Ref. Ares(2023)5906954 - 30/08/2023

MAINSTREAM BIO

MAINSTREAMING SMALL-SCALE BIO-BASED SOLUTIONS ACROSS RURAL EUROPE

# D2.3

# MainstreamBIO innovation support services – initial version

INNOVARUM

*31/08/2023*

Funded by the European Union

## PROJECT INFORMATION

| | |
|---|---|
| PROGRAMME | Horizon Europe |
| TOPIC | HORIZON-CL6-2021-CIRCBIO-01-08 |
| TYPE OF ACTION | HORIZON Coordination and Support Actions |
| PROJECT NUMBER | 101059420 |
| START DAY | 1 September 2022 |
| DURATION | 36 months |

## DOCUMENT INFORMATION

| | |
|---|---|
| TITLE | D2.3 - MainstreamBIO innovation support services – initial version |
| WORK PACKAGE | WP2 - Development of innovation support services and digital toolkit |
| TASK | T2.3 - Co-creation of innovation support service portfolio and digital toolkit specifications with regional actors |
| AUTHORS (Organisation) | Beatriz Deltoro Bernardes, Ana Casillas González, Iñigo Rodilla & Irene Paredes (INNV), James Gaffey, Eve Savage, John Brosnan & Robert Ludgate (MTU), Bert Annevelink, Rommie van der Weide & Kimberly Wevers (WR), Magdalena Borzęcka, Piotr Skowron, Damian Wach & Małgorzata Wydra (IUNG), Johan Börjesson, Liselotte Uhlir, Fredrik Östlund & Amelie Karlsson (PROC), Petar Borisov, Vladislav Popov & Haik Garabedian (AUP), Liselotte Puggaard (FBCD), Evangelia Tsagaraki, Georgios Spyridopoulos, Petros Papadionisiou (Q-PLAN) |
| REVIEWERS | Bert Annevelink (WR), Anastasios Galatsopoulos & Sofia Michopoulou (WHITE) |
| DATE | 31/08/2023 |

## DISSEMINATION LEVEL

| | | |
|---|---|---|
| PU | Public, fully open | x |
| SEN | Sensitive, limited under the conditions of the Grant Agreement | |
| Classified R-UE/EU-R | EU RESTRICTED under the Commission Decision No2015/444 | |
| Classified C-UE/EU-C | EU CONFIDENTIAL under the Commission Decision No2015/444 | |
| Classified S-UE/EU-S | EU SECRET under the Commission Decision No2015/444 | |

## DOCUMENT HISTORY

| Version | Date | Changes | Responsible partner |
|---|---|---|---|
| 0.1 | 14/07/2023 | First draft | INNV |
| 0.2 | 17/07/2023 | Internal review | INNV |
| 0.3 | 20/07/2023 | Second draft | INNV |
| 0.4 | 27/07/2023 | Quality review I | WR, WHITE |
| 0.5 | 22/08/2023 | Final draft (including section) | INNV |
| 0.6 | 25/08/2023 | Quality review II | WR, WHITE |
| 1.0 | 28/08/2023 | Final version | INNV |
| 1.0 | 31/08/2023 | Submission to EC | Q-PLAN |

# TABLE OF CONTENTS

## TABLE OF FIGURES



## LIST OF TABLES

# ABBREVIATIONS

| | |
|---|---|
| AUP | AGRAREN UNIVERSITET - PLOVDIV |
| BG | Bulgaria |
| CCW | Co-creation workshop |
| DE | Denmark |
| DRAXIS | DRAXIS ENVIRONMENTAL SA |
| DSS | Decision Support System |
| ES | Spain |
| EU | European Union |
| FBCD | FBCD AS |
| GA | Grant Agreement |
| IE | Ireland |
| INNV | EURIZON SL |
| IUNG | INSTYTUT UPRAWY NAWOZENIA I GLEBOZNAWSTWA, PANSTWOWY INSTYTUT BADAWCZY |
| KAM | Key Account Manager |
| MAP | Multi-Actor Partnership |
| MIP | Multi-actor Innovation Platform |
| MTU | MUNSTER TECHNOLOGICAL UNIVERSITY |
| NL | The Netherlands |
| PL | Poland |
| PROC | RISE PROCESSUM AB |
| Q-PLAN | Q-PLAN INTERNATIONAL ADVISORS PC |
| R&D | Research and Development |
| SE | Sweden |
| WHITE | WHITE RESEARCH SPRL |
| WP | Work Package |
| WR | STICHTING WAGENINGEN RESEARCH |

# Executive Summary

MainstreamBIO is a HORIZON EUROPE's Coordination and Support Actions project funded by the European Union under Grant Agreement 101059420. This project sets out to contribute towards supporting the deployment of small-scale bio-based solutions into the mainstream across seven focal rural regions of Europe. Among its activities, the MainstreamBIO project will provide innovation support services and develop a digital toolkit to boost the bioeconomy. To ensure both are aligned with the stakeholders' demand and regional specificities, MainstreamBIO organized a co-creation workshop (CCW) in each focal rural region.

The present report on "MainstreamBIO innovation support services – initial version" (elaborated as a deliverable D2.3) compiles the methodology and findings of said CCWs, as well as the derived service portfolio and the envisioned delivery procedures of each innovation support service, and the consequent changes in the digital toolkit.

MainstreamBIO's GA accounted for a preliminary portfolio of technical and business services, which was internally reviewed by the providing project partners. The adapted portfolio was presented at the regional CCWs, where key players (from farmers to local industry, tech providers, academia, public authorities and civil society) shared their necessities and obstacles to adopt bioeconomy activities. The CCWs highlighted *Nutrient management and fertilization*, *Scale-up advisory* and *Techno-economic analysis* as the most valued technical services. *Matchmaking*, *Guidance in accessing funding* and *Business model design and optimization* were emphasized as the most valued business services. Providing partners took into account the modifications suggested at the CCWs and created a final service portfolio. Finally, the providing procedures were established for each innovation support service, based on a three-meeting schematic.

MainstreamBIO partners will deliver the tailored innovation support services via two innovation rounds (First: November 2023 – June 2024; Second: November 2024 – June 2025) focused on multi-actor partnerships. Lessons learnt throughout these innovation rounds will better tune the service portfolio and the delivery procedures of the innovation support services. The report "MainstreamBIO innovation support services – final version" (D2.6, due in M36) will describe the modifications and final characteristics of the provided innovation support services and procedures.

Regarding the digital toolkit, MainstreamBIO's GA described six features to be developed. During the CCWs, their practicality was assessed. The most looked-for features included the *Catalogue of small-scale bio-based technologies, business models, and social innovations,* the *Collection of best practices for improved nutrient recycling,* and the *Decision Support System (DSS).* Bioeconomy stakeholders would value the digital toolkit being in their local language, including positive and negative aspects and being timely updated. This input of the stakeholders will be integrated in D2.5 "MainstreamBIO digital toolkit – initial version".

# 1 Introduction

The current report presents the process and first results of the implementation of *Task 2.3: Co-creation of innovation support service portfolio and digital toolkit specifications with regional actors* of the MainstreamBIO project from M6 to M12, where all MIP leaders and MIP members (MIP being Multi-actor Innovation Platform) have worked together for the co-creation of tailor-made innovation support services and a digital toolkit in the seven focal regions of MainstreamBIO.

## 1.1 Context

Despite the potential of small-scale bio-based solutions to advance the bioeconomy in rural areas, its uptake in the regions across Europe is far from straightforward. Considerable investments in research and innovation, business support networks, policy incentives and funding schemes that have been done mainly focus on industrial scale projects and large-scale biorefineries. **Thus, there is a great potential for further developing the bio-based economies in the targeted rural areas through small-scale solutions,** in line with the resources and capacities of these regions.

However, there are still many barriers to overcome in order to facilitate the uptake of rural bioeconomy, such as the **limited understanding of bioeconomy**; **insufficient awareness** regarding relevant **market opportunities**; **missing knowledge**, **lack of skills and/or financial resources** to set-up **sustainable business models**; as well as **underdeveloped or missing value chains for bio-based products**. Consequently, a great amount of the existing practical knowledge on these solutions remains underexploited, along with its potential to drive sustainable and circular transitions.

In this context, **MainstreamBIO aims to support the development of small-scale solutions in European rural regions** by bringing together key regional players, supporting their collaboration, exploring opportunities and **co-creating solutions** to engage rural actors in the deployment of the bioeconomy, with the final asset of providing **innovation support tailored to the rural challenges and opportunities** of each of the study regions to overcome the above-mentioned barriers. The main solutions developed under MainstreamBIO activities consist of a **portfolio of innovation support services** to be delivered to multi-actor partnerships with rural small-scale bioeconomy ideas or ongoing projects, as well as a **digital toolkit** to bring together scattered resources and tools that can facilitate the development of the bioeconomy regionally.

## 1.2 Objective

The objective of this report is to describe the process towards the **co-creation** of the **MainstreamBIO innovation support services** and **digital toolkit**, that will be made available to the diverse multi-actor partnerships in rural areas across our focal regions:

- Bulgaria: South Central Bulgaria.
- Denmark: Midtjylland, Sjæland and Southern Denmark.
- Ireland: Southern Ireland.
- The Netherlands: Flevoland and Friesland.
- Poland: Lubelskie.
- Spain: the Ebro River basin region (provinces of Navarra, Aragon and Catalonia).

- Sweden: Middle Norrland and Upper Norland.

Specific objectives of this report are to:

- Describe the methodology followed for the co-creation of both the service portfolio and the digital toolkit.
- Compile the results of the regional Co-Creation Workshops (CCWs) carried out in Task 2.3.
- Deliver the results of the co-creation process: the final service portfolio and a first version of the digital toolkit.

# 2 Methodology

## 2.1 Co-creation of innovation support service portfolio

MainstreamBIO's GA described an initial service portfolio taking into account the foreseen needs of regional rural bioeconomy stakeholders (Table 1). The partners responsible for providing the innovation support services were selected based on their expertise.

*Table 1: Initial service portfolio, as described in MainstreamBIO Grant Agreement.*

| MainstreamBIO Technical support services | MainstreamBIO Business support services |
|---|---|
| Project design and development<br>Support for the design of projects to deploy small-scale bio-based solutions throughout the value chain with production processes of specific bio-based products | Tech scouting and business model design<br>Support to identify suitable bio-based solutions and design sustainable business models with the triple-layered Business Model Canvas in line with regional specificities |
| Pilot project implementation advice<br>Advice on the collection of technical data (e.g., mass balances, energy costs) and different steps across a pilot project (e.g., on product characteristics and quality) | Market research and value chain development<br>Primary and secondary research based on collective intelligence methods to better understand target bio-based markets and develop respective value chains |
| Field and lab testing<br>Provision of relevant environments/tests to pilot test installations and assess the suitability of products for the different (bio)conversion routes or usage in agriculture | Business mentoring<br>Support to address challenges associated with rural entrepreneurship from a pool of experts and business leaders connected to our partner's networks |
| Scale-up and optimization<br>Support to scale-up in laboratories, pilot and demo facilities, optimization for increased efficiency and yields | Access to finance support<br>Support to identify and seize financing (e.g., loans) and funding opportunities (e.g., ESIF, EAFRD). |
| Soil nutrient management & recycling monitoring<br>Fertilization recommendation, nutrient management plan elaboration, recycling monitoring, training, and support to use tools such as FaST and InterNAW | Networking to find partners, customers, investors<br>Support to access networks, demonstrate solutions, build partnerships and find customers and investors at local and EU levels via our respective events and extensive networks. |

### *2.1.1 Preliminary service portfolio review by project partners*

The first step was that service providers reviewed the preliminary service portfolio and provided updated definitions of the innovation support services. For those innovation support services provided by more than one partner, INNV created a merged, cohesive definition suitable for all

service providers. Moreover, the initial service portfolio was discussed at MainstreamBIO's kick-off and second project meetings. It was decided that the innovation support services *Technology scouting* and *Networking to find partners, customers, investors* were to be provided by the Key Account Manager (KAM) of each MIP.

### 2.1.2 Service portfolio co-creation via regional workshops

INNV and WHITE responsible for developing the CCWs guidelines, while INNV provided partners with the necessary materials to carry out the CCWs and to report the results (see *Appendix A – Co-creation guidelines*).

As was recommended, each CCW was held in the local language. The sessions could be included as part of a bigger event, as to increase the interest of indecisive attendees. The CCWs were targeted at MIP members, although non-MIP members could also participate. Online and mixed strategies were implemented only when commuting to the CCW venue was extremely detrimental to the number of attendees (Table 2).

*Table 2: Summary of the characteristics of CCWs.*

| Country | Partner | CCW date | Method | Attendees |
|---|---|---|---|---|
| Spain (ES) | INNV | 21/04/2023 | Onsite | 11 |
| The Netherlands (NL) | WR | 11/05/2023 | Onsite | 13 |
| Ireland (IE) | MTU | 19/05/2023 | Onsite | 17 |
| Bulgaria (BG) | AUP | 22/05/2023 | Onsite | 15 |
| Poland (PL) | IUNG | 31/05/2023 | Onsite | 12 |
| Sweden (SE) | PROC | 31/05/2023 | Online | 12 |
| Denmark (DE) | FBCD | 19/06/2023 | Hybrid | 12 |

The CCWs were designed in three sections:

- Introduction session: consisting of a brief explanation of MainstreamBIO's goals and prior results (regional results of WP1), the statement of the objectives of the CCW, the introduction of the attendees, and their expectations about the CCW.
- Co-creation session: an open discussion regarding the proposed service portfolio and digital toolkit features. The methodology is described in section 2.1.2.1.
- Closing session: a summary of the main takeaways of each CCW.

#### 2.1.2.1 Methodology selection

The methodology followed during the co-creation session would directly impact the quality and quantity of the feedback. Given the expected mid-size number of attendees (10-15 people) and the need to address certain topics (avoiding broad brainstorming debates), the chosen methodology was

**Fishbowl**[1]. It consists of dividing the group in two circles: an inner circle, where conversation happens, and an outer circle, where active listening takes place. A spare chair is always present in the inner circle, inviting outer members to speak. Members of the inner circle that do not intervene frequently must move to the outer circle.

Two moderators were needed:

- A facilitator of the discussion, who ensures the focus of the conversation and maintains the momentum of the discussion. Dialogue-igniting questions were provided for guidance.
- A note-taker, who relates the comments and suggestions to the innovation support services and digital toolkit features as “positive aspects”, “negative aspects” and “suggestions”.

### 2.1.3 Final portfolio preparation

Once all the CCWs had taken place, the MIP leaders held a meeting to share their main findings at the CCWs, and to detect common grounds. The feedback from all CCWs was analysed to determine the most valuable innovation support services for each focal region. Then, the workload for each service provider was predicted. MIP leaders were presented with the estimated work efforts and suggested modifications. Each service provider either accepted or suggested more changes, until the final innovation support service portfolio was established.

### 2.1.4 Determining the providing procedure of the innovation support services

The final step was to determine how each innovation support service would be provided. A core methodology based on three meetings was suggested:

- 1st meeting: to establish the context of the supported initiative and the regional nuances.
- 2nd meeting: to work together with the supported initiative in adjusting the innovation support service outputs to their needs.
- 3rd meeting: to deliver the final output of the innovation support service to the supported initiative.

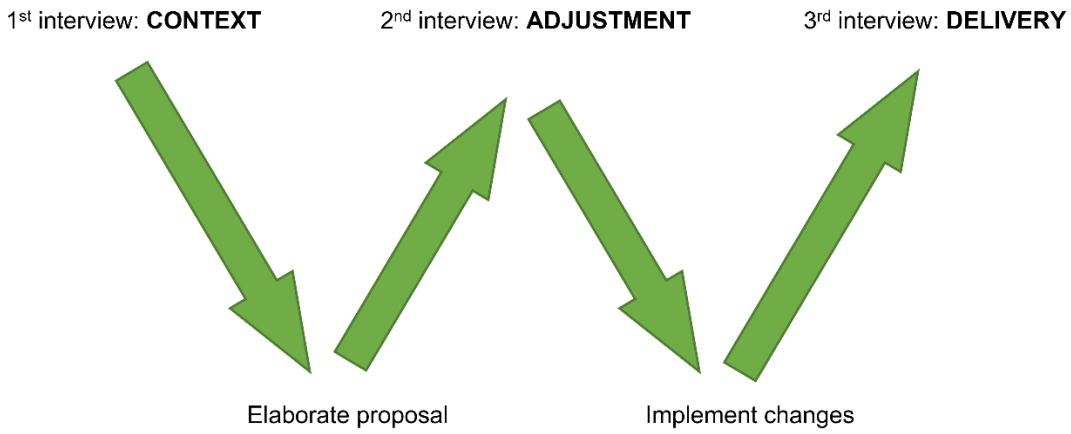



*Figure 1: Schematic of the core methodology to provide MainstreamBIO's innovation support services.*

[1] https://www.learningforjustice.org/ (consulted on 21/08/2023)

This core methodology aims at reducing the time burden on the supported initiative, while ensuring the best quality of the innovation support service. Following these principles, each service provider determined the timespan between meetings and the information to be collected/presented in them. For those innovation support services provided by more than one MainstreamBIO partner, the methodology was discussed to fit all requirements and agreed by all involved partners.

## 2.2 Co-creation of MainstreamBIO's digital toolkit

The MainstreamBIO digital toolkit aims to be a useful, practical, and intuitive resource for bioeconomy stakeholders. The following tools are planned to be included:

- Catalogue of small-scale bio-based technologies, business models and social innovations.
- Collection of best practices for improved nutrient recycling.
- MainstreamBIO resources.
- Decision Support System (DSS).
- BioForum.
- Bioeconomy repository.
- Tool library.

To address the suitability of these features to the target audience, the digital toolkit was addressed during the CCWs. As for the innovation support service portfolio, the attendees' positive and negative takes on the digital toolkit, as well as their suggestions, were noted.

To adequately design the user experience, additional information on the design of the toolkit was gathered via a questionnaire. Results will be included in MainstreamBIO's deliverable D2.5 (M18).

### *2.2.1 Review by project partners*

The feedback from the CCWs was analysed by the developer of the digital toolkit (DRAXIS). INNV provided DRAXIS with a report, highlighting the main insights and decisions derived from the workshops. After the completion of the workshops, all partners engaged in collaborative online discussions to search for a solution that integrates the participants' needs and preferences. DRAXIS included the key findings and recommendations from the CCWs and these discussions to create a concise analysis of user requirements that will be presented in the deliverable D2.5 (M18). These user requirements will be included in the final version of the MainstreamBIO digital toolkit.

A first prototype of the digital toolkit will be presented in D2.5 (M18). Through effective communication and collaboration, the feedback from the partners will be used to develop a digital toolkit that addresses the specific requirements of biomass producers, provides user-friendly features, supports decision-making, and promotes sustainability in the bio-based sector.

# 3 Implementation

## 3.1 Co-creation of the innovation support service portfolio

### *3.1.1 Preliminary service portfolio review by project partners*

MainstreamBIO partners examined the innovation support services portfolio contained in the project's GA. Considering their suggestions and modifications, a reviewed service portfolio was compiled (detailed in Table 3).

*Table 3: Reviewed service portfolio, and the MainstreamBIO partners responsible for providing each innovation support service.*

| Technical support services | | Business support services | |
|---|---|---|---|
| **Service** | **Partner** | **Service** | **Partner** |
| Project design and development advice<br>Support for the design of projects to deploy small-scale bio-based solutions throughout the value chain with production processes of specific bio-based products. | WR | Business model design and optimization<br>Depending on the input of the MAP, two scenarios are possible:<br>- No initial BM: development of a BM accounting based on the Triple Layered BM Canvas.<br>- Existing BM or BP: analysis and optimization.<br>Both options account for framework particularities of the MAP. | INNV, Q-PLAN |
| Pilot project implementation advice<br>Advice on the collection of technical data (e.g., mass balances, energy costs) and different steps across a pilot project (e.g., on product characteristics and quality). | WR | Market analysis<br>Market analysis of the MAP's business, plus insight into customers' and industry's behavior. | INNV, PROC, Q-PLAN |
| Scale-up advisory<br>Analysis and advice on specific needs and steps towards commercialization of the process or products, including R&D and infrastructure needs, and funding opportunities for scale-up and optimization. | PROC | Business mentoring<br>The MAP is assigned a bioeconomy expert who offers their feedback, guidance and suggestions through a constructive, periodic dialogue. | INNV, PROC, Q-PLAN |
| Nutrient management and fertilization<br>Provision of knowledge and tools such as free software, current EU and national legislation, and regional | IUNG, AUP | Guidance in accessing funding<br>Help potential applicants for R&I EU funding to find the most appropriate funding action among the relevant EU | INNV, PROC, Q-PLAN |

| | | | |
|---|---|---|---|
| guidelines and recommendations, to help to establish practices for the recovery of nutrients from bio-based fertilizers. | | programs (definition of funding roadmaps). | |
| Technology scouting<br>Advise on matching available feedstocks with appropriate small-scale technologies. | WR<br>KAM of each MIP | Matchmaking<br>Support to access networks (find customers, demo-helpers, partners and investors) at local and EU levels. | INNV, PROC<br>KAM of each MIP |
| Techno-economic analysis<br>Mapping of process costs and product revenues to evaluate the economic performance of the bio-based technology. | PROC | | |

### 3.1.2 Service portfolio co-creation via regional workshops

To validate the reviewed portfolio, CCWs were organized in each of the 7 focal regions. Bioeconomy stakeholders, including potential beneficiaries of the innovation support services, were asked about their needs, problems, and future prospects. The composition of each CCW can be found in Table 4.

*Table 4: Attendees at each CCW.*

| | BG | DK | ES | IE | NL | PL | SE |
|---|---|---|---|---|---|---|---|
| **Biomass suppliers** | 7 | 3 | 2 | 3 | 1 | 7 | 0 |
| **Business representatives** | 2 | 2 | 1 | 2 | 3 | 1 | 5 |
| **Research and academia** | 1 | 5 | 4 | 4 | 5 | 1 | 4 |
| **Policy actors** | 1 | 0 | 1 | 5 | 1 | 2 | 1 |
| **General public/Community initiatives** | 2 | 2 | 1 | 1 | 1 | 0 | 2 |
| **Representatives of regional bioeconomy/biobased initiatives** | 2 | 0 | 2 | 2 | 2 | 1 | 0 |
| **Total** | **15** | **12** | **11** | **17** | **13** | **12** | **12** |

### 3.1.2.1 Bulgaria

AUP organised the Bulgarian CCW (Figure 2) at their headquarters (Plovdiv). This workshop gathered 15 participants, mainly biomass suppliers (7). Bulgarian stakeholders prioritized technical support over business support. Among technical support services, *Project design and development advice*, *Nutrient management and fertilization* and *Scale-up advisory* were considered the most important. Of the business support services, *Guidance in accessing funding, Matchmaking* and *Market analysis* were deemed more necessary. The stakeholders considered that *Guidance in accessing funding* should help them develop high-quality projects, including finding the right partners. Thus, this innovation support service would lead into *Matchmaking*.

*Figure 2: Bulgarian CCW attendees debating.*

### 3.1.2.2 Denmark

FBCD held a hybrid CCW (Figure 3), with onsite attendees gathering at the Agro Business Park of Tjele. In total, it counted 12 participants, mostly actors from research and academia (5). Due to the changing weather conditions and water availability, Danish attendees found technical support more necessary than business support. They focused their interest on *Technology scouting*, especially regarding the adoption of conservation agriculture, no-till, and regenerative agriculture methods. The stakeholders also valued gaining more knowledge on how the soil biome functions, how current practices affect its behaviour, and how to adapt their practices to that.

The main concern regarding business support services was their possible overlap with existing governmental support systems. The attendees valued *Matchmaking* over the other business support services, as they were interested in finding already successful cases of their technologies. Other interesting innovation support services were *Market analysis* and *Business model design and development*.

*Figure 3: Onsite stakeholders interacting with online participants at the Danish CCW.*

### *3.1.2.3 Ireland*

MTU held the Irish CCW (Figure 4) at their quarters (Nimbus Research Center, Cork). In total, 17 stakeholders joined, most of them policy actors (5). The attendees considered business support more relevant than technical support. More precisely, they reported *Business model design and optimization* and *Guidance in accessing funding* as the most needed business support services. Irish stakeholders valued the development of robust models for both traditional and disruptive initiatives, highlighting their willingness to innovate if they are backed by a firm business case and a transparent explanation of the risks and results of failure. They also demanded clear availability of the KAM.

All technical support services were equally well-valued as highly beneficial for non-technical people. The stakeholders stressed the importance of disruptive technologies, and the need for technologies to be supported by business cases. However, they were concerned about the lack of subsidies to adopt new technologies. Thus, they suggested promoting technologies with small capital investments throughout our technical support.


*Figure 4: Irish participants giving feedback on the innovation support services portfolio.*

### *3.1.2.4 The Netherlands*

WR run the Dutch CCW (Figure 5) at their premises (WR Open Teelten, Lelystad). A total of 13 stakeholders attended, mainly representatives of research and academia (5). The participants valued technical and business support as equally relevant. They claimed that more technical knowledge is needed and valued the possibility of learning about and comparing different technologies. In consonance, they highlighted *Techno-economic analysis* as the most interesting technical support service.

Dutch stakeholders missed deeper interaction among actors, especially between farmers and municipalities. Consequently, *Matchmaking* was considered the most needed business support service. Participants also suggested MainstreamBIO innovation support services included new value chains, and pursue a more balanced value chain, with more incomes being perceived by the farmers.

Participants recommended adding an innovation support service consisting of advice on legal matters, mostly focused at a regional and national level.


*Figure 5: Dutch stakeholders during the introductory session of the CCW.*

### 3.1.2.5 Poland

IUNG organised the Polish CCW (Figure 6) at the IUNG-PIB Congress Centre (Puławy). It gathered 12 people, mostly biomass suppliers (7). Stakeholders found technical support more aligned with their needs than business support. Although all technical support services were welcome and considered complementary, the following were of special interest: *Techno-economic analysis*, *Scale-up advisory,* and *Nutrient management and fertilization.* In the case of *Scale-up advisory*, the participants suggested including a practical component and contacting an already implemented solution.

Regarding business support services, Polish participants considered *Matchmaking* the most important, as they would like to find partners and investors across Europe. Other especially well-valued business support services were *Guidance in accessing funding* and *Market analysis*.

Attendees expressed their concern about the lack of legal information accessible to the farmers. They also transmitted the importance of the innovation support services being provided in Polish.

*Figure 6: Attendees at the introductory session of the Polish CCW.*

### 3.1.2.6 Spain

INNV ran the Spanish CCW (Figure 7) at the multipurpose building of Alcarràs (Spain), as part of the Day to Foster the Bioeconomy in the Ebro Valley. A total of 11 stakeholders participated, mainly people from research and academia (4). Attendees reported business support as more necessary than technical support. According to their status, the most valued business supports were *Matchmaking, Business model design and optimization* and *Business mentoring*. About the latter, the stakeholders highlighted their need for an impartial third party who points out reliable reference cases and helps contact the leaders of said initiatives. The participants found *Business mentoring* and *Matchmaking* to be complementary.

The best-valued technical support service was *Nutrient management and fertilization*. Participants highlighted the importance of facilitating access to current technologies by translating knowledge.

They also valued formation to ensure primary producers treat their residues properly, which could be related both to technical and legal support services.

*Figure 7: Spanish stakeholders engaging in the co-creation session via the Fishbowl methodology.*

### *3.1.2.7 Sweden*

PROC organised the online Swedish CCW. This CCW counted with 12 participants, most of them business representatives (5). The stakeholders prioritized business support over technical support. More precisely, they valued the business support services *Guidance in access funding* and *Matchmaking* as more relevant than the others. In general, they reported the R&D part of the innovation process is already covered by other kinds of support, and they would appreciate help in the commercialization steps. The participants suggested including legal support. No technical support services were highlighted as specially interesting.

### *3.1.2.8 Summary*

The input from stakeholders helped tailor the service portfolio to their situation. On top of that, it allowed to estimate the demand of each innovation support service. A summary of the most relevant innovation support services per region can be found in Table 5. More detailed information can be found on the reports of the different CCWs (see *Appendix B – Reports on regional CCWs*).

*Table 5: Summary of the most interest-eliciting innovation support services at each of the CCWs. A maximum of 3 innovation support services is reported in each category.*

| Country | Balance of interest | Technical support services | Business support services |
|---|---|---|---|
| BG | Technical > Business | Project design and development advice | Guidance in access funding |
| | | Nutrient management and fertilization | Matchmaking |
| | | Scale-up advisory | Market analysis |
| DK | Technical > Business | Technology scouting | Business model design and optimization |
| | | | Business mentoring |
| | | | Business model design and optimization |
| ES | Business > Technical | Nutrient management and fertilization | Matchmaking |
| | | | Business model design and optimization |
| | | | Business mentoring |
| IE | Business > Technical | *All equally valued* | Business model design and optimization |
| | | | Guidance in access funding |
| NL | Business = Technical | Techno-economic analysis | Matchmaking |
| PL | Technical > Business | Techno-economic analysis | Matchmaking |
| | | Scale-up advisory | Guidance in access funding |
| | | Nutrient management and fertilization | Market analysis |
| SE | Business > Technical | *All equally valued* | Guidance in access funding |
| | | | Matchmaking |

### 3.1.3 Final portfolio preparation

The results of all CCWs were thoroughly examined to detect common trends. No geographical patterns were detected. The overall interest in each innovation support service was evaluated, leading to a ranking from most to least valued:

- Technical support services:
    1. Nutrient management and fertilization
    2. Scale-up advisory
    3. Techno-economic analysis
    4. Project design and development advice
    5. Technology scouting
    6. Pilot project implementation advice.
- Business support services:
    1. Matchmaking
    2. Guidance in accessing funding
    3. Business model design and optimization
    4. Market analysis
    5. Business mentoring

The technical support service *Pilot project implementation advice* was not specifically valued at any CCW. However, the consortium knowledge about the bioeconomy supports it as a highly necessary support service. Thus, it was adapted as part of technical support service *Project design and development advice.*

The business support service *Matchmaking* was the most valued among the whole service portfolio. Participants suggested possible synergies with almost all other innovation support services. Given the importance of knowing the local scene, the MIP leaders reckoned it should be carried out mainly by the KAMs.

This ranking served to estimate the efforts of each of the service providers during the following Innovation Round. Considering the initial definition of the innovation support services, the input from the CCWs, and the potential workload, the service providers re-defined the innovation support services (Table 6). A comprehensive comparison between the initial service portfolio (as described in MainstreamBIO's GA) and Table 6 can be found in *Appendix C – Modifications to the service portfolio*.

*Table 6: Final service portfolio to be offered during the first Innovation Round.*

| Technical support services | | Business support services | |
|---|---|---|---|
| **Service** | **Partner** | **Service** | **Partner** |
| Project design and development advice<br>Depending on the input of the MAP, two scenarios are possible:<br>- Small scale: Support for the design of projects to deploy small-scale bio-based solutions throughout the value chain with production processes of specific bio-based products.<br>- Pilot scale: Advice on the collection of technical data (e.g., mass balances, energy costs) and different steps across a pilot project (e.g., on product characteristics and quality). | WR | Business model design and optimization<br>Depending on the input of the MAP, two scenarios are possible:<br>- No initial BM: development of a BM accounting based on the Triple Layered BM Canvas.<br>- Existing BM or BP: analysis and optimization.<br>Both options account for framework particularities of the MAP. | INNV, Q-PLAN |
| Scale-up advisory<br>Analysis and advice on specific needs and steps towards commercialization of the process or products, including R&D and infrastructure needs, and funding opportunities for scale-up and optimization. | PROC | Market analysis<br>Market analysis of the MAP's business, plus insight into customers' and industry's behavior. | INNV, PROC, Q-PLAN |
| Nutrient management and fertilization<br>Provision of knowledge and tools such as free software, current EU and national legislation, and regional guidelines and recommendations, to help establish practices for the recovery of nutrients from bio-based fertilizers. | IUNG, AUP | Business mentoring<br>The MAP is assigned a bioeconomy expert who offers their feedback, guidance and suggestions through a constructive, periodic dialogue. | INNV, PROC, Q-PLAN |
| Technology scouting<br>Advise on matching available feedstocks with appropriate small-scale technologies. | WR<br>KAM of each MIP | Guidance in accessing funding<br>Help potential applicants for R&I EU funding to find the most appropriate funding action among the relevant EU programs (definition of funding roadmaps). | INNV, PROC, Q-PLAN |
| Techno-economic analysis<br>Mapping of process costs and product revenues to evaluate the economic performance of the bio-based technology. | PROC | Matchmaking<br>Support to access networks (find customers, demo-helpers, partners and investors) at local and EU levels. | KAM of each MIP<br>INNV, PROC |

The participants of the CCWs from the Netherlands, Poland, Spain, and Sweden suggested including legal support services. This legal advice would require experts on the matter at regional and national levels. This expertise cannot be found within the partners of MainstreamBIO, and thus, the inclusion of this support was finally dismissed. It could be interesting if other projects or initiatives could cover this reported need for an innovation support service, as to help small actors implement bioeconomy and bio-based solutions.

Bulgarian, Polish, and Spanish stakeholders underlined the importance of providing innovation support services in the local language. Responding to this need, MainstreamBIO partners reassessed the importance and dedication of the Key Account Manager (KAM) of each MIP. KAMs will translate the necessary information (local language to English and vice versa) to allow the service giver and receiver to communicate.

### *3.1.4 Methodology to provide innovation support services to a Multi Actor Platform (MAP)*

Considering the final portfolio and the estimation of demand of each innovation support service, service providers adapted the three-meeting schematic to each innovation support service. For each, the characteristics of the meetings, information to be gathered and outcomes to be provided are described below.

#### *3.1.4.1 Project design and implementation advice (WR)*

Timespan of service provision: 1 month (unless a longer period is agreed upon with the MAPs).

Number of meetings: minimum 3, maximum 5 (depending on MAP's available information on each meeting)

Information to be gathered in Meeting 1:

- Responsiveness and availability of MAP.
- Project description: type of project, current state of the project (i.e., there is or isn't a drafted project plan), goal, phases, feedstock-technology-product combination, technical design.
- Prospection: financial (how will the project be financed), potential legal barriers, execution timespan of each phase of the project, partners (present and to be found).

Information to be fine-tuned in Meeting 2:

- Draft of project plan (if agreed on Meeting 1).
- Detected strengths and weaknesses of the project.
- Advice on present components of the plan (suggestions of alternative options, if applicable).

Outcome to be delivered in Meeting 3. A report including:

- General advice on the implementation plan and/or project design (depending on the needs of each case).
- Analysis of the strengths and weaknesses of the project.
- Advice on next steps.
- References to further information.

### *3.1.4.2 Technology scouting (WR)*

Timespan of service provision: 1 month (unless a longer period is agreed upon with the MAPs).

Number of meetings: minimum 3, maximum 5 (depending on MAP's available information on each meeting)

Information to be gathered in Meeting 1:

- Responsiveness and availability of MAP.
- Available and/or desirable feedstocks: spatial and temporal availability, quality and quantity, physical properties (e.g., fresh, dry), ownership (e.g., among the MAP members, need to find an external provider), storage.
- Available and desirable technologies: preference, feasible scale, location, operators.
- Desirable products: specific needs or inclinations, regional demand, storage.

Information to be fine-tuned in Meeting 2:

- Suggested technology(ies). Ensure MAPs understand the strengths and weaknesses of the technology. Assess the suitability to MAP's needs and goals (revisit with them the answers in Meeting 1).

Outcome to be delivered in Meeting 3. A report including (regarding the technology):

- Suggested technology.
- The suitability (positive and negative aspects) to the supported case.
- Foreseen bottlenecks and weaknesses.
- Advice on the suitable scale of the technology.
- Steps needed to implement it.
- Necessary additions to the MAP (if any).
- Sketch of a possible value chain including the small-scale technology. It can be further elaborated in a business plan (to be delivered in another innovation support service)
- References to further information (e.g., technical details, technology suppliers, etc.).

### *3.1.4.3 Scale-up advisory (PROC)*

Timespan of service provision: 1 month – 2 months (unless a longer period is agreed upon with the MAPs).

Number of meetings: by default, 3

Information to be gathered in Meeting 1:

- Responsiveness and availability of MAP.
- Description of technology and value chain, including raw material, intended process steps and targeted products and markets. Volumes required for proof of concept. Depending on industry also define the industrially relevant scales for pilot and demonstration.

Information to be fine-tuned in Meeting 2:

- Fine tuning and further discussion/agreement with MAP on the specific considerations around the preliminary steps of scale up for the specific case. Discussing key results and outcomes for the preliminary scale-up steps.

Outcome to be delivered in Meeting 3:

- Summary report on the recommendations for scale up roadmap for the specific case including advice on key results and outcomes to be sought for each scale up step towards commercialization.

### *3.1.4.4 Techno-economic analysis (PROC)*

Timespan of service provision: 1 month – 2 months (unless a longer period is agreed upon with the MAPs).

Number of meetings: by default, 3

Information to be gathered in Meeting 1:

- Responsiveness and availability of MAP.
- Description of technology and value chain, including raw material, intended process steps and targeted products and markets.
- Agreement on required data-input (technical and market).

Information to be fine-tuned in Meeting 2:

- Fine tuning and further discussion/agreement with MAP on the assumption for the TEA (Techno-economic analysis).
- Complementary data collection.

Outcome to be delivered in Meeting 3:

- Summary report on the TEA findings for the specific case.

### *3.1.4.5 Nutrient management and fertilization (IUNG, AUP)*

Timespan of service provision: 1 month - 2 months

Number of meetings: by default, 3

Information to be gathered in Meeting 1:

- Responsiveness and availability of MAP.
- Assessment of MAP nutrient management needs: types of crops, animal production, fertilizers used, current nutrient recycling practices (NRP), opportunities to use new types of fertilizers.
- Interview on the knowledge of legal EU and national regulations, fertilization recommendations, and assessment of the ability to use tools related to nutrient management.

Information to be fine-tuned in Meeting 2:

- Sketch of the fertilization plan for the MAP with an overview of individual parts and elements.
- Training in the use of nutrient management software.

Outcome to be delivered in Meeting 3: A recommendation report including:

- Fertilization plan for the MAP at field/farm level, recommendations on the use of individual types of fertilizers, an overview of applicable legislation

### *3.1.4.6 Business model design and optimization (INNV, Q-PLAN)*

Timespan of service provision: 1.5 month – 3 months

Number of meetings: 3

Information to be gathered in Meeting 1:

- Responsiveness and availability of MAP.
- Qualitative information: expectations (e.g., threshold of revenues, growth in personnel, etc.), value proposition, existing business model or plan (if any), customer description, feedstock-

technology-products, side-streams and residues, general market information, current/expected social impact, environmental aspects of the initiative.

- Quantitative information: number of employees, revenues and costs, amount of feedstock, products, side-streams and residues consumed/produced.

Information to be fine-tuned in Meeting 2:

- Tentative Triple Layered Business Model Canvas ( Figure 8). Missing aspects or information are discussed with the MAP. Suggestions are explained and validated/adjust to the needs and available resources of the MAP.

Outcome to be delivered in Meeting 3:

- Triple Layered Business Model Canvas, accounting for the changes derived from Meeting 2.

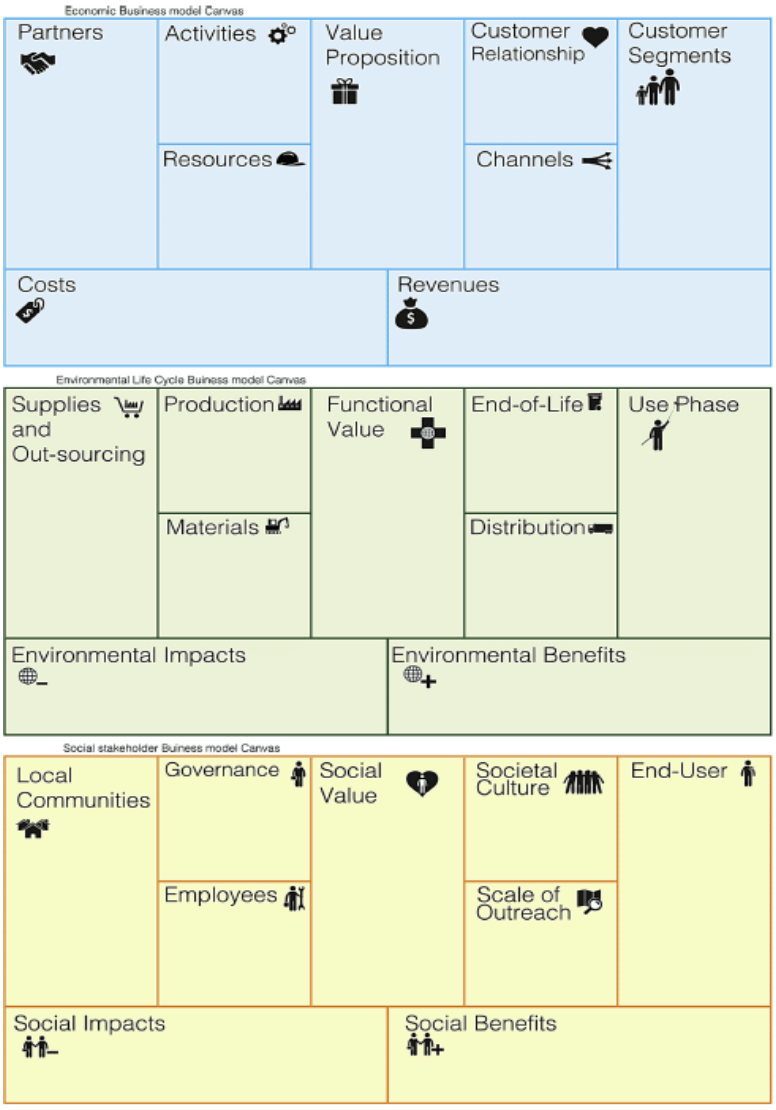



*Figure 8: Triple Layered Business Model Canvas[1].*

[1] Joyce, A., & Paquin, R. L. (2016). The triple layered business model canvas: A tool to design more sustainable business models. *Journal of Cleaner Production*, 135, 1474–1486. doi:10.1016/j.jclepro.2016.06.067

### *3.1.4.7 Market analysis (INNV, Q-PLAN, PROC)*

Timespan of service provision: 1 month – 2 months (unless a longer period is agreed upon with the MAPs).

Number of meetings: minimum 3, although meetings with experts in the field may be needed (specially to cover regional aspects).

Information to be gathered in Meeting 1:

- Responsiveness and availability of MAP.
- Description of the initiative: description of the product(s)/service(s), unique selling points, target market, current and target customer base (quantitatively and qualitatively).

Information to be fine-tuned in Meeting 2:

- Desk-research validation: share findings, evaluate MAP's feasibility and willingness to adopt certain changes.

Outcome to be delivered in Meeting 3. A recommendation report including:

- Value chain.
- Main findings of the market analysis: derived suggestions on positive and negative endeavors.
- Market structure: suppliers, buyers, entry barriers, competitors, product substitutes.
- Market conduct: economic relationships, patterns of commercial behavior.
- Market performance: trends, size, growth prospects, socio-economic and gender implications.

### *3.1.4.8 Business mentoring (INNV, Q-PLAN)*

Timespan of service provision: 1 month – 3 months

Number of meetings: minimum 3, following the mentor/mentee guidelines prepared by Q-PLAN.

Information to be gathered in Meeting 1:

- Responsiveness and availability of MAP.
- Acceptance of the Mentoring agreement, that outlines the goals of the mentoring relationship and the mentoring sessions.
- Definition of the Mentoring Action Plan: how the mentoring will be provided to each MAP.

Information to be fine-tuned in Meeting 2:

- Monitoring of the Mentoring Action Plan.

Outcome to be delivered in Meeting 3:

- Final monitoring of the Mentoring Action Plan, including a summary of progress, doubts and advice provided during the innovation support service.

### *3.1.4.9 Guidance in access funding (INNV, Q-PLAN, PROC)*

Timespan of service provision: 2 weeks - 1 month (unless a longer period is agreed upon with the MAPs).

Number of meetings: 3

Information to be gathered in Meeting 1:

- Responsiveness and availability of MAP.
- Initiative characteristics: concept, product(s)/service(s), innovation potential, technology, size (personnel, production, revenues), general and specific objectives, potential impact.
- Chronogram: start of the initiative, explored funding options (regional, national, international levels, reasons for them being discarded, accepted, non-eligible, etc.), current funding status, future funding goals (quantification of needed resources, timeline).

Information to be fine-tuned in Meeting 2. A tentative funding roadmap including:

- A review of the already explored funding options (determine if any is currently of interest).
- A summary of possible funding opportunities offered by EU level funding instruments.

Outcome to be delivered in Meeting 3. A final funding roadmap including:

- A summary of possible funding opportunities offered by EU level funding instruments, including a brief description of how the initiative could benefit from them.
- Already explored funding options can be included if the initiative could now be eligible and the MAP found it useful during Meeting 2.

### *3.1.4.10 Matchmaking (KAMs, INNV, PROC)*

Timespan of service provision: 2 week – 2 months (unless a longer period is agreed upon with the MAPs).

Number of meetings: 3

Information to be gathered in Meeting 1:

- Responsiveness and availability of MAP.
- Initiative characteristics: current state, roles to be reinforced, needs to be met, value to potential new partners based on their profile.
- Initiative needs: profiles of interest (customers, demo-helpers, partners, investors., etc.), geographical interest (regional, national, EU, international level).

Information to be fine-tuned in Meeting 2:

- List of potential interesting contacts to be established and the potential value they could offer to the MAP. Detect if the contacts fit the needs of the MAP.

Outcome to be delivered in Meeting 3:

- Updated list of potential interesting contacts. If conversations have already started, determine future steps that could strengthen the relationship.

## 3.2 MainstreamBIO digital toolkit co-design

### *3.2.1. Co-creation in regional workshops*

#### *3.2.1.1 Bulgaria*

The 15 participants of AUP's CCW agreed that the features *Collection of best practices for improved nutrient recycling* and *DSS* were the most interesting. For the former, they suggested including information about conservation agriculture, bio-solarization, integrated pest management, and bio-refining. For the *DSS*, they asked for an intuitive interface and obtaining a ready-to-implement solution as output. They would also appreciate if both features accounted for the possible negative effects of the suggested solution. The less-attractive feature was the *Tool library,* since its functionality was unclear to them.

The attendees underlined the importance of having the resources available in Bulgarian and creating a user experience friendly to biomass producers. They also asked for an offline option of the *DSS* and an effective search engine.

#### *3.2.1.2 Denmark*

The 12 attendees gathered by FBCD at the Danish CCW appreciated the features *Collection of best practices for improved nutrient recycling* and *BioForum* over the others. They valued the dissemination of ideas and technologies as a key factor of the digital toolkit. The *BioForum* was suggested to include a "contact book" that briefly indicates key data of the participants (e.g., expertise, available technologies, available feedstocks, available products), so it could also fulfil a matchmaking goal.

A reported concern was the durability of the digital toolkit and for how long it would be updated.

#### *3.2.1.3 Ireland*

The 17 Irish stakeholders gathered by MTU did not highlight a specific feature of the digital toolkit but gave their overall feedback. Simplicity was considered key, as users will belong to a broad range of computer literacy. Related to that, they suggested harvesting the continuity throughout the whole digital toolkit, creating a fluent experience. Another important aspect was to have a direct local point of contact in case support or more information is necessary. Attendees also underpinned the importance of supporting communities, which could be implemented in the *BioForum* design.

#### *3.2.1.4 The Netherlands*

The Dutch CCW organised by WR joined 13 participants, who transmitted the relevance of the attractiveness and ease of use of the digital toolkit. They also suggested including in the spotlight business profitability and short value chains, as they normally find them forgotten by other initiatives. They would also like the residual streams to be acknowledged when a solution is suggested.

#### 3.2.1.5 Poland

IUNG gathered 12 stakeholders at their CCW. The attendees found the features *Catalogue of small-scale bio-based technologies, business models and social innovations* and *Collection of best practices for improved nutrient recycling* equally relevant. The *DSS* was also deemed useful. In all three cases they felt necessary to also highlight the negative aspects, as to gain the trust of the users. The *BioForum* was found unpopular nowadays, and they suggested substituting it with thematic groups on social media.

Stakeholders were concerned about the possible language barrier for the digital toolkit navigation itself and its contents. They were also considering that too much information could be overwhelming, so special care is needed when defining the filters and display of the resources. To make navigation easier, they suggested including a chatbot that could guide them in their search. This support was considered relevant to make the digital toolkit less time-consuming and discouraging.

#### 3.2.1.6 Spain

The 11 participants of INNV's CCW valued the most the *Catalogue of small-scale bio-based technologies, business models and social innovations*. They needed to have national cases in the platform to interact with them. They felt the national information could be more easily implemented in their cases, versus the international information. Attendees also valued the *BioForum*, because they are lacking a platform where communicate their problems openly and find peers that can help them. For the stakeholders, a key component of this feature is the traceability of the communications.

#### 3.2.1.7 Sweden

The 12 participants at the Swedish CCW, organised by PROC, suggested including a feature that, at a glance, shows all the solutions for a given problem that are available in the digital toolkit.

### 3.2.2 Review by project partners

Based on the feedback and suggestions gathered from the regional workshops conducted in the 7 MIPs, several key actions and decisions were derived for the development of the MainstreamBIO digital toolkit. These actions and decisions aim to address the needs and preferences expressed by the workshop participants and ensure that the digital toolkit will effectively support biomass producers and stakeholders in the bio-based sector. Considering the results from the questionnaire as well as the participants' views on the functional requirements of the digital toolkit, the following are the key next actions and decisions regarding the digital toolkit:

1. **Prioritization of key components**. *Catalogue of small-scale bio-based technologies, business models, and social innovations*, the *Collection of best practices for improved nutrient recycling*, and *the Decision Support System (DSS*) were identified as the most desired components by the stakeholders. For this reason, these components will be the first to be developed and tested. Additionally, stakeholders expressed the need for these components to include information on agriculture, bio-solarization, integrated pest management, and bio-refining. DRAXIS will engage in discussions with material providers to determine the most important information and the best way to present it in the related components. Moreover, to prevent overwhelming the users with excessive information,

appropriate filters, specific national cases, and resource display mechanisms will be implemented.

2. **Language Barrier and User-Friendly Experience.** One of the stakeholders' demands was for the digital toolkit to have a user-friendly interface available in their native language to overcome language barriers. These demands are in line with the questionnaire developed by DRAXIS and have been taken into consideration for the design and development of the tool (e.g., space for different symbols, plugins etc.). The design and navigation will prioritize intuitiveness and accessibility for different types of stakeholders.

3. **Business Profitability and Short Value Chains**. Dutch participants highlighted the importance of considering business profitability and short value chains within the digital toolkit. This is aligned with one of the first outcomes of MainstreamBIO, the identification of regional value chains in the MIPs as is described in *D1.3 Mapping of regional biobased value chains*. MTU, one of the material providers of the toolkit and responsible for D1.3, had already suggested a way to incorporate this information in the digital toolkit, that will be described in D2.5 (M18).

4. **Negative Aspects and Trust Building**. Polish stakeholders emphasized the importance of transparency by highlighting both the positive and negative aspects of featured technologies, business models, and social innovations. This approach is crucial for building trust with users and providing them with a comprehensive understanding of the potential challenges and drawbacks associated with different solutions. WR, the developer of the DSS system, will incorporate a scoring system in the functional design of the DSS. This scoring system will enable users to evaluate both the negative and positive aspects of their design, based on the selected technologies, business models, and social innovations. The details of this scoring system and its implementation will be described in thoroughly deliverables D2.4 (M12) and D2.5 (M18).

5. **BioForum functionality**. Although the BioForum feature was found to be unpopular by the Polish stakeholders, the Danish, Spanish, and Irish participants considered it an important aspect of the digital toolkit. Additionally, the participants highlighted the need for a contact book and a list of supporting communities within the BioForum feature to enhance engagement and relevance for users in different regions. DRAXIS will incorporate these requirements in the functional design of the digital toolkit based on the feedback received, ensuring that the BioForum meets the needs of the majority of the partners. Further feedback will be collected during the second round of user requirements gathering to refine the design accordingly.

6. **Durability and Timely Updates**. The Danish stakeholders expressed concerns about the durability and longevity of the digital toolkit. These aspects will be taken into account by DRAXIS (the responsible partner for the exploitation plan of the MainstreamBIO Digital Toolkit), Q-PLAN and the network of expert partners (who will provide updated material). Together, they will discuss a plan for regular updates and maintenance of the toolkit. If deemed feasible, it will be included in D5.5 (“Exploitation and Sustainability Plan – interim version”), due M18.

7. **Offline Option**. The Bulgarian participants expressed the need for an offline option of the DSS, which would allow users to access and utilize the toolkit even without an internet connection. However, it is important to note that the current design and functionality of the digital toolkit heavily rely on web-based resources, such as online PDFs, links, online videos, external online sources for the DSS, and online apps. Providing an offline option would result in a significant portion of the supportive material being inaccessible. Nevertheless, DRAXIS will consider this requirement and gather more information during the second round of user requirements to understand which specific information stakeholders would like to have available offline. This will assist in finding a feasible solution that addresses their needs while maintaining the integrity and usability of the digital toolkit.

8. **At-a-Glance Solutions**. The Swedish stakeholders suggested the inclusion of a feature that offers a comprehensive overview of all available solutions for a given problem within the MainstreamBIO Digital Toolkit. However, it's important to note that the digital toolkit primarily serves as a supportive resource, providing guidance and assistance to users in designing or selecting the most suitable solutions for their needs. To enhance the user experience and facilitate solution exploration, search filters will be incorporated into different components of the toolkit, such as the *Catalogue of small-scale bio-based technologies, business models, and social innovations* and *Bioeconomy Repository*. These search filters will assist users in narrowing down their options and finding the most relevant solutions to their specific problems.

These actions and decisions will guide the development of the MainstreamBIO digital toolkit to effectively support the stakeholder’s requirements.

# 4 Conclusions and next steps

The organization of CCWs (Co-Creation Workshops) proved to be effective in gathering information from the bioeconomy stakeholders. The input about the innovation support service portfolio allowed MainstreamBIO to improve:

- Innovation support service definition: adapted and included in the final service portfolio.
- Portfolio rearrangement: the least valued innovation support service, *Pilot project implementation advice*, was merged with *Project design and development advice.* The resulting innovation support service was named *Project design and development advice*.
- Workload estimation: innovation support services most likely to be provided are *Matchmaking, Guidance in access funding, Business model design and development*, *Nutrient management and fertilization.*
- Methodology of providing the innovation support services: knowing the regional trends and needs, the information to be gathered and the output to be provided were defined for each innovation support service.
- Future help: some detected needs (e.g., legal advice) fall out of MainstreamBIO's scope but could possibly be provided further on by other (sister) projects or initiatives.

The input about the digital toolkit granted MainstreamBIO the opportunity to:

- Add new properties: e.g., information about the expertise of the users and a chatbot.
- Adapt to the need of potential users: better define the language barriers, the filters that need to be implemented, etc.

The co-created innovation support service portfolio is offered in the first Open Call of MainstreamBIO and will be provided from November 2023 until June 2024 (first Innovation Round). The results of the support will be included in D3.1, to be published in M24.

The changes implemented in the digital toolkit will be published in D2.5 (M18). Capacity-building workshops will be organized in each focal region with a broader audience during the last trimester of 2023 to explain how to best use the digital toolkit.

# Appendices

## Appendix A – Co-creation guidelines

This appendix includes the co-creation guidelines prepared by INNV and WHITE, as well as the complementary documentation:

- Informed consent (as a personal form).
- Poster to gather the input from stakeholders.
- Reporting template.
- Informed consent (as a complement of the list of assistants).

MAINSTREAM BIO

MAINSTREAMING SMALL-SCALE BIO-BASED SOLUTIONS ACROSS RURAL EUROPE

# T2.3

# Co-creation workshops - Guidelines

WHITE

*28/04/2023*

Funded by the European Union

# Contents

# 1. Introduction

As per the provisions of the Grant Agreement under Task 2.3, the support services and the digital toolkit of MainstreamBIO are to be co-defined through the implementation of a co-creation workshop in each Multi-actor Innovation Platform. The primary objective of these workshops is to facilitate collaborative sessions, where local biomass producers, industry actors, and policy-makers work together with consortium experts to support the development of the services portfolio of MainstreamBIO, taking into account the unique features of each pilot region.

During the co-creation workshops, representatives of local stakeholder groups together with local authorities and biomass producers will be guided by consortium experts to move from their needs/challenges (WP1) to the co-development of the support services portfolio.

Each organiser partner will be responsible for organizing these events. After the completion of the co-creation workshops, the organiser partners are required to fill in a reporting template and share it with INNV.

## 1.1 Partners' responsibilities

According to the Grant Agreement, the co-creation workshops of Task 2.3 will be organized by the INNV, MTU, AUP, IUNG, WR, PROC, and FBCD partners in each MIP during the timeframe of M8 to M9. These workshops will engage 10-15 participants, including farmers, researchers, business, and policy actors, with the aim of co-defining the service portfolio of each MIP and collecting feedback on the functionalities of the toolkit. The workshops will be organized following the guidelines for co-creation prepared by WHITE, while their organisation will be coordinated by INNV.

The outcomes of these workshops will be used to define the features, functions, and resources required for the delivery of each service by the MIPs. INNV will be responsible for defining these aspects, based on the existing services of partners customized according to the results of WP1.

The implementation of the workshops will be coordinated by:

- **Bulgaria** - conducted and coordinated by **AUP**;
- **Denmark** - conducted and coordinated by **FBCD**;
- **Ireland** - conducted and coordinated by **MTU**;
- **Netherlands** - conducted and coordinated by **WR**;
- **Poland** - conducted and coordinated by **IUNG**;
- **Spain** - conducted and coordinated by **INNV**;
- **Sweden** - conducted and coordinated by **PROC**.

# 2. Guidelines for setting up the consultation workshops

This document aims to offer guidance to the workshop organizers in planning their workshops. Specifically, the following sections provide an assessment of the various factors that need to be considered when planning the workshops. The information presented can be classified into four primary domains:

1. Preliminary analysis of scope and objectives of the workshops.
2. The definition of the participants and the invitation process.
3. The workshops' format (structure, collaborative modelling methods, moderators, logistics, recording methods, etc.).
4. Date, duration, and reporting.

## 2.1 Objectives for the T2.3 co-creation workshops and expected outputs

The **main goal** of the T2.3 co-creation workshops is to **co-create specifications for an innovation support service portfolio and digital toolkit with regional actors**. The outcomes of the workshops will inform the features, functions, and resources required for the delivery of each service by the MIPs.

Workshops' objectives are to:

- Co-define the service portfolio of each MIP and collect feedback on the functionalities of the toolkit;
- Define the features, functions and resources required for the delivery of each service in the MIPs.

However, the workshops should also be seen as a direct engagement with local stakeholders.

Therefore, their secondary purposes are to

(i) effectively communicate MainstreamBIO,

(ii) start addressing potential knowledge gaps by informing them about its key concepts, and

(iii) encourage the participants to join and/or follow the project.

## 2.2 Timeplanning of the workshops

The co-creation workshops are planned to take place between M8 and M9 (April to May) of the project. The exact timing of the workshops has not been defined yet. Overall, **all workshops should have been implemented by the end of May 2023**. The final planning of the workshops' dates should be communicated to INNV (Task leader) and MIPs leaders before Friday 5th of May.

*Table 7. Indicative action plan*

| Action | Who | When |
|---|---|---|
| Set the dates of the 7 co-creation workshops | INNV<br>MTU<br>WR<br>IUNG-PIB<br>AUP<br>PROC<br>FBCD | 5th May 2023 |

Furthermore, it is advisable **to avoid scheduling workshops during public holidays** or other events that may attract the participants' attention.

### How long will the workshop last?

The duration of the workshops will be, mainly, determined by the methodology and available budget. Another aspect that affects the length of the workshops is the participants' available time. With these issues in mind along with the workshop's structure and applied methods, MainstreamBIO partners should set the appropriate duration of the workshops.

A proposed workshop's maximum duration should be 3-4 hours. This will allow enough time to briefly introduce the MainstreamBIO project and to **compile participants' opinions** on the several services to be provided and the main aspects of the digital toolkit. Though not a purpose of the workshops, it is possible that MIP leaders identify promising cases to be provided the services.

| Action | Who | When |
|---|---|---|
| Set the agenda and venue of the 7 co-creation workshops | INNV<br>MTU<br>WR<br>IUNG-PIB<br>AUP<br>PROC<br>FBCD | 5th May 2023 |

### When should you report the results of the workshop?

Workshop reports should be sent to INNV (see Annex III) by **15th June at the latest**.

| Action | Who | When |
|---|---|---|
| Send the workshop report to INNV | INNV | 15th June 2023 |

| | | |
|---|---|---|
| | MTU<br>WR<br>IUNG-PIB<br>AUP<br>PROC<br>FBCD | |

## 2.3 Workshops' participants

### Number of participants

According to the Grant Agreement, a total number of **10-15 participants** per regional workshop is expected. Since the amount of people contributing to the co-creation process is quite reduced compared with other experiences, we strongly recommend to **NOT divide the group**, promoting a unique dialogue and allowing all the stakeholders to receive and share the same information.

By working on a unique group, the time required when working in groups to share and wrap up the conclusions can be dedicated to have a more extent and deep dialogue.

### Types of participants

Ideally, representatives with different backgrounds and knowledge of bioeconomy and biobased solutions should be invited to attend this workshop. Mixing a range of stakeholders with different priorities and local environment characteristics will enhance the sharing experience benefit between participants and will allow partners to identify the one case which links better with MainstreamBIO's vision.

Due to the content of the workshop (toolkit utility and portfolio of innovation services) the involvement of potential users of these services and toolkit must be enhanced. These are the biomass producers and the business representatives and technology owners. For sure, as mentioned before, the participation of other stakeholders than the ones to be promoted must be considered in order to have all the paint of view.

The participation is not limited to MIP members, so external agents which are not MIP member are welcome as well. At this stage, an initial list of potential participants has been identified and is proposed to the organisers as suitable for these workshops:

1. **Biomass suppliers,** local farmers, agricultural associations, representatives of the agro-biobased industries**;**
2. **Business representatives,** as biorefineries, nutrient recycling service providers, bioenergy producers;
3. **Research and academia,** university representatives, vocational training teachers, technological or research centers representatives.
4. **Policy actors,** municipalities interested to bioeconomy development, public agencies, and regional authorities;
5. **General Public/ Community initiatives** (e.g municipalities, citizen organisations, community initiatives, Environmental NGO's, other farmers, etc.);
6. **Representatives of regional bioeconomy/biobased** initiatives.

### Invitation criteria and participants' profile

Criteria that should be considered when selecting the participants are the following:

- **Motivation:** It is crucial that the stakeholders are interested in participating in our consultation events. Not interested and indifferent participants will not serve the objectives of these workshops and would not be interested in further being engaged in the project's activities or disseminating the project's results at the local level;
- **Influence:** Participants with the power to make changes in the current framework of the region;
- **Potential of transferring the MainstreamBIO concept to the specific region:** Participants who could transfer the MainstreamBIO main message to a wider audience;
- **Experience with bioeconomy and biobased solutions:** Experts who could provide accurate suggestions and valuable knowledge to the identified challenges that arise during the discussion-consultation process;
- **Wide range of participants' sample:** representatives of each stakeholder type should be invited so that we ensure that beliefs and vision are captured from a representative societal spectrum of each local region.

### Event promotion/Invitation process

To attract the targeted number of participants (10-15 per workshop), effective promotion of the event is crucial. This involves promoting the event for an extended period of time and increasing promotional efforts in the days leading up to the event. The following strategies will be followed or event promotion:

- Prepare a brief event article describing the event's purpose and some key information (location, contact details, etc.) and upload it on MainstreamBIO's website and social media; (WHITE to prepare an event announcement for webpage and social media with the collaboration of MIP leaders)

- Invite/Forward to people from your network that you believe they would be interested in participating in such an event; (WHITE to prepare an email invitation +MIP leaders to invite participants)
- If you attend other events, make sure to mention your event to the people you meet;
- Send e-mails to people you think will be interested to attend the event;

Once potential participants have been identified, invitations can be sent via email or directly to them. The invitation should include a request for a response, either by email or registration form linked within the email. It is advisable to send invitations to a larger number of people than the desired number of participants, as it expected that not all of them will be available. **People whose participation is essential could also be contacted by phone or via an informal meeting**.

Except for the people who will be invited, we should probably **develop a reserve list of participants** for their invitation. The reserve list will be needed in case the people who are initially invited fail to confirm their attendance in time.

Setting a deadline for enrollment is important to ensure adequate time for additional invitations to be sent in case of limited participation. Final confirmation can then be made through telephone contacts. One week before the workshops, it would be advisable to contact the participants to confirm information about the venue, start time, arrival process, etc.

If participation is limited, the reserve list of participants should be contacted, and the network of key contacts of workshop organizing partners should be further exploited to ensure the involvement of key participants in the workshops.

| Action | Who | When |
|---|---|---|
| Prepare event article for each co-creation workshop | WHITE (in English)<br>The following partners in local languages:<br>INNV<br>MTU<br>WR<br>IUNG-PIB<br>AUP<br>PROC<br>FBCD | 2 weeks before each event |
| Prepare email invitation for each co-creation workshop | WHITE (in English)<br>*The following partners in local languages:*<br>INNV<br>MTU<br>WR<br>IUNG-PIB<br>AUP | 2 weeks before each event |

| | | |
|---|---|---|
| | PROC<br>FBCD | |
| Upload event article to MainstreamBIO social media and web page | WHITE | 2 weeks before each workshop |
| Send invitations to participants | INNV<br>MTU<br>WR<br>IUNG-PIB<br>AUP<br>PROC<br>FBCD | 2-3 weeks before each workshop |
| Confirm participants | INNV<br>MTU<br>WR<br>IUNG-PIB<br>AUP<br>PROC<br>FBCD | 1 week before each workshop |

## Supporting material

A package of supporting material should be available before each co-creation workshop. This package could include:

- MainstreamBIO's project leaflets and posters (MIP leaders, using the templates available in project google repository).
- MIPs leaders A-Z guide on MainstreamBIO activities (provided by Q-PLAN).
- Guidance document for moderators of co-creation session (current document).
- Graphics material needed for co-creation session.
    - Co-creation workshop presentation (provided by INNV).
    - Extended co-creation workshop presentation, includes a summary of services and digital toolkit (provided by INNV).
    - Presentation for facilitator guidance in co-creation workshop, includes dialogue-igniting questions (provided by INNV).
    - Informed consent form (see Annex I).
    - Informed consent merged with participants list, if deemed necessary (English version provided by Q-PLAN).
    - Poster to be completed with sticky notes (see Annex II).

- Sticky notes and writing material (to be obtained by the MIP leader).
- Participants list template (see Annex III).

| Action | Who | When |
|---|---|---|
| MIPs leaders A-Z guide on MainstreamBIO activities | Q-PLAN | 28/4/2023 |
| Guidance document for moderators of co-creation session | INNV | 28/4/2023 |
| Graphics material list | INNV | 28/4/2023 |
| Printed and graphics material ready for each workshop | INNV<br>MTU<br>WR<br>IUNG-PIB<br>AUP<br>PROC<br>FBCD | 1 week before each workshop |
| Informed consent form, participants list template | INNV | 28/4/2023 |

# 3. Organisational aspects

## 3.1 Workshop's logistics

The co-creation workshops will be organized in a physical setting, making use of the respective budget allocated for each MIP leader partner to organize this activity under Task 2.3.

### 3.1.1 *Location*

The decision to attend the workshop will be influenced by the easy accessibility of the workshop location, particularly since the majority of participants are expected to be local representatives. Therefore, it is recommended **to choose a central location in the selected region that is convenient for the participants**. Each regional partner team may have their own perspective on this matter and follow a different approach. Nevertheless, it is advisable to prioritize the convenience of the participants and select locations that are easily accessible.

### 3.1.2 *Venue*

When selecting a venue for the workshops we should take into account the methods that will be applied and the materials that will be needed. Thus, it becomes clear that when selecting a venue,

the following aspects must be taken into consideration: Sufficient space to hold the number of participants as well as for the selected methods to be performed optimally.

- Have appropriate lighting and adequate air circulation and temperature.
- Have comfortable and flexible seating and light tables so that the set-up can be adjusted according to the workshop's needs.
- Have enough wall space or freestanding surfaces for hanging posters so they can be seen by all participants.
- Be quiet and safe.
- Be easily accessible.

## 3.2 Workshop's Moderators

Another essential part of the workshops are the moderators. The process will probably require **at least 2 facilitators (one main moderator and a support moderator, who will act as note-taker during the co-creation process)** that will be responsible for the smooth application of the agenda, presentations and methods that will be used and will have to share the following responsibilities:

- During the workshop, the moderators will explain the methods that will be applied, monitor compliance with the rules, listen carefully, stimulate the discussions, etc.
- Observation and note-taking: The task of the observer entails meticulous observation and note-taking throughout the workshop. It is important to note that this role requires undivided attention and precludes any other responsibilities. The observer's primary responsibility is to closely monitor and take detailed notes on the discussion led by the moderator.
- Coordinating the discussions.
- Delivering hand-outs and general support actions (e.g., sticky-notes, note-keeping, etc.).
- Leading the potential collaborative exercises.
- Handling various organisational issues.
- Detect potential conflicts during the workshop and resolve them.
- Be aware of the time devoted to each activity and keep them within time limits.

## 3.3 Language

Which language is going to be used for the workshops?

Partners should decide whether to conduct the workshops in the regional language or English (consider the language preference of the attendees). If the attendees are more comfortable with the regional language, then on-site translators can be involved to facilitate the workshop. Workshop materials (such as the presentation or the list of participants) can be translated to the local language. Feedback reports must be delivered in English, as they will be included in deliverable D2.3.

## 3.4 Recording methods

The workshop discussion should be recorded throughout their duration and the information acquired must be compiled through the proposed reporting template. Effective recording will also help when

it comes to examining and reporting the outputs of the workshop. Some common recording methods for workshops are the following:

- Taking notes when people are speaking
- Photographing any outputs
- Audio recording is recommended to review afterwards the discussion, but not mandatory

Make sure the attendees are properly informed about the records through the signature of the informed consent (see Annex I)

## 3.5 Workshop's format

Once the objectives of the workshops are defined, the challenge is to make them viable by implementing the proposed methodology.

**Overall, each workshop must:**

- ✓ present the **main concepts of MainstreamBIO**
- ✓ **inform participants about what MainstreamBIO is and what it does/offers**
- ✓ **elicit participants believes, views and perceptions** with respect to **MainstreamBIO's** vision
- ✓ allow participants to **express their thoughts** around **regional barriers and needs** and **gather fruitful insights** that will further help the design of the support services portfolio and the digital toolkit
- ✓ **invite participants to join**, follow, support, and communicate MainstreamBIO.

The structure of the workshop includes three stages and is demonstrated in the figure below.

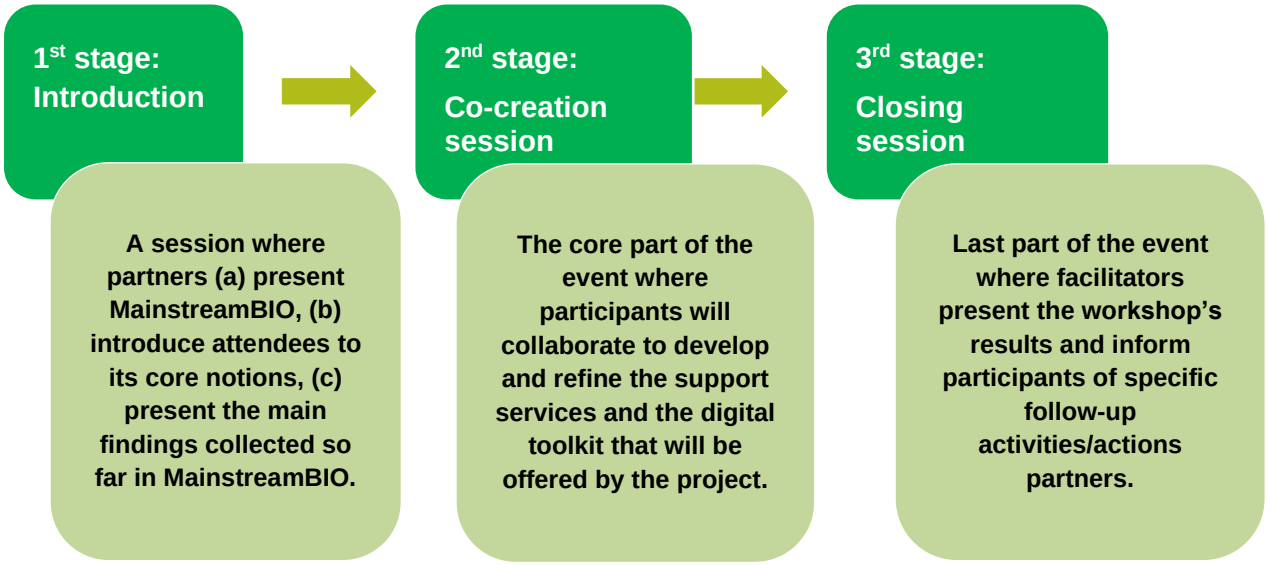



*Figure 9. Workshops' structure*

### 1st stage – Introduction

In this stage partners will introduce MainstreamBIO to the participants and explain the purpose of this event. **A short presentation will be delivered** explaining the MainstreamBIO's vision and also an overview of the projects' accomplishments so far. More attention should be given on the purpose

and objectives of the workshop and on how this event could be beneficial towards the participants. Presenting the objectives will allow the participants to settle themselves into the workshop from the beginning.

**2nd stage – Co-creation session**

During the co-creation session, the main focus will be on collaborating with participants to develop and refine the support services and digital toolkit that will be offered by the MainstreamBIO project. This collaborative effort will involve participants sharing their thoughts and ideas on how the project can best meet their needs and overcome potential barriers to the upscale of biobased solutions. The session will be facilitated by experts who will coordinate the discussion and apply techniques to ignite brainstorming and dialogue.

**3rd stage – Closing session**

After the co-creation session, the facilitators will present the workshop's results and inform participants of specific follow-up activities and actions. Additionally, there will be opportunities for free discussions between participants and consortium partners to further explore ideas and address any concerns or questions.

It is fundamental that before the implementation of the workshop the organisers should carefully read the reporting template **(sent along with this document**) in order to see what they will need to note down during the workshop and what they will have to report after the completion in order that WR analyse the results.

# 4. Structure and methods for the workshops

One major aspect of this meeting is the methodology of the workshops along with any respective tools and materials that may be used during the events. Please, read this section carefully.

## 4.1 1st stage: Introduction

During this stage, workshop participants get to know each other and warm-up for the next activities. Organisers could start by presenting themselves and, of course, explaining the scope of the day. Then, participants should have the opportunity to introduce themselves and express their expectations from the workshop. **A short powerpoint presentation will be conducted to familiarise participants with the goals, concepts, and ideas of MainstreamBIO as well as some information about the regional results found in WP1 interviews and survey.** These results will inform the participants while helping initiate the conversation around the topic.

In general, the introductory presentation will include:

- Brief information on what is the MainstreamBIO project about and what it does;
- The key concepts and approach of the MainstreamBIO project;
- The main objectives of the MainstreamBIO project;
- Brief presentation of the key lessons learned so far;
- Brief presentation of WP1 findings through interviews and surveys;

- Overview of the workshop and explanation of the planned agenda;
- The purpose of the workshop;
- The main objectives of the workshop;
- Short explanation, clear instructions, guidelines on methodologies and tools to be used during the workshop.

## 4.2 2nd stage: Co-creation session

Overall, the international **workshops will supported on presentations and be mainly based on group discussions**. This is **the most important part of the workshop**. We aim at capturing visions, opinions and behaviours of workshops' participants through a dynamic, eclectic dialogue. It could also be a valuable opportunity to detect interesting cases for the delivery of services in WP3, but **the spotlight must remain in T2.3.**

### 4.2.1 *Co-creation method – Fishbowl methodology*

When the co-creation session starts, the facilitators must explain the attendees what the **Fishbowl** methodology consists of. Bear in mind:

- The **type of information** we want to obtain;
- The **size of the group of participants**. There are tools that are useful for smaller groups but can lose their impact and effectiveness in larger groups;
- The **stage of the workshop's process** – whether it is introduced in the initial stage, the second stage or the final stage of the workshop;
- The **time** available for the method and for the entire workshop as well;
- The **venue** of the workshop;
- The **availability of resources and materials** or the level of experience required from the organisers and the participants in order to implement each method.

In the Fishbowl methodology, two concentric circles are established:

1. The inner circle (3-5 chairs, around the 33% of the attendance): holds the people intervening in the conversation. People entering the circle must present themselves and their background (shortly). Whenever one person enters the inner circle, another must leave.
2. The outer circle (7-10 chairs, around the 66% of the attendance): includes the audience. People seated in this circle must move to the inner circle if they want to share their opinion.

The size of the circles can be adapted to more numerous groups. Empty chairs may be added to the inner circle to promote the entrance of new speakers.

When the co-creation starts, the facilitator will ask people to have a seat at the circles. In case all attendees avoid the inner circle, it is the **facilitator's task to select who** will occupy said seats. The decision can be based on background information (select agents from different parts of the sector, or someone known with an interesting problem/solution).

After a brief description of the services portfolio, the facilitator will start the dialogue:

- 20-25 min about business services.

- 20-25 min about technological services.
- 20-25 min about the digital toolkit.

The second facilitator (**note-taker**) must be actively present during the whole co-creation session. They will need:

- Sticky notes.
- Non-erasable writing material (pens, markers…).
- Poster (see Annex 1.2.) in A2 size.

The note-taker must write down **whole sentences** summing up the input of the participants in the sticky notes and place them in the corresponding poster cell. General comments or suggestions can be noted in a different pen/sticky note colour. When the session ends, the note-taker is responsible for **photographing the resulting poster with sticky notes** (see 5. GDPR – Informed Consent Form).

This methodology gathers the advantages of other valuable techniques, such as the World Café or the Open panel discussion, while sharing some of their disadvantages. Both aspects, as well as some containment measures, can be found in the table below. Sharing this information with the facilitators could help achieve a more productive and dynamic dialogue.

*Table 8. Advantages and disadvantages of the Fishbowl methodology*

| | Description | Actions |
|---|---|---|
| **Advantages** | - Open and collaborative dialogue<br>- Not-overlapping interventions (favours reflection and creativity)<br>- Broad range of number of attendees<br>- Clear visual representation of outcomes | Facilitator:<br>✓ Control no one dominates the conversation (ideal interventions: 1-1.5 min, >3 min interventions can slow down the activity)<br>✓ Adjust the sizes of the circles to keep the attendees balanced<br>Note-taker:<br>✓ Pay attention to **who** is intervening (evaluate whose input is key)<br>✓ Be precise: write **whole sentences** (easier to understand and write the feedback report)<br>✓ Be actively present: conversation may quickly jump from one discussion to another. |
| **Disadvantages** | - Highly dependent on attendees' willingness to participate<br>- Time management<br>- People dominating the conversation | Facilitator:<br>✓ If dialogue is not evolving, ignite it (see questions below). You can also ask the note-taker for a sum up of what has been debated so far |

| | | |
|---|---|---|
| | - Hard to ensure everyone will participate | ✓ Keep an eye on **active listeners** (outer circle) and invite them to the inner circle<br>✓ Be **aware of time** (carry a watch/set an alarm)<br>Note-taker:<br>✓ Pay attention to long interventions (avoid writing the same idea twice **if coming from the same agent**; you can emphasize how strongly they feel in the same note) |

To help the facilitators moderate the discussion and ensure that the required insights are gathered, the following indicative focus points and discussion-igniting questions are suggested.

Bear in mind that **these questions are NOT to be shared with the attendees**, but rather with the facilitators. They are a broad tool to unlock the conversation, support an active discussion or get the conversation back on track.

***General questions***

- ✓ In your opinion, which is the **main barrier** to be tackled?
- ✓ Are you in touch with the **primary producers** in your area? (Is it a regular contact?)
- ✓ Are you in touch with the **sector agents** in your area? (Is it a regular contact?)
- ✓ **What are you lacking** to implement improvements in your activity?
- ✓ **How could other agents be interested** in these activities? (Is time a constrain, is dissemination an issue…?)

***Services portfolio-related questions***

- ✓ How much time would you **like** to dedicate (together with the project partners) to receiving the services?
- ✓ How much time would you **accept** to dedicate (together with the project partners) to receiving the services?
- ✓ Would you rather receive the service **online or onsite**?
- ✓ Do you consider any of the services **especially urgent**? Why?
- ✓ Are we offering any service that may **not be highly influential** in this area? Why? (Is it not an issue, or is it already covered?)

***Digital toolkit-related questions***

- ✓ Does a **digital toolkit meet the needs** of your business?
- ✓ What would you consider a **useful** digital toolkit?
- ✓ What would you **value** the most about a digital toolkit? (Are they expecting a repository, an interactive space, an evaluation tool…?)
- ✓ How **urgent** is obtaining said information?
- ✓ What **format** would be the most useful to you? (Mobile, tablet, computer…)
- ✓ Would depending on the **internet** be a **handicap**? (Maybe internet access/connexion is limited)
- ✓ Is language a barrier for the use of the toolkit? (Would English suffice, or are other -local- languages necessary?)

- ✓ Is there something that needs **tracking**? (Output of the decision support system, interaction with peers, etc.)

## 4.3 3rd stage: Closing session

The final segment of the workshop is designed to summarize the main points and takeaways from the event. During this session, partners will summarize the conclusions drawn from the previous sections regarding the topic at hand. Stress the importance of filling out DRAXIS form about the design of the digital toolkit (link included in the presentation). Dedicating a couple of minutes to do so while participants are still in the framework of the co-creation workshop can increase the amount of answers received.

Finally, it is essential to conclude the workshop with a brief discussion that expresses gratitude to all participants for their valuable time and highlights the benefits of their involvement in the event. This ensures that participants leave feeling satisfied with the productivity of the day.

# 5. GDPR – Informed Consent Form

**Important!** During the workshops' implementation, personal data (e.g., contact details, group photos) will be collected. It is essential that all project activities fully comply with the Ethics Requirements of the MainstreamBIO project (e.g., compliance with GDPR, obtaining informed consent). To this aim, an informed consent form (see Annex I) should be distributed among participants before the event officially begins.

To ensure collected data can be used, such a form should be signed by participants before the start of the workshop (e.g., digital signature). Since the workshops will take place physically, a hard-copy of the informed consent form can be distributed and signed *in situ* before the workshop begins. **MIP members do not need to sign said informed consent form** since the MIP membership form included participation in activities.

After your workshop participants have agreed to the terms and conditions in the consent form, pictures of the resulting outcomes (posters with sticky notes) or the group during the activity can be taken. Please, share with WHITE the pictures of the event for D&C purposes. Bear in mind **posters with sticky notes are NOT to be disclosed**.

# 6. Reporting template

Within 1 month after the implementation of the workshop and no later than the 15th of June 2023, the organizing partners will have to draft and send to INNV a completed reporting template that will reflect on the following aspects (see Annex III).

1. **Workshop's general information** (date, place, final agenda, etc.)
2. **Detailed remarks from the workshop's sessions:**
    - Detailed remarks from any presentation sessions.
    - **Detailed remarks from the discussion sessions.**
3. **Photos/videos covering the workshops activities**
4. **Material produced during workshop's activities** (e.g., photo of wall with post-its, photos or print-outs of conceptual maps, etc.)
5. **List of attendees** (name, surname, organisation, type of stakeholder)

# 7. Annexes

## 7.1 Annex I – Informed Consent Form

**Consent Form for the participant in co-creation workshops**

(To be emailed to participants, and signed and returned prior to the workshop)

| **Consent questions checklist:** | **YES** | **NO** |
|---|---|---|
| Would you like to take part in the co-creation workshop? | | |
| Do you agree to the storage of your contact information for this co-creation process until the study end? (August 2025) | | |
| Do you agree to the storage of your impressions and observations shared during the co-creation workshop? | | |
| Do you agree to appear in pictures obtained during the workshop celebration? | | |
| Do you agree to the dissemination of pictures obtained during the workshop celebration? | | |
| Do you agree to the storage of the pictures obtained during the workshop until the study end? (August 2025) | | |
| Do you agree to your data being used in aggregate form in a final report? | | |

If you have queries/concerns about your involvement in this study, you can contact the principal investigator, _____, email address: _____.

If you want to withdraw your participation in this study, at any stage until August 2025, including any information or audio recordings associated with your participation, you may do so by contacting _____.

Name: _____ Date: _____

## 7.2 Annex II - Poster to be used with sticky notes

| MAINSTREAMBIO INNOVATION SERVICES | | | |
|---|---|---|---|
| | **Business innovation services** | **Technological innovation services** | **Digital toolkit** |
| **Positive aspects** | | | |
| **Negative aspects** | | | |
| **Suggestions & Comments** | | | |

## 7.3 Annex III – Reporting Template

# Task 2.3: Co-creation Workshop Reporting Template

## 1. Organizational information

**MainstreamBIO partner:**

**MainstreamBIO representatives:**

**Conversation leaders:**

- Facilitator:
- Note-taker:

**Date:** *DD/MM/YYYY*

**Venue:** *Name, Street, Number, ZP, City, Country*

**Agenda:**

**Total duration:** *X*, of which

- Introductory session:
- Co-creation session:
- Closing session:

## 2. Activity information

**Number of participants:** *X*, of which

- Biomass suppliers:
- Business representatives:
- Research and academia:
- Policy actors:
- General Public/Community initiatives:
- Representatives of regional bioeconomy/biobased initiatives:

**List of participants:** *can be printed to be fill-in at the workshop, scanned and added to the feedback report. The categories of "type of stakeholder" are the ones mentioned under "number of participants".*

| # | Name | Surname | Organisation | Type of stakeholder | Signature |
|---|---|---|---|---|---|
| 1 | | | | | |
| 2 | | | | | |
| 3 | | | | | |
| 4 | | | | | |
| 5 | | | | | |
| 6 | | | | | |
| 7 | | | | | |
| 8 | | | | | |
| 9 | | | | | |
| 10 | | | | | |
| 12 | | | | | |
| 13 | | | | | |
| 14 | | | | | |
| 15 | | | | | |

**Outcomes:** *in each category, write whole paragraphs grouping similar comments. State which comments were mentioned/agreed upon by several actors; those considered crucial and those where conflicted opinions were raised.*

1. **Business services portfolio**

| | |
|---|---|
| **Positive aspects/ remarks about the services** | |
| **Negative aspects/ remarks about the services** | |
| **Best evaluated services (if mentioned)** | |
| **Other suggestions and comments made about the services** | |
| **Other observations not included in the template** | |

2. **Technological services portfolio**

| | |
|---|---|
| Positive aspects/ remarks about the services | |
| Negative aspects/ remarks about the services | |
| Best evaluated services (if mentioned) | |
| Other suggestions and comments made about the services | |
| Other observations not included in the template | |

### 3. Digital toolkit

| | |
|---|---|
| Positive aspects/ remarks about the toolkit | |
| Negative aspects/ remarks about the toolkit | |
| Best evaluated features of the toolkit (if mentioned) | |
| Other suggestions and comments made about the toolkit | |
| Other observations not included in the template | |

### *4.* General impressions and remarks:

- On the meeting overall: e.g., *Were participants active? If not, how can we encourage participation? Can the methodology be improved?*

- Lessons learnt for next co-creation workshops: *e.g., Can the methodology be improved? Do we need to invite more people for a fruitful conversation?*

- Other:

**Material produced:** *Include the proofs of organisation of the workshop such as 1) Picture of the discussion, 2) Picture of the poster with the sticky notes, 3) Any D&C material prepared for the workshop (brochures, posters, roll-up) or 4) any other pictures or materials about the workshop.*

MAINSTREAM BIO
MAINSTREAMING SMALL-SCALE BIO-BASED SOLUTIONS ACROSS RURAL EUROPE

# T.2.3. CO–CREATION WORKSHOPS

**CONTACT:** info@mainstreambio-project.eu
**VISIT:** www.mainstreambio-project.eu

| Personal data | | | | | | Data treatment authorization | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| # | Name | Surname | Organisation | Type of stakeholder | Signature | Opinions [1] | Personal data [2] | Pictures [3] | Communication [3] | Email (if you'd like to receive communications) |
| 1 | | | | | | | | | | |
| 2 | | | | | | | | | | |
| 3 | | | | | | | | | | |
| 4 | | | | | | | | | | |
| 5 | | | | | | | | | | |
| 6 | | | | | | | | | | |
| 7 | | | | | | | | | | |
| 8 | | | | | | | | | | |
| 9 | | | | | | | | | | |
| 10 | | | | | | | | | | |
| 12 | | | | | | | | | | |
| 13 | | | | | | | | | | |
| 14 | | | | | | | | | | |

We are < Insert Partner Name > and we are contacting you in the framework of MainstreamBIO a project funded by the European Union under the Horizon Europe Framework Programme for Research and Innovation. A detailed description on how MainstreamBIO handles personal data is presented in the project's Privacy Policy available through the https://mainstreambio-project.eu/

In compliance with the General Data Protection Regulation (EU) 2016/679 of the European Parliament and of the Council of 27 April 2016, we inform you that, given the obligations of supervision and control to which the entities associated to the European project MAINSTREAMBIO, said entities are obliged to document the works carried out, the meetings held, the training and/or dissemination activities, interviews, among others, with the purpose of carrying out the actions required by the entities and organisms of control of the Project.

During this workshop, we will ask for your opinion and feedback on different matters. Opinions will be stored until the end of the Project and aggregated to create a final report, maintaining anonimity. [Check in COLUMN 1 of the attached list of participants].

□ I have been informed about the processing of my opinions by the entity organising the workshop and authorise the use of my opinion for research purposes.

We inform you that your data may be communicated to entities and organizations supervising the Projects and to the rest of the partners of the same in order to comply with the control obligations to which they are obliged within the framework of the Projects and will be kept until the end of the same, and during the periods of limitation of the responsibilities that may be required. [Check in COLUMN 2 of the attached list of participants].

□ I have been informed about the processing of my data by the entity organising the workshop.

We also inform you that the event to which you have been summoned/invited/registered may be recorded and photographed, and that these videos and images may be published on the websites of the projects and partners, social media, as well as sent to the different media for dissemination, and to the other partners of the projects so that they may also comply with their respective report and dissemination obligations and may also publish them on their respective websites and social networks.

We will only use your image if you expressly authorize us to do so by checking the box that you will find in this informative clause [Check in COLUMN 3 of the attached list of participants].

□ I authorize the use of my image to contribute to the dissemination and reporting of the Project.

Additionally, if you expressly authorize it by checking the following box, your data may be used on the basis of your consent to send you informative and promotional mailings after this event (presentations, materials, satisfaction survey), and through which you may be invited to follow the projects, so that if you wish you can choose at that time. [Check in COLUMN 4 of the attached list of participants].

□ I wish to receive post-event information communications from the organizing entities.

You have the right to exercise your rights of access, rectification, deletion, limitation, opposition, portability and not to be subject to automated decisions and other legally recognized rights. If you want to withdraw your participation in this study at any stage until August 2025, including any information or audio recordings associated with your participation, you may do so by contacting _____ at _____.

# Appendix B – Reports on regional CCWs

This appendix includes the detailed reports of the CCW carried out in each of the 7 focal regions. Participants lists have not been included to comply with the privacy policy.

## *B1. Bulgaria (AUP)*

# Task 2.3: Co-creation Workshop Reporting Template

## 1. Organizational information

**MainstreamBIO partner: AUP**

**MainstreamBIO representatives: Petar Borisov, Vladislav Popov and Haik Garabedian**

**Conversation leaders:**

- Facilitator: Petar Borisov
- Note-taker: Haik Garabedian

**Date:** *22/05/2023*

**Venue:** *Name, Street, Number, ZP, City, Country – AUP, Mendeleev str.12, 4000, Plovdiv, Bulgaria*

**Agenda:**

**10-10.15 Registration**

**10.15 - 10.30 – Brief presentation of MainstreamBio project**

**10.30 – 11.15 – Introductory session**

**11.15 – 13.00 – Co-creation session**

**13.00- 13.30 – Closing session**

**Total duration:** *210 min*, of which

- Introductory session – 45 min
- Co-creation session – 105 min
- Closing session – 30 min

## 2. Activity information

**Number of participants:** *15*, of which

- Biomass suppliers: 7
- Business representatives: 2
- Research and academia: 1
- Policy actors: 1
- General Public/Community initiatives:2
- Representatives of regional bioeconomy/biobased initiatives:2

**Outcomes:** *in each category, write whole paragraphs grouping similar comments. State which comments were mentioned/agreed upon by several actors; those considered crucial and those where conflicted opinions were raised.*

1. **Business services portfolio**

| | |
|---|---|
| **Positive aspects/ remarks about the services** | I. Business model design and optimization. Useful tool for different types of business. Different templates for different type of small-scaled solutions. The participant pointed the need of self-building canvas of business model. AI can be used as supporting tool – giving the best canvas for specific business model.<br><br>II. Market analysis. This service will be useful in order to prepare clear and realistic business plan. The business plan is the most common document that farmer should prepare in order to receive funding and financial support. There is need or insight deep in detail market analysis for sub-sectors. There is insufficient information about business clusters and their need of bio-based solutions. Should be build interactive map on the platform with sectoral market analysis and findings.<br><br>III. Guidance in accessing funding. The participants declare that is the most important business service! They want not only information about potential calls for funding, next step is needed, namely support of development of high-quality projects. Proposal preparation should be assist with finding the right project partners, con<br><br>IV. Business mentoring. Mentoring should be divide as follow: mentoring for start-ups, mentoring for growing up and mentoring for scale up. The most attractive mentoring activities are: managing finance stability during every phase of business development; risk strategy and marketing of innovation.<br><br>V. Matchmaking. The second important service (according the findings in focus group discussion). An interesting topic was crowd-funding, can MainstreamBio platform offer it? |
| **Negative aspects/ remarks about the services** | All services are well prepared as portfolio! The main issue – can be reachable in all type of devices (smartphones, PC or mobile lap tops)?<br><br>Language is the main barrier for high level of dissemination! |

| | |
|---|---|
| **Best evaluated services (if mentioned)** | Guidance in accessing funding |
| **Other suggestions and comments made about the services** | The services should be friendly user oriented – the business modes should be given as self-assessment tool of famer's competitive advantage or business activity of farm. The businesses model could be connected with VRIO-approach; location of good social innovation should be given in this part of toolkit – region (geo-location), specification, type, what problem solve; |
| **Other observations not included in the template** | |

## 2. Technological services portfolio

| | |
|---|---|
| **Positive aspects/ remarks about the services** | I. Project design and development. Will help for quick technology adoption.<br>II. Pilot project implementation. Also very useful for early adopters of the technology. Piloting project implementation could be finance by other projects like EIT or National support. Should be search of synergies between pilot project implementation and guidance in accessing funding<br>III. Scale-up advisory. This service is vital for growing up the business model.<br>IV. Technology scouting. If the catalogue (full of small-scaled technologies) is detailed it will be nice to have technology scouting. Scouting will safe time in decision support process.<br>V. Techno-economic analysis. Good idea for beginners in bio economy. This service should have integrated part of technology scouting. Some solutions for self-assessment should be provide by the platform. Comparison of different technologies according to their efficiency is a good tool!<br>VI. Nutrient management and fertilization. Participant are interested in (a) conservation agriculture; (b) bio-solarization; (c) integrated pest management and (d) bio-refining as nutrient management practices. Any software, legislation and infrastructure is welcome! |

| | |
|---|---|
| **Negative aspects/ remarks about the services** | How will be organized the support/help? Can the platform offer in full-text (full access technologies free of charge for end-users? What about law protection?<br><br>Piloting cost money, how platform will deal the problem?<br><br>Farmers are not so keen no scale-up because of lack of funding and access to market. Scale-up advisory should be organized using mentoring and good examples. There is low trust of future business climate, which shape low attraction of scale-up! There is need for technology scouting in the field of composting bio-waste! |
| **Best evaluated services (if mentioned)** | Project design and development advice. Most of participants want ready to use project design. |
| **Other suggestions and comments made about the services** | |
| **Other observations not included in the template** | Most of the end users will be:<br>1. Small-scale farmers and crop/animal growers with low income or agri-food SMEs<br>2. Minority groups and single families, who are employed seasonally/temporarily in the agriculture (crop, animal farms) or in food-processing companies.<br>3. Self-employed workers, who are seasonally employed in bio economy sectors, e.g. rural agri-food-forestry business entities, etc.<br>4. Young and experienced researchers and entrepreneurs interested in developing a regional circular bio economy. |

## 3. Digital toolkit

**Positive aspects/ remarks about the toolkit**

I. A catalogue of small-scale bio-based technologies, business models and social innovations. The catalogue can be used as basic handbook for starting a new business activity or reengineering current business activity of the farm, (the most participants share this opinion). The main advantage that gives this feature of MainstremaBi's toolkit is that all you need is put in one place.

II. Decision supporting system. Such system will be the most useful tool among the provided services. The advantage for end-users that they can gain confidence (using professional assistance) in the process of management of their farms or firms. Decision support system should be act as system – end users can add input data and after simulation to obtain output expressed as an effective result.

III. Collection of best practices for improved nutrient recycling. The participant declares several practices that are very interesting and important for them and they are: (a) conservation agriculture; (b) bio-solarization; (c) integrated pest management and (d) bio-refining.

a. *Conservation agriculture /no-tillage technology/.* Participants pointed out that one of the technologies that are widely used and have the interest to be used in agriculture in the future is conservation agriculture. More and more farmers are adopting this technology for the following reasons - (1) it saves up to 30% of input costs; (2) it is easy to control this process; (3) it is easy to declare as a green practice and EU subsidies can be obtained. The technology is extremely popular among cereal growers but is also gaining popularity among fruit growers.
b. Biosolarization. Workshop participants indicated that the use of bio-solarization may be one technology that can solve problems in weeds and other pathogens that spread rapidly when conservation agriculture is applied on the farm. The main advantages of the application of technology are: (1) different bio-wastes from animal husbandry are used and converted into effective herbicides and insecticides through the process of solarization. In this way, part of the bio-waste from livestock farming is reused in the production process of the farm; (2) the contamination of soil and groundwater with hazardous chemicals resulting from the treatment of crops with chemical weed killers and other pests is reduced; (3) a significant part of the costs of on-farm plant protection measures can be saved.
c. Integrated pest management (IPM). The participants declare that IPM is also preferred technology. IPM is safe and reliable, reducing the chemicals in soil. The technology uses the so-called "green fertilization" (turning the soil together with the green mass growing on it), which enriches the soil with valuable trace elements and

| | |
|---|---|
| | nitrogen; uses fertilizer from composted materials. These features of the technology make it possible to utilize bio-waste from farm activities. The main advantages are: (1) different bio-wastes from farm are used and converted into effective fertilizers without harming the soil; (2) no additional investments are need to adopt the technology.<br>*d.* Bio-refining. The participants declare that (BR) is also interesting technology solution. In the last several years, the price of electricity is enormous and make production costs to reach high levels (especially in greenhouse production, where energy is intensive input of production). Adoption of bio-refining technology is a good step in direction of reducing the costs of energy input in farm.<br>IV. Bio-economy Repository. To enhance the positive effect of repository the most of materials should be in national language or include more detailed abstracts! Scientific and research papers should be included!<br>V. Tool library. It is not clear what is the function and main role of this service!<br>VI. Bioforum. It is a good idea, tool for sharing good examples and technology transfer. Provides feedback and input on the project's innovation development process by participating in discussions and activities as future users of project outputs |
| **Negative aspects/ remarks about the toolkit** | I. A catalogue of small-scale bio-based technologies, business models and social innovations – if the resource is available only in English it will be not very useful and interesting for end-users. This issue will affect wide dissemination of business services<br>II. Decision supporting system. Should be piloted to truck negative effects before launch and grant full access to end-users. It will be negative effect if the decision support system relies on internet connection entirely. The system should have offline regime (by providing software downloaded from website)<br>III. Collection of best practices for improved nutrient recycling. The topic of discussion was the negative aspects and disadvantages of technologies that are interesting in local area.<br>a. *Conservation agriculture /no-tillage technology/.* Under current conditions, farmers have been able to partially implement conservation agriculture for fear of business failure and crop yield loss. In order to move towards zero-tillage framing, there is a need to showcase more than successful examples and to actively involve different training and technology platforms (like MainstreamBio platform) to help farmers. A major barrier to the advancement of technology is the fear of yield loss and business failure. Another barrier is that the adoption of technology is slowly gaining momentum. In addition, as a result, more resources are |

| | |
|---|---|
| | being devoted to advancing the farming method, and it is proving to easier for newbies to join the movement. The farmer will also have to sell the old tillage equipment and downsize or eliminate tractors that are no longer needed or if newer technologies come up. The major disadvantage of no-till technology is that conservation farming might actually help curb fast-growing weeds. However, most types of weeds continue to grow in no-till farms and require the use of herbicides to be eliminated. If the farm wants to be green should be used bio-herbicides effective like conventional herbicides.<br>b. *Biosolarization.* The main drawbacks regarding the application of bio-solarization are: (1) there is not enough knowledge about which are the best bio-wastes with which to achieve an efficient bio-fumigation process; (2) bio-solarization is an applicable technology in regions where sunshine is longer and where the effect can be maximized, there are regions such as semi-mountainous regions where farms cannot apply bio-solarization due to shorter sunshine and the correspondingly lower temperatures; (3) farmers applying solarization in their farms require good coordination with livestock farms in the supply of bio-waste, the latter must also be motivated to become reliable suppliers.<br>c. *Integrated pest management (IPM).* Applying the technology requires good level of knowledge about IPM. Still there is lack of skilled labor in this field; there is a lot of bio-products on the market and the famer is confused in order to obtain the best solution to his/her farm;<br>d. *Small-scaled bio refining.* The technology is new for the famers, which are very conservative community. The main disadvantage is the technology's adoption needs specialized knowledge, which is not accessible now (it is difficult to find reliable provider of small-scaled bio refining). If you want to have a bio refining activity in your farm, you cannot find a provider of the "whole technology package". In this condition, you have to deal with different providers, which provides only separate equipment and technological solutions. In the final, this activity will lead to high risk and many problems to deal with.<br>IV. Bio-economy Repository. The repository should provide quick search and full-text access. Sustainability and availability of repository is critical for end-users (after the end of the project) |
| **Best evaluated features of the toolkit (if mentioned)** | Collection of best practices for improved nutrient recycling |

| | |
|---|---|
| **Other suggestions and comments made about the toolkit** | The participants declare the following needs that should be reflected in the toolkit: (1) all technological solutions provided by the toolkit should address directly their needs. That means the toolkit should be friendly for users like farmers who are from different age groups with different level of computer literacy; (2) toolkit should provide on-line help also off-line by providing such digital tools (like Google maps offline tool!); more content should be uploaded on website to spend time in full-text reading; search engine should be effective – not connect with google search instead of these should be connected with the content of the MainstreamBio's website. |
| **Other observations not included in the template** | |

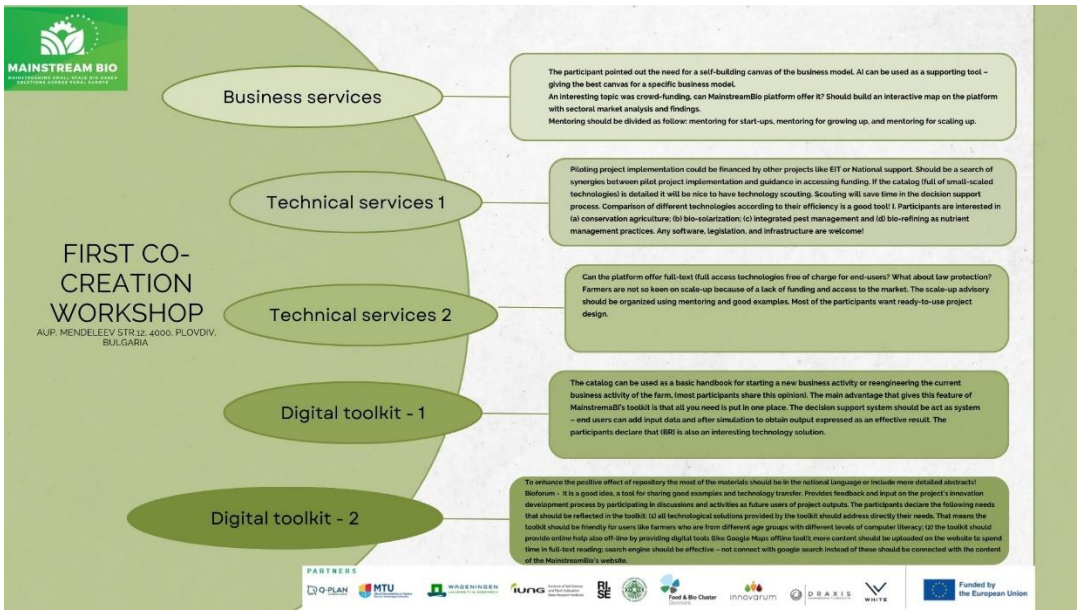
### *4.* General impressions and remarks:

- On the meeting overall: e.g., *Were participants active? If not, how can we encourage participation? Can the methodology be improved?*
- Lessons learnt for next co-creation workshops: *e.g., Can the methodology be improved? Do we need to invite more people for a fruitful conversation?*
- Other:

**Material produced:** *Include the proofs of organisation of the workshop such as 1) Picture of the discussion, 2) Picture of the poster with the sticky notes, 3) Any D&C material prepared for the workshop (brochures, posters, roll-up) or 4) any other pictures or materials about the workshop.*

*1) Picture of the discussion*


*2) Picture of the poster with the sticky notes*



## *B2. Denmark (FBCD)*

# Task 2.3: Co-creation Workshop Reporting Template

## 1. Organizational information

**MainstreamBIO partner: FBCD**

**MainstreamBIO representatives: Liselotte Puggaard**

**Conversation leaders:**

- Facilitator: Liselotte Puggaard
- Note-taker: Liselotte Puggaard

**Date:** *19/06/2023*

**Venue:** *Agro Business Park, Tjele. Denmark and online, TEAMS*

**Agenda:**

**Welcome and introduction**

**- Brief presentation of MainstreamBio project**

**- Discussion of content and design of portfolio (business, technical services and digital toolbox)**

**- Status from the plough-free field by Christian Lervad-Bach, Velas**

**- Discussion about biosolutions, actors, projects that may be relevant in this open cal**

**- Discussion about synergy between projects and calls**

**Total duration:** 90 *min*, of which

- Introductory session – 10 min
- Co-creation session – 70 min
- Closing session – 10 min

## 2. Activity information

**Number of participants:** *12 (only 8 have signed, due to online participation)*, of which

- Biomass suppliers: 3
- Business representatives: 2
- Research and academia/advisors: 5
- Policy actors: 0
- General Public/Community initiatives: 2
- Representatives of regional bioeconomy/biobased initiatives: 0

**Outcomes:** *in each category, write whole paragraphs grouping similar comments. State which comments were mentioned/agreed upon by several actors; those considered crucial and those where conflicted opinions were raised.*

### 1. Business services portfolio

| | |
|---|---|
| **Positive aspects/ remarks about the services** | The stakeholders that participated were mainly in advisory and educational sector, and concrete bio-based solutions that are in a stage were both BM, market analysis and business mentoring are relevant were not current yet. However, market analysis is relevant, as sustainability reports, science-based targets and climate labelling are becoming more and more widespread.<br><br>The stakeholders agreed that the data that is available needs to be used much more actively. How this can be implemented or streamlined, in order to ensure that the data is applicable in different technology, at different stakeholders and in different sectors and how new data from e.g., farmers precision equipment can be integrated with existing data provided nationally and without being a conflict of interest, that is a big challenge.<br><br>The most important, pointed out by stakeholders, is matchmaking, especially demonstration.<br><br>The stakeholders agreed that to boost bioeconomy and support bio-based solutions, demonstrations, practise abstracts, hands-on knowledge and learning material and tools, networking, matchmaking and other event or tools and support services that can be developed and provided, will make a big difference for the entire value chain. |
| **Negative aspects/ remarks about the services** | A general concern, whether the services will interfere with already established support systems via governmental financed support via business canters established to support especially start-up companies.<br><br>Business models are in general pointed out as being less important for the invited stakeholders. |
| **Best evaluated services (if mentioned)** | Matchmaking |

| | |
|---|---|
| **Other suggestions and comments made about the services** | Convenience and easy access were suggested.<br>There are several toolkits already developed and are used in the advisory service. |
| **Other observations not included in the template** | |

## 2. Technological services portfolio

| | |
|---|---|
| **Positive aspects/ remarks about the services** | Participant are interested in how to obtain and establish more hands-on knowledge regarding technologies the wide spectrum of conservation agriculture (CA), no-till agriculture and regenerative agriculture. No-till and CA practices are gaining more and more focus both within primary production but also within larger companies such as Carlsberg (producing beer) and Chr. Hansen, a bioscience company. CA is a movement that both vocational training centers and advisors are keen on speeding up, as knowledge on soil biology is far from being common among farmers. Hence there is a need for more collaboration on forming network and synergy between the participants attending, especially with the focus on gaining more knowledge of how the soil is functioning, how current practices affect soil microbial behavior and how to adapt the practice with the new knowledge. The goal is to improve crop production and move it into a more climate friendly and sustainable production. Currently there is a huge gap in knowledge regarding soil, and there is an urgent need as climate change are changing conditions for crop production worldwide.<br><br>Intercropping was also discussed, and this also holds a high potential for farmers to be more self-sufficient in feed production but is also an initiative that can benefit the conditions in and for the soil. The result is a more robust production. |
| **Negative aspects/ remarks about the services** | |

| | |
|---|---|
| **Best evaluated services (if mentioned)** | Technology scouting was highlighted.<br><br>As was the remark in the digital tool kit regarding 'telephone book', technology scouting is valuable regarding 'navigate' in the jungle of available technologies and biomasses.<br>There is an increasing concern regarding access to biomasses in Denmark, and a 'war over biomasses' is predicted.<br><br>Different initiatives and associations are being established to help farmers in the administration, coordination and navigation in regulations, prices and ensuring the best usage of their biomass. This is done in close relation with advisory services. |
| **Other suggestions and comments made about the services** | It was suggested that farmers need a mapping of which crops and solutions is the most suitable in specific regions. The conservation agriculture approach may not make much sense in the western part of DK compared to the eastern etc.<br>Biosolutions needs to be easy to implement, and without the need of conducting a new education in 'sustainable farming'.<br><br>There is a need that the production system is changed, and CA practices could help overcoming the rapid changes in climate, also affecting Danish agricultural land more and more with very wet autumn and winter and very dry spring and summer. |
| **Other observations not included in the template** | |

### 3. Digital toolkit

| | |
|---|---|
| **Positive aspects/ remarks about the toolkit** | Considered a 'telephone book' where it should be possible to look up who knows what and whom, and who has knowledge of this and this and has the access to that and that (technology, connections, and the specific biomass)<br><br>One participant declared that conservation agriculture and bio stimulants are important and interesting practices. Access to best practices report in this area via the digital toolkit is a good and informative way that can benefit a wide number of stakeholders and policy makers. It was also pointed out that the reports need to focus on measurements and reliable results, to have an impact for both producers and industry.<br><br>Since nutrient recycling, crop production and biodiversity are the focus area in the Danish MIP, soil and bio-based solutions that can support |

| | |
|---|---|
| | conservation agriculture and reduced tillage were discussed. Suggestions were given that material for education should focus on what is in the soil, hence, what we can't see and what we don't know much about, e.g., hands on approach. Microorganisms, and their required conditions needs to gain more focus in the future. Therefore, user-friendliness must be taken into high consideration, both to ensure that the toolkit(s) are being used by farmers and to ensure the viability of the services and toolkit.<br><br>A valuable part of the toolkit will be the inspiration from other stakeholders in Europe. The dissemination of ideas and technologies will be a key factor in the toolkit.<br><br>There is a need for knowledge of bioeconomy to be more tangible and easier to understand and put in a daily context. It was suggested to have 'everyday' examples on what bioeconomy is and how it can benefit/be used, both for farmers, industry and consumers. Bioeconomy is complicated and 'foreign' and needs to be more applicable.<br><br>Farmers are curious and willing to know more. Field visits and networking groups are popular channels for farmers to obtain more and new knowledge. Best practices in the bio forum would be valuable to have easy access to – good for inspiration and also in the bioeconomy repository as valuable educational material. |
| **Negative aspects/ remarks about the toolkit** | There are concerns regarding the level of updating, and hence how the toolkits are 'kept alive'. Viability is a major concern. If users are questioning whether the database/toolkit is updated, the stakeholders pointed out that users most likely disappear. The content and update level must be trustworthy.<br><br>Another general comment was that there is a risk of conflict of interests, since both advisory services and business centers offer support via different tools. It may be difficult to distinguish which tool is relevant for whom. Moreover, SEGES Innovation, an agricultural knowledge center, performs several trials every year in many different areas of Denmark and in different sectors. Data from these trials makes the basis for and provides knowledge for many support tools, that is the foundation for private advisory services. |
| **Best evaluated features of the toolkit (if mentioned)** | Collection of best practices for improved nutrient recycling. |

| | |
|---|---|
| **Other suggestions and comments made about the toolkit** | |
| **Other observations not included in the template** | |

**General impressions and remarks:**

- On the meeting overall: e.g., *Were participants active? If not, how can we encourage participation? Can the methodology be improved?*

The participants were keen on have an open discussion that was centred on some delimited themes and questions. The portfolio contained many different aspects, that made it difficult to focus on in dept and the comments and discussion was therefore conducted across the entire services and toolkit. The number of questions, themes, areas of which co-creation shall focus on in the future, needs to be lower.

- Lessons learnt for next co-creation workshops: *e.g., Can the methodology be improved? Do we need to invite more people for a fruitful conversation?*

The number of participants was suitable, as all participants were given the opportunity to express their opinion. However, a representative group of stakeholders is still very difficult to obtain for these specific workshops unless we can give them something else, like a presentation or alike. The factor ‘what is it in for me’ needs to be very clear and visible in order to have success in any future co-creation workshops.

*3) Picture of the hybrid CCW*

## *B3. Ireland (MTU)*

# Task 2.3: Co-creation Workshop Reporting Template

## 1. Organizational information

**MainstreamBIO partner: Munster Technological University (MTU)**

**MainstreamBIO representatives: James Gaffey, Eve Savage, John Brosnan & Robert Ludgate**

**Conversation leaders:**

- Facilitator: James Gaffey
- Note-taker: Robert Ludgate

**Date:** *19/05/2023*

**Venue: Nimbus Research Centre**, *Munster Technological*

*University, Rossa Avenue, Cork, Ireland, T12 P928*

**Agenda:**

**Total duration:** *2 Hours 20 Minutes*

- Introductory session: **50 minutes**
- Co-creation session: **1 hour 10 minutes**
- Closing session: **20 minutes**

## 2. Activity information

**Number of participants:** *17*, of which

- Biomass suppliers: 3
- Business representatives: 2
- Research and academia: 4
- Policy actors: 5
- General Public/Community initiatives: 1
- Representatives of regional bioeconomy/biobased initiatives: 2

**Outcomes:** *in each category, write whole paragraphs grouping similar comments. State which comments were mentioned/agreed upon by several actors; those considered crucial and those where conflicted opinions were raised.*

### 1. Business services portfolio

| | |
|---|---|
| **Positive aspects/ remarks about the services** | Relating to positive aspects of the business services, attendees noted that the suggested structure and supports, along with the enhanced knowledge transfer activities, would reduce the risk for stakeholders in developing new value chains. It was suggested that the portfolio should include a variety of robust business models from the more traditional models to those models that suit a more disruptive mindset. It was noted that farmers have an entrepreneurial mindset and open to new business opportunities if a firm business case is presented. Irish stakeholders indicated that access to finance to develop such initiatives is key. The stakeholders believed that extra support of community owned enterprises is required. Many stakeholders felt that there is still a lack of knowledge among Irish primary producers concerning the opportunities for developing new value chains, so support towards identification of these will be beneficial. Realistic timeframes were also considered very important with regards to delivery of the entire portfolio. |
| **Negative aspects/ remarks about the services** | In terms of negative aspects of the business services, stakeholders pointed to the importance of developing “bespoke” relationships with producers and maintaining these relationships over time. One stakeholder indicated that primary producers (e.g., Farmers) may view such a service as top down or outsourcing and may wish to take more ownership of it. Also, regarding finance, it was indicated that supports need to be guaranteed for a specific amount of time (10-15 years) to de-risk investment. |
| **Best evaluated services (if mentioned)** | Not mentioned, but all services seem welcomed. |
| **Other suggestions and comments made about the services** | The services offered need to be research driven and meet the current needs of the market. Support services offered should also be coherent with current bioeconomy policy and adaptable to changes and developments in policy. It was also advised that support should include “hands on” supports and a clear availability of a direct point of contact for advice is needed. A clear understanding of the risks involved, and the result of failure should be a core element. |

| | |
|---|---|
| **Other observations not included in the template** | Technologies that do not require large capital investments and thus entailing lower risks for primary producers should be assessed as a first option. Further training should be made available for the bioeconomy experts that advise on the services, so that clear and complete information is communicated to the beneficiaries of the support services. |

## 2. Technological services portfolio

| | |
|---|---|
| **Positive aspects/ remarks about the services** | A benefit of the technological services portfolio identified at the workshop is that it provides a technical service for non-technical people. This can help primary producers and other stakeholders to understand the technology which in turn means that it stands a greater chance of being adopted. According to stakeholders, the technologies should need to be practically viable for the relevant context and supported by a sound business case. It was also suggested that the proposed technologies should facilitate disruptive innovators i.e., wool producers who are seeking to develop innovate products that will disrupt current unsustainable markets like peat-based compost. |
| **Negative aspects/ remarks about the services** | Attendees considered the availability or lack of subsidies to be a major negative factor for any adoption of new technologies and this should be a key element when assessing advising on new technologies for adoption by primary producers. |
| **Best evaluated services (if mentioned)** | Not mentioned, but all services seem welcomed. |
| **Other suggestions and comments made about the services** | According to stakeholders, best practices need to be demonstrated to provide farmers with practical examples of what is possible. This will help to ensured that the technology/solution is adapted by other farmers. Technologies should be appropriate for small and micro enterprises alike and regulations should also make it easy for these enterprises to adopt such solutions. The portfolio should be simple and straightforward and accessible to the widest range of primary producers. |

| | |
|---|---|
| **Other observations not included in the template** | Attendees saw the services as a great resource but suggest it needs to cover all primary producers i.e., micro enterprises. It was also suggested that this could be an ideal platform for co-ops to develop, mobilise and link together to utilise agricultural waste streams across different geographical areas. |

### 3. Digital toolkit

| | |
|---|---|
| **Positive aspects/ remarks about the toolkit** | According to the stakeholder participants the digital toolkit can be a good resource for stakeholders, however, it should remain as straightforward to use as possible, as many primary producers i.e., some farmers would have a lower technological ability. It should also be relatable to each user in their own context and be backed up with a direct (local) point of contact to assist in supporting them and providing more information. |
| **Negative aspects/ remarks about the toolkit** | There were no major negative comments, only the suggestion that the toolkit must be easily understood by primary producers and others to be fully utilised. |
| **Best evaluated features of the toolkit (if mentioned)** | Not specified. |
| **Other suggestions and comments made about the toolkit** | Stakeholders indicated that the toolkit should have a strong element of continuity throughout the interface of the various tool functions and sections. Above all it should be user friendly and accessible to all. It was also pointed out that it the tool should support communities, who are also vital in supporting successful technology adoption. |

| | |
|---|---|
| **Other observations not included in the template** | |

**4. General impressions and remarks:**

- On the meeting overall: e.g., *Were participants active? If not, how can we encourage participation? Can the methodology be improved?*

Overall workshop attendees were engaged and active throughout and genuinely interested in contributing to the analysis and co-design of bioeconomy supports. The workshop was attended by a strong mix of knowledgeable and informed stakeholders from across the different stakeholder groups, including primary producer groups.

Participants tended to repeat several comments in each of the sections and some points provided were common to the business and technological innovations services and digital toolkit alike. At some stages positive and negative aspects got mixed up with general advice and suggestions and this should be considered when reviewing the methodology, however all points made, and advice given were constructive, and overall, there was a strong sense that the project activities are a welcome support for the stakeholders.

- Lessons learnt for next co-creation workshops: *e.g., Can the methodology be improved? Do we need to invite more people for a fruitful conversation?*

As noted previously, attendees found making the distinction between positive, negative aspects and suggestions slightly confusing however all understood the overall point of the exercise and its aims and as they were an informed group and were able to make very meaningful contributions.

At this workshop we had 17 attendees, divided into 3 sub-groups, and this allowed a fruitful discussion to be facilitated, with feedback from each group provided at the end of the session. The good discussion was due in large part to having a diverse representation of stakeholders that were not only knowledgeable within their own sphere but also enthusiastic and engaged with the aims of the MainstreamBio project. To realize a successful workshop, therefore, it was more important to have the right people over a larger amount of people.

- Other

**Material produced:** *Include the proofs of organisation of the workshop such as 1) Picture of the discussion, 2) Picture of the poster with the sticky notes, 3) Any D&C material prepared for the workshop (brochures, posters, roll-up) or 4) any other pictures or materials about the workshop.*


*Figure 10: Workshop Discussion*

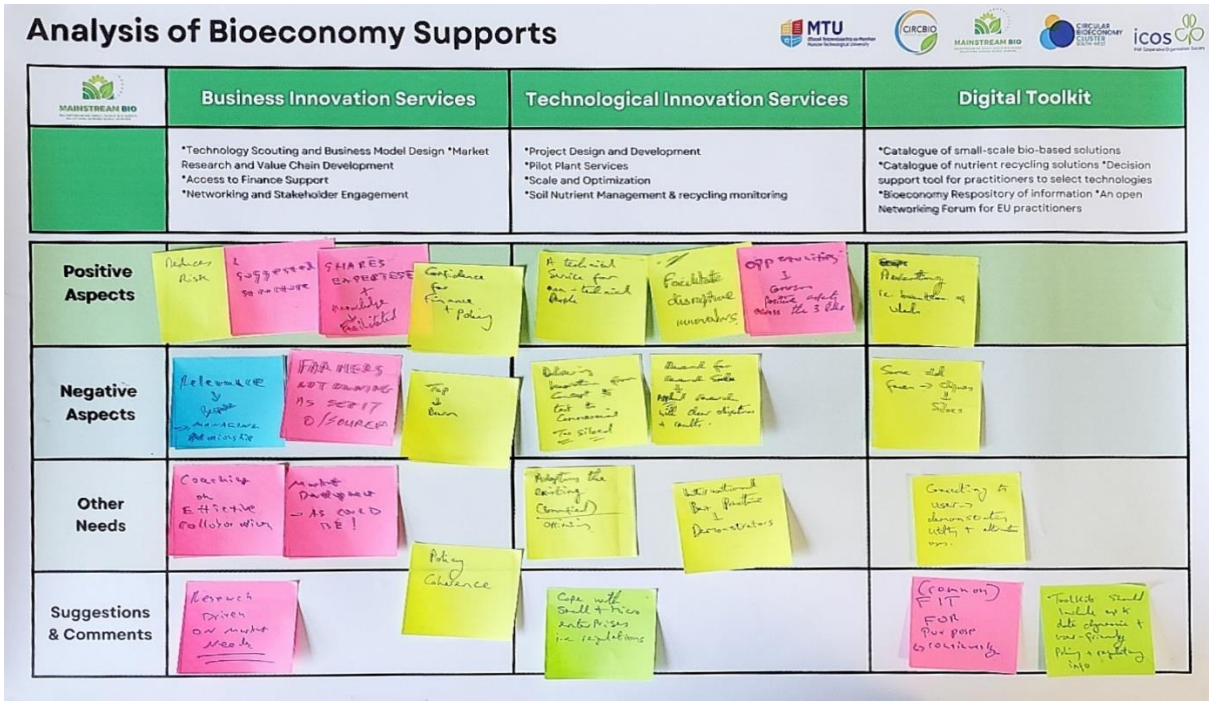



*Figure 11: Workshop Poster*

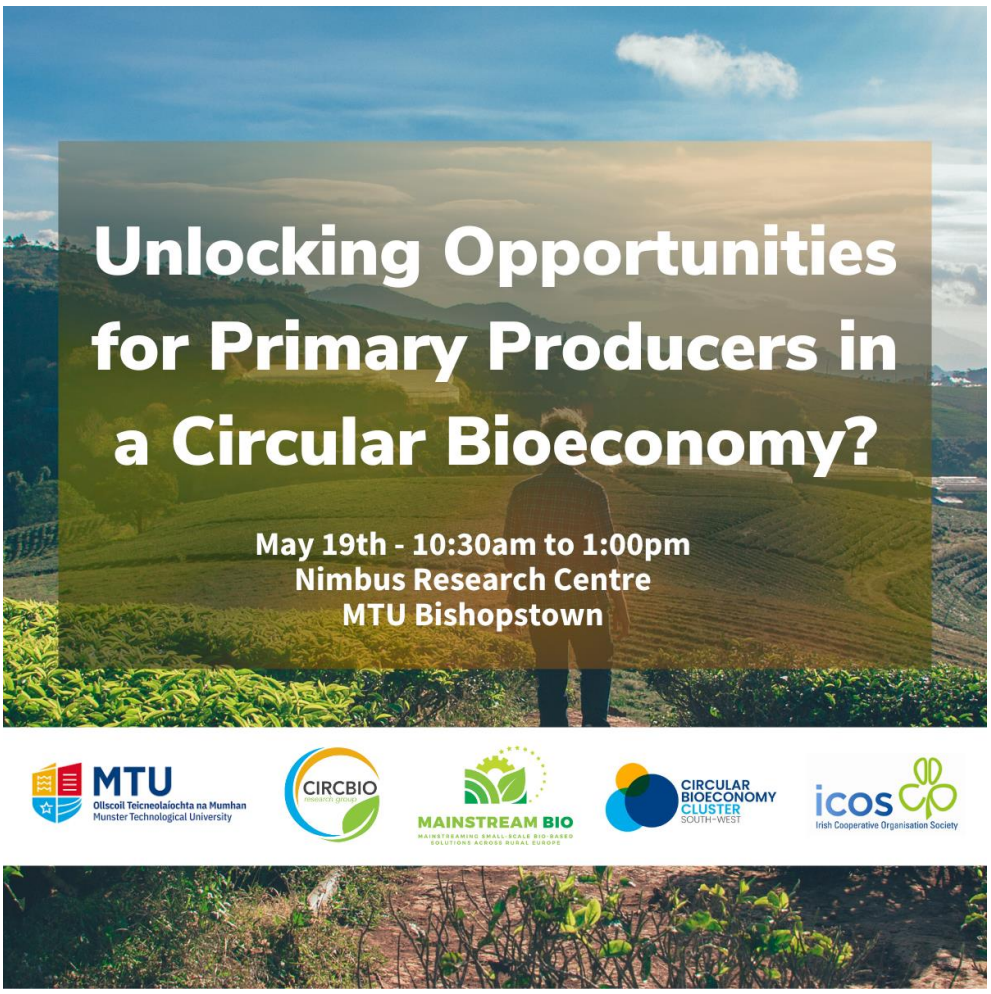



*Figure 12: LinkedIn Post Graphic*


*Figure 13: Introduction Presentation*

## *B4. The Netherlands (WR)*

# Task 2.3 Report Dutch Co-creation Workshop

Version 26 May 2023

## 1. Organizational information

**MainstreamBIO partner:** Wageningen WR

**MainstreamBIO representatives:** Bert Annevelink, Rommie van der Weide, Kimberly Wevers

**Conversation leaders:**

- Facilitator: Rommie van der Weide
- Note-taker: Kimberly Wevers

**Date:** 11 May 2023

**Venue:** WUR-Open Teelten, Lelystad, Edelhertweg 1, 8219 PH The Netherlands

**Agenda:**

13:00 Walk-in, coffee

13:15 Start, introduction on MainstreamBIO

13:30 Introduction sister project BioRural

13:45 MainstreamBIO workshop, open call, services and brainstorm about possible interesting case studies

15:30 Coffee break

15:45 Presentation WUR students about the first MainstreamBIO case study 'Turning residual streams into higher value: creating a business case for pumpkin beer as a new value chain.'

16:15 Discussion and questions

16:30 Wrap-up and drinks

**Total duration:** *3.5h*, of which

- Introductory session: 0.5h
- Co-creation session: 2.25h
- Presentation case: 0.30h
- Closing session: 0.25h

## 2. Activity information

**Number of participants: 13**, of which

- Biomass suppliers: 1
- Business representatives: 3
- Research and academia: 5
- Policy actors:1
- General Public/Community initiatives: 1

- Representatives of regional bioeconomy/biobased initiatives: 2

**Outcomes:** *in each category, write whole paragraphs grouping similar comments. State which comments were mentioned/agreed upon by several actors; those considered crucial and those were conflicted opinions were raised.*

1. **Business services portfolio**

| | |
|---|---|
| **Positive aspects/ remarks about the services** | • Inspiration between different sectors can be supported which leads to unexpected combinations.<br>• Salt on Sweet project as option<br>• Can farm-scale systems be profitable? → a techno-economic analysis can be useful |
| **Negative aspects/ remarks about the services** | • Support for legislation questions is not (yet) included, while this is very important. Legislation is determined at a national level, and this needs to be translated to the regional level for small-scale solutions. Maybe a party that has this expertise or is able to influence legislation should be added.<br>• Market research should be more concrete and on a regional level. |
| **Best evaluated services (if mentioned)** | • Not mentioned |
| **Other suggestions and comments made about the services** | • Provide support to obtain a balanced value chain, with a better distribution of incomes within the chain (more towards the farmer).<br>• Give support on how to keep the residues of farmers within the region through small-scale processing.<br>• What should a case study within MainstreamBIO contain?<br>• Involve the producers in the analysis (and MIPs) to get their input in business models.<br>• Mentoring should be part of all the case studies that will be started. |

| | |
|---|---|
| **Other observations not included in the template** | • It was suggested to support new value chains based on fibre crops like flax and hem. |

## 2. Technological services portfolio

| | |
|---|---|
| **Positive aspects/ remarks about the services** | • The services can be inspirational for the possible case studies.<br>• They give the ability to compare different technologies.<br>• Getting technical innovation on the farm level more visible is necessary to improve sustainability along the chain.<br>• Knowledge on the quality of compost is interesting. Also on biochar. |
| **Negative aspects/ remarks about the services** | • More technical knowledge is needed.<br>• You should also be able to start the other way around: with the desired end-product instead of the feedstock. So the services should also support the question: what feedstocks can be used to deliver a specific product? |
| **Best evaluated services (if mentioned)** | • Not mentioned. |
| **Other suggestions and comments made about the services** | • Do not forget the horticultural sector.<br>• Stimulate cooperation between farmers and municipalities.<br>• Nutrient management and fertilization should be seen broad, including the soil. |

| | |
|---|---|
| **Other observations not included in the template** | • None. |

### 3. Digital toolkit

| | |
|---|---|
| **Positive aspects/ remarks about the toolkit** | • The explanation of the Toolkit was received positively. However, it was not discussed in detail. The participants will fill in the questionnaire of DRAXIS after the meeting. |
| **Negative aspects/ remarks about the toolkit** | • Still rather abstract regarding choosing a case. It should focus on chances for agriculture regarding circularity, business profits and short chains. Residual streams are of importance.<br>• It should look and feel attractive to use and be user friendly. |
| **Best evaluated features of the toolkit (if mentioned)** | • Not mentioned |
| **Other suggestions and comments made about the toolkit** | • None |

| | |
|---|---|
| **Other observations not included in the template** | • None |

***4.*** **General impressions and remarks:**

- On the meeting overall: e.g., *Were participants active? If not, how can we encourage participation? Can the methodology be improved?*

The participants were very eager to give comments and also suggestions for possible cases in the near future.

The Services and the Toolkit were discussed in relation to these suggested ideas, so that the discussion was concrete and to the point.

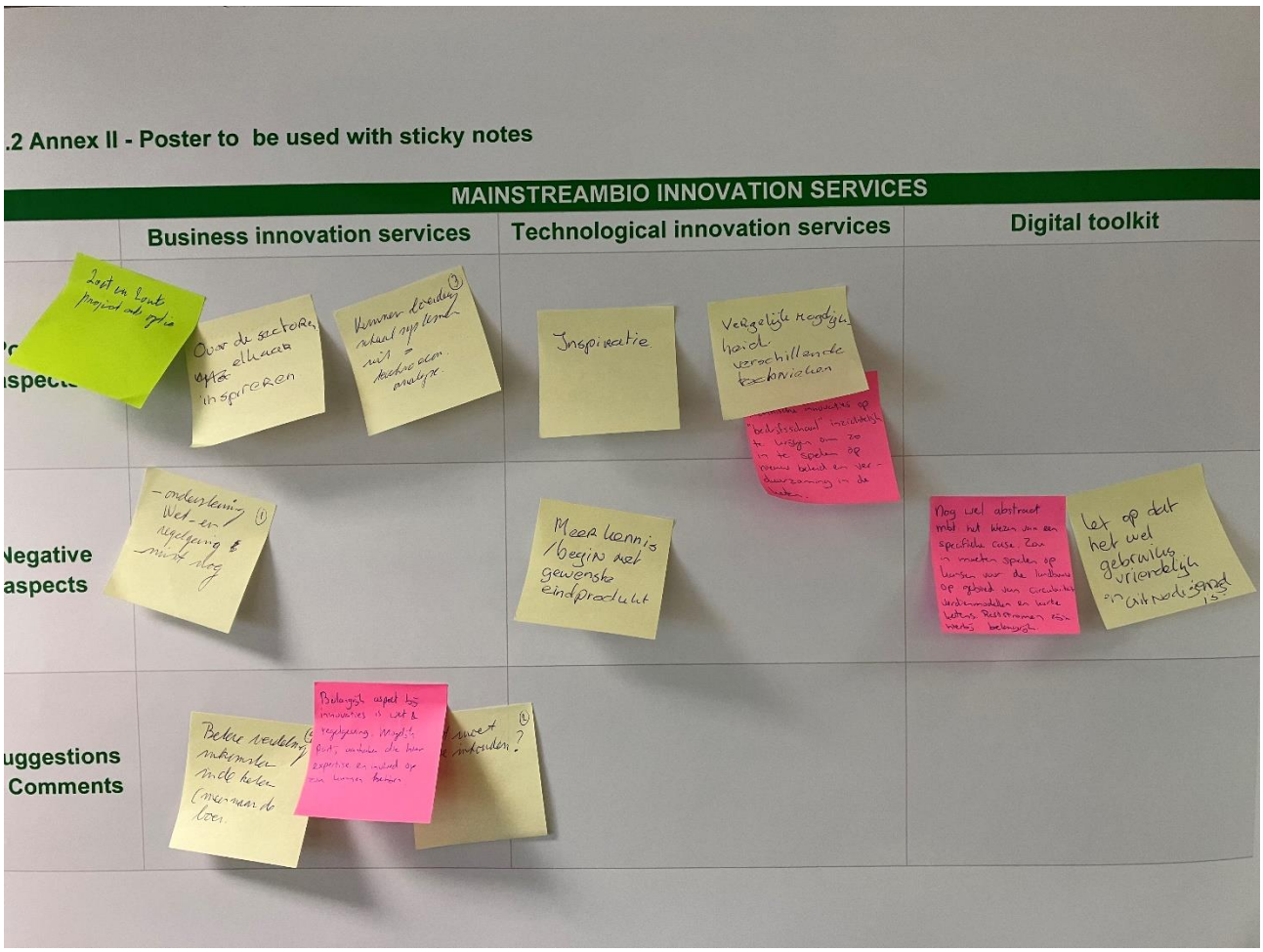
- Lessons learnt for next co-creation workshops: *e.g., Can the methodology be improved? Do we need to invite more people for a fruitful conversation?*

Unfortunately, the detailed instruction manual came very late in relation to the date of this specific CCWS, so some improvisation was needed. E.g., in this case the room that was already booked way in advance did not allow for the two circle approach that was suggested in the manual. However, everybody was still able to a contribution in the discussion, the facilitator did not have any problems to manage the speaking time of the participants.

- Other:

It was good to have a combination in this meeting of the CCWS with the informative presentation of the WUR students on the pumpkin beer case (see agenda). That way the MIP members could also see some content and results of the project already.

**Material produced:** *Include the proofs of organisation of the workshop such as 1) Picture of the discussion, 2) Picture of the poster with the sticky notes, 3) Any D&C material prepared for the workshop (brochures, posters, roll-up) or 4) any other pictures or materials about the workshop.*


.2 Annex II - Poster to be used with sticky notes
MAINSTREAMBIO INNOVATION SERVICES
Business innovation services
Technological innovation services
Digital toolkit
Negative aspects
uggestions Comments
Inspiratie
Meer kennis / begin met gewenste eindproduct
Let op dat het wel gebruiksvriendelijk is

## *B5. Poland (IUNG)*

# Task 2.3: Co-creation Workshop Reporting Template

## 1. Organizational information

**MainstreamBIO partner:** IUNG-PIB

**MainstreamBIO representatives:** Magdalena Borzęcka, Piotr Skowron, Damian Wach, Małgorzata Wydra

**Conversation leaders:** Magdalena Borzęcka, Piotr Skowron

- Facilitator: Damian Wach
- Note-taker: Małgorzata Wydra

**Date:** *31/05/2023*

**Venue:** *IUNG-PIB Congress Centre, Królewska 17, 24-100 Puławy, Poland*

**Agenda:**

**Total duration:** *10:00-13:00*, of which

- Introductory session: 15’
- Co-creation session: 120’
- Closing session:15’

## 2. Activity information

**Number of participants:** *12(+4)*

- Biomass suppliers: 7
- Business representatives: 1
- Research and academia: 1(+4)
- Policy actors: 2
- General Public/Community initiatives:
- Representatives of regional bioeconomy/biobased initiatives:1

**Photos:** added as annex 1

**List of participants:** *scanned and added as an annex 2.*

**Outcomes:** *in each category, write whole paragraphs grouping similar comments. State which comments were mentioned/agreed upon by several actors; those considered crucial and those were conflicted opinions were raised.*

### 1. Business services portfolio

| | |
|---|---|
| **Positive aspects/ remarks about the services** | The most important advantage highlighted during the discussion was the opportunity of **finding business partners** from different sectors. Participants gave numerous examples of situations when such a service would be useful, e.g. farmers interested in testing alternative farming practices/new machinery on their field on the one hand, businesses looking for volunteers to test their products on the other; start-ups looking for support from the science & research; well-developed ideas looking for the right investment to operate at a bigger scale. Development of a **business model** for a small business/start-up to expand and enter European market would be appreciated as well. It was also mentioned that suggesting innovative solutions/technologies from other regions/countries would be most welcome as long as they are suitable for local conditions. However, a possibility of finding business partners from across Europe would be welcome. A wide range of business services available for end-users in one place was also indicated as an advantage. |
| **Negative aspects/ remarks about the services** | Market analysis was mentioned as an important component, however, some doubts were expressed regarding the relevance of this service when it comes to local conditions and local markets will it be adjusted to the needs of each user and focus on the specific national/local market? Similar opinion was expressed regarding business mentoring provided by foreign institutions – to what extent would it fit the Polish and local conditions? Also, the missing component that is much needed and would be appreciated is legal advice. |
| **Best evaluated services (if mentioned)** | Market analysis; guidance in accessing funding; matchmaking; business model design (especially for entering EU market, upscaling from local to national/European markets) |
| **Other suggestions and comments made about the services** | A training will be necessary to show end-users how to best use the services. There is a risk that farmers will not do it themselves, but rather with the help of agricultural advisors.<br>Financial aspects are very important – farmers will be reluctant to implement biobased solutions if they are the ones to risk not only the money invested but also production efficiency e.g. reducing crop yield. Matchmaking is therefore crucial to help find investors for testing new solutions. It would be very helpful to consider the sources and methods of funding support at national level, as not all investments can be financed at EU level. Participants frequently asked about the detailed content of |

| | |
|---|---|
| | business services and possible platform payments, because at the moment similar services are available on the market, but part of them are paid. |
| **Other observations not included in the template** | A database/catalogue of successful businesses could be created, e.g. successful start-ups, showing good examples to replicate but also unsuccessful solutions that did not last/did not cope with challenges which may be encountered in the same location/business sector etc. – not to repeat the same mistakes but to learn from each other.<br>There are limitations in Polish legislation that influence to a large extent application of biobased fertilisers such as e.g. sewage sludge, need to be taken into account.<br>A restriction has been identified in the use of these types of services when they will only be available in English. |

## 2. Technological services portfolio

| | |
|---|---|
| **Positive aspects/ remarks about the services** | The positive aspects mentioned by the majority of participants focused around two main features: finding new/alternative sources of nutrients for agricultural purposes, such as e.g. sewage sludge or digestate, which allows for closing the nutrient cycle, as well as finding new technologies to be applied in specific conditions. The advisory services are very important and valuable as long as they are adjusted to the specific needs and include a practical component – possibility of observing the solution implemented by others, discussing the pros/cons, learning about technologies/practices through demonstrations and not only attending lectures/reading documentation. The value of gaining knowledge and experience was also mentioned as important. It was also noticed that components included in the technological services portfolio are complementary, and gather all the necessary information in one place, offering support at different levels: from finding the right solution, technology providers or business partners, to implementing it. The nutrient management service is very important in the nutrient recycling practice, but it should be adapted to the conditions in individual countries and comply with local regulations and recommendations. |
| **Negative aspects/ remarks about the services** | A recurring challenge mentioned by the participants was the language barrier which may constitute a problem for farmers, as well as complexity of the tool, which may turn out too complicated for some of them to navigate through. Another vital aspect indicated as a potential problem is the amount of information offered on the nutrient management practices and on applicable EU/national regulations and its form – users may be reluctant to go through excessive documentation or feel lost in the abundance of information, especially legal documentation. The lack of a training module for farmers was also mentioned as a negative aspect. |

| | |
|---|---|
| | There is also a risk that this tool/platform will may not reach all the right end-users. |
| **Best evaluated services (if mentioned)** | Techno-economic analysis; Scale-up advisory (especially for start-ups); Nutrient management |
| **Other suggestions and comments made about the services** | Advisory services should be provided in person, especially for farmers. Learning about the nutrient management practices and technologies should not be conducted solely through theoretical material but also, and most importantly, through demonstrations. There should be an opportunity to see how the solutions work in practice, discuss pros and cons with those who implemented them, ask relevant questions in person. Consultations not only with advisors but also with pioneers would be valuable. Implementation of the practices discussed should also be assisted. |
| **Other observations not included in the template** | Providing space for farmers, businesses, researchers, etc. looking for/offering ideas, resources, knowledge and experience – for finding complementary services, business partners, investors. Creating a demonstration site available for businesses, research, end-users looking for solutions. |

### 3. Digital toolkit

| | |
|---|---|
| **Positive aspects/ remarks about the toolkit** | A positive aspect of the toolkit is definitely the wide range of services and information offered to its users. Both the catalogue of bio-based technologies and best practices will be useful, especially to see what solutions are successfully used in other countries. A Decision Support system will be useful to help navigate through the resources and find suitable ones. |
| **Negative aspects/ remarks about the toolkit** | A BioForum may not be as successful as planned, this type of communication channels has lost in popularity in favour of social media.<br>Abundance of resources is a good thing but may also be overwhelming and difficult to find the right information. Users will use MainstreamBIO services first, but using resources from other projects will be complicated and time-consuming. Also, probably not every practice, technology, innovation will be suitable for implementation in Poland. Once again, attention was paid to the greatest possible availability of materials in Polish. Materials in English may be omitted due to the language barrier of some users. |
| **Best evaluated features of the toolkit (if mentioned)** | Catalogue of small-scale biobased technologies, business models and social innovations; collection of best practices for improved nutrient recycling |
| **Other suggestions and comments made about the toolkit** | Instead of a BioForum it could be useful to set up a thematic group on social media, where people are already present and active. It may work as space for exchange of ideas and looking for advice on specific topics. It could also be a good idea to use a Chatbot where users could ask questions and receive immediate answers or suggestions where to look for them – instead of browsing through the repository themselves, which may be too time consuming and discouraging for beginners who need more guidance. |
| **Other observations not included in the template** | Suggestion regarding the practices /technologies described in the toolkit – not only positive aspects should be presented to encourage farmers to implement them, but also negative sides, to make the services more trustworthy – farmer will not trust an expert or advisor who works as a sales representative trying to “sell” the product/technology/practice. It should describe technologies and practices as they are, with all positive and negative aspects and including possible challenges that may be encountered – ideally describing real cases when the challenges were met and what was done to cope with them. |

### *4.* General impressions and remarks:

- On the meeting overall: e.g., *Were participants active? If not, how can we encourage participation? Can the methodology be improved?*

  During the meeting, the participants were active and willingly expressed their opinions. They recorded their comments on individual issues on sticky notes. Well conducted discussion is a key to achieve meeting goals. The Fishbowl methodology is not always appropriate, especially for small and active stakeholder groups where everyone participates in a discussion moderated by the facilitator
- Lessons learnt for next co-creation workshops: *e.g., Can the methodology be improved? Do we need to invite more people for a fruitful conversation?*

Facilitators should have more freedom to choose the form of conducting the meeting, depending on the number of participants. With small groups of stakeholders, the roundtable method is a better way.

- Other:

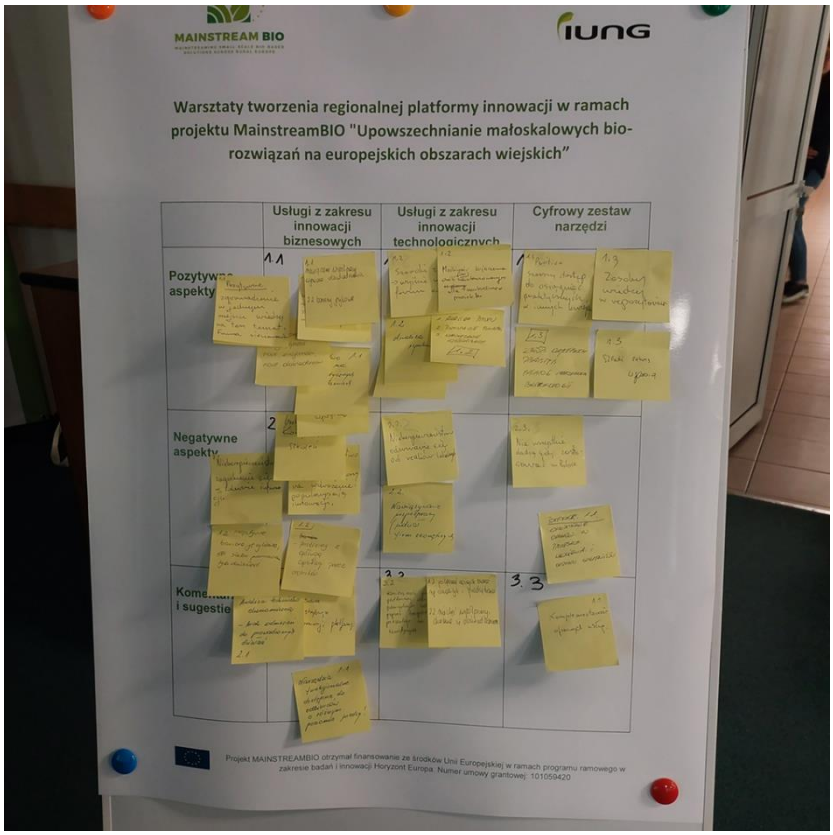
Inviting additional participants would make possible to hear different opinions from the same group of stakeholders. However, a group of more than 20 people requires subgrouping. One discussion group makes it easier to get participants to express their opinions.

**Material produced:**

*Annex 1.*

*Picture of the discussion,*


MAINSTREAM BIO
Magdalena Borzecka
Piotr Skowron




*Picture of the poster with the sticky notes*

## *B6. Spain (INNV)*

# Task 2.3: Co-creation Workshop Reporting Template

## 1. Organizational information

**MainstreamBIO partner:** INNOVARUM

**MainstreamBIO representatives:** Íñigo Rodilla; Beatriz Deltoro

**Conversation leaders:**

- Facilitator: Josep Mirò
- Note-taker: Beatriz Deltoro

**Date:** 21/04/2023

**Venue:** Multi-purpose building, Carrer de Baix, 29, 25180, Alcarràs, Lleida, Spain

**Agenda:**

**Total duration:** 2 h 40 min, of which

- Introductory session: 20 min
- Co-creation session: 2 hours
- Closing session: 20 min

## 2. Activity information

**Number of participants:** 11, of which

- Biomass suppliers: 2
- Business representatives: 1
- Research and academia: 4
- Policy actors: 5
- General Public/Community initiatives: 1
- Representatives of regional bioeconomy/biobased initiatives: 2

**Outcomes:** *in each category, write whole paragraphs grouping similar comments. State which comments were mentioned/agreed upon by several actors; those considered crucial and those where conflicted opinions were raised.*

### 1. Business services portfolio

| | |
|---|---|
| **Positive aspects/ remarks about the services** | Agents valued the opportunity of **learning from success cases**, as it would speed up their learning curve and the implementation time. However, they found it **difficult to know a reliable reference case** and thus **valued the opinion of an impartial third party**.<br><br>Attendees deemed it necessary to have a clear, **easy-to-follow business model** to guide their enterprises.<br><br>They also showed interest in **leadership-related services**, both as help in leading their business and in contacting leaders in their field. |
| **Negative aspects/ remarks about the services** | |
| **Best evaluated services (if mentioned)** | From the positive aspects referred to above, the best-evaluated services are the following:<br><br>- Networking to find partners, customers, investors<br>- Business model development<br>- Mentoring |
| **Other suggestions and comments made about the services** | A third party helping the actors be on the same page would make interactions more efficient. |
| **Other observations not included in the template** | |

## 2. Technological services portfolio

| | |
|---|---|
| **Positive aspects/ remarks about the services** | Participants highlighted the importance of facilitating access to current technologies by **translating knowledge**. They also valued the importance of ensuring primary producers **treat their residues properly**. |
| **Negative aspects/ remarks about the services** | |
| **Best evaluated services (if mentioned)** | From the positive aspects referred to above, the best-evaluated service is soil nutrient management and recycling monitoring. |
| **Other suggestions and comments made about the services** | Part of the role of each KAM is to translate the information success cases and service providers must interchange. Therefore, the need for translating knowledge is already accounted for in MainstreamBIO. |
| **Other observations not included in the template** | |

### 3. Digital toolkit

| | |
|---|---|
| **Positive aspects/ remarks about the toolkit** | Primary producers conveyed their interest in **having access to national cases** and their contact details to interact with them, if necessary. Oppositely, some policymakers deemed less important the location of the cases (international cases would be equally relevant).<br>Attendees agreed on their need for a platform where **communicate their problems** openly. They would need to have traceability of the communications (*who said what when*). |
| **Negative aspects/ remarks about the toolkit** | |
| **Best evaluated features of the toolkit (if mentioned)** | - Repository of cases, specifying the location<br>- Possibility to share problems with peers |
| **Other suggestions and comments made about the toolkit** | |
| **Other observations not included in the template** | |

### *4.* General impressions and remarks:

- On the meeting overall: e.g., *Were participants active? If not, how can we encourage participation? Can the methodology be improved?*

First interactions were more difficult to obtain but, once the conversation started, it was easy to keep it agile and dynamic. Thus, the facilitator needs to choose carefully who to ask to intervene first. If attendees know each other from previous experiences, the dialogue might be easier to start.
If the group is made by 10-15 people, it could be worth adding a quick round of presentations so people are more relaxed and acquainted with the other attendees.

- Lessons learnt for next co-creation workshops: *e.g., Can the methodology be improved? Do we need to invite more people for a fruitful conversation?*

Given this experience, we believe the methodology is also adequate for more people.

- Other:

**Material produced:** *Include the proofs of organisation of the workshop such as 1) Picture of the discussion, 2) Picture of the poster with the sticky notes, 3) Any D&C material prepared for the workshop (brochures, posters, roll-up) or 4) any other pictures or materials about the workshop.*

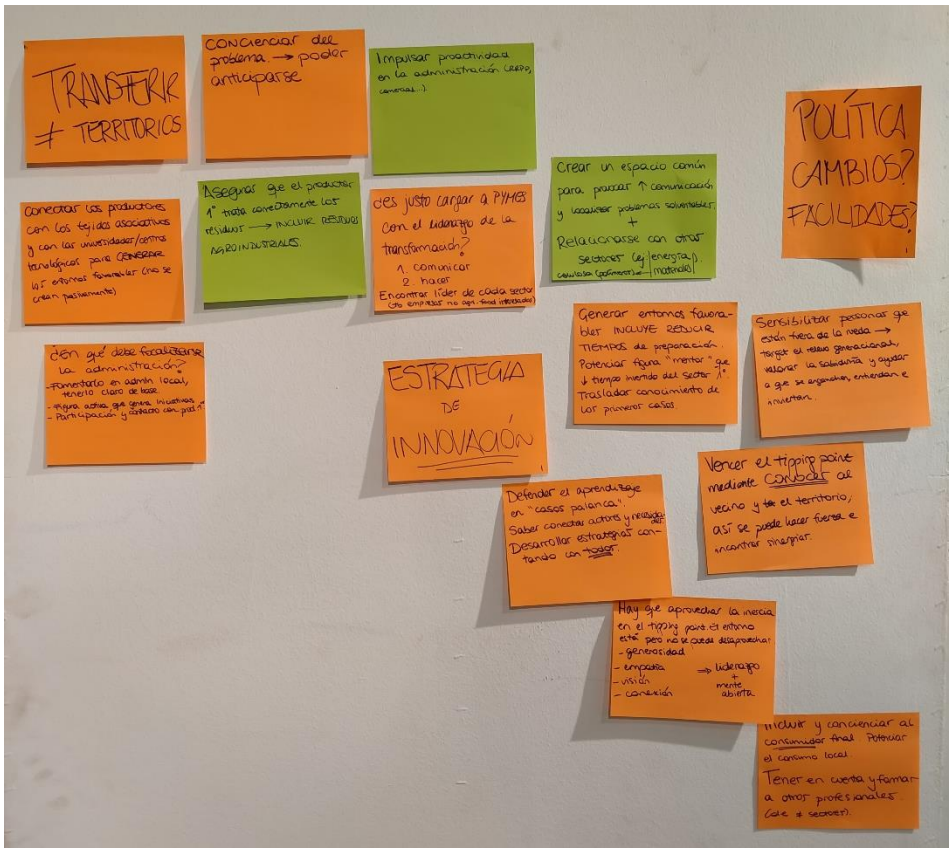



*Figure 14 | Main ideas from general discussion.*


Funded by the European Union

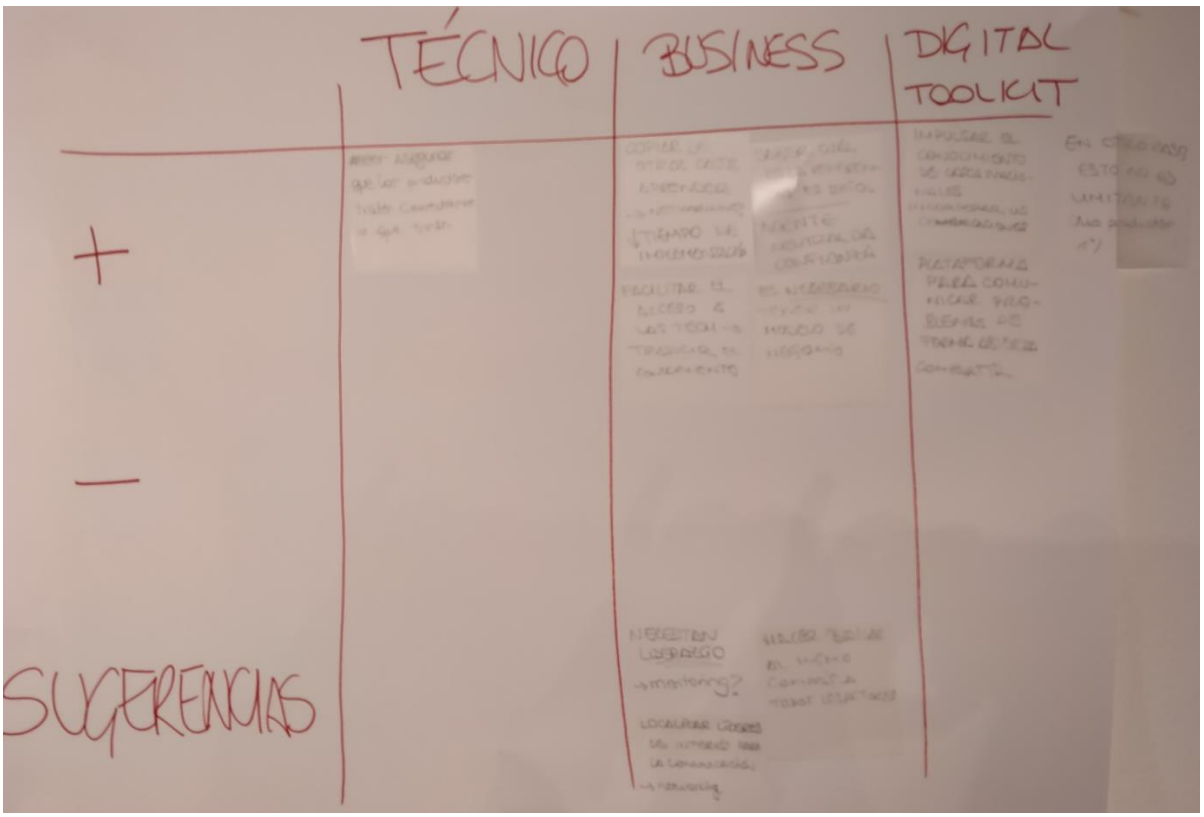



*Figure 15 | Main ideas from discussion on portfolio and digital toolkit.*


*Figure 16 | Introductory session.*


*Figure 17 | Set up of the co-creation workshop.*

*Figure 18 | Preparing the co-creation workshop.*

*Figure 19 | Starting the dialogue in the co-creation workshop (I).*

*Figure 20 | Starting the dialogue in the co-creation workshop (II).*

*Figure 21 | Visit to success case.*


*Figure 22 | Innovarum representatives Íñigo Rodilla and Beatriz Deltoro next to MainstreamBIO's roll-up.*

## *B7. Sweden (PROC)*

# Task 2.3: Co-creation Workshop Reporting Template

## 1. Organizational information

**MainstreamBIO partner: PROC**

**MainstreamBIO representatives: Johan Börjesson, Liselotte Uhlir, Fredrik Östlund, Amelie Karlsson**

**Conversation leaders:**

- Facilitator: Johan Börjesson
- Note-taker: Liselotte Uhlir

**Date:** *31/5/2023*

**Venue:** RISE Processum AB, Hörneborgsvägen 10, 892 50 Domsjö

**Agenda:**

**13:00 – 13:20:** Presentation round

**13:20 – 13:45:** Presentation on Processum and MainstreamBIO

**13:45 – 15:10:** Workshopen co-creation

**15:10 – 15:20** Discussion regarding open-call

**15:20 – 15:30:** Closing session

## 2. Activity information

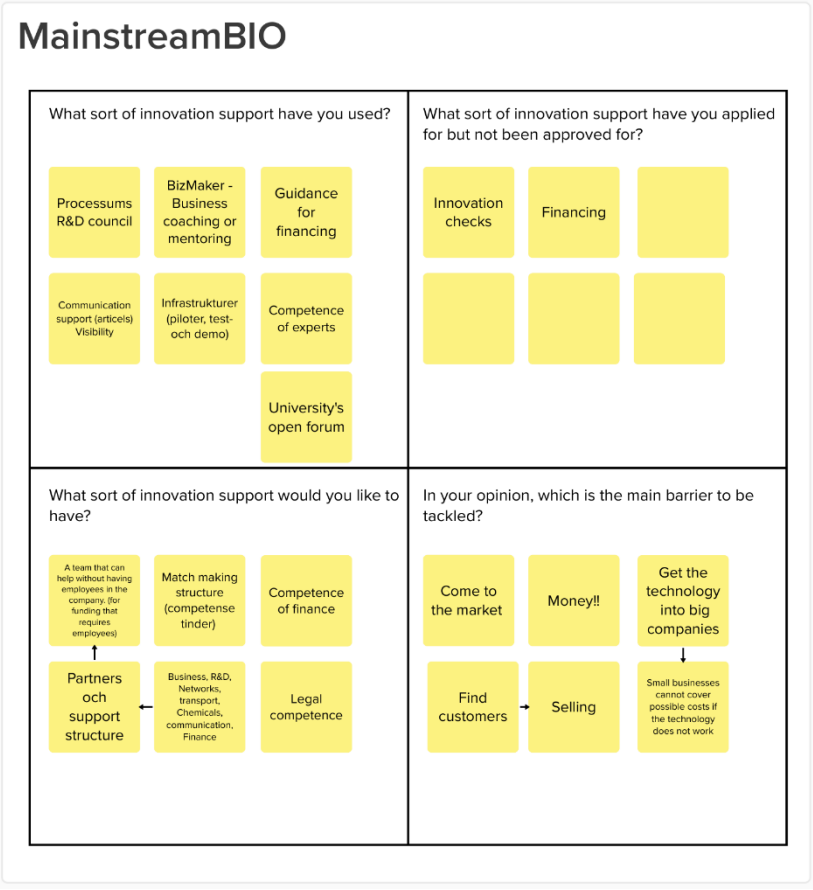
**Number of participants:** *12*, of which

- Biomass suppliers:
- Business representatives: 5 (CassMaterials, PulpEye, Arevo, Sandtec, Biocompost)
- Research and academia: 4 (RISE)
- Policy actors: 1 (Övik kommun)
- General Public/Community initiatives: 2 (BizMaker, BiofuelRegion)
- Representatives of regional bioeconomy/biobased initiatives:

**Outcomes:** *in each category, write whole paragraphs grouping similar comments. State which comments were mentioned/agreed upon by several actors; those considered crucial and those were conflicted opinions were raised.*

MAINSTREAM BIO
MAINSTREAMING SMALL-SCALE BIO-BASED SOLUTIONS ACROSS RURAL EUROPE

# Co-creation workshop



## 1. Business services portfolio

| | |
|---|---|
| Positive aspects/ remarks about the services | |
| Negative aspects/ remarks about the services | |
| Best evaluated services (if mentioned) | |
| Other suggestions and comments made about the services | |
| Other observations not included in the template | |

## 2. Technological services portfolio

| | |
|---|---|
| Positive aspects/ remarks about the services | |
| Negative aspects/ remarks about the services | |
| Best evaluated services (if mentioned) | |
| Other suggestions and comments made about the services | |
| Other observations not included in the template | 5. |

### 3. Digital toolkit

| | |
|---|---|
| Positive aspects/ remarks about the toolkit | |
| Negative aspects/ remarks about the toolkit | |
| Best evaluated features of the toolkit (if mentioned) | |
| Other suggestions and comments made about the toolkit | |
| Other observations not included in the template | |

### *4.* General impressions and remarks:

- On the meeting overall: e.g., *Were participants active? If not, how can we encourage participation? Can the methodology be improved?*

The RISE workshop for MainstreamBIO was very successful and led to exciting discussions. Some of the main points we discussed were the challenge of companies to commercialize and start selling their products in the market. Funding is therefore of great importance to the companies we had at the workshop. Another challenge that was discussed was the challenge of getting one's technology into large companies. There is always a risk in testing new technology and since small new companies cannot cover possible costs, it is difficult to get large companies to dare to test the technology.

- Lessons learnt for next co-creation workshops: *e.g., Can the methodology be improved? Do we need to invite more people for a fruitful conversation?*

- Other:

# You have contributed to our regions' innovation system

## Share your unique knowledge at our co-creation workshop

### Innovative minds unite

We at RISE Örnsköldsvik would like to extend a personal invitation to you for a co-creation workshop aimed at furthering innovation capacity in the regions of Västernorrland, Västerbotten, and Norrbotten.

We believe that your expertise are crucial in shaping the future innovation system. Seize the opportunity to contribute to regional growth while networking with other visionary bioeconomy stakeholders.

- What innovation tools and regional support systems have been instrumental for your succes story?
- What innovation tools and regional support do you now wish for to soar?

We look forward seeing you on 31st of May 13:00 - 15:30 in Örnsköldsvik or via Teams.

R.S.V.P by 22nd of May to Project coordinator Johanna Källman, johanna.kallman@ri.se

### About MainstreamBIO

The bioeconomy has potential to drive sustainable growth, yet many European regions haven't reached their full potential despite significant investments.

The progressive EU-project, MainstreamBIO seeks to bring small-scale biobased solutions into mainstream practice in northen Sweden. MainstreamBIO improves collaborations between key bioeconomy stakeholders to create both sustainable and viable business models for bio-based innovations.

### Agenda

- Presentation of RISE innovation support
- Presentation of MainstreamBIO
- Break
- Co-creation workshop
  - Business innovation services
  - Technological innovation services
  - Innovation tools
- Summary

**Material produced:** *Include the proofs of organisation of the workshop such as 1) Picture of the discussion, 2) Picture of the poster with the sticky notes, 3) Any D&C material prepared for the workshop (brochures, posters, roll-up) or 4) any other pictures or materials about the workshop.*

1) *Picture of the discussion*

2) *Picture of the poster with the sticky notes*

# Appendix C – Modifications to the service portfolio

This appendix includes comprehensive tables comparing the contents of the preliminary service portfolio (as described in MainstreamBIO's Grant Agreement) and the final service portfolio (after the co-creation methodology).

*Table 9: Comparison between the technical service portfolio included in MainstreamBIO's GA, and the final co-created technical service portfolio.*

| Grant Agreement | Final portfolio | Reasons for modification |
|---|---|---|
| Project design and development<br><br>Support for the design of projects to deploy small-scale bio-based solutions throughout the value chain with production processes of specific bio-based products | Project design and development advice<br><br>Depending on the input of the MAP, two scenarios are possible:<br><br>Small scale: Support for the design of projects to deploy small-scale bio-based solutions throughout the value chain with production processes of specific bio-based products.<br><br>- Pilot scale: Advice on the collection of technical data (e.g., mass balances, energy costs) and different steps across a pilot project (e.g., on product characteristics and quality). | CCWs: participants did not mention a special interested in the innovation support service *Pilot project implementation advice*, and so it was included as part of *Project design and development*. |
| Pilot project implementation advice<br><br>Advice on the collection of technical data (e.g., mass balances, energy costs) and different steps across a pilot project (e.g., on product characteristics and quality) | | |
| Field and lab testing<br><br>Provision of relevant environments/tests to pilot test installations and assess the suitability of products for the different (bio)conversion routes or usage in agriculture | Scale-up advisory<br><br>Analysis and advice on specific needs and steps towards commercialization of the process or products, including R&D and infrastructure needs, and funding opportunities for scale-up and optimization. | Preliminary portfolio review by partners: partners grouped *Field and lab testing* and *Scale-up and optimization* to cover more technical aspects. |
| Scale-up and optimization<br><br>Support to scale-up in laboratories, pilot and demo facilities, optimization for increased efficiency and yields | | |

| | | |
|---|---|---|
| Soil nutrient management & recycling monitoring<br><br>Fertilization recommendation, nutrient management plan elaboration, recycling monitoring, training, and support to use tools such as FaST and InterNAW | Nutrient management and fertilization<br><br>Provision of knowledge and tools such as free software, current EU and national legislation, and regional guidelines and recommendations, to help establish practices for the recovery of nutrients from bio-based fertilizers. | Preliminary portfolio review by partners: softwares mentioned in the Grant Agreement were not available anymore. New aspects were included in the innovation support service. |
| *Mentioned as part of the business service portfolio* | Technology scouting<br><br>Advise on matching available feedstocks with appropriate small-scale technologies. | Preliminary portfolio review by partners: the initial portfolio grouped a technical and a business support service. |
| *Not mentioned* | Techno-economic analysis<br><br>Mapping of process costs and product revenues to evaluate the economic performance of the bio-based technology. | Preliminary portfolio review by partners: partners detected an innovation support service missing in the GA which could be of interest. |

*Table 10: Comparison between the business service portfolio included in MainstreamBIO-s GA, and the final co-created business service portfolio.*

| Grant Agreement | Final portfolio | Reasons for modification |
|---|---|---|
| Tech scouting and business model design<br><br>Support to identify suitable bio-based solutions and design sustainable business models with the triple-layered Business Model Canvas in line with regional specificities | Business model design and optimization<br><br>Depending on the input of the MAP, two scenarios are possible:<br>• No initial business model: development of a BM accounting based on the Triple Layered Business Model Canvas.<br>• Existing business model or business plan: analysis and optimization.<br><br>Both options account for framework particularities of the MAP | Preliminary portfolio review by partners: the initial portfolio grouped a technical and a business support service. *Technology scouting* was redefined as a technical support service. |
| Market research and value chain development<br><br>Primary and secondary research based on collective intelligence methods to better understand target bio-based markets and develop respective value chains | Market analysis<br><br>Market analysis of the MAP's business, plus insight into customers' and industry's behavior | Preliminary portfolio review by partners: more thorough description of the innovation support service. |
| Business mentoring<br><br>Support to address challenges associated with rural entrepreneurship from a pool of experts and business leaders connected to our partner's networks | Business mentoring<br><br>The MAP is assigned a bioeconomy expert who offers their feedback, guidance and suggestions through a constructive, periodic dialogue | Preliminary portfolio review by partners: more thorough description of the innovation support service. |
| Access to finance support<br><br>Support to identify and seize financing (e.g., loans) and funding opportunities (e.g., ESIF, EAFRD). | Guidance in accessing funding<br><br>Help potential applicants for R&I EU funding to find the most appropriate funding action among the relevant EU programs (definition of funding roadmaps) | Preliminary portfolio review by partners: more thorough description of the innovation support service, adaptation to the consortium's expertise. |

| | | |
|---|---|---|
| Networking to find partners, customers, investors<br><br>Support to access networks, demonstrate solutions, build partnerships and find customers and investors at local and EU levels via our respective events and extensive networks. | Matchmaking<br><br>Support to access networks (find customers, demo-helpers, partners and investors) at local and EU levels | Initial portfolio review by partners: more intuitive naming.<br><br>CCWs: attendees remarked their interest in this innovation support service, backing the decision not to limit it to “partners, customers, investors”. |

MAINSTREAM BIO
MAINSTREAMING SMALL-SCALE BIO-BASED SOLUTIONS ACROSS RURAL EUROPE

# The project

MainstreamBIO is a Horizon Europe EU funded project, which sets out to get small-scale bio-based solutions into mainstream practice across rural Europe, providing a broader range of rural actors with the opportunity to engage in and speed up the development of the bioeconomy. Recognizing the paramount importance of bioeconomy for addressing key global environmental and societal challenges, MainstreamBIO develops regional Multi-actor Innovation Platforms in 7 EU countries (PL, DK, SE, BG, ES, IE & NL). The project aims to enhance cooperation among key rural players towards co-creating sustainable business model pathways in line with regional potentials and policy initiatives. MainstreamBIO supports 35 multiactor partnerships to overcome barriers and get bio-based innovations to market with hands-on innovation support, accelerating the development of over 70 marketable bio-based products and services. Furthermore, the project develops and employs a digital toolkit to better match bio-based technologies, social innovations and good nutrient recycling practices with available biomass and market trends as well as to enhance understanding of the bioeconomy with a suite of educational resources building on existing research results and tools. To achieve these targets, MainstreamBIO involves 10 partners across Europe, coming from various fields. Thus, all partners combine their knowledge and experience to promote the growth of bioeconomy in a sustainable and inclusive manner.

Coordinator: **Q-PLAN INTERNATIONAL ADVISORS PC (Q-PLAN**)

| Partner | | Short Name |
|---|---|---|
| Q-PLAN INTERNATIONAL | Q-PLAN INTERNATIONAL ADVISORS PC | Q-PLAN |
| MTU Ollscoil Teicneolaíochta na Mumhan Munster Technological University | MUNSTER TECHNOLOGICAL UNIVERSITY | MTU |
| WAGENINGEN UNIVERSITY & RESEARCH | STICHTING WAGENINGEN RESEARCH | WR |
| IUNG Institute of Soil Science and Plant Cultivation State Research Institute | INSTYTUT UPRAWY NAWOZENIA I GLEBOZNAWSTWA, PANSTWOWY INSTYTUT BADAWCZY | IUNG |
| RI. SE | RISE PROCESSUM AB | PROC |
| AGRICULTURAL UNIVERSITY-PLOVDIV | AGRAREN UNIVERSITET - PLOVDIV | AUP |
| Food & Bio Cluster Denmark | FBCD AS | FBCD |
| innovarum | EURIZON SL | INNV |
| DRAXIS ENVIRONMENTAL TECHNOLOGIES | DRAXIS ENVIRONMENTAL SA | DRAXIS |
| WHITE | WHITE RESEARCH SPRL | WHITE |