and outside the organization. In the open innovation process, internal and external knowledge can be used across organizational boundaries. External ideas and technologies are absorbed by the organization (outside-in open innovation) and internal ideas and technologies are externalized (inside-out open innovation).

In its implementation, it can assume many forms depending on the organization's goals, from simple idea banks or ideation competitions to full-scale acceleration programmes.



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3. Open Innovation Challenge

There are several approaches for OI, **Open Innovation Challenge (OIC)** is one of them.

- An **OIC** is a competition designed to encourage collaboration and problem-solving via the publication of challenges, the submission of proposed solutions to such challenges.
- The scope of the OIC is to stimulate the cooperation by inviting individuals, startups, research institutions, companies, etc., to propose solutions.
- It can help to unlock innovation potential through a game-like approach; and create or improve products, processes, and services.

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4. The BIOEAST OIC

The BIOEAST OIC is an initiative designed to harness the potential of bioeconomy innovations while addressing critical technological, managerial, and social challenges in the BIOEAST.

The BIOEAST OIC aims to:

- Provide a platform for participants to showcase their solutions;
- drive bioeconomy innovation by connecting innovators with BIOEAST HUB networks;
- promote knowledge exchange, networking, and business opportunities to support a sustainable bioeconomy in the BIOEAST;
- mobilize the BIOEAST Bioeconomy Innovation ecosystem and Innovation actors;
- fostering collaboration and engagement with research institutions, startups, companies, and student groups from the region;
- by increasing awareness of bioeconomy sectors among different actors including young generations.

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Benefits of the BIOEAST OIC

For the challenge owners

- Connect with innovative solution providers
- Find solutions to support solving specific barriers and problems
- Better understand market and technology trends
- Attract talent to the HUB/TWG
- Gain visibility to the HUB/TWG and their stakeholders
- Give visibility to key topics

For OIC applicants

- Be eligible to participate in pitching training sessions
- Be eligible for participating in the BIOEAST pitching events and present their solution to a wide audience
- Meet key bioeconomy HUB and TWG stakeholders and explore collaboration and partnerships
- Meet like-minded professionals, researchers, and organizations
- Personal networking and job opportunities
- Prizes and recognition

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The BIOEAST OIC process



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4. The role of HUBs & TWGs in the BIOEAST OIC

The HUBs and TWGs play a crucial role in the development of the BIOEAST OIC, participating from the design phase to the awarding stage. Their key areas of involvement include:

- a) **Contributing to the BIOEAST OIC design**
- b) **Creating partnerships and mobilizing stakeholders**
- c) **Dissemination and communication**

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a) BIOEAST OIC design

Step 1: Identification of challenge owners

- Challenges are submitted by Challenge Owners
- They are the actors facing a problem and seeking innovative solutions
- Actors that would benefit from connecting with the BIOEAST bioeconomy innovation ecosystem

Types of Challenge Owners:

Challenge owners can be of different types, and they can range from large scale organizations to more specialized ones:

- **Large scale organizations:** Large corporations, Clusters, Networks, Hubs, etc.
 > In the BIOEAST context: **a HUB or a TWG**
- **Specialized organizations:** Research institutes and Universities, Companies and start-ups, NGOs, etc.
 > In the BIOEAST context: **a specific HUB or TWG stakeholder**

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BIOEAST OIC design

Type of challenges

Challenges can be of different types depending on the problem to be solved and on the type of challenge owner. They can range from broad to specific.

- **Broad challenges:** open-ended, aim to explore a varied range of solutions. Challenge owners are typically large-scale organizations.
- **Specific challenges:** aim to identify solutions to specific problems. Types of solutions desired are clearly defined and commonly targeting specific technologies for process optimization, or specific products or prototypes. Challenge owners are typically specialized organizations.

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Step 2: Identification of the Challenges

The challenges are at the core of an OIC, they need to be well-defined, clear and relevant for both the challenge owner and to the target audience. To identify them consider following these steps:

- Identify the current problems that the challenge owners are facing
- Complex problems might need to be simplified or split so that they can be possible to solve and understandable to the public
- Formulate the problems into challenges

Practical case

Challenge owner:

Network of European regions

General problem:

Climate change is having huge consequences for European forests and the services they provide. Changes are leading to increased risks for pests, diseases, and the expansion of invasive species.

Simplified problem:

There is limited capacity to monitor forest conditions, identify and detect forest threats, and deploy effective management measures - before, during and after incidents. New tools and approaches are urgently needed.

Formulation of the challenge:

Looking for Forest Monitoring, Early Warning and Response solutions to improve forest health of European forests.

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Step 3: Identification of the type of solutions desired

A **solution** is an invention, device, material, process, product, tool or innovation of any kind, able to overcome the barriers identified in the challenge when implemented.

Identifying the type of solution desired will help finding solutions that fit to the problems to be solved and the challenge owners' expectations.

A way of categorizing the solutions' types is using the Technological readiness levels (TRL). The TRL scale describes the progression of science innovation from original idea to commercial activity. This scale helps innovators, entrepreneurs and investors guide technological development from testing and validation to commercialization.

A challenge can target solutions at a specific TRL, multiple TRLs, or be open to all stages of development.



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Step 4: Identification of potential solution providers

Once the challenges and the desired solutions are well identified, it is important to define who we want to be the solution providers. This will depend on the type of solutions desired and the challenge owners' expectations.

Applicants can come from a wide range of backgrounds and nature. They can be:

- **Individuals:** e.g., students, researchers
- **Teams:** e.g., student organizations, groups of researchers
- **Legal entities:** e.g., companies, start-ups, research organizations

Another important aspect to define is the geographical scope. The BIOEAST OIC will be open to solutions from BIOEAST countries. Challenge owners can specify whether they expect solutions from all BIOEAST countries or only from selected ones.

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Examples of broad challenges

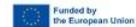
Seeking Innovative Solutions for Extreme Wildfires

- **Challenges:** Extreme wildfires. The challenges are organised under 7 themes with challenges ranging from communication and awareness, monitoring, to policy and governance.
- **Challenge owner:** FIRE-RES project Living Labs
- **Type of solutions desired:** All development stages – from early ideas, methods, prototypes to close-to-market or market-ready services and products.
- **Solution providers:** innovators, entrepreneurs, technologists, researchers, businesses of all sizes, experts, etc.

2024 Yes San Francisco. Urban Sustainability Challenge

- **Challenges:** Supporting the implementation of world-leading innovations in urban sustainability. Challenges in 5 focus areas including renewable energy and sustainable construction.
- **Challenge owner:** Uplink supported by Citi, Deloitte, Salesforce, San Francisco Chamber of Commerce, and 20 other partners.
- **Type of solutions desired:** Viable and scalable solutions such as Artificial Intelligence and other disruptive or unique technological innovations in urban sectors which would benefit from technological introductions.
- **Solution providers:** Start-ups

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Canopée Challenge

- **Challenge:** The forest-wood innovation competition, "Canopée Challenge", aims to encourage, support and promote innovation of the forest-wood sector.
- **Challenge owner:** Forinvest Business Angels, l'École Supérieure du Bois, Fibois France and Xylofutur
- **Type of solutions desired:** Projects
- **Solution providers:** project leaders non headquartered in France, coming from the academic world, not having been the subject of industrial production and/or commercialization

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Examples of specific challenges

High Performance Building Alliance & Arcology System

- Challenge: Modular, adaptable and Circular Biomaterials for Sustainable and High-Performance Commercial and Residential Interiors, Ideal for New Construction and Retrofitting.
- Challenge owner: High Performance Building Alliance
- Type of solutions desired: Technology Readiness Level 4-7
- Solution providers: not detailed

Fertilizer Decision Support Tool

- Challenge: A Fertilizer Decision Support tool that helps farmers to decide on when, where and how much fertilizer to apply.
- Challenge owner: Ulster Farmers' Union
- Type of solutions desired: Prototype ready for demonstration in an appropriate operational environment
- Solution providers: not detailed

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Crop challenge in Analytics

- Challenge: Creation of an optimal scheduling model to ensure consistent weekly harvest quantities that are below the maximum capacity
- Challenge owner: Syngenta
- Type of solutions desired: Optimization model
- Solution providers: All participants 18 years of age or older, where allowable by law, except people or organizations who are employed by a major seed company or their affiliates

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b) Building partnerships

HUBs and TWGs play a key role in establishing a broad partnership for the BIOEAST OIC. Building **credibility** is essential, which requires clearly defining the benefits for applicants and making the OIC an attractive opportunity. This involves:

Identifying BIOEAST Partnerships

- Ensuring that challenge owners are actively engaged in the OIC process.
- Mobilizing stakeholders effectively to maximize engagement and participation.
- Beyond HUBs and TWGs themselves, identify:
 - Key stakeholders to participate as **Challenge Owners**
 - Key stakeholders to participate in the **pitching events**
 - Key stakeholders that will be featured as **OIC supporters**
- OIC supporters can be the challenge owners, organizations providing awards, organizations supporting the OIC process and pitching events, etc.

Defining the awards

BIOEAST OIC winners will be eligible to participate in pitching trainings and pitching events. Additional awards would help increase the value of participation and provide winners with further resources for growth and collaboration.

Additional awards could include access to larger events, free memberships to relevant networks, specialized training programs, or other incentives offered by HUBs, TWGs, and their stakeholders.

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c) Dissemination and communication

An effective dissemination and communication plan that maximizes outreach and engagement is an important step in recruiting applicants. A centralized communication campaign will be designed, HUBs and TWGs must actively support this process by:

- **Identifying potential solution providers:** key organizations to target based on the types of solution providers desired.
- **Identifying appropriate dissemination channels:** such as social media, newsletters, websites, events, etc.
- **Disseminating the OIC call:** support an active dissemination.

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6. How to start?

HUBs & TWGs are requested to support the BIOEAST OIC in identifying the following:

a) OIC design:

- Potential challenge owners
- Problems to be addressed
- Potential challenges
- Types of solutions desired

b) Partnerships building and dissemination:

- Potential OIC supporters
- Additional awards
- Dissemination channels

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For that, the following tiered activities are proposed:

1. Internal identification by HUB management team/TWG coordinators (must)

In this approach, the HUB management team and TWG coordinators internally identify and gather the different elements. Challenges are defined based on HUB/TWG-level issues, leveraging the management team's understanding of their current situation. In this case, challenge ownership may rest with the HUB/TWG itself or the organizations to which the management teams or coordinators belong.

2. Consultation with key stakeholders (desirable)

The HUB/TWG management team presents the challenges identified in the previous step to the key HUB/TWG stakeholders to validate them, receive feedback and give them opportunity to propose their own challenges.

3. Internal design workshop (optional)

An OIC design workshop is organized by the HUB management team/TWG coordinators gathering interested stakeholders to co-design the OIC challenges.

The preferred option will be decided by the HUB management team and TWG coordinators, depending on the availability of their stakeholders and current capacities.

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As support for the identification of the challenges, these can give some inspiration:

a) The most relevant bioeconomy-related competencies identified in T3.3 -> [Bioeconomy competences_T3.3.pptx](#)

They give an overview of the competencies needed for a transition towards the bioeconomy. Challenges could address the development of one of those in the context in a HUB/TWG or country.

b) The national priority areas identified in T4.1 -> [BIOEAST National strategies_ext.xlsx](#)

The document shows a compilation of relevant Bioeconomy strategies and action plans in each country, identifying their goals and priority areas. Challenges could be based on priority areas that the HUB/TWG consider relevant and that need to be addressed.

c) Challenges identified by TWGs for the SRIA updates

d) Challenges identified by HUBs for the Action Plans

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7. Next steps

- HUBs and TWGs identify potential challenges.
 - **Please input them in the corresponding Tab for your HUB/TWG in this document -> [OIC design.xlsx](#)**
- Design and Consensus workshop:
 - OIC task force proposes a classification of the challenges by themes
 - OIC themes are discussed and validated with HUBs and TWGs
 - Consensus on design elements of the OIC: Eligibility criteria, application process, selection process, etc.
- Launch of the OIC call
- Application
- Evaluation of applications
- Awarding and participation in pitching events

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EXAMPLES OF OTHER OICs

- FIRE-RES project: <https://fire-res.eu/open-innovation-challenge/>
- Bioregions Facility: <https://bioregions.efi.int/our-work/open-innovation/>
- UPLINK - World Economic Forum: <https://uplink.weforum.org/uplink/s/innovation-challenges>
- **Circular Bioeconomy Cluster**: <https://cbcsw.ie/biodirect/>
- PRIMED Open call: <https://primed-project.eu/open-call/>
- IOT Fire Detection Solution in Forest Environment: <https://www.ennotive.com/challenge/iot-fire-detection-solution-in-forest-environment/>
- New wood competition: <https://www.uusipuu.fi/en/competition-2023/>
- Start Me Up 2024 business idea competition: <https://businessioensuu.fi/en/startmeup-business-idea-competition>

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Appendix 2. BIOEAST OIC themes

Theme 1: resilient small and medium-sized farms

Improving the adaptive capacity and resilience to climate and social change of small/medium-sized farms and forest ownerships.

Problem statement

Climate changes pose significant threats to agriculture and forestry. Extreme weather events, prolonged droughts, and increasing pest and disease pressures are leading to unstable yields, soil degradation, and a decline in biodiversity, threatening long-term productivity and ecosystem resilience. At the same time, intensification of conventional farming practices has exacerbated soil erosion, depleted organic matter, and further harmed biodiversity. Small and medium-sized farms often lack access to affordable tools, knowledge, and technologies needed to adopt scalable, agroecological practices that restore soil and ecosystem health while maintaining profitability.

Key issues to be addressed

Solutions should partially or totally solve one or more of the following issues:

- Mitigate the effects of climate change on crop yields and farm sustainability.
- Improve drought resilience through efficient water use and drought monitoring.
- Improve soil health by enhancing soil organic matter and microbial diversity, and by reducing erosion.
- Specifically, increase the availability of potato and other crop varieties that are resistant to pests and diseases.

Type of solutions we are looking for

We are looking for ideas, concepts or prototypes at different stages of development, close-to-market or market-ready solutions, to address –but not limited to– the following:

- Cost-effective technologies to conserve water, optimize irrigation, and improve soil water retention for small and medium-sized farms.
- Affordable decision-support tools –including mobile apps– for soil moisture monitoring, soil health monitoring, drought prediction and monitoring, and/or water-use planning designed for small and medium-sized farms.
- Microbial inoculants and organic amendments to improve soil health for small and medium-sized farms.
- Precision agroecology technologies adapted to small and medium-size farm conditions to design, implement and/or monitor agroecological and other sustainable farm practices (e.g., new crop rotations, reduced chemical inputs, soil microbiome-friendly

methods, mulching, cover cropping, carbon-farming practices, and sustainable agroforestry).

- Early warning systems and tools for managing pests, diseases, and climate-related risks designed for small and medium-sized farms.
- Potato or other crop varieties and pre-breeding materials that are resistant to droughts, to *Phytophthora infestans* and with strong agronomic traits.

Who can apply?

- Technology based SMEs
- Corporates
- Start-ups and scale-ups
- Entrepreneurs, individually or in a team
- Students, academics and researchers, individually or in teams
- Associations and consortia of farmers or other related stakeholder groups

BIOEAST HUBs and Thematic Working Groups engaged in theme 1

- Polish BIOEAST HUB
- Romanian BIOEAST HUB
- TWG Agroecology

Selected innovation under theme 1 will be eligible for the following specific awards:

- Opportunity to connect with farmers through PROAGRO to test solutions on real life conditions. Provider: National Federation of Producers in Agriculture and Connected services (PROGARO), Romania.
- Dissemination of the solution in PROAGRO events, e.g. in farmers discussion groups (FDGs) established under PROAGRO's knowledge transfer network. Provider: National Federation of Producers in Agriculture and Connected services (PROGARO), Romania.
- Dissemination and visibility opportunities, including a brief presentation of the solution through the NRN newsletter, thematic events, and website. Provider: National Rural Network (NRN), Romania.
- Dissemination and visibility opportunities, including presenting the solution at conferences and events organized by ASAS, a presentation stand at scientific fairs or events held under the auspices of the Academy. Provider: Institute of Research for Agriculture Economy and Rural Development (ICEADR), Rumania and Academy of Agricultural and Forestry Sciences (ASAS), Romania.
- Organic Farm visits in Hungary (travel expenses not covered). Provided by Research Institute of Organic Agriculture (ÖMKI).
- Co-testing of solutions where there is alignment in [ÖMKI's research focus and objectives](#). Provided by Research Institute of Organic Agriculture (ÖMKI).

Theme 2: Biomass logistics

Improving biomass and biofuel logistics as a basis for increasing economic viability and scalability of biomass production, collection, and transformation.

Problem Statement

The low specific weight, high water content, and dispersed generation of biomass across agricultural and forest lands, along with poor transportation infrastructure, limited storage capacities, and fragmented logistic networks hinder the efficient collection and transport of biomass to processing plants. This reduces the economic viability of biowaste utilization, especially for small-scale farmers, foresters, and rural agri-businesses, preventing the scaling-up of bio-based products and bioenergy.

Key issues to be addressed

Solutions should partially or totally solve one or more of the following issues:

- Overcome biomass collection challenges due to fragmented landholdings.
- Facilitate farmers' access to communal and local pre-processing and processing facilities and markets.
- Better integrate all actors in the biomass valorisation value chains, from biomass producers and collectors to processors and distributors.
- Specifically, overcome the fragmentation of the solid and liquid biofuel supply chains.

Type of solutions we are looking for

We are looking for ideas, concepts or prototypes at different stages of development, close-to-market or market-ready solutions, to address –but not limited to– the following:

- Affordable and accessible biomass transportation solutions.
- Small scale biomass pre-processing solutions.
- Digital and community-centred coordination solutions – encompassing centralized digital platforms, scalable logistics systems, and community-driven models (e.g. biowaste brokerage, machinery sharing) to improve cooperation, efficiency, and accessibility across the biomass and biofuels value chains.
- Closed-loop systems integrating biowaste transformation with energy, farming or manufacturing projects.

Who can apply?

- Technology based SMEs
- Corporates
- Start-ups and scale-ups
- Entrepreneurs, individually or in a team

- Students, academics and researchers, individually or in teams
- Associations and consortia of farmers or other related stakeholder groups

BIOEAST HUBs and Thematic Working Groups engaged in theme 2

- Croatian BIOEAST HUB
- Hungarian BIOEAST HUB
- TWG Bioenergy
- TWG Food systems
- TWG Biobased materials

Theme 3: Biowaste reduction and valorisation

Reducing and transforming biowaste into high-value biobased products to support a circular bioeconomy and reduce environmental impact.

Problem Statement

Large volumes of primary and secondary organic waste, such as agricultural and food waste, forestry residues, and post-consumer bio-based materials from textiles and construction, are underutilised, or disposed of in environmentally harmful ways. This leads to missed economic opportunities and increasing pollution. There is an urgent need for innovative, scalable, and sustainable solutions to transform these waste streams into commercially viable products.

Key issues to be addressed

Solutions should partially or totally solve one or more of the following issues:

- Support rural producers in identifying and designing feasible biowaste valorisation pathways.
- Convert available biomass feedstocks into commercially viable high-value bio-based materials or products.
- Reduce the environmental impact of biomass disposal and conversion.
- Overcome barriers to increasing the recycling rate of biobased materials.
- Specifically, reduce food waste from institutional catering, such as canteens in educational institutions.

Type of solutions we are looking for

We are looking for ideas, concepts or prototypes at different stages of development, close-to-market or market-ready solutions, to address –but not limited to– the following:

- Cost-effective, small- to medium-scale bioprocessing technologies that are mobile or modular and suitable for rural deployment.
- Novel recycling techniques for mixed or synthetic fibres into new bioprocessed products.
- Safe and compliant applications for ash from incinerated animal by-products (e.g., fertilizer, construction materials).
- Food-waste reduction solutions, including food preservation technologies and smart packaging.
- Bioprocessing technologies to transform agricultural, forestry, aquatic residues, and food waste into high-value bioproducts and services—ranging from fermentation, extraction, extrusion, and composting systems to integrated biorefinery blueprints.

Who can apply?

- Technology based SMEs
- Corporates
- Start-ups and scale-ups
- Entrepreneurs, individually or in a team
- Students, academics and researchers, individually or in teams
- Associations and consortia of farmers or other related stakeholder groups

BIOEAST HUBs and Thematic Working Groups engaged in theme 3

- Bulgarian BIOEAST HUB
- Estonian BIOEAST HUB
- Hungarian BIOEAST HUB
- Slovakian BIOEAST HUB
- Romanian BIOEAST HUB
- TWG Biobased materials
- TWG Agroecology
- TWG Freshwater
- TWG Food systems

Selected innovations under theme 3 will be eligible for the following specific awards:

- Opportunity to connect with farmers through PROAGRO to test solutions on real life conditions. Provider: National Federation of Producers in Agriculture and Connected services (PROGARO), Romania.
- Dissemination of the solution in PROAGRO events, e.g. in farmers discussion groups (FDGs) established under PROAGRO's knowledge transfer network. Provider: National Federation of Producers in Agriculture and Connected services (PROGARO), Romania.
- Dissemination and visibility opportunities, including a brief presentation of the solution through the NRN newsletter, thematic events, and website. Provider: National Rural Network (NRN), Romania.

- Dissemination and visibility opportunities, including presenting the solution at conferences and events organized by ASAS, a presentation stand at scientific fairs or events held under the auspices of the Academy. Provider: Institute of Research for Agriculture Economy and Rural Development (ICEADR), Romania and Academy of Agricultural and Forestry Sciences (ASAS), Romania.

Theme 4: Accelerating the bioenergy transition by boosting innovation and facilitating accessibility and adoption

Problem Statement

The bioenergy sector faces major constraints to growth and competitiveness. Some key barriers identified are: i) high production costs that make it difficult to compete with fossil-based alternatives; ii) limited availability of certified feedstock hindering biogas and biomethane plants from classifying their output as renewable energy; iii) slow development of innovative bioenergy technologies, and iv) slow adoption of advanced biofuels; v) growing energy insecurity, which underlines the urgent need for diversified and locally sourced renewable energy solutions.

Key issues to be addressed

Solutions should partially or totally solve one or more of the following issues:

- Increase the availability and mobilisation of certified local biomass for renewable bioenergy production.
- Reduce the production cost of bioenergy.
- Bridge research and innovation (R&I) with market deployment, particularly for advanced biofuels in the transport sector (road, aviation, and marine applications).
- Improve access to piloting and upscaling facilities, and to technology.
- Adequate funding and other instruments to accelerate deployment of demonstrators and market uptake.

Type of solutions we are looking for

We are looking for ideas, concepts or prototypes at different stages of development, close-to-market or market-ready solutions, to address –but not limited to– the following areas:

- Certification and compliance tools, such as practical systems, services, or trainings that make it easier for feedstock suppliers and producers to meet sustainability requirements.
- Solutions for next generation biorefineries combining energy, fuels, and materials processes to increase efficiency, reduce waste, and enable circular business models.

- Solutions that lower barriers for demonstration projects, such as piloting and scale-up initiatives, shared infrastructure, or innovative funding models to accelerate market deployment.
- Advanced transport biofuels and sectoral innovation enablers, such as novel technologies, new partnerships, or digital tools that make biofuels for road, aviation, and maritime transport more competitive, sustainable, and attractive.

Who can apply?

- Technology based SMEs
- Corporates
- Start-ups and scale-ups
- Entrepreneurs, individually or in a team
- Students, academics and researchers, individually or in teams
- Associations and consortia of farmers or other related stakeholder groups

BIOEAST HUBs and Thematic Working Groups engaged in theme 4

- BIOEAST Croatian HUB
- TWG Bioenergy

Selected innovations under theme 4 will be eligible for the following specific awards:

- Conference fee covered for the next Renewable Energy Days OIE Day. Provider: Energy Institute Hrvoje Požar (EIHP), Croatia.

Theme 5: innovative wood technologies

Problem Statement

Although forestry and wood processing are important parts of the bioeconomy, the sector has limited capacity to innovate and to develop and scale up new higher added-value wood products. In particular, hardwood processing requires better technologies to boost the value of both higher and lower-quality timber and ensure alignment with suitable silvicultural methods. Moreover, re-used wood offers major environmental and economic benefits, but the absence of clear standards and tools for safety and performance assessment limits its wider adoption in construction and interior design.

Key issues to be addressed

Solutions should partially or totally solve one or more of the following issues:

- Promote innovation uptake in the forestry and wood-processing sector.
- Support actors in the hardwood value chain to support data-driven decisions about the future of their business and resources.

- Align silviculture methods with the requirements of hardwood processing technologies.
- Develop higher added-value products from hardwood.
- Improve the use and new applications for logs scanning and other log quality assessment tools.
- Improve the assessment of safety in the use of re-used wood.
- Improve traceability, quality assurance and certification of re-used wood.
- Develop regional re-used wood value chains.

Type of solutions we are looking for

We are looking for ideas, concepts or prototypes at different stages of development, close-to-market or market-ready solutions, to address –but not limited to– the following:

- Innovative small-scale business models and circular solutions for locally rooted wood value chains.
- Improved processes for automated detection and classification of hardwood log defects and material structures from computed tomography log scanning.
- Cost-effective foresight tools (multi-decade) or methods for monitoring and forecasting market trends and emerging technologies in the hardwood value chain.
- Indicator sets, testing protocols and monitoring tools for structural and toxicological assessment of re-used wood.
- Screening and detection methods for harmful substances (e.g. formaldehyde, solvents, toxic coatings) in re-used wood
- Digital platforms for mapping re-used wood sources, their properties and certification status.
- Business models or business plans for circular procurement, traceability and quality assurance of re-used wood.
- Guidelines for integrating re-used wood into public procurement and construction standards.

Who can apply?

- Technology based SMEs
- Corporates
- Start-ups and scale-ups
- Entrepreneurs, individually or in a team
- Students, academics and researchers, individually or in teams
- Associations and consortia of farmers or other related stakeholder groups

BIOEAST HUBs and Thematic Working Groups engaged in theme 5

- Slovakian BIOEAST HUB
- Slovenian BIOEAST HUB
- TWG Forestry
- TWG Education

- TWG Biobased materials

Selected innovations under theme 5 will be eligible for the following specific awards:

- Invitation for individual scientists to explore potential research collaboration opportunities. Provided by National Forest Centre (NLC), Slovakia
- Mentoring and guidance from Anteja (Slovenia) to help create a plan for the next steps of the project.
- One on one mentorship session with Non Tox Uni Kum (Slovenia) on applying healthy design principles to their project or product.

Theme 6: monitoring agri-food and forestry systems

Innovative tools, improved data access and more harmonized monitoring approaches for sustainable agriculture, food, and forestry systems.

Problem Statement

The lack of integrated, user-friendly digital monitoring systems poses a challenge to advancing sustainable agriculture and forestry across BIOEAST countries. This results in suboptimal soil management due to limited real-time analysis, fragmented access to reliable economic and environmental data, and inconsistent monitoring of agricultural and forestry systems across the BIOEAST macro-region.

Key issues to be addressed

Solutions should partially or totally solve one or more of the following issues:

- Improve integrated soil monitoring and analysis.
- Improve accessibility to consistent economic and environmental data for policymakers and researchers to support the agri-food and forestry sector.
- Harmonise cross-country data for monitoring sustainable farming practices and food system transitions.
- Improve monitoring of the impact of wild animals on forest regeneration.

Type of solutions we are looking for

We are looking for ideas, concepts or prototypes at different stages of development, close-to-market or market-ready solutions, to address –but not limited to– the following:

- User-friendly decision support systems for soil monitoring and assessment. Some desirable characteristics are:
 - a georeferenced database on soil data (soil parameters, images, site descriptors), fed by users, and that ensures data protection

- capacity to assess soil condition and to generate basic recommendations for improving soil health
- provides links to additional knowledge sources and expert support.
- Policy support tools for the agri-food and forestry sectors, based on open economic and environmental data, spatial and time-series visualization tools, and predictive modelling.
- User-friendly benchmarking and progress reporting for sustainable food systems in transition, including through indicators aligned with Sustainable Development Goals (SDGs) and EU Green Deal.
- Cost-effective and efficient solutions to monitor and assess forest regeneration under pressure of different levels of wild animal densities.

Who can apply?

- Technology based SMEs
- Corporates
- Start-ups and scale-ups
- Entrepreneurs, individually or in a team
- Students, academics and researchers, individually or in teams
- Associations and consortia of farmers or other related stakeholder groups

BIOEAST HUBs and Thematic Working Groups engaged in theme 6

- BIOEAST Hungarian HUB
- TWG Food systems
- TWG Forestry
- TWG Agroecology
- TWG Education

Theme 7: stakeholder engagement and collaboration

Stakeholder engagement and cross-sectoral collaboration to accelerate the development and adoption of innovative bioeconomy solutions, strengthening national and regional bioeconomy innovation ecosystems.

Problem Statement

Despite strong policy interest in the bioeconomy, connections among academia, industry, government, and society at large remain weak in some BIOEAST countries. Fragmented support systems, limited stakeholder involvement, and weak innovation platforms for co-creation considerably hinder innovation uptake.

Key issues to be addressed

Solutions should partially or totally solve one or more of the following issues:

- Bridge gaps among bioeconomy actors in science, start-ups, industry, local communities, and end users.
- Improve stakeholder engagement in designing long-term national strategies for a sustainable bioeconomy transformation.
- Integrate local underrepresented communities such as smallholders and niche producers, in decision-making and benefit-sharing processes in bioeconomy initiatives.
- Improve transfer of science-based knowledge and innovation into practical solutions and policymaking.
- Effectively support early-stage innovative start-ups tailored to bioeconomy and rural needs.

Type of solutions we are looking for

We are looking for ideas, concepts or prototypes at different stages of development, close-to-market or market-ready solutions, to address –but not limited to– the following:

- Collaborative digital platforms and networks to:
 - Enable knowledge transfer, co-creation and multi-stakeholder engagement.
 - Crowdsource opinions and solutions from various actors, especially smallholders and youth to facilitate their policy involvement.
 - Enable deliberation, idea rating, feedback collection, and geotagging of inputs, facilitating real-time stakeholder consultations.
 - Improve interoperability between science and policy.
- Solutions supporting innovation uptake including:
 - Regional innovation accelerators well suited to supporting the bioeconomy.
 - Business support models adapted to small start-ups' and rural innovators' needs.
 - Open innovation platforms tailored to the needs of rural areas.
- Training tools and capacity building programmes for:
 - Strengthening bioeconomy innovation ecosystems and upscaling innovative solutions.
 - Multistakeholder interdisciplinary collaboration.
 - Supporting entrepreneurship among students and young professionals.

Who can apply?

- Technology based SMEs
- Corporates
- Start-ups and scale-ups
- Entrepreneurs, individually or in a team
- Students, academics and researchers, individually or in teams
- Associations and consortia of farmers or other related stakeholder groups

BIOEAST HUBs and Thematic Working Groups engaged in theme 7

- BIOEAST Croatian HUB

- BIOEAST Hungarian HUB
- BIOEAST Czech Republic HUB
- TWG Food systems

Theme 8: Raising awareness of the circular bioeconomy

Boosting public awareness and education on the circular bioeconomy through innovative communication, learning tools, behavioural change strategies, and collaboration.

Problem Statement

Despite growing interest in circularity and sustainability, awareness of the circular bioeconomy remains limited in Central and Eastern Europe. This lack of understanding hinders consumer adoption, career interest, and public acceptance of bio-based innovations. Traditional educational approaches, weak cooperation among educational institutions, and low industry involvement further slow progress in circular bioeconomy awareness-raising and education in the macro-region.

Key issues to be addressed

Solutions should partially or totally solve one or more of the following issues:

- Increase public awareness of the circular bioeconomy.
- Promote acceptance and demand for bio-based products and bioenergy.
- Increase awareness and promote behavioural change towards sustainable consumption.
- Promote the interest of younger generations in bioeconomy carrier choices.
- Modernise bioeconomy educational methods and topics.
- Enhance industry participation in education systems across Central and Eastern European countries.
- Strengthen collaboration among educational institutions and networks.
- Support the development of specific skills, when and where they are needed

Type of solutions we are looking for

We are looking for ideas, concepts or prototypes at different stages of development, close-to-market or market-ready solutions, to address –but not limited to– the following:

- Innovative educational methods and tools to communicate circular bioeconomy principles, its interdisciplinary nature, and its applications such as:
 - Interactive digital learning modules
 - Hands-on experiment kits
 - Gamified learning experiences
 - Virtual or augmented reality tools

- Curriculum materials
- Innovative and engaging approaches to raise awareness and promote behavioural change towards the circular bioeconomy such as:
 - Marketing and communication campaigns
 - Motivational systems and citizen engagement models
 - Digital applications with gamification and nudging tools,
 - Partnerships with local influencers and community leaders
 - Circular bioeconomy carrier paths campaigns
- Training tools and capacity building programs for educators and policymakers on topics such as sustainable entrepreneurship, challenge-based learning, and finances and investment in bioeconomy.
- Collaborative approaches to improve the collaboration among educational institutions.
- Collaborative approaches to uptake biobased industry priorities in educational programs and research.

Who can apply?

- Technology based SMEs
- Corporates
- Start-ups and scale-ups
- Entrepreneurs, individually or in a team
- Students, academics and researchers, individually or in teams
- Associations and consortia of farmers or other related stakeholder groups

BIOEAST HUBs and Thematic Working Groups engaged in theme 8

- BIOEAST Estonian HUB
- BIOEAST Bulgarian HUB
- BIOEAST Hungarian HUB
- BIOEAST Czech Republic HUB
- TWG Bioenergy
- TWG Education
- TWG Food systems
- TWG Biobased materials

Appendix 3. Analysis of the key target audiences

Target audience	Needs	Challenges	Preferences	Example of messages
Students	<p>Relevance: Need to understand how bioeconomy and innovation connect to their daily lives, careers, and societal challenges.</p> <p>Clarity: Non-jargon explanations of terms (bioeconomy, biorefineries, green technologies).</p> <p>Practical examples: Need real-world case studies.</p>	<p>Complexity of concepts: Bioeconomy is interdisciplinary and can feel abstract.</p> <p>Lack of prior knowledge: Many students are unfamiliar with terms and principles.</p> <p>Perceived irrelevance: Students may not see its connection to their field.</p> <p>Language barriers: If students are from diverse linguistic backgrounds, technical terms can be hard to grasp.</p> <p>Engagement: may be perceived as niche or policy-heavy.</p>	<p>Storytelling: Use innovation stories within the bioeconomy keeps engagement high.</p> <p>Project-based learning: Students prefer participating in challenges, hackathons, or simulations.</p> <p>Visual aids: infographics and real-life product examples are effective.</p>	<p>“🌱 Shape the Future of Bioeconomy! Join the BIOEAST Open Innovation Challenge coming in fall 2025 and bring your ideas to life! Work on real challenges in 8 bioeconomy topics and showcase your creativity to experts and industry. Whether you’re passionate about sustainability, innovation, or entrepreneurship, your ideas can drive change in your region and beyond.</p> <p>What will you get?</p> <ul style="list-style-type: none"> ◊ Meet key bioeconomy stakeholders and explore collaborations ◊ Network with innovators and industry ◊ Win awards and visibility for your ideas <p>💡 Selected participants will have the opportunity to present their solutions at dedicated pitching events, gaining direct exposure to investors, industry leaders, and policymakers interested in bioeconomy innovations.</p> <p>Be the voice of change in the bioeconomy – start your journey this fall!”</p>
Researchers	<p>Policy and industry connections: updates on</p>	<p>Disconnected disciplines: Researchers often work within narrow</p>	<p>Structured workshops and think tanks: discuss bioeconomy and</p>	<p>“🔧 Translate Your Research into Impact! The BIOEAST Open Innovation Challenge invites researchers across the BIOEAST region to propose</p>

	<p>bioeconomy strategies and how to align research with funding priorities.</p> <p>Impact pathways: how to translate their research into innovations with societal and economic impact.</p> <p>Networking: effective channels to connect with other researchers, industry, and policymakers.</p>	<p>fields, making cross-disciplinary communication difficult.</p> <p>Jargon-heavy discourse: Communication with non-experts, policymakers, and industry can be hindered.</p> <p>Different priorities: Industry focused on immediate application and scalability; researchers emphasize academic insights.</p> <p>Measuring impact: Difficulties in demonstrating societal or environmental impact of research.</p>	<p>innovation pathways with stakeholders.</p> <p>Policy briefs and executive summaries: condensed, targeted policy updates with clear relevance to their research.</p> <p>Networking events: find partners for projects within bioeconomy frameworks. (2 votes)</p> <p>Case studies of successful research-to-innovation transitions. (2 votes)</p> <p>Visualization tools to communicate complex system interactions effectively.</p>	<p>practical solutions on 8 bioeconomy priority areas this September. Bring your research closer to application, expand your networks with industry and mentoring investors, and co-create pathways for regional and European bioeconomy innovations.</p> <p>Why should you participate?</p> <ul style="list-style-type: none"> ◊ Showcase your research in an applied context ◊ Connect with private investors, potential partners for Horizon Europe and regional funding and policymakers ◊ Contribute to shaping sustainable bioeconomy in your country <p>💡 Selected participants will have the opportunity to present their solutions at dedicated pitching events, gaining direct exposure to investors, industry leaders, and policymakers interested in bioeconomy innovations.</p> <p>Your expertise can accelerate the bioeconomy transition – join us this fall!”</p>
<p>Start-ups and companies</p>	<p>Market clarity: clear info on bioeconomy market trends and demands.</p> <p>Regulatory guidance: up-to-date, understandable summaries of related regulations, etc.</p> <p>Access to funding: pathways to grants,</p>	<p>Complex regulatory environments: navigating bioeconomy standards across regions is difficult.</p> <p>Technical complexity: translating complex processes into marketable value propositions is challenging.</p> <p>Customer scepticism: lack of trust or</p>	<p>Pitch days: opportunities to present innovations and receive feedback from investors and stakeholders.</p> <p>Visual materials: infographics, case studies, and ROI examples.</p> <p>Networking: B2B matchmaking, trade fairs, and bioeconomy expos.</p>	<p>“This fall, the BIOEAST Open Innovation Challenge offers start-ups and companies a unique chance to pitch practical, scalable solutions across 8 bioeconomy focus areas.</p> <p>You will:</p> <ul style="list-style-type: none"> ✓ Gain visibility across the BIOEAST macro-region. ✓ Connect with investors, researchers, and policymakers.

	<p>venture funding, and green investment instruments.</p> <p>Collab opportunities: connect with academia, R&D institutions, policymakers.</p>	<p>understanding of bio-based products (cost, sustainability).</p> <p>IP protection vs. openness: communicate innovations while protecting intellectual property.</p> <p>Different language with academia: communication with researchers hindered by differing timelines, goals, and jargon.</p>	<p>Co-creation opportunities: Involving customers in pilot testing to build trust and tailor products.</p>	<p>✔ Discover investment, funding and collaboration opportunities to accelerate your bio-based innovations.</p> <p>💡 Selected participants will have the opportunity to present their solutions at dedicated pitching events, gaining direct exposure to investors, industry leaders, and policymakers interested in bioeconomy innovations.</p> <p>“Position your start-up or company as a driver of sustainable innovation and turn your solutions into market-ready opportunities that shape the bioeconomy transition!”</p>
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Appendix 4. Application guidelines

BIOEAST Open Innovation Challenge

APPLICATION GUIDELINES

1. BACKGROUND AND OBJECTIVES

The BIOEAST Open Innovation Challenge (OIC) is a collaborative initiative, and a unique platform designed to accelerate bioeconomy innovation across the BIOEAST macro-region in key bioeconomy sectors.

The OIC brings together bioeconomy hubs and clusters, leading companies and start-ups, universities, researchers, students and talented individuals to drive meaningful impact.

The BIOEAST HUBS – national collaborative platforms that gather key bioeconomy stakeholders – have identified key problems to overcome, and opportunities to realise for the development of a sustainable bioeconomy in Central and Eastern Europe. These have been grouped into eight key themes, each focusing on specific issues that need to be addressed. Innovators from the BIOEAST countries are invited to submit their solutions to help close these innovation gaps.

BIOEAST HUBS, acting as challenge owners, will evaluate and select the most suitable solutions for their concrete context, and will provide opportunities for the selected innovators to pitch their solutions and to identify partnerships for their further professional development.

2. SCOPE OF THE CALL

The BIOEAST OIC is organised under 8 themes, each of them describing a problem statement, key issues to be addressed, and a non-exhaustive list of solutions the call is looking for. The BIOEAST OIC themes are:



Theme 1: Resilient small and medium-sized farms



Theme 2: Biomass logistics



Theme 3: Biowaste reduction and valorisation



Theme 4: Sustainable Bioenergy



Theme 5: Innovative wood technologies



Theme 6: Monitoring agri-food and forestry systems



Theme 7: Stakeholder engagement and collaboration



Theme 8: Raising awareness of the circular bioeconomy

3. PRIZES

Participation in BIOEAST pitching events

Successful applicants will be eligible to participate in pitching and matchmaking events held in 2026 in Hungary, Slovenia, Estonia, Bulgaria and Czechia. These events will offer participants the opportunity to present and defend their business cases to both local and European investors potentially unlocking new funding and partnership opportunities, while also reaching a broader audience of bioeconomy stakeholders.

The winner of each theme will automatically be eligible to receive funding to cover their travel expenses for attending one of the pitching events. Financial support will only be provided if the winner chooses to take part in the event. Support to other participants will be subject to availability of resources.



Prizes offered by the Bio-based Industries Consortium (BIC)

- The highest scoring non-commercial actor (e.g. university, research institute, etc.) will receive a one-year free Associate BIC Membership.
- The highest scoring company will be invited to a free pitching session, where they will have the opportunity to present their business and expertise to BIC members and explore opportunities for collaboration.
- Both of these winners and also the second highest scoring solution, will be invited to the next BIC Matchmaking Event in Brussels.

Theme-specific awards

BIOEAST HUBs and Thematic Working Groups will provide additional benefits to selected applicants. Details of these additional benefits are available on the respective theme pages.



4. APPLICATION

How to apply

- Applications must be submitted via an online form, available at: <https://bioeast.eu/open-innovation-challenge-application-form/>
- Participants are requested to carefully read the questions in the form.
- Only applications submitted via the application form will be accepted.
- Only the information included in the application form will be considered by evaluators.
- Withdrawal of an application shall be done in writing.

Multiple submissions

The same person or organisation can submit different proposals to the same or to different themes of this call. If the selection panel deems two proposals as very similar, only the latest submission will be taken into the account. If the latest submitted proposal is declared non-eligible, the other proposals submitted earlier will not be considered for evaluation.

Deadline

The deadline for submitting an application is 31 October at 23:59 CET. Any change or extension of the deadline will be announced in the official BIOEAST OIC webpage.

Only applications submitted before the deadline will be accepted. After the closure, no additions or changes to received applications will be taken into account.

Data protection

Data processing will be carried out based on the free and informed consent of applicants. The rights of applicants will be fully respected in accordance with ethical standards and the applicable EU and national data protection laws. Personal data will be collected only as necessary for the purposes of the BIOEAST OIC, will not be shared with external parties without explicit consent, and will be securely deleted after January 2027.

Intellectual property rights

The intellectual property rights to the solution submitted will stay exclusively with the applicant.

Absence of conflict of interest

A conflict of interest occurs when an applicant and an evaluator are from the same organisation or have any other form of association. Evaluators will need to declare any potential conflict of interests before doing the evaluation. If a conflict of interest is identified, external evaluators will be appointed to ensure a fair and impartial assessment.

Declarations

As part of the application form, applicants will be required to confirm the following declarations:

- I hereby declare that all the above information is correct and accurate.
- The applicant is over 18 years old and empowered to represent and commit to the team or the legal entity according to the relevant law.
- The solution proposed by the applicant is based on original work.
- I agree with data handling in compliance with the GDPR regulation. Data collected will be, securely stored, and used only for the purposes of the BIOEAST Open Innovation Challenge, data will not be shared externally without consent and will be deleted after January 2027.





5. EVALUATION PROCESS

Eligibility assessment

Only eligible applications will proceed to evaluation. The first step in the assessment process is therefore an eligibility check, based on the following criteria:

Eligibility criteria	Description
Country	Applicants must be residents or nationals of BIOEAST countries only: Bulgaria, Croatia, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Slovakia, and Slovenia.
Language	Applications must be submitted in English.
Submission Deadline	Only applications submitted before the official deadline will be accepted. The deadline for applying is 31 October at 23:59 CET.
Duplicate submissions	If two applications from the same applicant are found to be very similar, only the most recent version will be evaluated.
Completeness	Only complete applications will be considered eligible.

Application evaluation and winner selection

Eligible applications will be evaluated against the following award criteria:

Award criteria	Description
Adequacy of submitted solution	Does the proposed solution match the theme? Does the proposed solution address the problem and key issues to be addressed?
Quality of the submission	Is the proposal clear, logical and well structured?
Novelty	Is the proposed solution innovative, significantly different and better than what is currently existing and available?
Impact	Impact of the solution according to the following parameters: economic, social and environmental.
Capacity of implementation	Capacity of the team and feasibility of implementing the solution.

The assessment will be carried out by a panel of experts from the BIOEAST HUBs and Thematic Working Groups involved in each theme.

Final selections will be primarily based on evaluation scores. However, to encourage broad participation and impact, evaluators may also consider geographic diversity criteria to ensure balanced representation among winners.

The applications with the highest score in each theme, will be awarded as a BIOEAST OIC winners.



6. INDICATIVE TIMELINE OF APPLICATION AND EVALUATION

BIOEAST OIC call open:
15 September – 31st October 2025

Evaluation process:
November 2025

Announcement of the winners:
20 December 2025

Participation in pitching events:
January – June 2026

7. POINTS OF CONTACT PROCESS

BIOEAST OIC info at:
<https://bioeast.eu/open-innovation-challenge/>

Application form:
<https://bioeast.eu/open-innovation-challenge-application-form/>

Questions regarding the application process may be sent to the following address:
bioeastoic@efi.int



Appendix 5. Award criteria evaluation guidelines

Criteria					
Score	Adequacy of submitted solution	Quality of the submission	Novelty	Impact	Capacity of implementation
5 - Excellent	<p>The solution fully addresses the problem statement of the theme.</p> <p>The solution fully addresses one or more of the key issues to be addressed of the theme.</p> <p>The solution is extremely relevant to the HUB and BIOEAST context.</p>	<p>The solution is exceptionally clear, logical and professionally structured.</p>	<p>The solution is highly innovative and substantially different from all currently existing and available solutions.</p>	<p>The solution has a very highly positive impact on economic, social and environmental dimensions.</p>	<p>The solution appears fully feasible for implementation.</p> <p>The team demonstrates excellent capacity to implement the solution.</p>
4 - Very good	<p>The solution shows strong alignment with the problem statement of the theme.</p> <p>The solution shows strong alignment with one or more of the key issues to be addressed of the theme.</p> <p>The solution shows strong alignment with the HUB and BIOEAST context.</p>	<p>The solution is very clear, very logical and very well structured.</p>	<p>The solution is clearly innovative and significantly different from existing solutions.</p>	<p>The solution shows a strong positive impact on economic, social and environmental dimensions.</p>	<p>The solution appears highly feasible for implementation.</p> <p>The team demonstrates strong capacity to implement the solution.</p>

<p>3 - Good</p>	<p>The solution addresses the problem statement of the theme.</p> <p>The solution addressed one or more of the key issues to be addressed of the theme.</p> <p>The solution is relevant to the HUB and BIOEAST context.</p>	<p>The solution is clear, logical and structured.</p>	<p>The solution is innovative and different than the currently existing and available.</p>	<p>The solution shows a positive impact on economic, social and environmental dimensions.</p>	<p>The solution appears feasible for implementation.</p> <p>The team demonstrates capacity to implement the solution.</p>
<p>2 - Fair</p>	<p>The solution partially addresses the problem statement of the theme.</p> <p>The solution partially addressed one or more of the key issues to be addressed of the theme.</p> <p>The solution is partially relevant to the HUB and BIOEAST context.</p>	<p>The solution is somewhat clear, logical and structured.</p>	<p>The solution is somewhat innovative and shows minor differences from the currently existing and available.</p>	<p>The solution shows a limited positive impact on economic, social and environmental dimensions.</p>	<p>The solution appears partially feasible for implementation.</p> <p>The team demonstrates limited capacity to implement the solution.</p>
<p>1 - Poor</p>	<p>The solution does not address the problem statement of the theme.</p> <p>The solution does not address any of the key issues to be addressed of the theme.</p> <p>The solution is irrelevant to the HUB and BIOEAST context.</p>	<p>Submission is unclear, unlogical and unstructured.</p>	<p>The solution is not innovative and is not different than the currently existing and available.</p>	<p>The solution shows minimal or no expected impact on economic, social and environmental dimensions.</p>	<p>The solution appears not feasible for implementation.</p> <p>The team does not demonstrate capacity to implement the solution.</p>
<p>0 - No information</p>	<p>There is no information available to support this scoring.</p>	<p>There is no information available to support this scoring.</p>	<p>There is no information available to support this scoring.</p>	<p>There is no information available to support this scoring.</p>	<p>There is no information available to support this scoring.</p>

Boosting the bioeconomy transformation for the BIOEAST region



www.bioeast.eu



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