MAINSTREAM BIO

MAINSTREAMING SMALL-SCALE BIO-BASED SOLUTIONS ACROSS RURAL EUROPE

D5.4

Exploitation and Sustainability Plan – initial version

Q-PLAN INTERNATIONAL

05/06/2024

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	Exploitation and Sustainability Plan – initial version
WORK PACKAGE	WP5 Dissemination, communication and exploitation
TASK	Task 5.3 Exploitation and innovation management
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DATE	5/6/2024

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	07/02/2023	Final Draft	Q-PLAN
0.2	14/02/2023	Quality Review	WHITE, PROC
1.0	28/02/2023	Final Version for Submission	Q-PLAN
2.0	5/62024	Updated version to address the comment received from the project review regarding correction of year in copyright	Q-PLAN

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ABBREVIATIONS

BG	Background
CA	Consortium Agreement
DoA	Description of the Action
EC	European Commission
EM	Exploitation Manager
GA	Grant Agreement

IPR	Intellectual Property Rights
IP	Intellectual Property
KER	Key Exploitable Results
NDA	Non-Disclosure Agreement
R&D	Research and Development
WP	Work Package

Executive Summary

Sound Innovation and Intellectual Property Rights (IPR) management is essential in order to enable the successful exploitation of MainstreamBIO's Results. Therefore, the consortium of MainstreamBIO places great emphasis in managing innovation and IPR in the framework of the project, with a view to effectively paving the way for the exploitation and sustainability of its results following its completion.

The current report presents the **initial version** of MainstreamBIO's **Exploitation and Sustainability Plan**, encompassing the project's Innovation and IPR Management Strategy. This document sheds light on the key terms and procedures pertaining to the management and protection of intellectual property, lays down the main components of the relevant methodology to be applied throughout the project (IPR Matrix methodology) and describes the initial results of its implementation, in terms of Background IP, Results and Key Exploitable Results (KER).

Along these lines, an overview of MainstreamBIO's Key Exploitable Results as envisioned at this stage of the project is also presented, along with the partners' initial plans for their post-project exploitation. In particular, this report includes specific exploitation plans per each identified KER, including the target groups that stand to benefit from their use, as well as individual exploitation plans for each member of the MainstreamBIO consortium.

The report will be further elaborated and updated in M18, as the project progresses. At the end of the project, the final version of the Exploitation and Sustainability Plan will be developed (M36). This final version will specifically describe the project's KERs and their main exploitation routes, the target groups per project KER, the general terms of use of each KER and the relevant IPR provisions, the joint exploitation plans for the consortium as well as per individual project partner (or groups of partners), the means and procedures for the exploitation of the KERs and a roadmap to this end.

1. Introduction

The **MainstreamBIO** partners are committed to produce results that will be sustainable after the project's completion, all while ensuring that innovative ideas emerging from the project are fully identified and investigated in terms of exploitation potential. To this end, MainstreamBIO places great emphasis not only on managing the **Intellectual Property Rights (IPR)** of the partners' ideas and project results, but also on mapping out the expected uses and benefits of each MainstreamBIO's Key Exploitable Result, with a view to effectively paving the way for smooth exploitation and sustainability of its results, following its completion.

With that in mind, the current document constitutes the **initial version** of the MainstreamBIO **Exploitation and Sustainability Plan** which will serve as the basis for the activities to be implemented in the framework of Task 5.3 towards sound innovation management as well as towards exploitation and sustainability of the project's results after the end of the grant.

This initial version of MainstreamBIO's **Exploitation and Sustainability Plan** comprises 8 chapters, as follows:

- **Chapter 1** provides introductory information about the context in which this report has been elaborated, its relation to other project activities, as well as to its structure.
- **Chapter 2** clarifies key terms pertaining to IPR management, defines the underlying objectives in the framework of the project and offers an overview of intellectual property protection instruments that could be employed.
- **Chapter 3** outlines the Innovation and IPR management strategy and its underlying stages in the context of MainstreamBIO and describes the methodology to be followed in this respect.
- **Chapter 4** introduces the IPR Matrix and explains the procedures followed to identify the MainstreamBIO background IP and Results as well as the project's key exploitable results, as perceived at this stage of the project.
- **Chapter 5** offers a preliminary overview of the background IP and Results of project partners and the project's key exploitable results, as identified at this stage of the project.
- **Chapter 6** describes the exploitation plans per project KER, including actions that are currently foreseen as necessary in order for the KERs to be exploited.
- **Chapter 7** outlines the individual exploitation plan set out by each of the members of the MainstreamBIO consortium at this stage of the project.
- **Chapter 8** concludes on the next steps foreseen in the context of the project towards the exploitation its Key Exploitable Results.

The MainstreamBIO Exploitation and Sustainability Plan will be updated and further elaborated during the project. More specific, an updated interim version is expected on M18, whereas its final version is expected at the end of the project (M36) and will include the final description and owners of the project's Key Exploitable Results as well as their plans regarding IP protection and valorisation, which are expected to facilitate exploitation after the end of the project.

2. IPR Management Overview

The following subsections aim to set the objectives of the IPR management strategy as well as to clarify the main terms concerning the key elements of IPR management, which represent the principal aspects of the IPR management procedures of the project.

2.1 Objectives

MainstreamBIO's IPR management objectives embrace the need to protect project's KERs in order to handle and manage efficiently all the outcomes that will stem during the project's life span with a view to ensuring the exploitation and dissemination of MainstreamBIO's Key Exploitable Results. To this end, the main objectives of the MainstreamBIO's Innovation and IPR Management Strategy are the following:

- Define and describe the IPR management methodology to be followed within the context of MainstreamBIO during the course of the project.
- Identify the Results that will emerge from the activities foreseen within the lifecycle of the project thus, determining a Results' portfolio from the early stages of the project.
- Develop a common understanding among the MainstreamBIO's partners, concerning key terms and issues revolving around the background IPs and Results and respective access rights.
- Assess and conceptualize a preliminary framework of the IP protection that will be employed for each identified key exploitable result of MainstreamBIO.
- Monitor, identify and eventually resolve any possible conflicts that may arise in terms of IP within the consortium and beyond if applicable.
- Establish common guiding routes and actions within the consortium to safeguard the smooth operation of the IPR strategies to be implemented.

In general, the key concepts to consider for designing the Innovation and IPR management strategy of Horizon Europe projects are the following:

- Background
- Results
- Key Exploitable results
- Dissemination channels
- Access rights

Therefore, the following subsections aim to clarify the main terms concerning the key elements of IPR management, which represent key aspects of the IPR management procedures of the project.

2.2 Background

Background means any **data, know-how or information – whatever its form or nature (tangible or intangible), including any rights such as intellectual property rights - that is:**

a) Held by the beneficiaries before they acceded to the Agreement and

b) Needed to implement the action or exploit the results[1].

The background IP needed for carrying out the project activities or exploiting the underlying results must be accessible to the other project partners on a royalty-free basis. Under this frame, all project partners have identified the background that is pertinent for the project actions and grant access rights to this IP, in principle[2]. The background IP of the project has been agreed within the consortium agreement, after the internal evaluation of pre-existing knowledge, and further Background was added to the Attachment 1 of Consortium Agreement after the written notice of the respective Party to the other Parties, according to Section 9 of Consortium Agreement.

In this respect, there are two main aspects to consider when dealing with the background of a project[3]:

- **Identification of background:** Naming of the IP that each project partner provides to the consortium and which are imperative for successful implementation and exploitation of the project actions.
- **Definition of Access Rights:** Clarification of the rights to use knowledge under the terms and conditions agreed within the consortium and in align with the underlying background rules and obligations set by the EC in order to ensure the implementation of the project.

2.3 Results

By the term Results, any tangible or intangible output of the project is meant, such as data, knowledge or information, that is generated in the project, whatever its form or nature, whether or not it can be protected, as well as any rights attached to it, including intellectual property rights.[4] In this respect, project Results can arise and be obtained from project partners in order to protect and exploit the underlying Key Exploitable Results of the project which include intellectual property rights (e.g., copyrights, industrial designs, patents). It should be noted that results generated outside the project activities cannot be defined as project results.

2.4 Key Exploitable Results

A Key Exploitable Result (KER) is an identified main interesting result, which has been selected and prioritized due to its high potential to be “exploited” – meaning to make use and derive benefits- downstream the value chain of a product, process or solution, or act as an important input to policy, further research or education.

[1] See Article 16.1 of the MainstreamBIO Grant Agreement.

[2] See Attachment 1 in the Consortium Agreement for a detailed description of the MainstreamBIO background IP and the access rights granted in principle for the consortium.

[3] https://op.europa.eu/en/publication-detail/-/publication/e20da012-ec16-11e9-9c4e-01aa75ed71a1/language-en/format-PDF/source-164620712

[4] https://intellectual-property-helpdesk.ec.europa.eu/regional-helpdesks/european-ip-helpdesk/europe-glossary/glossary-r_en

Therefore, key exploitable results can be a combination or part of a project result. Not all project results may meet the above conditions[5].

2.5 Access Rights

Access rights refer to user rights for requesting access to a project partner's background and results in order to implement its activities under the project or to use its own results. In addition, access rights can be utilized as long as they are needed for exploiting the project's results. The granting of access rights within a collaborative Horizon Europe project follows specific rules pre-defined in the Grant Agreement[6] and the Consortium Agreement[7]. Depending on their purpose of use, access rights within MainstreamBIO can be depicted in the following table.

Table 1: Access Rights

Purpose for Access	Access to Background	Access to Results
Project Implementation	• Royalty-free • Unless otherwise agreed in Attachment 1 of Consortium Agreement	• Royalty-free
Exploitation of Results	• Fair and reasonable conditions. • Access rights to results for internal research and for teaching activities on a royalty- free basis	

2.6 Protection of Results

When considering IP protection, it must be noted that IP results can be protected by several types of IPR, and consequently, the most appropriate protection strategy must be chosen. The selection of the most suitable form of IP protection depends on the nature and specific characteristics of the results under consideration and the objectives of the IP owner.

There are various types of instruments that may be considered for protecting IP. Under the frame of MainstreamBIO, meaningful IP protection instruments that can be used are the following:

- Trade and service marks
- Copyrights
- Trade secrets
- Confidentiality agreements

Further details with respect to each of the above-mentioned protection instruments are provided in the subsections below.

[5] https://intellectual-property-helpdesk.ec.europa.eu/system/files/2022-02/HEU%20Results%20platform.pdf

[6] See Article 16 of the MainstreamBIO Grant Agreement.

[7] See Section 9 of the MainstreamBIO Consortium Agreement.

2.6.1 *Trademarks and service marks*

Trademarks

A trademark constitutes an exclusive right over the use of a sign in relation to the goods and services for which it is registered[8]. Trademarks consist of signs capable of distinguishing the products (either goods or services) of a trader from those of others. The main function of a trademark is to identify the commercial origin of a product. This does not mean that it must inform the consumer of the actual person who has manufactured the product or even the one who is trading in it. It is sufficient that the consumer can trust in a given enterprise, not necessarily known to him, being responsible for the product sold under the trademark.

Service Marks

In modern trade, consumers are confronted not only with a vast choice of goods of all kinds but also with an increasing variety of services which tend more and more to be offered on a national and even international scale. There is therefore also a need for signs that enable the consumers to distinguish between the different services such as insurance companies, car rental firms, airlines, etc.

These signs are called service marks and fulfil essentially the same origin-indicating and distinguishing function for services as trademarks do for goods. Since service marks are signs that are very similar in nature to trademarks, basically the same criteria can be applied. Thus, service mark protection has sometimes been introduced by a very short amendment to the existing trademark law, simply providing for the application to service marks of the provisions on the protection of trademarks[9].

2.6.2 *Copyrights*

Copyright (or author's right) is the term used to describe the rights that creators have over their literary, scientific and artistic works. There is not an exhaustive list containing the works that can be protected by copyright. However, there are several works usually covered by copyright at international level[10]:

- Literary works such as novels, poems, plays, newspaper
- Articles
- Computer programs, databases
- Films, musical compositions, and choreographies
- Artistic works such as paintings, drawings, photographs
- Sculptures
- Architecture, and

[8] European Commission, Executive Agency for Small and Medium-sized Enterprises, Your guide to IP in Europe, Publications Office, 2019, p.5, https://data.europa.eu/doi/10.2826/94924.

[9] See WIPO Intellectual Property Handbook 2008: Policy, Law and Use. Chapter 2: Fields of Intellectual Property Protection, p. 68.

[10] European Commission, Executive Agency for Small and Medium-sized Enterprises, Your guide to IP in Europe, Publications Office, 2019, p.33, https://data.europa.eu/doi/10.2826/94924.

- Advertisements, maps, and technical drawings

Copyright protection also includes moral rights, including the right to claim authorship of a work, and the right to oppose changes to it that could harm the creator's reputation. The creator - or the owner of the copyright in a work - can enforce rights administratively and in the courts, by inspection of premises for evidence of production or possession of illegally made "pirated" goods related to protecting works. The owner may obtain court orders to stop such activities, as well as seek damages for loss of financial rewards and recognition. Finally, it is important to note that copyright only protects the expression of ideas represented in a physical embodiment, not the ideas themselves, and provided the expression is original[11].

It should be noted that it is mandatory for partners to provide Open Access to peer-reviewed publications that may result from MainstreamBIO project, and therefore a **Creative Commons License** (CC BY in most cases) or its equivalent is required. For those publications that are not peer-reviewed, Open Access is encouraged[12].

2.6.3 *Trade Secrets*

Any confidential business information providing a competitive advantage to an enterprise can be considered a trade secret. The type of information that can be protected as a trade secret is therefore highly diverse. It can include know-how, technical knowledge (potentially protectable as a patent), but also business and commercial data such as lists of customers, business plans, recipes or manufacturing processes[13].

2.6.4 *Confidentiality Agreements*

Confidentiality is an extremely important issue for participants in innovation projects, from the setting-up to the implementation and exploitation phases. Exchanging valuable information with other partners is generally a necessity that regularly occurs in collaborative initiatives or undertakings. Accordingly, confidentiality issues and measures should be taken into consideration in order to safely exchange information, facilitating the project development and ensuring the non-disclosure of sensitive technology, business or commercially confidential information. Confidentiality agreements provide protection and more security to an organisation that is about to share or make available information to another organisation by ensuring that confidential information will be used only for the permitted purposes agreed between the signatories of the agreement and will not be used or revealed to third parties without consent. Therefore, the signature of a confidentiality agreement can

[11] See WIPO Intellectual Property Handbook 2008: Policy, Law and Use. Chapter 2: Fields of Intellectual Property Protection, p. 40.

[12] See Successful valorisation of knowledge and research results in Horizon Europe. Paragraph: What about Open Science? https://op.europa.eu/en/publication-detail/-/publication/ca9e23d5-aa5b-11ec-83e1-01aa75ed71a1/language-en/format-PDF/source-253824310

[13] European Commission, Executive Agency for Small and Medium-sized Enterprises, Your guide to IP in Europe, Publications Office, 2019, p.29, https://data.europa.eu/doi/10.2826/94924.

be seen as a very important step to keep confidential information secret in order to maintain a competitive edge[14].

[14] See Non-Disclosure Agreement of European IPR Helpdesk: https://intellectual-property-helpdesk.ec.europa.eu/system/files/2021-03/One-Way-Non-Disclosure-Agreement-EN-1_2021.pdf.

3. IPR Management Strategy

Under the frame of MainstreamBIO, key IP and innovation management will be employed, with a view to setting a common understanding concerning the background, results, ownership (including joint ownership), access and usage rights, dissemination and exploitation during and after the project development. In this respect, the MainstreamBIO IPR management strategy applies a comprehensive framework which separates the IP management processes of the project in the following stages:

- **Start of the Project**
- **During Project Implementation**
- **After Project End**

In this respect, the following figure illustrates the IPR management stages, as considered within MainstreamBIO. More details about these stages are presented in the sub-sections that follow.

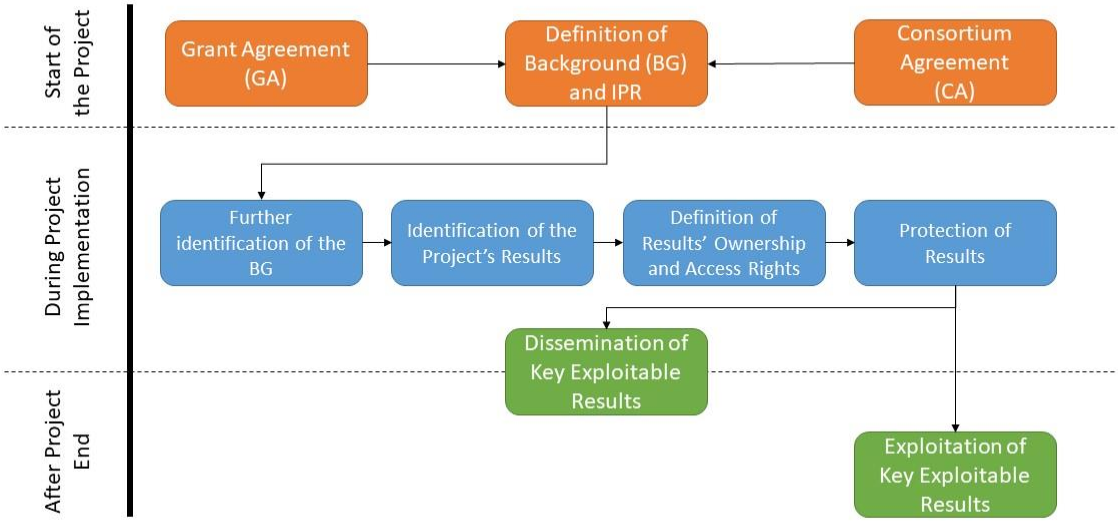

Figure 1: MainstreamBIO IPR Management Stages

3.1 Start of the Project

Both the **Grant Agreement and the Consortium Agreement constitute documents which include a description of several issues related to IPR**. Their unique provisions represent a reference point for IPR issues within the project partners. In this respect, any further advancements regarding IPR actions to be put in place by project partners will be facilitated under the underlying provisions.

3.1.1 *Grant Agreement*

The Grant Agreement constitutes a contract which sets out the key rules and conditions of the project and is conducted between the EC and the MainstreamBIO partners. It represents the main

contractual basis for MainstreamBIO while its main points and sections referring to IPR are included in **Section 2 "Rules for carrying out the Action" of Chapter 4**[15]. Under this scheme, the management of the MainstreamBIO IP is regulated, whereas access rights and obligations related to the background are set. In addition, the GA defines issues concerning the ownership and protection of the project's generated results, as well as their exploitation and dissemination. Finally, transferability and access rights to results are also defined in the MainstreamBIO GA.

3.1.2 *Consortium Agreement*

The Consortium Agreement constitutes a contract among the partners of MainstreamBIO consortium which aims to define rights and obligations within the partnership for the purposes of carrying out the project's foreseen actions and activities[16]. The CA minimizes the probability of later disputes as it provides rules and responsibilities during the project as well as defines the access rights to be granted to the partners concerning the project. In addition, rights and responsibilities are outlined among the consortium members concerning issues of the IP.

The MainstreamBIO Consortium Agreement main points and sections referring to IPR are contained in:

- **Section 8 "Results"**, that sets out provisions on ownership and joint ownership of results, as well as on their transfer and dissemination.
- **Section 9 "Access Rights"**, which clarifies the access rights governing principles along with the access rights for the exploitation and dissemination purposes. It also states specific provisions for access rights to the software.
- **Attachment 1 "Background included"** that presents the initial list of usable background IP.

3.2 During Project Implementation

During the implementation stage of the project, IP handling procedures are foreseen to be applied among the MainstreamBIO partners in order to properly organize results management of the project. In this respect, as the project evolves, the focus will be on project results identification, ownership, access rights, and protection of results, as well as exploitation. MainstreamBIO's IPR management emphasizes the establishment of robust handling procedures of IPR issues that are of strategic importance to the project to facilitate exploitation of its results.

Therefore, partners should focus on two different points:

- **Providing access rights to their knowledge** for other partners to carry out their work on the project.
- **Establishing early result identification procedures** with a view to protecting, disseminating and exploiting the project's key exploitable results, all while fostering long-term cooperation among partners and efficient project management.

In this respect, key IP related issues in the MainstreamBIO implementation phase include:

[15] In particular, see Article 16 and Annex 5 of the MainstreamBIO Grant Agreement.

[16] See IPR helpdesk for the definition of Consortium Agreement. https://intellectual-property-helpdesk.ec.europa.eu/regional-helpdesks/european-ip-helpdesk/europe-glossary_en

3.2.1 *Background identification*

The identification of the relevant knowledge, know-how, and data of partners, which constitute the Background of the project, took place in CA preparation and is described in Attachment 1 of MainstreamBIO CA. Any Party may identify and add, if necessary, additional Background during the project implementation provided they give written notice to other Parties[17]. Under this framework, the underlying background can be attached to the generated results of the project, which, eventually, will help the determination of access rights, ownership issues and IPR.

3.2.2 *Results identification*

A core process of the MainstreamBIO IP management is the project results' identification with a view to creating a concrete mapping of the project's results and enhancing the MainstreamBIO IP portfolio. Therefore, all valuable IP within the project must be identified, listed, named, described and analyzed in a systematic way.

3.2.3 *Results' ownership/Joint ownership*

The Grant Agreement of MainstreamBIO establishes that the results of the project are owned by the project partner who generates them[18]. Given the collaborative nature of the project, an individual result of IP can be jointly developed by several partners. In this case, joint ownership can arise among the contributing partners and is subject to the agreement on the allocation and terms of the exercise of their joint ownership. Although regulations concerning the frame of joint ownership are embedded in the MainstreamBIO Consortium Agreement[19], partners may establish during the project implementation a separate joint ownership agreement in order to define the allocation and terms of exercising their ownership. Unless otherwise agreed in the CA or in the Joint Ownership Agreement, each joint owner can grant non-exclusive licenses to third parties (without any right to sub-license) to exploit the jointly owned results, if the other joint owners are given:

- At least 45 calendar days advance notice, and
- Fair and Reasonable compensation.

Furthermore, MainstreamBIO partners have the option to transfer the ownership of results to one of the joint owners or even third parties, provided such a transfer is in line with the general conditions laid out in the Horizon Europe.

Moreover, according to Article 39 of the Horizon Europe Legislation, MainstreamBIO partners are requested to prepare a **Results Ownership List** to clarify ownership of project results and to facilitate the process for exploitation of these by project partners and, where relevant, third parties. As a minimum, the list should include details of whether the result has single or joint ownership, the name of the owner(s), the country of establishment of the owner(s) and whether the results will be exploited by the owner(s). The Results Ownership List will be prepared and included in the final

[17] See Section 9 of MainstreamBIO Consortium Agreement.

[18] See Article 16.2 of the MainstreamBIO Grant Agreement.

[19] See Section 8.2 of the MainstreamBIO Consortium Agreement.

version of Exploitation and Sustainability Plan, where the ownership of projects results will be fully defined amongst MainstreamBIO partners.

For the initial version of Exploitation and Sustainability Plan, partners were asked through a Questionnaire (Annex I) based on the IPR Matrix (See IPR Matrix Methodology in Section 4) to elaborate further on the provisions of the CA with regards to results' ownership.

3.2.4 *Protection of results*

Effective exploitation of the innovative concepts and results developed under the frame of MainstreamBIO depends on the protection of the project's results. Each beneficiary must examine the possibility of protecting its results and must adequately protect them, for an appropriate period and with appropriate territorial coverage, if:

- The project's results can reasonably be expected to be exploited, and
- Protecting them is possible, reasonable and justified (given the circumstances).

In this respect, when considering IP protection MainstreamBIO partners must consider their own legitimate interests along with the legitimate interests (especially commercial ones) of the whole consortium. Project partners must safeguard the identified exploitable MainstreamBIO results with adequate protection schemes, which will offer a decent protection period within a suitable geographical territory. The table that follows, illustrates the different protection instruments that can be applied to a variety of subjects.

Table 2: Protection instruments of results

Subject Matter	Copyright	Trademark	Confidential Information
Invention			X
Software	X		X
Scientific Article	X		
Service design	X	X	
Name of Service		X	
Know How			X
Website	X	X	X

*Software patentability is still a debated issue given its exclusion as subject matter as by **Article 52(2)(c) and (3) of the European Patent Convention (EPC).**
Source: IPR Helpdesk

IP protection constitutes a tool to create value through the licensing, sale or commercialization of IP in the form of products and services. Moreover, its utilization is vital for a prospective commercial or industrial exploitation as it can contribute to support the branding of products and services both to customers and investors. It should be noted that the IP protection of a result is not always mandatory.

3.2.5 *Exploitation of results*

The identified key exploitable results of MainstreamBIO will be effectively exploited as foreseen within the MainstreamBIO GA[20]. All beneficiaries in Horizon projects should be fully aware that they must, up to four years after project completion, take measures aiming to ensure exploitation of its results, either directly or indirectly, through transfer or licensing. To this end, the MainstreamBIO consortium will seek exploitation opportunities of the project's results in (i) further research activities (outside the action), (ii) developing, creating or marketing a product or process, (iii) creating and providing a service, (iv) using them in standardization activities or other use scenarios such as to inform policy or for educational purposes. Hence, exploitation is by no means limited to commercial exploitation[21].

In parallel to the successive phases of IP identification, determinization of claims for ownership and exploitation as well as the definition of IP protection measures, further actions will run, including:

- **Outlining of potential exploitation routes** anticipated for each of MainstreamBIO's key exploitable results beyond the end of the project.
- **Elaboration of the MainstreamBIO Exploitation and Sustainability Plan** to serve as the road map for the roll-out of the exploitable results of the project after the end of the Grant.

The call under which MainstreamBIO is implemented does not specify any additional exploitation obligations. Moreover, the use of the R&I results through third-party exploitation, where appropriate, is encouraged in Horizon Europe projects. If despite the best effort for exploitation no uptake happens within the following year after the end of the project, then the project partners must use the Horizon Results Platform to make exploitable results visible, unless obligation is waived, which is free and part of the Funding & Tenders Portal.

3.2.6 *Dissemination of results*

MainstreamBIO partners are set to select the appropriate means for dissemination of project results (e.g. scientific publications, publication on web sites, conferences, etc.), according to the conditions set forth in the CA[22] and in other specific confidentiality agreements that might arise in order to maintain confidentiality during and after the end of the project. All partners should be aware that they first ensure the protection of a project's exploitable result and then proceed to dissemination actions of this or any other underlying result.

Horizon follows the **Open Science** approach that focuses on spreading knowledge as soon as it is available using digital and collaborative technology. Considering that, MainstreamBIO partners are requested to make their scientific publications available as Open Access publications, and grant access as open as possible and as closed as necessary. Also, Open Access in Horizon Europe does not interfere with the protection of results, despite any notification rules for any planned publication as well as rules and procedures with regard to the right to object that may be specified in the Grant Agreement or Consortium Agreement.

[20] See Annex 5, Article 16 of the MainstreamBIO Grant Agreement.

[21] Your guide to IP management in Horizon Europe: https://op.europa.eu/en/publication-detail/-/publication/43e0204c-6ed3-11ed-9887-01aa75ed71a1/language-en/format-PDF/source-276235204

[22] See Section 8.4 of the MainstreamBIO Consortium Agreement.

3.3 After Project End

At the project's conclusion, the final version of the Exploitation and Sustainability Plan will be submitted, outlining the use that MainstreamBIO consortium intends to make of its key exploitable results and the related plans and time frame for their exploitation. The Plan will describe the further activities that need to be implemented in order to ensure the use and sustainability of MainstreamBIO key exploitable results. In addition, it will include the final findings concerning IP issues, as well as the final update of the IPR Matrix (See Section 4), detailing the intellectual property rights applied and registered. This deliverable, therefore, will envisage the final strategy of the consortium as shaped at the end of the project for exploitation, management of intellectual property rights and sustainability, including also any selected commercialization pathways if applicable.

At this final stage of the project, partners employ some basic actions, aiming to ensure the sound post-project management of the innovation and exploitation processes. Typically, they:

- Discuss and agree on (joint) exploitation strategies and pathways
- Look at possible IP ownership arrangements and related responsibilities including the definition of relative contributions of joint-owners, and
- Weigh potential (licensing) agreement and renumeration options linked to the use of IP resulting from the project and options for renumeration.

On the other hand, EC is expected to create a structured Questionnaire for beneficiaries to report on their progress, needs and obstacles on their path towards exploitation two years after the end of the project.

3.4 Role of the Exploitation Manager

The Exploitation Manager (EM) is responsible for defining the project's Innovation and IPR Management Strategy, preparing the respective reports and ensuring that innovative ideas which arise during the project will be thoroughly examined and assessed for potential exploitation, while at the same time all background intellectual property and results of the project is managed. To this end, the EM will be in close communication with the Project Coordinator and Steering Committee to ensure continuous feedback from escalating project activities from the start until the project completion.

The Exploitation Manager will be responsible for the organization and management issues of the MainstreamBIO IPR strategy implementation. It is considered good practice for a partner to inform and consult the EM before deciding whether to protect the results stemming from its underlying activities or not – particularly if the partner is considering a potential joint IP scheme.

Finally, the EM also assumes a mediation role in case of IP conflicts (see Section 3.6), monitors project activities and feeds the development of the subsequent versions of this report.

3.5 Knowledge Management of the Project

The management of the IP constitutes an integral part of the overall MainstreamBIO project management structure and thus it is important to establish a permanent IP monitoring scheme during the project. In this respect, an efficient IPR management methodology should define, from the early stages of the project, the procedures under which newly generated/ identified results will be handled within the lifespan of MainstreamBIO.

Efficient management of IP in MainstreamBIO will be achieved through adopting a process able to identify IP results as well as to determine their adequate handling and protection. In this respect, it is essential to establish mechanisms that will guarantee that IP information is reliable and timely captured. Should WP Leaders identify a new result that will be generated under their respective WP activities, the Exploitation Manager must be informed accordingly.

The MainstreamBIO EM constitutes the party that will handle the screening and the managing of any newly identified results and their corresponding IP issues that arise during the project's lifespan. The EM will direct the consortium partners in order to commonly establish the most adequate and efficient IPR strategy based on the nature of the newly identified result and the purposes of the MainstreamBIO consortium concerning the exploitation of this result. To facilitate this process, the MainstreamBIO IPR management strategy foresees creating and updating a living IPR Matrix (See section 4) to be revised and extended with new pieces of project results as the project's implementation advances.

3.6 IP Conflicts

In order to proactively avoid IP conflicts, project partners will be well-informed about IP rules and guided through the exploitation process with the help of the EM and the IPR Matrix. In this respect, partners will identify their IPR results, formulate their ownership and exploitation claims and if deemed necessary, transfer any relevant results to MainstreamBIO's exploitable results according to the principal rights and obligations defined in the Consortium Agreement of MainstreamBIO (Section 8 of MainstreamBIO CA). The Exploitation Manager will provide assistance for the following indicative (and not exclusive) issues:

- Is there a possible misunderstanding about the definition of the exploitable result and therefore of the object of claims?
- Are there exploitation claims that should be further specified so that the partners can check the compatibility of their claims?
- Are the foreseen exploitation claims compatible with the ownership claims of the partners (related issue of access rights)?
- Are there any confidentiality issues e.g., on new knowledge of strategic importance for a partner and consequently the need for a confidential agreement?
- Are there any possible IP conflicts between the partners, both related to ownership and the related need for access rights and to exploitation claims?

In terms of IP conflict, the Exploitation Manager will encourage conflicting parties to get in contact and proactively find solutions, making written agreements whenever necessary. In case no agreement will be achieved, internal mediation process will be kicked off following the provisions of MainstreamBIO's Consortium Agreement. In case the IP issues remain unresolved after this first mediation procedure, a further mediation process in accordance with the WIPO Mediation Rules will be applied (see Section 12.8 of the MainstreamBIO Consortium Agreement).

4. IPR Matrix Methodology

The MainstreamBIO IPR management approach foresees the utilization of an IPR Matrix to define the main IPR issues concerning the MainstreamBIO Innovation and IPR Management Strategy. This approach will support all partners in identifying and managing the background knowledge, the results and key exploitable results of the project in order to have a full overview about IP protection and necessary agreements to enable successful exploitation.

The IPR Matrix methodology is comprised of 4 distinct but interconnected steps, as follows:

- **Step 1**: Addition of new Background and definition of access rights among partners within the project according to the CA processes[23], complementary to the identified BG[24] in the MainstreamBIO CA at the start of the project.
- **Step 2**: Identification of the results, that are foreseen to be generated under the MainstreamBIO activities.
- **Step 3**: Identification of the project's key exploitable results (as defined at this early stage of the project) and the **partners contributing** to each one along with their corresponding interest for their exploitation.
- **Step 4**: Definition of a preliminary framework of IPR protection for the defined MainstreamBIO results, which will enhance their further exploitation.

At this early stage of the project, the objective of the Exploitation and Sustainability Plan of MainstreamBIO is to define the Key Exploitable Results on the one hand and identify, to the extent possible, the BG and results of the project along with their corresponding access rights on the other hand. During the later stages of the project's implementation, the Exploitation and Sustainability Plan will be updated accordingly, in order to capture and integrate the evolvement of the identified results and IPR approach of the project. In particular, the identification of KER would yield the need to establish an ownership regime among project partners for each one of the KER. In addition, rules and conditions to get access to KER need also to be considered. Finally, the selection of the IPR to be employed in each case will follow.

Under this framework, the structure of the IPR Matrix that will be used throughout the duration of the project is summarized below.

Table 3: Structure of IPR Matrix

Background (BG)	Results (R)	Key Exploitable Results (KER)
• BG# • Partner's Background • Short description of BG • Type of protection • Conditions to use within MainstreamBIO	• R# • Project Result • Related WP • Contributing partners • Short description of R • Related BG#	• KER# • Key Exploitable Result • Main partner • Further contributing partner(s) • Related R# • Related BG#

[23] See Paragraph 9.1.2 of MainstreamBIO Consortium Agreement.

[24] See Attachment 1 of MainstreamBIO Consortium Agreement.

• Conditions to use outside MainstreamBIO • Interest in further exploitation through MainstreamBIO results • Remarks	• Type of protection • Conditions to use within MainstreamBIO • Interest in further exploitation of Project Results • Conditions to use after the end of the Project	• Proposition for the KER-owner • Short description of the KER • Relevance for IP protection • Exploitation pathways

4.1 Identification of Background

In the first part of the IPR Matrix, the BG that will be used during the project's implementation shall be identified, as illustrated in the following table.

#	Relevant Background	Contributing Partner	BG number	Short description of BG	Type of protection	Conditions to use within MainstreamBIO	Conditions to use outside MainstreamBIO	Interest in further exploitation through MainstreamBIO's results

Figure 2: IPR Matrix Background

In the second column of this part of the IPR Matrix, the project's BG is listed as identified at the time. In the third column, the name of the partner who owns this background is indicated. For each identified background required for the creation of a result, a specific background number per partner shall be assigned. In column 4, the corresponding background number shall be indicated while column 5 should include a short description of the background. In column 6, partners shall indicate relevant IP protection types for the background in terms of patents, copyright, etc. In the seventh column, the conditions to use the background within the project shall be indicated by each partner, whether there are any restrictions to use the background or not (e.g., free to use). In the eighth column, any conditions for using the background outside the framework of MainstreamBIO is indicated, while in the last column partners shall mention if they have any interest in further exploiting the relevant background through the results of the project.

4.2 Identification of project Results

In the second part of the IPR Matrix, the results of the project are identified, as presented in the following table.

WP	#	Project result (PR)/ Achievement	Specific project result	Main Partner(s)	Contributing partner(s)	Related BG number	Short description of R	R number	Type of protection	Conditions to use within MainstreamBIO	Interest in Further Exploitation of Project Resuts	Conditions to use after the end of project

Figure 3: IPR Matrix Results

In the first four columns, the MainstreamBIO results along with the relevant WP, are listed. In the fifth column, the main partner responsible for the Results shall be indicated. In the sixth column, the further contributing partners for the Results shall be indicated as well. In the seventh column, the related background number is attached to the underlying R. In the eighth column, a short text describing the identified R shall be included by the responsible partner. In the nineth column, a R number shall be attached to each result per each contributing partner. In the tenth column, partners shall indicate relevant IP protection type(s) for the R (e.g., patent, copyright, etc.). In the next column, the conditions to use the R within MainstreamBIO (e.g., free to use or subject to charges) shall be indicated by each partner whether there are any restrictions to use the R or not. In the twelfth column, the project partners shall describe if they have an interest in exploitation of the project result. Finally, in the last column, the conditions (e.g., free to use, license fee, etc.) to use after the project shall be indicated by the partners.

4.3 Identification of Key Exploitable Results

Based on the identified Results the partners will define their key exploitable results along with the underlying IPR provisions, such as protection, definition of access rights and exploitation pathways.

At this step, the third part of the IPR Matrix was elaborated, which defined the Key Exploitable Results (KER), indicating the main contributors for these results, with the aims:

- To **identify IP ownership and exploitation claims**, as well as pro-actively indicate possible conflicts for each exploitable result; and
- To **support decisions on issues pertaining to IP protection**, in order to timely make the needed steps in this regard, including any potential IP agreements (e.g., for joint ownership, providing access rights or even an NDA for confidentiality).

The following table provides an illustrative overview of this part of the IPR Matrix.

KER#	Key Exploitable Result	Short description of KER	Main partner(s)	Contributing Partner(s)	Related R number	Related BG number	KER Owner(s)	Potential IP protection	M	U	L	S	O	Most promising concerning M-U-L-S-O

Figure 4: IPR Matrix Key Exploitable Results

In the first two columns, the number and a short name of the identified exploitable results are listed. In the third column, a short text of the identified KER shall be included. In the following column, the main partner(s) responsible for the KER shall be listed. In the fifth column, other relevant contributing partner(s) for the KER shall be indicated as well. In the sixth column, the related R number shall be indicated, whereas in the seventh column the relevant background number shall be stated. In the eighth column, a proposition of the IP ownership of the KER shall be indicated by the main partner contributing to the creation of the KER. In the next column, the responsible partner shall indicate the relevance for possible IP protection. In the next 5 columns, the exploitation routes are divided into five different categories:

- M: Making a product and selling it.

- U: Using the project result internally for further development, for instance:
  - to develop something else for sale; or
  - for R&D departments (public or private) to use the results in new research projects.
- L: Licensing the project result to third parties.
- S: Providing a Service, such as consultancy, etc.
- O: Others

The responsible partner for the KER shall choose which exploitation routes are appropriate in consultation with the contributing partners, the Project Coordinator and the Exploitation Manager. Finally, in the last column, the responsible partner shall indicate which exploitation route would be the most promising.

5. MainstreamBIO's Background, Results & Key Exploitation Results

5.1 Background

The Background as preliminary identified in the CA preparation and further elaborated according to the MainstreamBIO CA processes to be used so as to achieve the objectives of MainstreamBIO is presented in the following table.

Table 4: Background

#	Relevant Background	Contributing Partner	BG number	Short description of BG	Type of protection	Conditions to use within MainstreamBIO	Conditions to use outside MainstreamBIO	Interest in further exploitation through MainstreamBIOs results
1	"Study on the participation of the agricultural sector in the BBI JU: business models, challenges and recommendations to enhance the impact on rural development" publication tendered by BBI JU and CE (ISBN: 978-92-95219-01-4)	INNV	BG1	"Study on the participation of the agricultural sector in the BBI JU: business models, challenges and recommendations to enhance the impact on rural development" publication tendered by BBI JU and CE (ISBN: 978-92-95219-01-4): Contact network created and technical background acquired about primary production and bioeconomy		No specific conditions	No	
2	COOPID Project (GA. Number 101000519)	INNV	BG2	COOPID project (GA. Number 101000519): Contact network created and technical background acquired about primary production and bioeconomy		No specific conditions	No	
3	BIOFRUITNET Project (GA. Number 862850)	INNV	BG3	BIOFRUITNET project (GA. Number 862850): Contact network created and technical background acquired about primary production and bioeconomy		No specific conditions	No	

#	Relevant Background	Contributing Partner	BG number	Short description of BG	Type of protection	Conditions to use within MainstreamBIO	Conditions to use outside MainstreamBIO	Interest in further exploitation through MainstreamBIOs results
4	Extensive group of associates at every level (local authorities, advisory centres, academia etc.) of stakeholders in Poland	IUNG	BG4	A very extensive group of associates at every level of stakeholders in the country. Support of government institutions in making decisions at various levels and fields of activity. Cooperation with regional and local authorities sharing IUNG's knowledge and expertise. Very close cooperation with farm advisory centres allowing IUNG to transfer knowledge directly or indirectly to farmers. IUNG cooperates with agricultural schools as well as invite local youth, children and pre-schoolers to various meetings where introduce them to science. Organized IUNG open days and participation in the Science Week in Lublin enhance the connection with local community.		Will be used for project's activities by IUNG	Will be used for projects' activities by IUNG	
5	Existing network of stakeholders	WR	BG5	Already existing network of stakeholders that developed through previous projects and activities		Will be used for project's activities by WR	Will be used for projects' activities by WR	
6	R&D Council	PROC	BG6	20 years' experience in developing an efficient and optimized way of evaluating R&D proposals for funding and delivery of projects through the innovation platform operated		Will be used for project's activities by PROC	Will be used for projects' activities by PROC	

#	Relevant Background	Contributing Partner	BG number	Short description of BG	Type of protection	Conditions to use within MainstreamBIO	Conditions to use outside MainstreamBIO	Interest in further exploitation through MainstreamBIOs results
				by the RISE Processum biorefinery cluster				
7	Existing network of stakeholders	PROC	BG7	The cluster network of core members built up over 20 years and an extended network of companies and organisations within the bioeconomy		Will be used for project's activities by PROC	Will be used for project's activities by PROC	
8	IT background	DRAXIS	BG8	Existing IT background knowledge for tool and methodology development		Will be used for project's activities by DRAXIS	Will be used for projects' activities by DRAXIS	
9	Existing knowledge and experience	WHITE	BG9	Existing knowledge and experience in: i) interviews and surveys preparation; ii) analyzing and fusing results; iii) social and business research; iv) consulting activities;' through participation in European funded projects		Will be used for project's activities by WHITE	Will be used for projects' activities by WHITE	
10	Experience in Dissemination and Communication activities and strategy	WHITE	BG10	Experience in the development and implementation of dissemination & communication strategy. Experience in: i) running dissemination and communication campaigns; ii) developing dissemination and communication material; iii) website and social media content development and monitoring		Will be used for project's activities by WHITE	Will be used for projects' activities by WHITE	

5.2 Project Results

Table 5: Project Results

WP	#	Project result (PR)/ Achievement	Specific project result	Main Partner(s)	Contributing partner(s)	Related BG number	Short description of R	R number	Type of protection	Conditions to use within Mainstream BIO	Interest in Further Exploitation of Project Resuts	Conditions to use after the end of project
1	1.1	Set-up Multi-actor Innovation Platforms	MIP Netherlands	WR	All Partners		Multi-actor Innovation Platforms, fostering cooperation amongst key regional stakeholder in order to support the deployment and scale-up of small-scale bio-based solutions	R 1.1.1	- Not applicable	No specific conditions	Yes	No specific conditions
			MIP Poland	IUNG	All Partners			R 1.1.2	- Not applicable	No specific conditions	Yes	No specific conditions
			MIP Denmark	FBCD	All Partners			R 1.1.3	- Not applicable	No specific conditions	Yes	No specific conditions
			MIP Sweden	PROC	All Partners			R 1.1.4	- Not applicable	No specific conditions	Yes	No specific conditions
			MIP Bulgaria	AUP	All Partners			R 1.1.5	- Not applicable	No specific conditions	Yes	No specific conditions
			MIP Spain	INNV	All Partners			R 1.1.6	- Not applicable	No specific conditions	Yes	No specific conditions
			MIP Ireland	MTU	All Partners			R 1.1.7	- Not applicable	No specific conditions	Yes	No specific conditions
1	1.2	Analysis of farmers' needs, perceptions and socio-economic contexts and framework conditions	Needs, perceptions and socio-economic contexts and framework conditions analysis	WHITE	All Partners		An analysis of awareness levels and perceptions regarding the bioeconomy and bio-based solutions, products, and nutrient circularity practices, amongst a broader group of stakeholders	R 1.2.1	- Copyright	No specific conditions	No	No specific conditions
1	1.3	Investigation of Regional value chains attributes	Regional value chains mapping	MTU	WR, IUNG, PROC, AUP, FBCD, INNV		The mapping of the available biomass feedstocks, waste and residue streams, actors, processes, resource flows, and bioeconomy value chains in MainstreamBIO's focal regions	R 1.3.1	- Copyright	No specific conditions	Yes	No specific conditions

WP	#	Project result (PR)/ Achievement	Specific project result	Main Partner(s)	Contributing partner(s)	Related BG number	Short description of R	R number	Type of protection	Conditions to use within Mainstream BIO	Interest in Further Exploitation of Project Resuts	Conditions to use after the end of project
2	2.1	Catalogue	Catalogue of small-scale bio-based technologies, social innovations, business models	WR, WHITE, INNV	All Partners		A bibliographic review of small-scale bio-based technologies, social innovations and business models built on developed inventories and tools of bioeconomy projects	R 2.1.1	- Copyright	No specific conditions	Yes	No specific conditions
			Best nutrient recycling practices for the implementation of small-scale bio-based solutions	IUNG	Q-PLAN, MTU, WR, AUP, FBCD, WHITE, DRAXIS		Practical information on efficient and cost-effective nutrient recycling practices, with a focus on: i) safe use of waste streams and fertiliser products obtained from their processing ii) social perception and acceptance of such practices from farmers and consumers across the value chain iii) relevant legislation and how it affects their wider adoption	R 2.1.2	- Copyright	No specific conditions	Yes	No specific conditions
2	2.2	Elaboration of MainstreamBIO innovation support services	MainstreamBIO innovation support services	WR, PROC, IUNG, AUP, INNV, Q-PLAN			MainstreamBIO innovation support services (business and technical), tailored to the needs of rural actors helping them accelerate the development of marketable bio-based innovations	R 2.2.1	- Trade secret - CC license	No specific conditions	Yes	No specific conditions
			Set of selection criteria for multi-actor partnerships	All partners			A set of criteria and guidelines for the selection of promising cases of multi-actor partnerships to be supported	R 2.2.2	- Copyright	No specific conditions	Yes	No specific conditions

WP	#	Project result (PR)/ Achievement	Specific project result	Main Partner(s)	Contributing partner(s)	Related BG number	Short description of R	R number	Type of protection	Conditions to use within Mainstream BIO	Interest in Further Exploitation of Project Resuts	Conditions to use after the end of project
2	2.3	MainstreamBIO digital toolkit and Decision Support System	Multi-criteria Decision Support System	WR	All Partners		A multi-criteria decision model to serve as an easy-to-use decision support system for farmers, helping them make better informed decisions regarding the adoption of small-scale bio-based solutions, business models and social innovations	R 2.3.1	- Copyright	No specific conditions	Yes	No specific conditions
			MainstreamBIO Digital Tools	DRAXIS	All Partners		Digital innovation support tools (for matching information, sharing best practices, etc.) to facilitate the development of the bioeconomy in one place	R 2.3.2	- Copyright	No specific conditions	Yes	No specific conditions
			Bioeconomy Repository	Q-PLAN	All partners		A repository of initiatives from MainstreamBIO and other projects to raise awareness on bioeconomy educational resources and aggregate available educational material (fact sheets, publications, webinars, videos etc.)	R 2.3.3	- Copyright	No specific conditions	Yes	No specific conditions
2	2.4	Organization of co-creation workshops for rural actors	Methodologies for the organization of co-creation workshops for rural actors	DRAXIS	All partners		A methodology for the organization of co-creation workshops in Multi-actor Innovation Platforms for rural stakeholders, who are called to co-define the service portfolio of such platforms and provide feedback on the functionalities of a digital tools connected to the platforms	R 2.4.1	- Copyright	No specific conditions	Yes	No specific conditions
3	3.1	Development of Innovation roadmaps	Innovation roadmaps	PROC	All Partners		Tailored innovations roadmaps for each promising case of multi-actor partnerships regarding their needs	R 3.1.1	- Copyright	No specific conditions	No	No specific conditions

WP	#	Project result (PR)/ Achievement	Specific project result	Main Partner(s)	Contributing partner(s)	Related BG number	Short description of R	R number	Type of protection	Conditions to use within Mainstream BIO	Interest in Further Exploitation of Project Resuts	Conditions to use after the end of project
3	3.2	Creation of Audio-visual material for capacity building workshops	Tutorials on audio-visual format	DRAXIS			Audio-visual material to support the capacity building workshops	R 3.2.1	- Copyright	No specific conditions	No	No specific conditions
3	3.3	Organization of capacity building workshops for rural actors	Methodologies for the organization of capacity building workshops for rural actors	DRAXIS	All partners		A methodology for the organization of capacity building workshops aiming to provide coaching to farmers, producers and local actors to understand the provided support services and make the best use of them	R 3.3.1	- Not applicable	No specific conditions	No	No specific conditions
3	3.4	Organization of networking events and demo days for rural actors	Methodologies for the organization of networking events and demo days for rural actors	FBCD	All Partners		Methodology for the organization of networking events and demo days for rural actors with the aim to facilitate connections between multi-actor partnerships and suitable partners (customers, consumers, tech providers or investors) as well as to inspire further actors to get engaged in and support the bioeconomy	R 3.4.1	- Not applicable	No specific conditions	No	No specific conditions
3	3.5	Organization of awareness raising campaigns and educational activities	Methodologies for the organization of awareness raising campaigns and educational activities	MTU	All Partners		A methodology for the organization of awareness raising campaigns and educational activities to build understanding and awareness on the bioeconomy and small-scale bio-based solutions in an educative manner	R 3.5.1	- Not applicable	No specific conditions	No	No specific conditions

WP	#	Project result (PR)/ Achievement	Specific project result	Main Partner(s)	Contributing partner(s)	Related BG number	Short description of R	R number	Type of protection	Conditions to use within Mainstream BIO	Interest in Further Exploitation of Project Resuts	Conditions to use after the end of project
4	4.1	Definition of Performance monitoring and impact assessment system	Performance monitoring and impact assessment system	Q-PLAN	MTU, WR, IUNG, AUP, FBCD, INNV, PROC		A performance monitoring and impact assessment system to fuel the iterative improvement of MainstreamBIO innovation support services and digital toolkit	R 4.1.1	- Copyright	No specific conditions	No	No specific conditions
4	4.2	Policy Insights	Initial set of Policy Insights	IUNG	Q-PLAN, MTU, WR, AUP, FBCD, INNV, DRAXIS, WHITE		A set of Policy Insights which indicates how the EU can help mainstream small-scale bio-based solutions in rural areas	R 4.2.1	- Copyright	No specific conditions	No	No specific conditions
4	4.3	Replication Guide and Toolkit	Initial Replication Guide and Toolkit	IUNG	Q-PLAN, MTU, WR, AUP, FBCD, INNV, DRAXIS, WHITE		Replication Guide and Toolkit, compiling all the insights gained and lessons learnt during the deployment of our innovation support to facilitate its uptake by innovation intermediaries	R 4.3.1	- Copyright	No specific conditions	Yes	No specific conditions
4	4.4	Policy options and recommendations	Final set of Policy options and recommendations	IUNG	Q-PLAN, MTU, WR, AUP, FBCD, INNV, WHITE, DRAXIS		Policy options and recommendations offering insight and guidelines for designing effective support measures and incentives to mainstream small-scale bio-based solutions in rural areas	R 4.4.1	- Copyright	No specific conditions	Yes	No specific conditions
4	4.5	Production of Practice abstracts, communication and educational materials	Practice abstracts, communication and educational materials	AUP	All Partners		Practice abstracts, communicational and educational materials contributing to the enhancement of awareness on small scale bio-based solutions and the bioeconomy in general	R 4.5.1	- Copyright - CC license	No specific conditions	Yes	No specific conditions

WP	#	Project result (PR)/ Achievement	Specific project result	Main Partner(s)	Contributing partner(s)	Related BG number	Short description of R	R number	Type of protection	Conditions to use within Mainstream BIO	Interest in Further Exploitation of Project Resuts	Conditions to use after the end of project
4	4.6	Organization of regional scale-up workshops	Methodologies for the organization of regional scale-up workshops	WHITE	All Partners		A methodology for the organization of regional scale-up workshop aiming to challenge multi-actor partnerships and stakeholders to discuss experiences gained through a project, with a view to assess the scaling readiness and co-create sustainable business model pathways for bio-based solutions	R 4.6.1	- Not applicable	No specific conditions	No	No specific conditions
4	4.7	Organization of mutual learning workshops	Methodologies for the organization of mutual learning workshops	FBCD	All Partners		A methodology for the organization of mutual learning workshops for rural actors for good practice sharing and knowledge transfer across regions	R 4.7.1	- Not applicable	No specific conditions	No	No specific conditions
5	5.1	Set-up a Project web portal	Project website	WHITE			Contains project's target & methodology, consortium partners online stakeholder engagement, link to the digital toolkit, MIPs introduction, promotional material and project's reports	R 5.1.1	- Copyright - CC license	No specific conditions	Yes	No specific conditions
5	5.2	Clustering and cooperation with sister projects	Exchanged knowledge and insights with sister projects	WHITE, FBCD	All Partners		Knowledge gained and synergies established with relevant EU projects to achieve a more efficient and effective use of MainstreamBIO's resources.	R 5.2.1	- Copyright	No specific conditions	No	No specific conditions

WP	#	Project result (PR)/ Achievement	Specific project result	Main Partner(s)	Contributing partner(s)	Related BG number	Short description of R	R number	Type of protection	Conditions to use within Mainstream BIO	Interest in Further Exploitation of Project Resuts	Conditions to use after the end of project
5	5.3	Production of Scientific publications and open data	Scientific publications and open data	All partners			Scientific publications, and open data with novel knowledge produced while studying and supporting the uptake of bio-based solutions, business models and social innovations	R 5.3.1	- CC license	No specific conditions	Yes	No specific conditions
5	5.4	Dissemination and communication activities	Dissemination and communication Plan	WHITE	All Partners		Strategy plan with respect to dissemination and communication activities of the project, also including specific qualitative and quantitative targets to be met by the respective activities of the project throughout its course	R 5.4.1	- Copyright	No specific conditions	No	No specific conditions
			Social Media Accounts				Social media accounts that are used for the dissemination of the project and its results by the communication manager: LinkedIn account, Facebook account, Twitter account, YouTube channel	R 5.4.2	- Copyright	No specific conditions	Yes	No specific conditions
			MainstreamBIO promotional package				The package includes the project's dissemination and communication material, the visual identity, and any additional promotional material that have been produced as part of the dissemination strategy of the project (e.g., press releases, newsletters, tailored posters)	R 5.4.3	- Copyright	No specific conditions	No	No specific conditions
5	5.5	Elaboration of alternative Business models	Business plan for MIPs	INNV	Q-PLAN		Design of business plans assessed against specific criteria (alignment to MIPs' interests and market fit) for the operation of the MIPs	R 5.5.1	- Copyright - Trade secret	No specific conditions	Yes	No specific conditions

5.3 Key Exploitable Results

Table 6: Key Exploitable Results

KER #	Key Exploitable Result	Short description of KER	Main partner(s)	Contributing Partner(s)	Related R number	Related BG number	KER Owner(s)	Potential IP protection	M	U	L	S	O	Most promising concerning M-U-L-S-O
1	Multi-actor Innovation Platform - Netherlands	Multi-actor Innovation Platforms, fostering cooperation amongst key regional stakeholder in order to support the deployment and scale-up of small-scale bio-based solutions	WR	All partners	R 1.1.1		WR	- Not applicable		X		X		U2
2	Multi-actor Innovation Platform - Poland		IUNG	All partners	R 1.1.2		IUNG	- Not applicable		X				U2
3	Multi-actor Innovation Platform - Denmark		FBCD	All partners	R 1.1.3		FBCD	- Not applicable		X				U2
4	Multi-actor Innovation Platform - Sweden		PROC	All partners	R 1.1.4		PROC	- Not applicable					X	Integration into everyday business
5	Multi-actor Innovation Platform - Bulgaria		AUP	All partners	R 1.1.5		AUP	- Not applicable	X			X		M
6	Multi-actor Innovation Platform - Spain		INNV	All partners	R 1.1.6		INNV	- Not applicable				X		S
7	Multi-actor Innovation Platform - Ireland		MTU	All partners	R 1.1.7		MTU	- Not applicable		X				U2
8	Regional value chains mapping	The results of mapping of the available biomass feedstocks, waste and residue streams, actors, processes, resource flows, and bioeconomy value chains in MainstreamBIO's focal regions	MTU	WR, IUNG, PROC, AUP, FBCD, INNV	R 1.3.1		Join ownership	- Copyright		X				U2
9	MainstreamBIO Technical support services	A set of technical innovation support services, that will be offered to selected multi-actor partnerships, including: **i)** project design and development **ii)** pilot project implementation advice **iii)** field and lab testing **iv)** scale-up and optimization **v)** soil nutrient	WR, PROC, IUNG, AUP		R 2.2.1		Joint ownership	- Trade Secret - CC license		X		X		S

KER #	Key Exploitable Result	Short description of KER	Main partner(s)	Contributing Partner(s)	Related R number	Related BG number	KER Owner(s)	Potential IP protection	M	U	L	S	O	Most promising concerning M-U-L-S-O
		management & recycling monitoring												
10	MainstreamBIO Business support services	A set of business innovation support services, that will be offered to selected multi-actor partnerships, including: **i)** tech scouting and business model design **ii)** market research and value chain development **iii)** business mentoring **iv)** access to finance support **v)** networking to find partners, customers, investors	INNV, Q-PLAN		R 2.2.1		Joint ownership	- Trade Secret - CC license		X		X		S
11	Catalogue of technologies, business models and social innovations for small-scale bio-based solutions	A catalogue of technologies, business models and social innovations for small-scale bio-based solutions to facilitate the delivery of our innovation support, while providing inspiration and guidance for rural actors	WR, WHITE, INNV	All partners	R 2.1.1		Joint ownership	- Copyright		**WR** - X **INNV** - X **WHITE** - X		**WR** - X **WHITE** - X		**WR** - U2 **INNV** - U2 **WHITE** - U2

KER #	Key Exploitable Result	Short description of KER	Main partner(s)	Contributing Partner(s)	Related R number	Related BG number	KER Owner(s)	Potential IP protection	M	U	L	S	O	Most promising concerning M-U-L-S-O
12	Best nutrient recycling practices	A collection of best nutrient recycling practices, which provides resources for successful management of nutrients and organic matter recycling back to soils in line with circular economy principles	IUNG	Q-PLAN, MTU, WR, AUP, FBCD, WHITE, DRAXIS	R 2.1.2		Joint ownership	- Copyright		X				U2
13	MainstreamBIO Decision Support System	A multi-criteria decision model to serve as an easy-to-use decision support system for biomass producers, helping them make better informed decisions regarding the adoption of small-scale bio-based solutions, business models and social innovations	WR	All partners	R 2.3.1		TBD	- Copyright		X		X		U2
14	MainstreamBIO digital toolkit	A set of digital innovation support tools (for matching information, sharing best practices, etc.) to facilitate the development of the bioeconomy in one place	DRAXIS	All partners	R 2.3.2		Joint ownership	- Copyright		X	X	X		U2
15	Bioeconomy Repository	A repository of initiatives from MainstreamBIO and other projects to raise awareness on bioeconomy educational resources and aggregate available educational material (fact sheets, publications, webinars, videos etc.)	Q-PLAN	All partners	R 2.3.3		Q-PLAN	- Copyright		X				U2

KER #	Key Exploitable Result	Short description of KER	Main partner(s)	Contributing Partner(s)	Related R number	Related BG number	KER Owner(s)	Potential IP protection	M	U	L	S	O	Most promising concerning M-U-L-S-O
16	Replication Guide and Toolkit	Replication Guide and Toolkit, compiling all the insights gained and lessons learnt during the deployment of our innovation support to facilitate its uptake by innovation intermediaries	IUNG	Q-PLAN, MTU, WR, AUP, FBCD, INNV, DRAXIS, WHITE	R 4.3.1		IUNG	- Copyright		X		X		S
17	Policy options and recommendations	Policy options and recommendations offering insight and guidelines for designing effective support measures and incentives to mainstream small-scale bio-based solutions in rural areas	IUNG	All Partners	R 4.4.1		IUNG	- Copyright		X		X		S
18	Practice abstracts, communication and educational materials	Practice abstracts, communicational and educational materials contributing to the enhancement of awareness on small scale bio-based solutions and the bioeconomy in general	AUP	All partners	R 4.5.1		Joint ownership	- Copyright - CC license	X			X		M
19	Methodologies for the organization of co-creation workshops for rural actors	A methodology for the organization of co-creation workshops in Multi-actor Innovation Platforms for rural stakeholders, who are called to co-define the service portfolio of such platforms and provide feedback on the functionalities of a digital tools connected to the platforms	DRAXIS	All partners	R 2.4.1		DRAXIS	- Copyright		X	X	X		S

KER #	Key Exploitable Result	Short description of KER	Main partner(s)	Contributing Partner(s)	Related R number	Related BG number	KER Owner(s)	Potential IP protection	M	U	L	S	O	Most promising concerning M-U-L-S-O
20	MainstreamBIO brand and community	The MainstreamBIO brand and community created and enhanced throughout the implementation of MainstreamBIO project	Q-PLAN	All Partners	All R		Q-PLAN	- Copyright		X		X		U2
21	Project website	Contains project's target & methodology, consortium partners online stakeholder engagement, link to the digital toolkit, MIPs introduction, promotional material and project's reports	WHITE	All partners	R 5.1.1		WHITE	- Copyright				X		S
22	Social Media Accounts	Social media accounts that are used for the dissemination of the project and its results by the communication manager: LinkedIn account, Facebook account, Twitter account, YouTube channel	WHITE	All partners	R 5.4.2		WHITE	- Copyright				X		S
23	Business plan for MIPs	Design of business plans assessed against specific criteria (alignment to MIPs' interests and market fit) for the operation of the MIPs	INNV	Q-PLAN	R 5.5.1		INNV	- Copyright - Trade secret				X		S

KER #	Key Exploitable Result	Short description of KER	Main partner(s)	Contributing Partner(s)	Related R number	Related BG number	KER Owner(s)	Potential IP protection	M	U	L	S	O	Most promising concerning M-U-L-S-O
24	Scientific publications and open data	Scientific publications, and open data with novel knowledge produced while studying and supporting the uptake of bio-based solutions, business models and social innovations	All Partners		R 5.3.1		Joint ownership	- Copyright		X				U2

6. Exploitation Plans per Key Exploitable Result

In this section of the Exploitation and Sustainability Plan the Key Exploitable Results of the MainstreamBIO project are described, along with the main contributors to their development. Information is also provided on who their intended users are, the benefits they stand to gain from exploiting that KER as well as on potential exploitation routes. In parallel, the main creator of each KER indicates any foreseeable action that may be needed to facilitate the intended exploitation route(s) of the KER, concisely outlining what needs to be done, when and by whom.

The above information is presented in two tables for each KER:

- One table summarizing the exploitation plan of that KER.
- A second table summarizing any actions needed for the exploitation of that KER.

Each KER is presented in a different sub-section of this section.

The Exploitation Plans per Key Exploitable Result constitute preliminary plans which have been developed according to the current stage of MainstreamBIO project and will be updated in the next versions of Exploitation and Sustainability Plan on M18 (Interim version) and M36 (Final version).

6.1 Multi-actor Innovation Platform - Netherlands

Table 7: Exploitation Plan for the Multi-actor Innovation Platform - Netherlands

KER Description	Multi-actor Innovation Platform established in Netherlands with the aim to bring together key regional stakeholders with diverse backgrounds, expertise and interests and enhance the cooperation among them, in order to support the deployment and scale-up of small-scale bio-based solutions.
Creators of KER	WR is the creator of this KER
Intended users and expected benefits from exploiting the KER	The intended users will be all the stakeholders who are interested in small-scale innovative bio-based solutions. Expected benefits: networking, capacity building, innovation and business support, partnerships
Intended exploitation route	WR is interested in keeping in operation the Dutch MIP after the termination of the project in order to continue the support of new cases studies, to leverage the created network of experts in relevant activities and to develop regional projects.

Table 8: Actions needed for the exploitation of the Multi-Actor Innovation Platform - Netherlands

	What?	By Whom?	When?
IPR	N/A	N/A	N/A

Validation and fine-tuning	The engagement of stakeholders in the MIP is an ongoing process during and after the project. Also, the elaboration of a good general business model for the MIP's operation and alignment with specific regional situations will enhance the engagement of stakeholders in the MIP.	WR	During and after the project
Communication and Dissemination	Promotional material, social media and web portal will be used to attract new stakeholders, aiming to establish and expand the MIP. MainstreamBIO events and workshops will be organized to interact with stakeholders and keep them engaged in the MIP's activities. Partners will participate in external events of great interest to stakeholders aiming to keep in touch with them. Focus the search on specific regions with a sufficient variety of value chains.	WR, All partners, synergy projects	During and after the project

6.2 Multi-actor Innovation Platform - Poland

Table 9: Exploitation Plan for the Multi-actor Innovation Platform - Poland

KER Description	Multi-actor Innovation Platform established in Poland with the aim to bring together key regional stakeholders with diverse backgrounds, expertise and interests and enhance the cooperation among them, in order to support the deployment and scale-up of small-scale bio-based solutions.
Creators of KER	IUNG is the creator of this KER
Intended users and expected benefits from exploiting the KER	• Farmers • Ministry for consultations of different kind of regulation • Regional policy makers for future planning of the local development • Academia and researchers aiming to search partners or experts in the field. • Industrial companies, which are interested in getting contact with investors. Expected benefits: networking, capacity building, innovation and business support, partnerships. Additionally, each of the above stakeholders will be able to have access in an organized group of bioeconomy experts focused on nutrient recovery which can be used to evaluate activities, complete surveys, analyse recommendations, and disseminate knowledge.
Intended exploitation route	The MIP can be utilized on other projects, such us EU projects, or research activities as a network of experts in bioeconomy and small-scale bio-based

	solutions. Also, it can be used as a mean to find new partners or initiatives and funded projects

Table 10: Actions needed for the exploitation of the Multi-actor Innovation Platform - Poland

	What?	By Whom?	When?
IPR	N/A	N/A	N/A
Validation and fine-tuning	Stakeholders will be engaged in the MIP, contributing to its expansion during and after the project. Furthermore, an effort to find financial support will be made for the group's operation after the end of the project.	IUNG	During and after the project
Communication and Dissemination	Promotional material, social media and web portal will be used to attract new stakeholders, aiming to establish and expand the MIP. MainstreamBIO events and workshops will be organized to interact with stakeholders and keep them engaged in the MIP's activities. Partners will participate in external events of great interest to stakeholders aiming to keep in touch with them. Focus the search on specific regions with a sufficient variety of value chains.	IUNG, All partners, synergy projects	During and after the project

6.3 Multi-actor Innovation Platform - Denmark

Table 11: Exploitation Plan for the Multi-actor Innovation Platform - Denmark

KER Description	Multi-actor Innovation Platform established in Denmark with the aim to bring together key regional stakeholders with diverse backgrounds, expertise and interests and enhance the cooperation among them, in order to support the deployment and scale-up of small-scale bio-based solutions.
Creators of KER	FBCD is the creator of this KER, with contribution from Q-PLAN.
Intended users and expected benefits from exploiting the KER	• Farmers • Industry/SMVs • Vocational education centers • Cluster members and other clusters Expected benefits: networking, capacity building, innovation and business support, partnerships

Intended exploitation route	The MIP is expected to be utilized on other projects, such us EU projects, or research activities as a network of experts in bioeconomy and small-scale bio-based solutions. Also, it can be used as a mean to find new partners or initiatives and funded projects

Table 12: Actions needed for the exploitation of the Multi-actor Innovation Platform - Denmark

	What?	By Whom?	When?
IPR	N/A	N/A	N/A
Validation and fine-tuning	Stakeholders will be engaged in the MIP, contributing to its expansion during and after the project.	FBCD	During and after the project
Communication and Dissemination	Promotional material, social media and web portal will be used to attract new stakeholders, aiming to establish and expand the MIP. MainstreamBIO events and workshops will be organized to interact with stakeholders and keep them engaged in the MIP's activities. Partners will participate in external events of great interest to stakeholders aiming to keep in touch with them. Focus the search on specific regions with a sufficient variety of value chains.	FBCD, All partners, synergy projects	During and after the project

6.4 Multi-actor Innovation Platform - Sweden

Table 13: Exploitation Plan for the Multi-actor Innovation Platform - Sweden

KER Description	Multi-actor Innovation Platform established in Sweden with the aim to bring together key regional stakeholders with diverse backgrounds, expertise and interests and enhance the cooperation among them, in order to support the deployment and scale-up of small-scale bio-based solutions.
Creators of KER	PROC is the creator of this KER, with contribution from Q-PLAN.
Intended users and expected benefits from exploiting the KER	• Foresters • Industrial companies • Innovators Expected benefits: networking, capacity building, innovation and business support, partnershipsThese stakeholders will be able to engage in and have access to a further sharpened regional group of experts within the bioeconomy community compared to the current status of the ecosystem.

Intended exploitation route	PROC is interested in integrating the Swedish MIP into everyday business aiming to provide improved innovation support services, relative to small-scale bio-based solutions, for the regional bioeconomy community

Table 14: Actions needed for the exploitation of the Multi-actor Innovation Platform - Sweden

	What?	By Whom?	When?
IPR	N/A	N/A	N/A
Validation and fine-tuning	Stakeholders will be engaged in the MIP, contributing to its expansion during and after the project.	PROC	During and after the project
Communication and Dissemination	Promotional material, social media and web portal will be used to attract new stakeholders, aiming to establish and expand the MIP. MainstreamBIO events and workshops will be organized to interact with stakeholders and keep them engaged in the MIP's activities. Partners will participate in external events of great interest to stakeholders aiming to keep in touch with them. Focus the search on specific regions with a sufficient variety of value chains.	PROC, All partners, synergy projects	Before the end of the project

6.5 Multi-actor Innovation Platform - Bulgaria

Table 15: Exploitation Plan for the Multi-actor Innovation Platform - Bulgaria

KER Description	Multi-actor Innovation Platform established in Bulgaria with the aim to bring together key regional stakeholders with diverse backgrounds, expertise and interests and enhance the cooperation among them, in order to support the deployment and scale-up of small-scale bio-based solutions.
Creators of KER	AUP is the creator of this KER, with contribution from Q-PLAN.
Intended users and expected benefits from exploiting the KER	Stakeholders interested in small-scale innovative bio-based solutions are the intended users of this MIP. Multi-actor Innovation Platforms is attractive for new entrants and farmers with small-scaled farms which cannot invest in or develop new technologies in order to support the deployment and scale-up of small-scale bio-based solutions. Also, regional business incubators can play a role of end users and/or promoters of this ER.
Intended exploitation route	AUP is interested in turning the Bulgarian MIP into the business structure and therefore it can provide products and services to end users in the bio economy sector.

Table 16: Actions needed for the exploitation of the Multi-actor Innovation Platform - Bulgaria

	What?	By Whom?	When?
IPR	N/A	AUP	After the project
Validation and fine-tuning	Stakeholders will be engaged in the MIP, contributing to its expansion during and after the project. Furthermore, after the project the platform will require an external financing and it should be organized in legal form as separate entity, so it can obtain grants or financing using projects financed by different programs	AUP	During and after the project
Communication and Dissemination	Promotional material, social media and web portal will be used to attract new stakeholders, aiming to establish and expand the MIP. MainstreamBIO events and workshops will be organized to interact with stakeholders and keep them engaged in the MIP's activities. Partners will participate in external events of great interest to stakeholders aiming to keep in touch with them. Focus the search on specific regions with a sufficient variety of value chains.	AUP, All partners, synergy projects	During and after the project

6.6 Multi-actor Innovation Platform - Spain

Table 17: Exploitation Plan for the Multi-actor Innovation Platform - Spain

KER Description	Multi-actor Innovation Platform established in Spain with the aim to bring together key regional stakeholders with diverse backgrounds, expertise and interests and enhance the cooperation among them, in order to support the deployment and scale-up of small-scale bio-based solutions.
Creators of KER	INNV is the creator of this KER, with contribution from Q-PLAN.
Intended users and expected benefits from exploiting the KER	The intended users are any rural or bioeconomy-related stakeholders interested in being part of a network to support the deployment of the small-scale bioeconomy in rural environments. The Spanish MIP acts as the starting point of a network to group all relevant stakeholders and knowledge about implementation of small-scale bio-based solutions on the region and acts as a bridge between agents.
Intended exploitation route	INNV is interested in forming a group of experts with whom to collaborate in the future, either in upcoming projects or as individual clients. In addition, the

	MIP can be the seed of a long-lasting collaboration with the common goal of boosting rural bioeconomy in the region.

Table 18: Actions needed for the exploitation of the Multi-actor Innovation Platform - Spain

	What?	By Whom?	When?
IPR	N/A	N/A	N/A
Validation and fine-tuning	Stakeholders will be engaged in the MIP, contributing to its expansion during and after the project. Also, after the project the MIP will be encouraged to follow the business plan prepared for them in order to keep the cluster active over time	INNV	During and after the project
Communication and Dissemination	Promotional material, social media and web portal will be used to attract new stakeholders, aiming to establish and expand the MIP. MainstreamBIO events and workshops will be organized to interact with stakeholders and keep them engaged in the MIP's activities. Partners will participate in external events of great interest to stakeholders aiming to keep in touch with them. Focus the search on specific regions with a sufficient variety of value chains.	INNV, All partners, synergy projects	During and after the project

6.7 Multi-actor Innovation Platform - Ireland

Table 19: Exploitation Plan for the Multi-actor Innovation Platform - Ireland

KER Description	Multi-actor Innovation Platform established in Ireland with the aim to bring together key regional stakeholders with diverse backgrounds, expertise and interests and enhance the cooperation among them, in order to support the deployment and scale-up of small-scale bio-based solutions.
Creators of KER	MTU is the creator of this KER, with contribution from Q-PLAN.
Intended users and expected benefits from exploiting the KER	The main target users will bioeconomy actors in regions (primary producers, technology developers, academia, industry and others), along with the regional government actors who are working to develop the bioeconomy within these regions. These stakeholders will be able to interact and use the experienced platform of contacts, the MIP, which can share its experiences to generate and further develop new ideas on the implementation of small-scale biobased applications.

Intended exploitation route	The MIP is expected to be utilized on other projects, such us EU projects, or research activities as a network of experts in bioeconomy and small-scale bio-based solutions. Also, it can be used as a mean to find new partners or initiatives and funded projects

Table 20: Actions needed for the exploitation of the Multi-actor Innovation Platform - Ireland

	What?	By Whom?	When?
IPR	N/A	N/A	N/A
Validation and fine-tuning	Stakeholders will be engaged in the MIP, contributing to its expansion during and after the project.	MTU	During and after the project
Communication and Dissemination	Promotional material, social media and web portal will be used to attract new stakeholders, aiming to establish and expand the MIP. MainstreamBIO events and workshops will be organized to interact with stakeholders and keep them engaged in the MIP's activities. Partners will participate in external events of great interest to stakeholders aiming to keep in touch with them. Focus the search on specific regions with a sufficient variety of value chains.	MTU, All partners, synergy projects	During and after the project

6.8 Regional value chains mapping

Table 21: Exploitation Plan for the Regional value chains mapping

KER Description	The results of mapping of the available biomass feedstocks, waste and residue streams, actors, processes, resource flows, and bioeconomy value chains in MainstreamBIO's focal region under Task 1.3
Creators of KER	MTU is the main creator of this KER with contribution from WR, FBCD, INNV, PROC, IUNG, AUP
Intended users and expected benefits from exploiting the KER	The indented users will be bioeconomy actors in regions (primary producers, technology developers, academia, industry and others), along with the regional government actors who are working to develop the bioeconomy within these regions. This type of data/mapping may not previously have been developed in all focal regions. It therefore provides a good mapping for regions to understand their bioeconomy potential to further develop their relative strategies.
Intended exploitation route	Partners intend to integrate the regional value chains mapping into their service portfolio and exploit it on other research projects and activities or/and

	support the capacity identification of local bio economies and their further development.

Table 22: Actions needed for the exploitation of the Regional value chains mapping

	What?	By Whom?	When?
IPR	Copyright	MIP Leaders	During the project
Communication and Dissemination	The results will be publicly available through the project's website.	All partners	During the project

6.9 MainstreamBIO Technical Support Services

Table 23: Exploitation Plan for the MainstreamBIO Technical Support Services

KER Description	**A set of technical innovation support services, that will be offered to selected multi-actor partnerships, including:** • project design and development • pilot project implementation advice • field and lab testing • scale-up and optimization • soil nutrient management & recycling monitoring
Creators of KER	All partners are the creators of the technical support services.
Intended users and expected benefits from exploiting the KER	Key stakeholders from across the quadruple helix (farmers, experts, tech providers, advisors, policy makers, representatives of civil society, etc.) may benefit from the technical support services. By utilizing the services, they can achieve increased efficiency and yields, adopt better implementation, management and monitoring methods, be educated on new tools and gain advice from experts.
Intended exploitation route	Based on the experience gained in the project, partners can upgrade their service portfolio or/and develop their own services and adapt them to the needs required either by the client or the project they are working with. Furthermore, some partners may be interested in capturing economic value from the utilization of this result, as they will be able to provide a better consulting to their clients.

Table 24: Actions needed for the exploitation of the MainstreamBIO Technical Support Services

	What?	By Whom?	When?
IPR	- Trade Secret - CC license	All partners	During and after the project

Validation and fine-tuning	An evaluation and monitoring system will be defined during the project in order to collect feedback and update the services. After the project, further development of the services to meet other projects/activities needs may be elaborated	All partners	During and after the project
Communication and Dissemination	A Key Account Manager in each MIP will match the multi-actor partnerships with suitable expert(s)	All partners	During and after the project

6.10 MainstreamBIO Business Support Services

Table 25: Exploitation Plan for the MainstreamBIO Business Support Services

KER Description	**A set of business innovation support services, that will be offered to selected multi-actor partnerships, including:** • tech scouting and business model design • market research and value chain development • business mentoring • access to finance support • networking to find partners, customers, investors
Creators of KER	All partners are the creators of the technical support services.
Intended users and expected benefits from exploiting the KER	Key stakeholders from across the quadruple helix (farmers, experts, tech providers, advisors, policy makers, representatives of civil society, etc.) may benefit from the business support services. By utilizing the services, they can design sustainable business models tailored to their needs, better understand the bio-based markets, gain advice from experts to address challenges, identify and seize funding opportunities and access local and EU networks of stakeholders.
Intended exploitation route	Based on the services developed in the project, partners can upgrade their service portfolio or/and develop their own services and adapt them to the needs required either by the client or the project they are working with. Furthermore, some partners are interested in capturing economic value from the utilization of this result, as they will be able to provide a better consulting to their clients.

Table 26: Actions needed for the exploitation of the MainstreamBIO Business Support Services

	What?	By Whom?	When?

IPR	Trade Secret - CC license	All partners	During and after the project
Validation and fine-tuning	An evaluation and monitoring system will be defined during the project in order to collect feedback and update the services. After the project, further development of the services to meet other projects/activities needs may be elaborated	All partners	During and after the project
Communication and Dissemination	A Key Account Manager in each MIP will match the multi-actor partnerships with suitable expert(s)	All partners	During and after the project

6.11 Catalogue of technologies, business models and social innovations for small-scale bio-based solutions

Table 27: Exploitation Plan for the Catalogue of technologies, business models and social innovations for small-scale bio-based solutions

KER Description	A catalogue of technologies, business models and social innovations for small-scale bio-based solutions to facilitate the delivery of our innovation support, while providing inspiration and guidance for rural actors.
Creators of KER	The main creators of this KER are WR for the technologies' part, INNV for the business models and WHITE for the social innovations, with contribution from the rest consortium partners.
Intended users and expected benefits from exploiting the KER	Any rural or bioeconomy-related actors on a regional, national and European level who are interested in obtaining information on the use of small-scale bio-based circular solutions in rural settings will be the target group for this KER. This KER constitutes a valuable knowledge in the field of small-scale bio-based solutions in rural areas. The specificity on small-scale and rural areas makes this KER different from other similar KERs focused on industrial scale bio-based solutions, which are more suitable for urban areas. Rural development is on the agenda of most of EU countries, thus this KER could contribute to advance the circular bioeconomy deployment in rural areas
Intended exploitation route	Partners are interested in utilizing the catalogue for future research projects, for providing a service, such as consultancy, or internally for further development, such as to develop something else for sale. Also, partners will use the Catalogue to increase the knowledge of small-scale bio-based solutions in the rural environment and thus facilitate the access to information for all those who want to learn about it and advance its development.

Table 28: Actions needed for the exploitation of the Catalogue of technologies, business models and social innovations for small-scale bio-based solutions

	What?	By Whom?	When?
IPR	Copyright	WR, WHITE & INNV	During and after the project
Validation and fine-tuning	The KER may be maintained and it can be further developed in future projects		After the project
Communication and Dissemination	The Catalogue will be accessible through MainstreamBIO digital toolkit and website	WR, WHITE, INNV & DRAXIS	After the release of MainstreamBIO digital toolkit

6.12 Best nutrient recycling practices

Table 29: Exploitation Plan for the Best nutrient recycling practices

KER Description	A collection of best nutrient recycling practices, which provides resources for successful management of nutrients and organic matter recycling back to soils in line with circular economy principles.
Creators of KER	IUNG is the main partner of the best practices with contribution from Q PLAN, MTU, WR, AUP, FBCD, WHITE and DRAXIS.
Intended users and expected benefits from exploiting the KER	• Ministry • Regional policy makers • Researchers • Industrial companies The above users can be educated and improve their operations via the detailed description of the best nutrient recycling practices for improved nutrient recycling in the circular bioeconomy.
Intended exploitation route	Consortium partners intend to integrate the set of best nutrient recycling practises into their service portfolio and database, in order to better support other projects, such as EU projects, or internal research activities to facilitate their completion.

Table 30: Actions needed for the exploitation of the Best nutrient recycling practices

	What?	By Whom?	When?
IPR	Copyright	IUNG and contributing partners	During and after the project
Validation and fine-tuning	Obtaining financing for updating Best nutrient	IUNG	After the project

	recycling practices in the future		
Communication and Dissemination	The collection of best practices will be accessible through MainstreamBIO website	IUNG and contributing partners	During and after the project

6.13 MainstreamBIO Decision Support System

Table 31: Exploitation Plan for the MainstreamBIO Decision Support System

KER Description	A multi-criteria decision model to serve as an easy-to-use decision support system for biomass producers, helping them make better informed decisions regarding the adoption of small-scale bio-based solutions, business models and social innovations.
Creators of KER	WR is the creator of the MainstreamBIO Decision Support System with contribution from all partners.
Intended users and expected benefits from exploiting the KER	Primary producers are the main target group to benefit from the DSS, as they will be able to make better informed decisions tailored to their needs, in order to uptake and scale up small-scale bio-based solutions. Furthermore, research funding organizations on regional, national and European level can utilize the DSS aiming to support and complete their activities.
Intended exploitation route	**Exploitation path #1**: Partners intend to make use of the DSS in order to develop and perform new research projects, support the local bio economies and enhance the up-take of small-scale bio-based solutions. **Exploitation path #2**: Partners can find external funding to maintain and further develop the functionalities of the DSS after the project, aiming to seek new research contracts and generate economic value for their organization.

Table 32: Actions needed for the exploitation of the MainstreamBIO Decision Support System

	What?	By Whom?	When?
IPR	Copyright	All partners	After the project
Validation and fine-tuning	It shall be maintained and could even be further developed in future projects	WR	After the project
Communication and Dissemination	The DSS will be available through the MainstreamBIO Digital Toolkit and website	All partners	During and after the project

6.14 MainstreamBIO Digital Toolkit

Table 33: Exploitation Plan for the MainstreamBIO Digital Toolkit

KER Description	A set of digital innovation support tools (for matching information, sharing best practices, etc.) to facilitate the development of the bioeconomy in one place.
Creators of KER	DRAXIS will be the main partner with contribution from all partners
Intended users and expected benefits from exploiting the KER	• Biomass producers • Academics and researchers, public non-university and private research centres • Business and Industry • Policy makers • Civil society MainstreamBIO Digital Toolkit allows the better matching of bio-based technologies, social innovations and good nutrient recycling practices with available biomass and market trends as well as enhances the understanding of the bioeconomy with a suite of educational resources building on existing research results and tools. Last but not least, it gives the opportunity to the users to communicate asynchronously, serving as an open environment for exchanging good practices, nurturing novel ideas and solutions, making connections and feeding project activities.
Intended exploitation route	The platform will be of public access during the project (and beyond).

Table 34: Actions needed for the exploitation of the MainstreamBIO Digital Toolkit

	What?	By Whom?	When?
IPR	Copyright	DRAXIS and all partners	After the development of the digital toolkit
Validation and fine-tuning	Financing will be needed for validating, maintaining and further updating the tool in the selected server	DRAXIS	After the project
Communication and Dissemination	The tool will be available online and through the MainstreamBIO website	DRAXIS	During and after the project

6.15 Bioeconomy Repository

Table 35: Exploitation Plan for the Bioeconomy Repository

KER Description	A repository of initiatives from MainstreamBIO and other projects to raise awareness on bioeconomy educational resources and aggregate available educational material (fact sheets, publications, webinars, videos etc.).

Creators of KER	Q-PLAN will be the creator of this KER with contribution from all partners.
Intended users and expected benefits from exploiting the KER	• Biomass producers • Academics and researchers • Business • Policy makers • Civil society The users of the repository will have access to an online and rich range of reports and informing material, regarding the bioeconomy, clustered by several criteria. Moreover, it will be easy to use, as there will be searching filters for users to find a specific report/material. Also, they can use the material for education purposes (academia), for bioeconomy awareness raising and for business purposes.
Intended exploitation route	The online library is a core part of the MainstreamBIO Digital Toolkit and will be provided with free access to all interested stakeholders. Additionally, the format and contents of the library can be used by partners, in the framework of future European projects on bioeconomy.

Table 36: Actions needed for the exploitation of the Bioeconomy Repository

	What?	By Whom?	When?
IPR	- Copyright - Reference to the source	All partners	During the project
Validation and fine-tuning	The online repository will be continuously improved throughout the project based on collected material.	Q-PLAN & DRAXIS, all partners	During the project
Communication and Dissemination	The Bioeconomy Repository will be available through the MainstreamBIO Digital Toolkit and website and will also be promoted through the partners dissemination activities.	All partners	During and after the project

6.16 Replication Guide and Toolkit

Table 37: Exploitation Plan for the Replication Guide and Toolkit

KER Description	Replication Guide and Toolkit, compiling all the insights gained and lessons learnt during the deployment of our innovation support to facilitate its uptake by innovation intermediaries

Creators of KER	IUNG is the creator of this KER with contribution from Q-PLAN, MTU, WR, AUP, FBCD, INNV, DRAXIS and WHITE
Intended users and expected benefits from exploiting the KER	• Ministry • regional policy maker, advisors • researchers, students • industrial companies, innovation hubs, farmers • civil society, clusters The Replication Guide and Toolkit is a set of practical guidelines along with lessons learned, recommendations and tools that will support interested regional actors (e.g. clusters, innovation hubs, advisors) to set up MIPs and/or better attune their innovation support towards mainstreaming small-scale bio-based solutions.
Intended exploitation route	**Exploitation path #1**: The Replication Guide and Toolkit can be exploited as a standalone KER in the form of a practical guideline aimed to support interested regional actors (e.g. clusters, innovation hubs, advisors) to set up MIPs and/or better attune their innovation support towards mainstreaming small-scale bio-based solutions. **Exploitation path #2**: The Replication Guide and Toolkit can be utilized on other research projects to support their activities with recommendations and lessons learnt through MainstreamBIO.

Table 38: Actions needed for the exploitation of the Replication Guide and Toolkit

	What?	By Whom?	When?
IPR	Copyright	IUNG	After the project
Validation and fine-tuning	The initial version of Replication Guide and Toolkit will be elaborated on M30 and will fuel discussions during an EU policy roundtable aiming to be refined and elaborate a final set of policy recommendations and briefs.	All partners, other projects funded under the same topic as MainstreamBIO	M30 to M36
Communication and Dissemination	The Replication Guide and Toolkit will be available through the project's website and will also be disseminated via partners' dissemination and communication activities.	All partners	During and after the project

6.17 Policy options and recommendations

Table 39: Exploitation Plan for the Policy option and recommendations

KER Description	Policy options and recommendations offering insight and guidelines for designing effective support measures and incentives to mainstream small-scale bio-based solutions in rural areas
Creators of KER	IUNG is the creator of this KER with contribution from all partners
Intended users and expected benefits from exploiting the KER	• Ministry • regional policy maker, policy institutions, advisors • researchers, students • industrial companies, innovation hubs, farmers • civil society, clusters
Intended exploitation route	MainstreamBIO's policy options and recommendations may be exploited as a standalone KER mostly through communications, dissemination and awareness raising activities and campaigns aiming to offer insights and guidelines to local, national and European policy makers, policy institutions and other enabling them to design more effective support measures for mainstreaming small-scale bio-based solutions in rural areas.

Table 40: Actions needed for the exploitation of the Policy options and recommendations

	What?	By Whom?	When?
IPR	Copyright	IUNG	After the project
Communication and Dissemination	The Replication Guide and Toolkit will be available through the project's website and will also be disseminated via partners' dissemination and communication activities.	All partners	After the project

6.18 Practice abstracts, communication and educational material

Table 41: Exploitation Plan for the Practice abstracts, communication and educational material

KER Description	Practice abstracts, communication and educational materials (including audio-visual material) that can help enhance awareness and understanding of the bioeconomy
Creators of KER	AUP is the creator of this KER with contribution from all partners

Intended users and expected benefits from exploiting the KER	• Pupils, students, trainers, teachers, practitioners • Business advisers, farmers • Policy makers • Civil Society This KER can be used as case studies and promotional materials for educational organizations, local workshops and events specialized in the field of bio economy.
Intended exploitation route	**Exploitation path #1**: the practice abstracts, communication and educational material will contribute to the Knowledge Centre for Bioeconomy and EIP AGRI (The agricultural European Innovation Partnership) aiming to enrich the existing knowledge and support the practitioners. **Exploitation path #2**: the practice abstracts, communication and educational material can be utilized as a training tool and service in order to attract potential educational or other organizations and provide economic values.

Table 42: Actions needed for the exploitation of the Practice abstracts, communication and educational material

	What?	By Whom?	When?
IPR	- Copyright - CC License	AUP and all partners	During and after the project
Validation and fine-tuning	A first set of practice abstracts, communication and educational materials will be developed on M26 and the second set will be delivered on M34 of the project.	AUP	M26 and M34
Communication and Dissemination	The material will be publicly available on the Knowledge Centre for Bioeconomy. Also, it can be available through MainstreamBIO website and will be disseminated through partners' D&C activities	All partners	M26, M34 and after the project

6.19 Methodologies for the organization of co-creation workshops for rural actors

Table 43: Exploitation Plan for the Methodologies for the organization of co-creation workshops for rural actors

KER Description	A methodology for the organization of co-creation workshops in Multi-actor Innovation Platforms for rural stakeholders, who are called to co-define the service portfolio of such platforms and provide feedback on the functionalities of a digital tools connected to the platforms
Creators of KER	DRAXIS is the creator of this KER with contribution from all partners
Intended users and expected benefits from exploiting the KER	The intended users of this KER are stakeholders who are interested in organizing co-creation workshops for their project/activities. These target users will benefit from having free access to a sound methodology, guidelines, tutorials with audio-visual material and tools for designing and implementing co-creation workshops with their audience.
Intended exploitation route	**Exploitation path #1**: The methodology will be publicly available on the MainstreamBIO website, in order to support MIP members to organize such a workshop should it be needed. **Exploitation path #2**: This methodology will be of public access through the project's website, but it can lead to requests from authorities or others for consultancies or applications (e.g. organize co-creation workshops/activities for an interested stakeholder). Also, the possession of this methodology can support the engagement in other funded projects.

Table 44: Actions needed for the exploitation of the Methodologies for the Organization of co-creation workshops for rural actors

	What?	By Whom?	When?
IPR	Copyright	DRAXIS and all partners	During and after the project
Validation and fine-tuning	The methodology acquires suitable equipment for the audio-visual format. The methodology can be further developed and analysed in a better and more efficient way.	DRAXIS and all partners	During the project After the project
Communication and Dissemination	The methodology will be publicly available through the project's website. D&C activities can be employed in order to disseminate the expertise on this technology.	DRAXIS and all partners	During the project After the project

6.20 MainstreamBIO brand and community

Table 45: Exploitation Plan for the MainstreamBIO brand and community

KER Description	The MainstreamBIO brand and community created and enhanced throughout the implementation of MainstreamBIO project
Creators of KER	Q-PLAN is the creator of this KER with contribution from all partners
Intended users and expected benefits from exploiting the KER	The main target group of MainstreamBIO brand and community is all stakeholders involved in the project that can benefit from the project results.
Intended exploitation route	The MainstreamBIO brand and community represents only the Mainstream2BIO project. The quality and credibility gained from the effective implementation of the project and its impact can facilitate the engagement of its partners into other EU funded projects and the expansion of their network and client base.

Table 46: Actions needed for the exploitation of the MainstreamBIO brand and community

	What?	By Whom?	When?
IPR	Copyright	All partners	Before the end of the project
Communication and Dissemination	The MainstreamBIO brand and community represents only the Mainstream2BIO project.	All partners	After the project

6.21 Project Website

Table 47: Exploitation Plan for the Project website

KER Description	The project's website contains MainstreamBIO's target & methodology, consortium partners online stakeholder engagement, link to the digital toolkit, MIPs introduction, promotional material and project's reports.
Creators of KER	WHITE is the creator of this KER with contribution from all partners.
Intended users and expected benefits from exploiting the KER	• Bio-mass producers • Biobased & agri-food industry, including SMEs • Innovation intermediaries in agriculture & bioeconomy • Innovation and policy advisors • Policy makers • Researchers & academia, including R&I projects • Civil society, consumers & action groups included • Financial institutions & individual investors

	All the above target groups can visit the MainstreamBIO website and be informed about all the news, reports, outcomes, results and the current stage of the project. Also, they can be redirected to and use the MainstreamBIO Digital Toolkit through the website.
Intended exploitation route	**Exploitation path #1**: The project's website will be launched publicly to provide stakeholders information and reports regarding the MainstreamBIO's activities and/or to disseminate other synergizing projects and it will be available for 3 years after the implementation of the project. After that period, the domain will be shut down. **Exploitation path #2**: The partners can maintain the MainstreamBIO website at their expenses after the three years period beyond the project's completion. In that case, they can utilize the website to disseminate other projects, attract more stakeholders and eventually generate economic value.

Table 48: Actions needed for the exploitation of the Project website

	What?	By Whom?	When?
IPR	Copyright	WHITE and all partners	During and after the project
Validation and fine-tuning	The website will be continuously updated during the project lifetime, with news about project activities and results	WHITE and all partners	During the project After the project
Communication and Dissemination	The website will be uploaded on a specific domain in order to be publicly available. Also, partners will disseminate the website via their organization's web pages and social media. Finally, links to MainstreamBIO website will be provided through other synergizing projects' websites to enhance its visibility.	WHITE, all partners, other synergizing projects	During and after the project

6.22 Social Media Accounts

Table 49: Exploitation Plan for the Social Media Accounts

KER Description	Social media accounts that are used for the dissemination of the project and its results by the communication manager: LinkedIn account, Facebook account, Mailchimp account, Twitter account, YouTube channel.
Creators of KER	WHITE is the creator of this KER with contribution from all partners.

Intended users and expected benefits from exploiting the KER	The main target group for this KER is every rural stakeholder from the quadruple helix that holds social media account(s). Users can go through the MainstreamBIO's social media accounts and get informed from a wide range of news, upcoming events, reports, articles and information about the consortium partners and the project.
Intended exploitation route	The social media accounts will be up and running during the project and can be used to promote and disseminate the MainstreamBIO's activities (synergies, events, news etc.) and other EU funded projects that partners are involved in. Also, their utility can facilitate the connection among MainstreamBIO and other EU projects, enhancing in that way potential synergies.

Table 50: Actions needed for the exploitation of the Social Media Accounts

	What?	By Whom?	When?
IPR	Copyright	WHITE	During the project
Validation and fine-tuning	The social media accounts will be updated iteratively during the implementation of MainstreamBIO aiming to be aligned with the project's activities and outcomes.	WHITE, all partners	During the project
Communication and Dissemination	The social media accounts of MainstreamBIO will be disseminated via the project's website and partners' dissemination activities.	WHITE, all partners	During the project

6.23 Business Plan for MIPs

Table 51: Exploitation Plan for the Business Plan for MIPs

KER Description	Design of business plans assessed against specific criteria (alignment to MIPs' interests and market fit) for the operation of the MIPs
Creators of KER	INNV is the creator of this KER with contribution from all partners.
Intended users and expected benefits from exploiting the KER	The intended users will be any rural or bioeconomy-related stakeholders interested in being part of a network to support the deployment of the small-scale bioeconomy in rural environments. The business plan is tailored-made for the MIPs and enhances their sound post-project operation and employment of activities, thereby providing a reliable network of experts to the interested in engaging stakeholders.

Intended exploitation route	**Exploitation path #1**: Partners will develop the Business plan to guide the MIPs' post project operation and also they will encourage the MIPs to follow the business plan prepared for them in order to keep the cluster active over time. **Exploitation path #2**: Partners can adjust the business plan to other entities' needs and activities aiming to attract clients and generate economic value.

Table 52: Actions needed for the exploitation of the Business Plan for MIPs

	What?	By Whom?	When?
IPR	• Copyright • Trade secret	INNV	After the end of the project
Validation and fine-tuning	Partners will develop, assess, refine and validate business models in order to elaborate the business plan for the MIPs. For the **exploitation path #2**, partners shall re-assess the business plan and adjust it to the new entity or project in order to achieve its sound operation.	All partners Partners who are interested in **exploitation path #2**	During the project After the project
Communication and Dissemination	The business plan will be available for the MIPs' members through the MainstreamBIO website	All partners	During the project

6.24 Scientific publications and open data

Table 53: Exploitation Plan for the Scientific publications and open data

KER Description	Scientific publications and open data with novel knowledge produced while studying and supporting the uptake of bio-based solutions, business models and social innovations
Creators of KER	All partners may contribute to this KER
Intended users and expected benefits from exploiting the KER	The primary target users are researchers from: • Research performing and/or funding organisations (e.g., public/ private research institutes, universities, research funding agencies, etc.) • Stakeholders from industries' R&D departments

	They can use the papers published as literature in future research and the data openly shared as input to new research and product/services development endeavours.
Intended exploitation route	MainstreamBIO will undertake a set of dissemination actions and will grant open access to facilitate the use of the scientific publications and other open research data by researchers and academia worldwide. However, the MainstreamBIO scientific outputs may also be used by partners as input to future research activities.

Table 54: Actions needed for the exploitation of the Scientific publications and open data

	What?	By Whom?	When?
IPR	• Copyright • CC License	The partner(s) who write the publication or collected the data	Ad hoc
Validation and fine-tuning	All scientific papers undergo a peer-review process. Quality Assurance (QA) and Quality Control (QC) activities are an integral part of MainstreamBIO's data management methodology and are implemented before the publication of any data to Zenodo, safeguarding the transparency, consistency, comparability, completeness and accuracy of the data.	The partner(s) who write the publication or collected the data	Ad hoc
Communication and Dissemination	The MainstreamBIO research outputs are openly shared and disseminated through scientific journals, open databases, the project website and scientific conferences.	All partners	During and after the project

7. Exploitation Plans per partner

This section summarizes, in tabular format, the Key Exploitable Results of the MainstreamBIO project that each partner is currently interested the most to exploit, as well as how they intend to proceed to this end.

Table 55: Individual Exploitation Plans for partners

Individual exploitation plans of the MainstreamBIO partners	
MainstreamBIO partner: Q-PLAN	**Key Exploitable Results of major interest:** • MainstreamBIO brand and community • Catalogue of technologies, business models and social innovations for small-scale bio-based solutions • Best nutrient recycling practices • MainstreamBIO support services (technical and business) • MainstreamBIO digital toolkit • Bioeconomy Repository • Replication Guide and Toolkit • Policy options and recommendations
Exploitation Plan: Q-PLAN is particularly interested in exploiting MainstreamBIO's brand and community as the field's cross-cutting project (bioeconomy and bio-related sectors) are of strategic interest for Q-PLAN, especially from a business perspective. Furthermore, the community to be developed through the project will enrich Q-PLAN's international network of rural and bioeconomy stakeholders, who are interested in small-scale bio-based solutions, broadening the pool of potential clients and collaborators. Q-PLAN's involvement in the co-creation and delivery of the innovation support services will enhance their service portfolio and better support its existing clients in the private and public sector and will facilitate the investigation of new ones in the bioeconomy sector. Also, the contribution to the development of the MainstreamBIO Digital Toolkit, including all of its tools, will enrich Q-PLAN's expertise and pool of digital tools, which can be utilized on existing and new research projects relative to bioeconomy.	
MainstreamBIO partner: MTU	**Key Exploitable Results of major interest:** • Multi-actor Innovation Platform – Ireland • Regional value chains mapping • MainstreamBIO support services (technical and business) • Practise abstracts, communication and educational materials • Scientific publications and open data
Exploitation Plan: MTU is interested in exploiting the Irish Multi-actor Innovation Platform, as its operation will attract researchers, policy makers, farmers, business, advisors etc., and extend the existing network of collaborators in national and European level. The contribution to the regional value chains mapping will provide the MTU with new knowledge and data, which are a baseline to assess and support the development of new bio-based solutions, innovations and value chains in Ireland. In combination with the elaboration of practice abstracts, communication and educational material during the MainstreamBIO project, MTU will strongly advance its teaching methods, research goals and educational material.	

Individual exploitation plans of the MainstreamBIO partners	
MainstreamBIO partner: WR	**Key Exploitable Results of major interest:** • Multi-actor Innovation Platform – Netherlands • MainstreamBIO support services (technical and business) • MainstreamBIO Digital Toolkit • Catalogue of technologies, business models and social innovations for small-scale bio-based solutions • MainstreamBIO Decision Support System • Scientific publications and open data
Exploitation Plan: WR is interested in exploiting the Dutch Multi-actor Innovation Platform and will intend to keep its operation after the end of MainstreamBIO, as the platform constitutes a good network of stakeholders from the quadruple helix with different background and expertise, who are connected to research, and this can lead to economic results for WR in the sense of new research contracts and/or funded projects. The involvement of WR in the co-creation and delivery of the MainstreamBIO Innovation Support services and the development of the MainstreamBIO Digital Toolkit, especially for the Decision Support System and the Catalogue, enhances its expertise and teaching methods with new knowledge and data. Finally, WR can support the development of regional bioeconomy with practical application of the MainstreamBIO innovation support services and digital tools.	
MainstreamBIO partner: IUNG	**Key Exploitable Results of major interest:** • Multi-actor Innovation Platform – Poland • Best nutrient recycling practices • Replication Guide and Toolkit • Policy options and recommendations • Scientific publications and open data
Exploitation Plan: IUNG is interested in exploiting the Polish Multi-actor Innovation Platform in order to extend its network of researchers, farmers, producers, policy makers etc. and create new collaborations for future research projects. Furthermore, the involvement in developing the set of best nutrient recycling practices will provide IUNG with new knowledge and data, thus its expertise on the field of bioeconomy and nutrient recycling in national and European level will be strongly increased. To this end, IUNG will achieve improved researching methods and better supportive actions in other research projects or/and activities.	
MainstreamBIO partner: PROC	**Key Exploitable Results of major interest:** • Multi-actor Innovation Platform – Sweden • MainstreamBIO Support services (technical and business) • Regional value chains mapping • Scientific publications and open data
Exploitation Plan: PROC is interested in exploiting the Swedish Multi-actor Innovation Platform, which is a further sharpened regional coordination within the bioeconomy community compared to the current status of the ecosystem. PROC will be able to find new clients and collaborators in the field of bioeconomy, especially researchers, and facilitate its engagement in other projects. Moreover, the mapping of regional value chains will enrich PROC's database and knowledge base and advance its know-how to support the development of regional bioeconomy. Last but not least, PROC's involvement in the co-creation and delivery of the MainstreamBIO Innovation Support services will enable the improvement of its existing services to better support or consult the regional stakeholders who are related to the bioeconomy and forestry.	

<table>
<tr><th colspan="2">Individual exploitation plans of the MainstreamBIO partners</th></tr>
<tr><td>MainstreamBIO partner: AUP</td><td>Key Exploitable Results of major interest:
Multi-actor Innovation Platform – Bulgaria
Regional value chain mapping
MainstreamBIO Support services (technical and business)
Catalogue of technologies, business models and social innovations for small-scale bio-based solutions
Bioeconomy Repository
Policy options and recommendations
Practice abstracts, communication and educational material
Scientific publications and open data</td></tr>
<tr><td colspan="2">Exploitation Plan: AUP is interested in searching external financing and exploiting the Bulgarian Multi-actor Innovation Platform after the end of the project aiming to organize it in a legal form as separate entity, which can obtain grants or financing using projects financed by different programs. Also, turning the local MIP into business structure it can provide products and services to end users in the bioeconomy sector. The involvement in the co-creation support services and digital tools (Catalogue and Repository) will provide AUP with knowledge and data, but also will increase its expertise in the relative support services, which can be offered as consultancy and generate economic value. Finally, AUP considers gaining economic value from the utilization of the practice abstracts, communication and educational material as a training tool and service.</td></tr>
<tr><td>MainstreamBIO partner: FBCD</td><td>Key Exploitable Results of major interest:
Multi-actor Innovation Platform – Denmark
MainstreamBIO Support services (technical and business)
MainstreamBIO Digital Toolkit
Practice abstracts, communication and educational material</td></tr>
<tr><td colspan="2">Exploitation Plan: FBCD is interested in exploiting the Danish Multi-actor Innovation Platform, as it is a wide network of rural stakeholders related to bioeconomy and small-scale bio-based initiatives. Through the MIP, FBCD will extend its network with new clients and collaborators, but also will foster the engagement in new research projects. The involvement in co-creating the innovation support services, the digital toolkit and the practice abstracts, communicational and educational material will advance FBCD’s knowledge and expertise enabling the better supporting of cluster members to identify small-scale bio-based solutions that match their specificities and to develop market-driven bio-based products, improving their productivity and reducing their environmental impact.</td></tr>
</table>

<table>
<tr><th colspan="2">Individual exploitation plans of the MainstreamBIO partners</th></tr>
<tr><td>MainstreamBIO partner: INNV</td><td>Key Exploitable Results of major interest:
Multi-actor Innovation Platform – Spain
Regional value chains mapping
MainstreamBIO Support services (technical and business)
MainstreamBIO tools (Catalogue, Repository, best nutrient recycling practices)
Replication Guide and Toolkit
Policy options and recommendations
Practice abstracts, communication and educational material
MainstreamBIO brand and community
Business plan for MIPs</td></tr>
<tr><td colspan="2">Exploitation Plan: INNV is interested in exploiting MainstreamBIO’s brand and community as the bio related MainstreamBIO project is of strategic interest for INNV, especially from a business perspective, and in combination with the exploitation of the Spanish MIP INNV will seek to form a group of experts with whom to collaborate in the future, either in upcoming projects or as individual clients. The contribution to regional value chains mapping and MainstreamBIO tools will provide INNV with knowledge and data to better support future research (e.g. projects, internal research). Furthermore, the involvement in co-creating and delivering the innovation support services and the development of business models and plan for the MIPs will enhance INNV’s service portfolio, which can develop its own services and adapt them to the needs required either by a client or a project.</td></tr>
<tr><td>MainstreamBIO partner: DRAXIS</td><td>Key Exploitable Results of major interest:
MainstreamBIO Digital Toolkit
Methodologies for the organization of co-creation workshops</td></tr>
<tr><td colspan="2">Exploitation Plan: DRAXIS will develop and exploit the MainstreamBIO Digital Toolkit. The functionalities of the digital toolkit are bio-related, thus DRAXIS incorporates new elements in its existing arsenal of digital solutions aiming to open up new markets and enhance its engagement in other projects or/and activities that request the development of similar tools/toolkits. Moreover, the methodology used to organize co-creation workshops advances DRAXIS’ expertise to better support the organisation of such events. Finally, through the implementation of MainstreamBIO project, DRAXIS will gain an increased visibility in the bioeconomy and bio-based sectors and verticals.</td></tr>
<tr><td>MainstreamBIO partner: WHITE</td><td>Key Exploitable Results of major interest:
Catalogue of technologies, business models social innovations for small-scale bio-based solutions
Best nutrient recycling practices
MainstreamBIO website
Social Media Accounts</td></tr>
<tr><td colspan="2">Exploitation Plan: WHITE, as the Dissemination and Communication Manager, is interested in exploiting the website and social media accounts and promote its actions from other projects, with the aim to enhance the visibility of the organization’s activities among bio-related stakeholders and extend its client and collaborators base. The results and expertise gained through the involvement in creating the catalogue and the set of best nutrient recycling practices can be integrated in the existing innovation support practices, that WHITE offers, to enhance its service portfolio and better support clients in the private and public sector.</td></tr>
</table>

8. Conclusions and Way Forward

This initial version of the MainstreamBIO Exploitation and Sustainability Plan has described the strategy and methodology employed in this respect within the framework of MainstreamBIO, while also providing an overview of its Background and project Results as well its Key Exploitable Results. A dedicated tool, namely the IPR Matrix, has been elaborated in order to facilitate the identification and management of MainstreamBIO's Key Exploitable Results by project partners under the supervision of the Exploitation Manager (Q-PLAN) throughout the project.

Accordingly, the Exploitation and Sustainability Plan of MainstreamBIO will be updated on M18 to reflect the project results at this stage along with their protection, ownership, access rights with the support of all partners. The final version of the "Exploitation and Sustainability Plan" will be elaborated on M36 and provide a more accurate outline of the key exploitable results of the project, the main target groups of external stakeholders (e.g., prospective end-customers) and the potential benefits they stand to gain from MainstreamBIO's outcomes, the exploitation plans per key exploitable result and per partner. Additionally, the final report will encompass the measures that have been taken to protect the partnership's IP as well as the respective IPR agreements, fostering the successful post-project exploitation and sustainability of the project's key exploitable results.

The Exploitation Manager is responsible for keeping the Exploitation and Sustainability Plan updated. In collaboration with all partners, they will monitor project activities as they evolve to timely capture innovation opportunities that may go unnoticed. In parallel, he will identify any potential conflicts of interest and facilitate their resolution before the end of the project, with a view to jointly fostering the smooth post-project exploitation of MainstreamBIO results.

9. ANNEXES

9.1 ANNEX I - QUESTIONNAIRE

Organization name: *<Please enter the name of your organization>*

In the following questions on Section 1 and Section 2, please provide us with as much and relevant information as possible. Each question has to be answered for each of the Key Exploitable results that are relevant to your organization (please add lines on the tables below if the existing ones are not enough).

Section 1: Key Exploitable results

1) Which are the KERs, included in the table with the identified exploitable results, that are relevant to your organization? If you identify any further KER that are not included in the Table 1, please also provide a brief description of it. What is your organization's role in each relevant KER?

#	Key Exploitable Result	Brief description (Principal characteristics, functions, how it works, etc.)	Role of your organization	
			Main	Contributing
1	<text>	<text if necessary>	☐	☐
2	<text>	<text if necessary>	☐	☐
XXX	<text>	<text if necessary>	☐	☐

2) How do you plan on exploiting each of the above-mentioned KER after the end of the project? (for identification of the KER, please use the numbering of the previous table)

KER#	Develop and sell the new product/ service	Spin off activity	Cooperation agreement/ Joint venture	Sell IP rights to end users by means of licensing agreements on protected results	Transfer ownership of IP rights to another partner from MainstreamBIO consortium by means of licensing agreements and NDA signature.	Standardization activities (new standards or support ongoing procedures)	Utilization on other projects	Other methods. Please indicate
1	☐	☐	☐	☐	☐	☐	☐	<text>

KER#	Develop and sell the new product/ service	Spin off activity	Cooperation agreement/ Joint venture	Sell IP rights to end users by means of licensing agreements on protected results	Transfer ownership of IP rights to another partner from MainstreamBIO consortium by means of licensing agreements and NDA signature.	Standardization activities (new standards or support ongoing procedures)	Utilization on other projects	Other methods. Please indicate
2	☐	☐	☐	☐	☐	☐	☐	<text>
XXX	☐	☐	☐	☐	☐	☐	☐	<text>

3) What makes each KER attractive to the potential markets/users? (Key benefits or problems solved by this new KER? What it does better than similar assets? What it brings to the market?)

KER#

4) Who/which do you think will be the major competitors/ competitive products/solutions for each KER? Can you briefly describe them? (e.g., main characteristics, key strengths, price, etc.)

KER#

5) What would be needed to make each KER be ready to be exploitable? (e.g., external financing, obtaining authorization for operation, management structure building, validation of the platform prototype, etc.). Please, separate your answer for during the project and beyond its end.

KER#

6) Are there any legal, normative, or ethical requirements each KER must comply with to enter the target markets?

KER#

7) Which exploitation pathway(s) is more suitable for each KER?

KER#	M: Making a product and selling it	U: Using the project result internally for further development, for instance		L: Licensing the project result to third parties	S: Providing a Service, such as consultancy, etc.	Other methods. Please indicate
		U1: to develop something else for sale	U2: for R&D departments (public or private) to use the results in new research			
1	☐	☐	☐	☐	☐	<text>
2	☐	☐	☐	☐	☐	<text>
XXX	☐	☐	☐	☐	☐	<text>

8) What is the value that you would like to get from each KER? (e.g. for scientific, societal, or economic purposes, etc.) And how do you plan to get the value?

KER#

9) Who will be the target customers or users? Who will be interested in each KER? Any potential target customer already shows interests? (e.g. research communities, European policy makers, Industrial companies/innovators, investors, civil society, citizens, etc.)

KER#

Section 2: IPR Strategy and Protection

Background knowledge (existing knowledge, before the start of the project):

a) Does each KER rely on any Background knowledge? What is it and which partner(s) own it?

KER#

b) If each KER is relying on any existing knowledge, how is this background knowledge protected?

ER#	Trade secret	Copy right	Trademark	Patent	Utility model	Other methods. Please indicate	Not protected. Please explain why
1	☐	☐	☐	☐	☐	<text>	<text>
2	☐	☐	☐	☐	☐	<text>	<text>
XXX	☐	☐	☐	☐	☐	<text>	<text>

Results (Intellectual protection of the KER):

a) How do you plan to protect each KER?

KER#	Trade secret	Copy right	Trademark	Patent	Utility model	Other methods. Please indicate	No protection is foreseen. Please explain why
1	☐	☐	☐	☐	☐	<text>	<text>

2	☐	☐	☐	☐	☐	<text>	<text>
xxx	☐	☐	☐	☐	☐	<text>	<text>

b) Will any of the KER relevant to your organization be developed by more than one partner?

Yes ☐ No☐

If yes, please indicate the contribution by each partner and how the ownership will be distributed among the partners for each KER that will be developed by more than one partner.

KER#	Partner	Contribution (explain)	Who will own the rights or how right will be shared
##			
##			

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 multi-actor 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 - 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

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