MAINSTREAM BIO

MAINSTREAMING SMALL-SCALE BIO-BASED SOLUTIONS ACROSS RURAL EUROPE

D2.6

MainstreamBIO innovation support services – final version

INNOVARUM

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0.7	27/08/2025	Final version	INNV
1.0	29/08/2025	Submission to EC	QPLAN

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ABBREVIATIONS

AUP	AGRAREN UNIVERSITET - PLOVDIV
BG	Bulgaria
CCW	Co-creation workshop
DK	Denmark
DRAXIS	DRAXIS ENVIRONMENTAL SA
DSS	Decision Support System
ES	Spain
EU	European Union
FBCD	Food & Bio Cluster Denmark
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 Action 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 provided innovation support services and developed a digital toolkit to boost the bioeconomy.

MainstreamBIO first organised a co-creation workshop (CCW) in each focal rural region to ensure that the services and the toolkit are aligned with the stakeholders' demands and regional specificities. 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, were included in D2.3 "MainstreamBIO innovation support services – initial version", submitted in August 2023 (M12). The services 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 adopting bioeconomy activities. Providing partners took into account the modifications suggested at the CCWs and created a final service portfolio ready to be delivered in the First Innovation Round. Finally, the providing procedures were established for each innovation support service, based on a three-meeting schematic.

Regarding the digital toolkit, during the CCWs their practicality was assessed. The input of the stakeholders was integrated into D2.5 "MainstreamBIO digital toolkit – initial version" (February 2024, M18).

The present report on "**MainstreamBIO innovation support services – final version**" (elaborated as deliverable **D2.6**) will focus on the changes and adaptations made to the services portfolio after the first round of innovation services (provided between November 2023 – June 2024), and how that first-hand experience provided lessons learnt to modify different aspects of the second Open Call and the Second Innovation Round services and procedures (November 2024 – June 2025). A final snapshot of the services provided in the first and Second Innovation Rounds, specific changes, and the adaptations made are presented in this report.

Regarding the digital toolkit, a brief overview of the fine-tuned version is presented in this report, thanks to the feedback provided by the different cases which received a service. However, although a complete description of the final version and the different materials and information is presented in D2.7 "MainstreamBIO digital toolkit - final version", delivered in August 2025 (M36).

1. Introduction

The current report presents the final 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 M13 to M36, where tailor-made innovation support services and a digital toolkit co-created by MIP leaders and MIP members (MIP being Multi-actor Innovation Platform) have been put into service during two innovation rounds, making adjustments between both rounds thanks to the feedback received from the cases receiving services and the own experience of the service providers. To end with, again, feedback from the cases was received for the Second Innovation Round. This report analyses the different changes, adjustments and improvements done during the life of the project.

Deliverable D2.6 is structured into 5 distinct sections as follows:

- **Chapter 1** provides introductory information about the project and Deliverable 2.6, outlining its context and objectives.
- **Chapter 2** summarises the activities performed between M6 and M12 and included in the first version of the deliverable (D2.3).
- **Chapter 3** presents the new changes, improvements and adjustments made after the First Innovation Round and the Second Innovation Round.
- **Chapter 4** provides concluding remarks.
- The **Appendix** includes the final service portfolio and a comparison with the previous versions of the portfolio.

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 have been made focusing mainly 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's aim was 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.

The main solutions developed under MainstreamBIO activities consisted 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. Both solutions were updated and fine-tuned during the project to maximise their usefulness.

1.2 Objective

The objective of this report is to describe the process towards the updates, changes and adjustments of the **MainstreamBIO innovation support services** and **digital toolkit** after the First Innovation Round, and the final results after the Second Innovation Round. This information will be useful for other European areas and European public authorities for replicability in future activities and strategic decisions towards the deployment of the bioeconomy in rural areas relying upon small actors. To refresh the information, the 7 focal rural areas supported within the project MainstreamBIO were:

- **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 (Navarra, Aragon and Catalonia regions).
- **Sweden**: Middle and Upper Norrland.

The specific objectives of this report are:

- To describe the methodology applied following the co-creation of both the service portfolio and the digital toolkit, aimed at adapting and improving both solutions throughout the project.
- To compile the feedback and changes to the portfolio and toolkit after the First Open Call and Innovation Round to apply in the Second Open Call and subsequent Innovation Round.
- To display and analyse the service portfolio and digital toolkit after the Second Innovation Round, at the conclusion of the project.

2. Summary of the activities from M6 to M12 included in D2.3 “initial version”

This section provides a summary of the activities performed from the start of Task 2.3 in M6 (February 2023) to M12 (August 2023), including more detailed information in Deliverable 2.3, “MainstreamBIO innovation support services – initial version”.

2.1 Co-creation of the innovation support service portfolio

MainstreamBIO’s Grant Agreement 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 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 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 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 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 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 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 Support to scale-up in laboratories, pilot and demo facilities, optimization for increased efficiency and yields	Access to finance support Support to identify and seize financing (e.g., loans) and funding opportunities (e.g., ESIF, EAFRD).
Soil nutrient management & recycling monitoring 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 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.

The first step was that service providers reviewed the preliminary service portfolio and provided updated definitions of the innovation support services. Considering their suggestions and modifications, a reviewed service portfolio was compiled (detailed in Table 2).

Table 2: Reviewed service portfolio, and the MainstreamBIO partners responsible for providing each innovation support service (highlighted in green the main changes from the previous version).

Technical support services		Business support services	
Service	**Partner**	**Service**	**Partner**
Project design and development advice 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 Depending on the input of the MAP, two scenarios are possible: - No initial BM: development of a BM accounting based on the Triple Layered BM Canvas. - Existing BM or BP: analysis and optimization. Both options account for framework particularities of the MAP.	INNV, QPLAN
Pilot project implementation advice 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 Market analysis of the MAP's business, plus insight into customers' and industry's behavior.	INNV, PROC, QPLAN
Scale-up advisory 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 The MAP is assigned a bioeconomy expert who offers their feedback, guidance and suggestions through a constructive, periodic dialogue.	INNV, PROC, QPLAN
Nutrient management and fertilization Provision of knowledge and tools such as free software, current EU and national legislation, and regional guidelines and recommendations, to help to establish practices for the recovery of nutrients from bio-based fertilizers.	IUNG, AUP	Guidance in accessing funding 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, QPLAN
Technology scouting	WR	Matchmaking	INNV, PROC

Advise on matching available feedstocks with appropriate small-scale technologies.	Key Account Manager (KAM) of each MIP	Support to access networks (find customers, demo-helpers, partners and investors) at local and EU levels.	KAM of each MIP
Techno-economic analysis Mapping of process costs and product revenues to evaluate the economic performance of the bio-based technology.	PROC		

To validate the reviewed portfolio, co-creation workshops (CCWs) were organised 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 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 3).

Table 3: 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 composition of each of the CCW attendees can be found in **Error! Reference source not found.**.

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**

Once all the CCWs had taken place, the MIP leaders held a meeting to share their main findings at the CCWs, and to identify 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.

Considering the initial definition of the innovation support services, the input from the CCWs, and the potential workload, the service providers redefined the innovation support services, with the main change of mixing the "Pilot project implementation advice" into the "Project design and development advice" (Table 5).

Table 5: 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 Depending on the input of the MAP, two scenarios are possible: - 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. - Pilot scale: Advice on the collection of technical data (e.g., mass balances, energy costs) and different steps	WR	Business model design and optimization Depending on the input of the MAP, two scenarios are possible: - No initial BM: development of a BM accounting based on the Triple Layered BM Canvas. - Existing BM or BP: analysis and optimization. Both options account for framework particularities of the MAP.	INNV, QPLAN

across a pilot project (e.g., on product characteristics and quality).			
Scale-up advisory 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 Market analysis of the MAP's business, plus insight into customers' and industry's behavior.	INNV, PROC, QPLAN
Nutrient management and fertilization 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 The MAP is assigned a bioeconomy expert who offers their feedback, guidance and suggestions through a constructive, periodic dialogue.	INNV, PROC, QPLAN
Technology scouting Advise on matching available feedstocks with appropriate small-scale technologies.	WR KAM of each MIP	Guidance in accessing funding 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, QPLAN
Techno-economic analysis Mapping of process costs and product revenues to evaluate the economic performance of the bio-based technology.	PROC	Matchmaking Support to access networks (find customers, demo-helpers, partners and investors) at local and EU levels.	KAM of each MIP INNV, PROC

Along with the discussion on the services, another goal of the CCWs was to determine how each innovation support service would be provided. A core methodology based on three meetings was suggested (Figure 1):

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

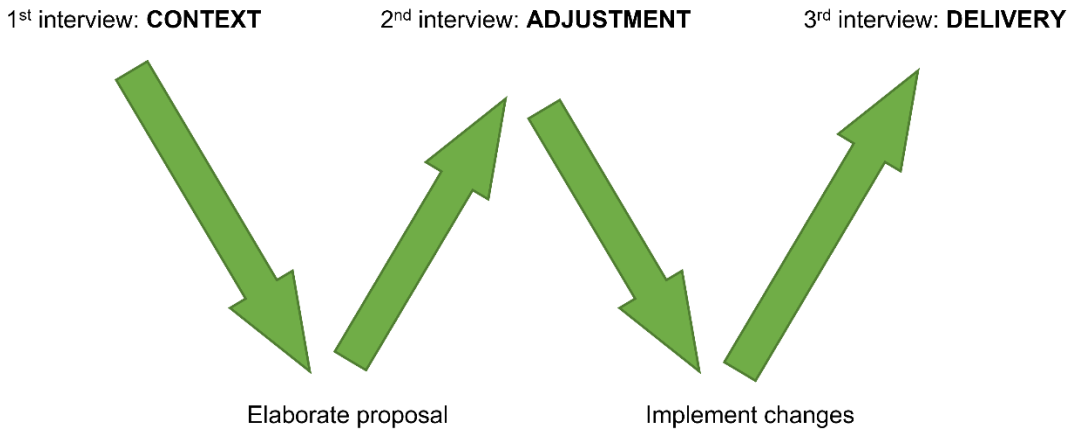

Figure 1: Schematic of the core methodology to provide MainstreamBIO's innovation support services.

Following these principles, each service provider determined the timespan between meetings and the information to be collected/presented in them.

2.2 Co-creation of MainstreamBIO's digital toolkit

The MainstreamBIO digital toolkit was addressed during the CCWs to analyse the suitability of these features:

- 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.

The results gathered from the stakeholder participation in the CCWs and additional information via a questionnaire were included in MainstreamBIO's deliverable D2.5 (M18).

Figure 2: Composition of some of the different regional CCWs.

With the feedback, the partners responsible for the digital toolkit continued working on a final first release, for instance in the enhancement of the introduction of a dedicated webinars section within the learning centre, as well as improving the overall quality, efficacy and user experience.

3. Changes, improvements and feedback implementation after the First Innovation Round

With the first version of the services portfolio and digital toolkit, the First Open Call was launched from M10 to M13, and the First Innovation Round was held from M15 (November 2023) to M22 (June 2024).

Thanks to the feedback compiled from the cases receiving services, and the own experience of the partners providing those services, new proposals for improvement were made both to the Open Call process, the service portfolio and the methodology to provide them.

3.1 Methodology for the review and implementation of changes

After the First Innovation Round and the writing of “Deliverable 3.1 Report on engagement of multi-actor partnerships, capacity building, networking and innovation support - initial version” (submitted by INNV in M24), and to further improve the provision of the services for the Second Innovation Round, discussions around changes and lessons learnt were held by the partners both during the 4th General Assembly held in Viborg (Denmark) on the 18th and 19th of June 2024, and at the end of the First Innovation Round. On the other hand, feedback questionnaires were sent to all the cases (see Annex 3).

The innovation support services were fine-tuned (in terms of materials used, delivery methods, etc.) based on the previously mentioned feedback collected through questionnaires and analysed in Task 4.1. “Deliverable 4.1 Report on evaluation of MIP performance - first round” (submitted in M24 by QPLAN), which includes recommendations for improving the innovation support services and digital toolkit in the second round of deployment.

The decisions on the final changes applied were decided in the General Assembly mentioned before (Viborg, 18-19 June 2024) and in the subsequent WP leaders' monthly meetings, as well as in WP3 monthly meetings and finally the General Assembly held in Madrid, 19-20 November 2024. Finally, the compilation of changes to materials and portfolio during the 2nd Innovation Round to prepare this deliverable was performed by INNV at the end of May 2025.

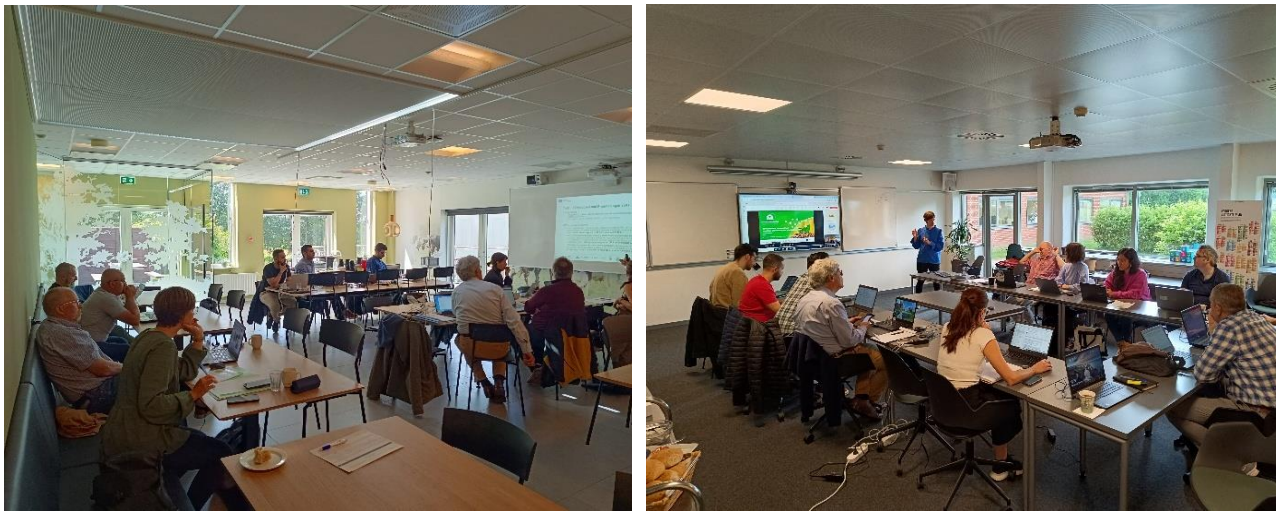

Figure 3: Discussions on optimising the service portfolio (Viborg General Assembly).

Figure 4: The last decisions on the changes to apply were decided during the Madrid General Assembly.

3.2 Changes, improvements and adjustments to the Open Call

A few documents related to the launch of the Second Open Call were edited to better adjust to the needs found in the First Open Call. One of the most important learnings extracted from the First Open Call was that most of the applicants receiving MainstreamBIO's services applied individually. Even though the Open Call was successful in gathering the interest of many participants distributed in all MIPs and showing interest in all the services of the portfolio, we were expecting a higher number of already established multi-actor partnerships (MAPs) applying. Some of the adjustments and improvements in the Second Open Call were related to that issue to better understand how an individual applicant can become a MAP.

To illustrate those changes, we are pinpointing the changes between open calls in the official documents distributed (Table 6):

- The Open Call Application template (see Annexes in D3.3) has been changed to collect the information that the service providers needed to better allocate the services later between them and to better estimate the resources needed from their side.

Table 6: Content of the Application template which interested applicants needed to fill.

First Open Call Application template	Second Open Call Application template
Short title	Short title
Applicant 1 (contact person) ❖ Name ❖ Organization/Company ❖ Type of organization ❖ Organization number ❖ E-mail ❖ Phone number	Applicant 1 (contact person) ❖ Name ❖ Organization/Company ❖ Type of organization ❖ Organization number ❖ E-mail ❖ Phone number
Applicant 2 (partner) ❖ Name ❖ Organization/Company ❖ Type of organization ❖ Organization number ❖ E-mail ❖ Phone number	Applicant 2 (partner) ❖ Name ❖ Organization/Company ❖ Type of organization ❖ Organization number ❖ E-mail ❖ Phone number
If you do not have partners at the moment, write "X"	If you do not have partners at the moment, write "X"
-	Is there any specific partner you wish to start collaborating with? Suggest partners you would like to connect. *This field is mandatory if you are applying to the call individually. Connections with other actors in the value chain will be created during the service. We will consider your suggestions but cannot ensure the collaboration. Additional suggestions from the MIP/service providers may be also provided.
Background Describe the background of your idea/business case, steps taken so far and the current challenges in order to take the next step.	Background Describe the background of your idea/business case, steps taken so far and the current challenges in order to take the next step.
Purpose and Goal Describe the purpose (why) of the requested support and your goals, what you expect to achieve with the requested support.	Purpose and Goal Describe the purpose (why) of the requested support and your goals, what you expect to achieve with the requested support.
What kind of help is needed Describe your needs for support. Is it e.g. scale-up advisory, techno economical analysis, market analysis, advice regarding how to access funding/financing support or matchmaking?	What kind of help is needed to support your development? Describe your needs and connect to the innovation support services offered, business or technical.

-	Select the innovation support services you apply for, in order of priority The number of services granted will depend on project resources. *There were 3 dropdown menus with the list of services
-	In case you are applying for scale-up advisory and/or techno-economic analysis, do you have the required data to base the analysis on? Please, describe the maturity of your process. Requirements: Scale-up advisory: Flow diagram, operational conditions and material balances data on the process at least from small-scale experimentation are required. We can tailor the advice depending on the maturity of the process and product development. Technoeconomic analysis: Flow diagram, operational conditions, material balances and energy balances* data on the process, at least from small-scale experimentation. *Energy balances could be calculated during the service if operational conditions and material balances are already well defined.
Dissemination of results Do you have a plan for how to share your experiences?	-
Other If you want to add something more.	Other If you want to add something more.

So, as a summary of the changes in the application template:

i) More emphasis was placed on knowing possible partners to form a MAP if the applicant is a single entity.

ii) We included dropdown menus to select what services they are looking for, instead of inferring the service(s) from their Background.

iii) A new question was added to determine if the applicants had any required data if applying to Scale-up advisory or Technoeconomic analysis services.

iv) The question on the dissemination of results was deleted as it was not useful in the first open call, and also MainstreamBIO already had a clear plan and strategy for the dissemination of the results (website, videos, presentation in workshops and conferences, etc.).

- The Open Call – Guidelines (see Annexes in D3.3) were updated to be distributed between the partners with all the essential information on the partners' responsibilities, the launching of the Open Call, the timeline, the evaluation and selection of the cases, the notification to the applicants, the services start and the long list maintenance.
    - Regarding the Launch of the Open Call, for the second round it was stressed that each MIP is responsible for promoting their corresponding call, with the support of WHITE, as the Dissemination and Communication Manager, who would announce

and advertise the different calls in the MainstreamBIO project webpage, within a special section.[1] A goal was set for all MIPs: to receive at least as many applications as the number of regional MAPs they need to support during the Second Innovation Round to accomplish the project objective of 5 multi-actor partnerships per MIP.

- For the evaluation and selection of cases, a phrase was added to prioritise applications with the potential to form MAPs and comply with project KPIs: "*(…) the potential of applications to form MAPs and accomplish with project KPIs should be prioritized*". Additionally, a text was added so that each MIP should suggest a preliminary service provider for each case. This information eased the start of the joint meetings with MIP leaders and service providers to allocate the services.
- As it was mentioned, the distribution and allocation of services among the service providers were improved thanks to the insights gained in the First Open Call. The Second Open Call guidelines included specifically the criteria (6 new points) to follow to allocate those services. In summary, the criteria stress out:
    - i) the need to support at least 5 MAPs per MIP (along the two innovation services),
    - ii) the goal to maximise the number of applications that will receive at least one service,
    - iii) the receipt of all the needed information previous to the support so the service provider could decide if they have the competence and resource possibilities,
    - iv) transferring cases between MIPs were subjected to the availability of service providers after those have been assigned the eligible cases in their respective region, because it was found that higher impacts and stronger connections can be delivered when the service provider and the applicant share the same region (and language),
    - v) applicants which have received services in the first round were allowed to participate and receive services in the second round, but once all the new cases have been allocated, and
    - vi) a reserve list with nominees not receiving services due to lack of resources was planned, but in the end, there was no need, because all the applicants received at least one service.
- A new subsection with a step of the notification to applicants was added. A deadline to contact the cases was included. In that first contact, a first introductory meeting should be proposed, and after that, the terms of reference need to be sent to the applicant for their signature before the services actually start. The consortium intended to avoid sending the Terms of reference after the services were provided, making it more difficult to keep track of them.

[1] https://mainstreambio-project.eu/open-call/

- The Criteria for guidance in assessment and prioritisation of proposed cases, alias "Evaluation criteria matrix" (.xlsx file), was also adjusted to better know how the selection of a case could impact the KPIs of the project. New questions were added to the Evaluation part of the Excel to be considered (there was also an Eligibility part, which remained almost unchanged), but a few questions in relation to the potential impact of the communication were also avoided. In Table 7, the new additions are highlighted in green and the deleted ones in red:

Table 7: Evaluation criteria to score each Open Call applicant (in green, the new additions, in red, the deletions).

Evaluation Criteria
Development of sustainable economy
Does the implementation of the activity/idea contribute to an increased use of biomass?
Does the implementation of the activity/idea contribute to reduced use of fossil raw materials?
Does the implementation of the activity/idea contribute to the development of 2 different bio-based ingredients or end products? (KPI-3)
Does the implementation of the activity/idea contribute to climate or environmental benefits (reduced emissions, transport, energy use etc.)?
Economic potential
Does the implementation of the activity/idea contribute to improved market penetration (new business opportunities/increase in sales of products/services)? (KPI-4)
Does the implementation of the activity/idea contribute to increase income from exploitation of biomass and waste streams? (KPI-5)
Does the implementation of the activity/idea contribute to better profitability for the target group?
Does the implementation of the activity/idea contribute to reducing the risks connected to new investments for the target group?
Does the innovation support service contribute to new knowledge important for future strategic decisions and investments? (Increased knowledge of market needs, potential for profitability etc.)
Technical potential
Does the implementation of the activity/idea contribute to technical development that promotes the bioeconomy?
Does the implementation of the activity/idea contribute to the technical development of companies within the target group?
Social potential
Does the implementation of the activity/idea contribute to social benefits for the target group?
Does the implementation of the activity/idea support safe and good lives in the society in general?
Does the implementation of the activity/idea contribute to decrease the social gaps concerning well-being, justice, power, rights and individual needs?

Implementation potential
Does the small-scale biobased solution supported by the activity/idea has the potential to be implemented by 2030? (KPI-11)
Does the small-scale biobased solution supported by the activity/idea has the potential to create or safeguard jobs by 2030? (KPI-12)
Communication and dissemination of results
In what way should the results be communicated and disseminated? (Is there a plan for the communication and dissemination of results? Is it a feasible effort for those involved? Etc.)
Does the planned dissemination of results contribute to spreading the general potential of bioeconomy?
Does the planned communication of results contribute to spreading knowledge to other possible stakeholders that can benefit from the idea?

All these changes, coming from the lessons learnt in the First Open Call, led to a smoother and more coordinated Second Open Call, with better coordination between all the partners.

3.3 Changes, improvements and adjustments to the services portfolio

In this section, a relation of the changes in the service portfolio from the First Innovation Round to the Second is going to be provided. Also, after the Second Innovation Round, although the project is finishing and no more services will be done within MainstreamBIO, a new assessment was done to conclude the set of services and their description that best represent the needs of the small-scale solutions in the bioeconomy in rural areas of Europe (see section 4).

Table 5 presents the service portfolio as it was during the implementation of the First Innovation Round. Table 8 presents the service portfolio as it was during the implementation of the Second Innovation Round. For convenience, in the Annex section they are included the last version of the portfolio (once the Second Innovation Round is finished and new feedback has been gathered) and a table with the differences between this last version and the initial version included in the proposal and Grant Agreement.

During the 4th Project meeting held in Viborg (Denmark), on the 18th-19th June 2024, IUNG suggested that the end-users utilising the Matchmaking service should be able to get more available links for specific products than those included in D2.2. Also, the Decision Support System (DSS) of the digital toolkit was considered ready to be used by the technology service providers.

It was during the 5th Project meeting, held in Madrid (Spain), on the 19th-20th of November 2024, when the additions to the services “Scale-up advisory” and “Techno-economic analysis” were presented.

Services of the Second Innovation Round could be provided from 01/11/2024 to 30/06/2025. That matches the schedule of the First Innovation Round (01/11/2023 to 30/06/2024). It was found that the timeframe was enough to arrange the meetings and deliver a high-quality report to each case.

Table 8: Final service portfolio to be offered during the Second Innovation Round (in green, new additions).

Technical support services		Business support services	
Service	**Partner**	**Service**	**Partner**
Project design and development advice Depending on the input of the MAP, two scenarios are possible: - 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. - 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 Depending on the input of the MAP, two scenarios are possible: - No initial BM: development of a BM accounting based on the Triple Layered BM Canvas. - Existing BM or BP: analysis and optimization. Both options account for framework particularities of the MAP.	INNV, QPLAN
Scale-up advisory 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. Requirements for the applicants to apply: Flow diagram, operational conditions and material balances data on the process at least from small scale experimentation are required. We can tailor the advice depending on the maturity of the process and product development.	PROC	Market analysis Market analysis of the MAP's business, plus insight into customers' and industry's behavior.	INNV, PROC, QPLAN
Nutrient management and fertilization 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 The MAP is assigned a bioeconomy expert who offers their feedback, guidance and suggestions through a constructive, periodic dialogue.	INNV, PROC, QPLAN
Technology scouting Advise on matching available feedstocks with appropriate small-scale technologies.	WR KAM of each MIP	Guidance in accessing funding 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, QPLAN

Techno-economic analysis Mapping of process costs and product revenues to evaluate the economic performance of the bio-based technology. Requirements for the applicants to apply: Flow diagram, operational conditions, material balances and energy balances* data on the process, at least from small scale experimentation. *Energy balances could be calculated during the service if operational conditions and material balances are already well defined.	PROC	Matchmaking Support to access networks (find customers, demo-helpers, partners and investors) at local and EU levels.	KAM of each MIP INNV, PROC

3.4 Changes, improvements and adjustments to the service delivery process

3.4.1 *Project design and implementation advice (WR)*

Timespan of service provision: 2 months (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.

3.4.2 *Technology scouting (WR, KAMs)*

Timespan of service provision: 2 months (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/or desirable technologies: preference, feasible scale, location, operators.
- Desirable products: specific needs, regional demand, storage.

Information to be fine-tuned in Meeting 2:

- Suggested feedstocks, technology(ies) and products. Ensure MAPs understand the strengths and weaknesses of the feedstock-technology-product combinations. 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 feedstock-technology-product combinations.
- 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.).

3.4.3 *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 the 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 the scale-up roadmap for the specific case, including advice on key results and outcomes to be sought for each scale-up step towards commercialization.

3.4.4 *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.

3.4.5 *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.
- Review of EU and national legislation on the requirements for organic fertilizers in the process of placing them on the market, in order to supplement the entrepreneur's knowledge.

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.

3.4.6 *Business model design and optimization (INNV, QPLAN)*

Timespan of service provision: 2 months – 3 months

Number of meetings: 2 or 3

Information to be gathered in Meeting 1:

- Responsiveness and availability of MAP.
- Qualitative information: e.g., business idea description, expectations (such as new lines of business expansion, threshold of revenues, growth in personnel, etc.), value proposition, existing business model or plan (if any), customer description, existing competitors, potential collaborators and partners, feedstock-technology-products, side-streams and residues, general market information, current/expected social impact (both positive and negative), environmental aspects of the initiative (both positive and negative).

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

Information to be fine-tuned in Meeting 2:

- Roadmap to achieve target goals (e.g., tentative Triple Layered Business Model Canvas highlighting critical areas, timeline of actions to expand the business, etc., Figure 5). Missing aspects or information are discussed with the MAP. Suggestions are explained and validated/adjusted to the needs and available resources of the MAP.

Outcome to be delivered in Meeting 3[2]:

- Finalised documentation accounting for the changes derived from Meeting 2 (e.g., Triple Layered Business Model Canvas, detailed timeline or portfolio, etc.).

[2] In some cases, there were no need of a third meeting. In that case, after the second meeting, the business model design is finalised based on the feedback received and the outcome delivered by email.

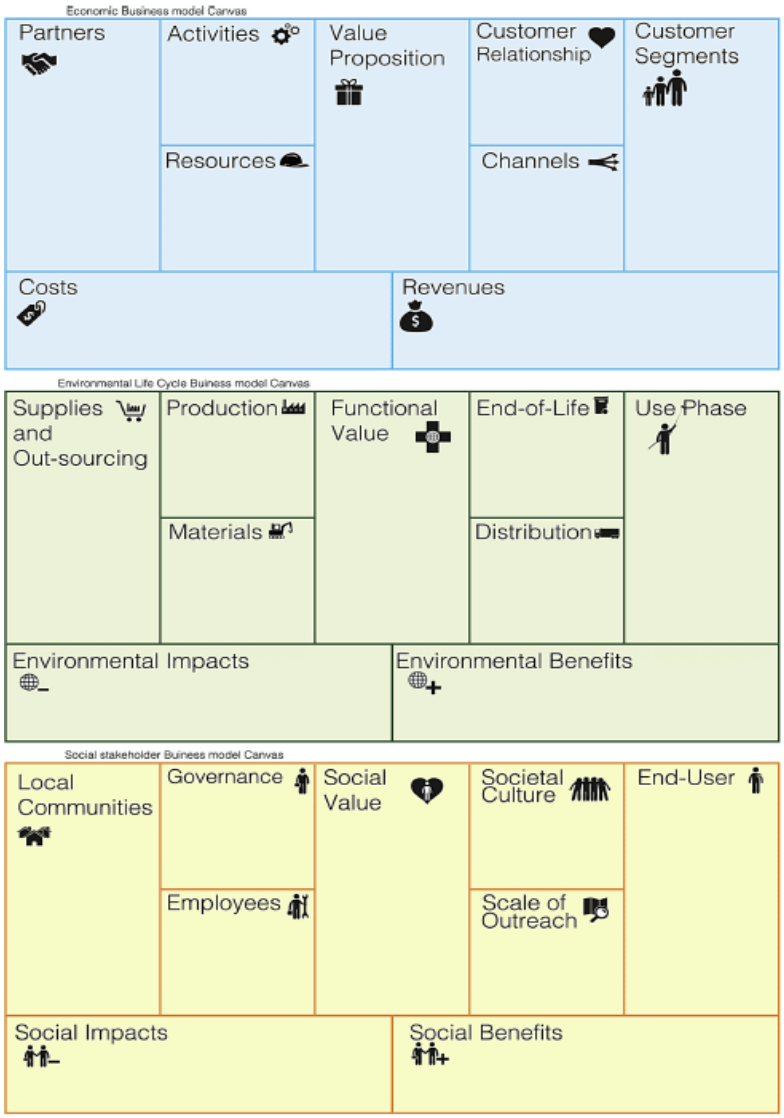

Figure 5: Triple Layered Business Model Canvas[3].

3.4.7 *Market analysis (INNV, QPLAN, PROC)*

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

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

Information to be gathered in Meeting 1:

- Responsiveness and availability of MAP.

[3] 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

- Description of the initiative: e.g., description of the product(s)/service(s), unique selling points, target market, current and target customer base (quantitatively and qualitatively), existing competitors and their strengths and weaknesses, potential key collaborators.

Information to be fine-tuned in Meeting 2:

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

Outcome to be delivered in Meeting 3 (if necessary, otherwise the outcome was delivered by email). A recommendation report including:

- Main findings of the market analysis: derived suggestions on positive and negative endeavours. When relevant, include market structure (e.g., suppliers, buyers, entry barriers, competitors, customers, product substitutes) and conduct (e.g., economic relationships, patterns of commercial behaviour, market performance -trends, size, growth prospects, socio-economic and gender implications).

3.4.8 *Business mentoring (INNV, QPLAN, PROC)*

Timespan of service provision: 2 months – 3 months

Number of meetings: minimum 3.

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 case, what are the most relevant areas of mentoring, and what specific actions the service will cover.

Information to be fine-tuned in Meeting 2:

- Mentoring Action Plan: monitoring and adjusting.
- Specific information requested by the case (e.g., clarification of interests, areas to be further explored, etc.).

Outcome to be delivered in Meeting 3:

- Summary of progress, doubts and advice provided during the innovation support service.

3.4.9 *Guidance in access funding (INNV, QPLAN, PROC)*

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

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 (e.g., 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 (discuss if any are currently of interest).
- A summary of possible funding opportunities offered by EU level funding instruments. If EU level funding is not applicable, the service provider could decide to explore other public funding opportunities (regional, national). The decision will be based on the language and thematic of the Case.

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

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

3.4.10 *Matchmaking (KAMs, INNV, PROC)*

Timespan of service provision: 3 months (unless a longer period is agreed upon with the cases).

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.

4. Conclusions

4.1 Co-creation workshops

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

- Innovation support service definition: adapted and included in the service portfolio to be delivered in the First Innovation Round.
- 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*.
- 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 was offered in the first Open Call of MainstreamBIO which was provided from November 2023 until June 2024 (First Innovation Round). The results of this support were included in D3.1 "Report on engagement of multi-actor partnerships, capacity building, networking and innovation support - initial version", submitted in August 2024.

The changes implemented in the digital toolkit after the co-creation sessions were published in D2.5 "MainstreamBIO digital toolkit - initial version" (February 2024).

4.2 First Open Call and First Innovation Round

During the First Open Call (June-September 2023) and the First Innovation Round (November 2023 – June 2024), the portfolio of services provided was the one curated after the co-creation workshops.

Deliverable 3.1 "Report on engagement of multi-actor partnerships, capacity building, networking and innovation support - initial version", submitted in August 2023, provides insights on the complete process of the service providing, from the Open Call launch and selection of the applicants to the delivery of the final reports to the MAPs/cases. 36 different organisations/MAPs applied to the First Open Call, totalling 102 service requests.

Of those 102 service requests, the most demanded were Market research (around 17.5% in total), Matchmaking and Guidance for accessing funding (15% each), while the least demanded was Business mentoring (2%). Worth mentioning, one service was spontaneously asked for (Policy review).

In the end, 27 cases/MAPs were involved in the First Innovation Round, with a total of 35 services provided (Table 9).

Table 9. Summary of the innovation support services provided in the First Innovation Support Round.

Service	Total
Project design and development advice	1
Technology scouting	3
Scale-up advisory	2
Techno-economic analysis	1
Nutrient management and fertilization	5
Business model design and optimization	5
Market analysis	8
Business mentoring	-
Guidance in accessing funding	2
Matchmaking	7
Other (Policy review)	1
TOTAL	**35**

These figures were pivotal as they provided the first tangible insight into the effectiveness of both the services and the methodology used to deliver them. Thanks to this experience, partners could adjust their methodology and service to smooth the process for the Second Innovation Round.

Also, questionnaires were given to the MAPs and cases to receive feedback on the Innovation Support Services. The aim was to measure the level of collaboration between service providers and use cases as well as their satisfaction with the provided services, in order to improve the provision of MainstreamBIO Innovation Support Services. Deliverable 4.1 “Report on evaluation of MIP performance - first round”, submitted in August 2024, develop in-depth the questionnaires received, and the feedback obtained. In conclusion, according to the different surveys feedback, we concluded the following recommendations towards the service providing and improvement of the digital toolkit for the next round:

- The first round of innovation support services yielded positive results, meeting near the target number of services provided, while highlighting the need for more tailored and impactful offerings to enhance market penetration and skills development in Multi-Actor Partnerships.
- The MainstreamBIO digital Toolkit is promising but needs more work to grow its user base and increase current user engagement.

Once the analysis of the First Innovation Round performance was done, both thanks to the internal deliberation of the MainstreamBIO partners, based on their experience, as well as to the MAPs/cases feedback provided via satisfaction questionnaires, a first common reflection on the experience was done in the General Assembly held on Viborg (Denmark), on the 18-19 June 2024.

After that, in August 2024, two important deliverables tackling the First Innovation Round process and the analysis of its performance were submitted (D3.1 “Report on engagement of multi-actor partnerships, capacity building, networking and innovation support - initial version”, and D4.1 “Report on evaluation of MIP performance - first round”), helping to structure the different inputs on how to improve, adjust or change the service portfolio and its methodology.

4.3 Second Open Call and Second Innovation Round

During the Second Open Call (July – September 2024) and the Second Innovation Round (November 2024 – June 2025), the portfolio of services provided was the one curated after the First Open Call, the First Innovation Round, the analysis of the performance of the services and the methodology to provide them, and the analysis of the questionnaires feedback.

Also, right before starting to deliver the Second round of innovation services, another General Assembly was held, in this case in Madrid (Spain) on the 19-20 November 2024. This GA was especially relevant (for the purposes of this deliverable) to keep track of the improvements made and to be made on the Digital Toolkit, with the idea to release soon before that a second version of the toolkit website. One of the decisions made was to use for the first time a functionality of the Digital toolkit (the Decision Support System, DSS) on a supported service provided by WR.

In terms of changes to the service portfolio, Table 8, included in section 3.3, is very illustrative. Additions to clarify the extent of the service and previous information needed from applicants were included in two services: Scale-up advisory and Techno-economic analysis.

These changes were based on important learnings from the First Innovation Round. It became evident that the innovation services were not always aligned with the applicants’ actual stage of development. For the Techno-economic analysis, applications were in some cases submitted at a too early stage, before sufficient experimental data had been generated, making it difficult to carry out a meaningful assessment. Furthermore, the Scale-up advisory service proved to be less relevant in cases where applicants had already reached advanced or full-scale production, which limited the usefulness of scale-up support.

The clarified requirements aimed to ensure that applicants were sufficiently prepared and that the innovation services could be tailored based on the maturity level of the process and product development. They also helped to secure that there was adequate technical data to work with, since it was not possible within the project to generate such data.

Summarising the adaptations made to the service providing itself, depending on each different service, the following shows the main changes:

Table 10: Adaptations and adjustments made to the methodology of providing each service for the 2nd round.

Support service	Change, adaptation and/or adjustment
Project design and implementation advice	- The timespan of the service provision was raised from 1 to 2 months.
Technology scouting	- The timespan of the service provision was raised from 1 to 2 months. - Information to be gathered in Meeting 2: Aside from the suggested technologies were also added suggested feedstocks and products.

	- Instead of technologies only, now appear “feedstock-technology-product combinations”.
Scale-up advisory	- Requirements for the applicants to apply were clarified: Flow diagram, operational conditions and material balances data on the process, at least from small-scale experimentation, are required. We can tailor the advice depending on the maturity of the process and product development.
Techno-economic analysis	- Requirements for the applicants to apply were clarified: Flow diagram, operational conditions, material balances and energy balances data on the process, at least from small-scale experimentation. - Energy balances could be calculated during the service if operational conditions and material balances are already well defined.
Nutrient management and fertilization	- A new bullet point was added within the information to be gathered in Meeting 1: “Review of EU and national legislation on the requirements for organic fertilizers in the process of placing them on the market in order to supplement the entrepreneur's knowledge”.
Business model design and optimization	- The number of meetings was made more flexible, from 3 to 2-3. - The qualitative information to be gathered was updated. Now it includes business idea description, existing competitors, potential collaborators and partners. - The current/expected social impact and the environmental aspects of the initiative are now clarified because they can be positive or negative. - New examples of information to be gathered were included: new lines of business expansion (meeting 1), roadmap to achieve target goals highlighting critical areas, a timeline of actions to expand the business, etc. (meeting 2), and a detailed timeline or portfolio for the finalized documentation (meeting 3).
Market analysis	- The number of meetings was made more flexible, from 3 to 2-3. - In the information to be gathered in Meeting 1, it was added: existing competitors and their strengths and weaknesses, potential key collaborators. - In the information to be gathered in Meeting 2, it was added: identify areas for further exploitation. - In the information to be gathered in Meeting 3, value chain was deleted, and about the market structure information, customers were added.
Business mentoring	- The timespan of the service was raised from 1 month to 2 months.

	- The allusion to the mentor/mentee guideline prepared by Q-PLAN was erased, as it was not finally prepared. - The definition of the Mentoring Action Plan (meeting 1) was completed, including "what are the most relevant areas of mentoring, and what specific actions the service will cover". - In Meeting 2, not only monitoring but also adjusting to the Mentoring Action Plan was included. - A new bullet point in the information to be fine-tuned in Meeting 2 was added: "Specific information requested by the MAP (e.g., clarification of interests, areas to be further explored, etc.)".
Guidance on accessing funding	- In meeting 2, if it is found that EU-level funding is not applicable, the service provider could decide to explore other public funding opportunities (regional, national). The decision will be based on the language and theme of the Case.
Matchmaking	- The timespan of the service was changed to 3 months. - Within the outcome delivered in meeting 3, the possible funding opportunities were changed from only "EU-level" to "public" in general, as sometimes national funding opportunities were found to match better the specific necessities of the case.

In terms of the services asked by the applicants and the final services provided in the Second Innovation Round, 59 services were requested from 19 different cases. Deliverable 3.3 "Report on engagement of multi-actor partnerships, capacity building, networking and innovation support - final version" deals with all the story and analysis of the process, but to point out the suitability of the services, again, Matchmaking and Guidance on accessing funding were the top two (20% and 14% respectively), in this case, followed by Business mentoring (12%). The least asked services were Project design and development advice, Nutrient and fertilizer management and Techno-economic analysis, all with 5%. Again, worth noting that, spontaneously, the Policy review/advise was asked even when it was not part of the portfolio.

It is important to note that, to choose the services finally selected to be provided to each case, the priority given by the applicants was taken into account. For instance, Guidance in accessing funding was chosen 8 times in the Second Open Call (see Table 12), but only once was the first option, and another time the second option. Three times was selected as the third option, and the other three as the fourth. That's why, in the end, and after other considerations (see Deliverable 3.3 for these details), the service was provided only once during the Second Innovation Round.

In the end, 17 cases/MAPs were involved in the Second Innovation Round, with a total of 23 services provided.

Table 11. Summary of the innovation support services provided in the Second Innovation Support Round.

Service	Total
Project design and development advice	1
Technology scouting	2
Scale-up advisory	2

Techno-economic analysis	2
Nutrient management and fertilization	1
Business model design and optimization	5
Market analysis	3
Business mentoring	1
Guidance in accessing funding	1
Matchmaking	4
Other (Policy review)	1
TOTAL	**23**

4.4 Conclusions after the Second Innovation Round

First of all, it is important to stress the wide interest gathered from companies, associations and institutions in receiving the support services offered by MainstreamBIO. The satisfaction afterwards was very high, and we received encouragement from many of them to continue providing the services, as they understand it is a key necessity for many small companies and start-ups to start developing their business to the next level, improve their management or find opportunities to get in contact with key stakeholders.

Additionally, the MainstreamBIO digital toolkit, introduced as part of the services during the Second Innovation Round, provided valuable support for European stakeholders seeking to implement small-scale solutions. For a comprehensive overview of the final version of the digital toolkit and a record of recent changes, please refer to Deliverable 2.7, “MainstreamBIO Digital Toolkit – Final Version”, which thoroughly explains all functionalities and the user interface.

The applications received through the two Open Calls — our best indicator of the needs of small-scale rural initiatives in Europe — revealed strong interest in securing funding and connecting with partners to grow their businesses. Many applicants were also looking to find collaborators in other countries as part of efforts to internationalise their products or services

We found that all services were of interest, even when business ones were a bit more in demand by applicants than the technical ones. The complete analysis of the open calls and the final services provided is developed deeper in Deliverable 3.3 “Report on engagement of multi-actor partnerships, capacity building, networking and innovation support - final version”. As well, in Deliverable 4.6 “Report on evaluation of MIP performance - second round”, the feedback received through the questionnaires after the services is analysed.

In any case, to better understand the possibly more interesting services for future European projects and actions, Table 12 shows the number of applications by service in each Open Call and in total. Keep in mind that each applicant could select more than one service (from 1 to 5).

Table 12: Applications to the Open Calls by service.

	First Open Call	Second Open Call	Total	
Project design and development advice	5 (4.9%)	3 (5.1%)	8 (5.0%)	Technical services 58 (36%)
Technology scouting	8 (7.8%)	6 (10.2%)	14 (8.7%)	
Scale-up advisory	14 (13.7%)	5 (8.5%)	19 (11.8%)	
Techno-economic analysis	4 (3.9%)	3 (5.1%)	7 (4.3%)	
Nutrient management and fertilization	7 (6.9%)	3 (5.1%)	10 (6.2%)	
Business model design and optimization	12 (11.8%)	5 (8.5%)	17 (10.6%)	Business services 103 (64%)
Market analysis	18 (17.6%)	6 (10.2%)	24 (14.9%)	
Business mentoring	2 (2.0%)	7 (11.9%)	9 (5.6%)	
Guidance in accessing funding	15 (14.7%)	8 (13.6%)	23 (14.3%)	
Matchmaking	16 (15.7%)	12 (20.3%)	28 (17.4%)	
Other (Policy review)	1 (1.0%)	1 (1.7%)	2 (1.2%)	
Total	**102**	**59**	**161**	

As we can see, overall speaking, business services made up 2/3 of the services requested, meanwhile technical services are just a little more than 1/3.

The most asked service was Matchmaking, followed by market analysis and guidance in accessing funding (all of them business services). The fourth most asked service, and the first technical one, was the Scale-up advisory.

A recommendation extracted from the experience of the Open Calls and Innovation Rounds, which was not detected during the co-creation workshops, is to provide a service of Policy review. Legislation —both national and European—, as well as licenses, registrations, permits and legal barriers, are a major headache for innovators in rural areas of Europe. Helping them figure things

out can save them time and money, which is important for growing their businesses and understanding the framework they are operating in.

5. Annexes

5.1 Annex 1: Final service portfolio

Table 13: Final service portfolio offered during the Second Innovation Round.

Technical support services		Business support services	
Service	**Partner**	**Service**	**Partner**
Project design and development advice Depending on the input of the MAP, two scenarios are possible: - 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. - 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 Depending on the input of the MAP, two scenarios are possible: - No initial BM: development of a BM accounting based on the Triple Layered BM Canvas. - Existing BM or BP: analysis and optimization. Both options account for framework particularities of the MAP.	INNV, QPLAN
Scale-up advisory 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. Requirements for the applicants to apply: Flow diagram, operational conditions and material balances data on the process at least from small scale experimentation are required. We can tailor the advice depending on the maturity of the process and product development.	PROC	Market analysis Market analysis of the MAP's business, plus insight into customers' and industry's behavior.	INNV, PROC, QPLAN
Nutrient management and fertilization 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 The MAP is assigned a bioeconomy expert who offers their feedback, guidance and suggestions through a constructive, periodic dialogue.	INNV, PROC, QPLAN

Technology scouting Advise on matching available feedstocks with appropriate small-scale technologies.	WR KAM of each MIP	Guidance in accessing funding 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, QPLAN
Techno-economic analysis Mapping of process costs and product revenues to evaluate the economic performance of the bio-based technology. Requirements for the applicants to apply: Flow diagram, operational conditions, material balances and energy balances* data on the process, at least from small scale experimentation. *Energy balances could be calculated during the service if operational conditions and material balances are already well defined.	PROC	Matchmaking Support to access networks (find customers, demo-helpers, partners and investors) at local and EU levels.	KAM of each MIP INNV, PROC

5.2 Annex 2: Comparison between the initial version and the last version of the portfolio

Table 14: Comparison between the initial version of the services portfolio (included in the GA) and the last version of the portfolio (used in the Second Innovation Round).

MainstreamBIO initial service portfolio	MainstreamBIO last version (used in 2nd Round)
Project design and development 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 Depending on the input of the MAP, two scenarios are possible: - 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. - 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).
Pilot project implementation advice 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 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 and optimization Support to scale-up in laboratories, pilot and demo facilities, optimization for increased efficiency and yields	Scale-up advisory 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. Requirements for the applicants to apply: Flow diagram, operational conditions and material balances data on the process at least from small scale experimentation are required. We can tailor the advice depending on the maturity of the process and product development.
-	Techno-economic analysis Mapping of process costs and product revenues to evaluate the economic performance of the bio-based technology. Requirements for the applicants to apply: Flow diagram, operational conditions, material balances and energy balances* data on the process, at least from small scale experimentation.

	*Energy balances could be calculated during the service if operational conditions and material balances are already well defined.
Soil nutrient management & recycling monitoring Fertilization recommendation, nutrient management plan elaboration, recycling monitoring, training, and support to use tools such as FaST and InterNAW	Nutrient management and fertilization 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.
Tech scouting and business model design Support to identify suitable bio-based solutions and design sustainable business models with the triple-layered Business Model Canvas in line with regional specificities	Technology scouting Advise on matching available feedstocks with appropriate small-scale technologies.
	Business model design and optimization Depending on the input of the MAP, two scenarios are possible: - No initial BM: development of a BM accounting based on the Triple Layered BM Canvas. - Existing BM or BP: analysis and optimization. Both options account for framework particularities of the MAP.
Market research and value chain development Primary and secondary research based on collective intelligence methods to better understand target bio-based markets and develop respective value chains	Market analysis Market analysis of the MAP's business, plus insight into customers' and industry's behavior.
Business mentoring Support to address challenges associated with rural entrepreneurship from a pool of experts and business leaders connected to our partner's networks	Business mentoring The MAP is assigned a bioeconomy expert who offers their feedback, guidance and suggestions through a constructive, periodic dialogue.
Access to finance support Support to identify and seize financing (e.g., loans) and funding opportunities (e.g., ESIF, EAFRD).	Guidance in accessing funding Help potential applicants for R&I EU funding to find the most appropriate funding action among the relevant EU programs (definition of funding roadmaps).
Networking to find partners, customers, investors 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 Support to access networks (find customers, demo-helpers, partners and investors) at local and EU levels.

5.3 Annex 3: Innovation support services questionnaire – 1st round (Irish example)

MIP Leader / Partner providing the service	[First Name] [Last Name]	Title	
Date	[Date]		
Participant (MAP member)	[First Name] [Last Name]		

Introduction: You have been invited to participate in a short questionnaire survey. Your replies will help us to evaluate the performance and impact of the key project activities.

Total estimated duration: 5'

Part 1: Background Information

1) Which of the following stakeholder groups do you associate with?
   - ❑ Biomass producer (farmers, forestry, aquaculture, unions, associations, etc.)
   - ❑ Business (agri-food & bio-based industry, logistics, financing)
   - ❑ Academic/Researcher
   - ❑ Government/policy-maker/public authority
   - ❑ Civil Society
   - ❑ Other, specify _____

2) Your Gender:
   - ❑ Female
   - ❑ Male
   - ❑ Diverse / Non-binary
   - ❑ Rather not to say

3) Your region: _____

4) What is your highest educational degree achieved?
   - ❑ Less than high school diploma
   - ❑ High school diploma
   - ❑ Some college, but no degree
   - ❑ Bachelor's degree or equivalent
   - ❑ Master's degree or equivalent
   - ❑ Doctorate or Professional degree

Part 2: Questionnaire

Please reply to the following questions

#	Question	Very much	Somewhat	Undecided	Not really	Not at all	Don't know
1	Do you believe that you had a good collaboration with the service provider during the project?						
2	Do you believe that the support from MainstreamBIO services was satisfactory?						
3	Would you like to receive additional services from MainstreamBIO?						
4	Do you believe that your participation in MainstreamBIO activities improved your income diversification?						
5	Do you believe that the support received from MainstreamBIO services was sufficient?						
6	Do you believe that you participation in MainstreamBIO MAPs improved your team-working skills?						

Part 3: Feedback for MIP Business Model validation

Please reply to the following questions

MainstreamBIO has established Multi-actor Innovation Platforms (MIPs) in 7 regions of Europe. These platforms are composed of key regional stakeholders (farmers, agri-food and bio-based industry, government, academia, civil society) that have contributed to characterize the region and shaped the support services that have been provided to different cases along the 7 regions.

Now, MainstreamBIO partners are working on the sustainability of the MIPs in the long term, with the aim of supporting the development and establishment of small-scale rural bio-based business models in each of the study regions. To this end, we are proposing that the **MIPs established** during the project **become consolidated as a cluster or regional association** with different activities and services to help local actors who want to develop or improve their business ideas around the small-scale rural bioeconomy.

Based on the previous characterisation of the region and the needs identified by local actors, for the region **Southern Ireland (IE)** we have devised a cluster/association business model with a specific value proposition and activities. Please, look into the information in the following page and answer the questions below in order to improve the upcoming cluster / association usefulness.

1: Do you think the value propositions respond to the needs of the region? Are there any needs that you are missing that need to be covered?

2: Would you include any additional key activities, key partners or customers (considering that we are targeting people in the rural bioeconomy who can benefit from this cluster)?

3: Please include any comments/suggestions that come to mind.

Southern Ireland region (IE) MIP

MainstreamBIO regional characterization: The region has been considered within the medium development level concerning its bioeconomy potential. Although there are medium public acceptance levels regarding bioeconomy, there are high levels of familiarity and awareness of biobased products, whereas there is high uncertainty around biobased products certification. Farmers hold low awareness relevant to nutrient recycling practices. Among the regional needs identified are increasing educational efforts, including training and demonstration plants to educate farmers, as well as access to financial support. The most important benefits of bioeconomy are waste reduction and decreased dependence upon fossil fuels.

Value proposition and activities of the proposed cluster/association: The value proposition of the business model for the Irish MIP focuses on increasing awareness of the rural bio-based sector, increasing business opportunities, and increasing know-how on bio-based solutions. The activities include specific awareness-raising campaigns for young people and women, as well as educational campaigns for farmers, to respond to the needs and opportunities identified.

As MTU (Munster Technological University – partner in MainstreamBIO), along with CircBio Research Group and Enterprise Ireland, already initiated the Circular Bioeconomy Cluster Southwest (CBCSW), the business model designed for this cluster/association will probably be embedded as a department of CBCSW focused on small-scale rural bioeconomy.

Value proposition	Key activities (free services)
1. Increased awareness of rural bio-based sector 2. Increased business opportunities (visibility, funding, partners) 3. Increased know-how (toolkit, information, training materials)	1. D&C services: ○ Information on news, events, open calls ○ SM visibility ○ Awareness raising campaigns for civil society (specially for young and women) 2. Matchmaking services: ○ Matchmaking/alerts platform 3. Accessing public funding services: ○ Information on public funding opportunities 4. Training services: ○ MSBIO toolkit ○ Materials (infographics) ○ Educational campaigns for farmers

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
AGRARIAN UNIVERSITY OF 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