MAINSTREAM BIO

MAINSTREAMING SMALL-SCALE BIO-BASED SOLUTIONS ACROSS RURAL EUROPE

D2.5
MainstreamBIO digital toolkit – initial version

DRAXIS

5/6/2024

PROJECT INFORMATION

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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	

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D O C U M E N T   H I S T O R Y

Version	Date	Changes	Responsible partner
0.5	14/2/2024	First Version for review	DRAXIS
1.0	29/2/2024	Final Version	DRAXIS
2.0	5/6/2024	Updated version to address the comments received from the project review regarding correction of year in copyright	DRAXIS

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ABBREVIATIONS

MIPs	Multi-Actor Innovation Platforms
DSS	Decision Support System
WR	Wageningen University & Research
GDPR	General Data Protection Regulation
EU	European Union

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Executive summary

MainstreamBIO is a HORIZON Coordination and Support Actions project funded by the European Union under grant agreement 101059420. It started in September 2022 and will have a duration of 36 months (August 2025). The project aims to co-develop innovation support services and digital tools to build awareness, understanding and capacity to uptake small-scale bio-based solutions in line with market demand and regional specificities. This report presents the work performed related to the development of the MainstreamBIO digital toolkit. The digital toolkit is a product of extensive research and implementation efforts encompassed within Work Package 2.

This current document is D2.5 MainstreamBIO digital toolkit of the MainstreamBIO project. Led by DRAXIS, this Task is dedicated to the development of the MainstreamBIO digital toolkit, envisioned as an application that will serve as a comprehensive online platform. It aims to provide individuals interested in the bioeconomy with a dynamic digital environment where they can educate themselves and gain access to the tools, knowledge, and resources necessary to make a tangible impact in the real world. Moreover, the toolkit is tailored to enhance the research and professional endeavors of those already immersed in the field of bioeconomy, empowering them with cutting-edge resources and insights to advance their work further.

The digital toolkit offers a user-friendly online platform that aims to facilitate the adoption of small-scale bio-based solutions across rural Europe. The toolkit consists of seven (7) main components:

- **Catalogue of small-scale bio-based technologies, business models and social innovations**, for cross-case comparison and assessment of opportunities for business endeavours.
- **Collection of best practices for improved nutrient recycling**, to successfully manage nutrients and organic matter recycling back to soils.
- **Decision Support System**, which helps users match the available biomass and waste streams with small-scale bio-based technologies, business models and social innovations.
- **Bioeconomy Repository**, whose purpose is to aggregate educational material from such bio-based projects and raise awareness on bioeconomy educational resources.
- **Tool Library**, which provides users with access to many bioeconomy tools (bioresource mapping, catalogues, side stream value tool, etc.) from other projects relative to bioeconomy.
- **BioForum**, to communicate, exchange ideas, solutions and good practices and connect with other members of the Multi-actor Innovation Platforms.
- **Instructions**, delivering a comprehensive introduction and clear instructions on optimal toolkit utilization through both video and textual formats.

Finally, this document outlines the fully functional webpages developed along with the wireframes and mockups. It explains the purpose of each page, its functionality, and the objectives it aims to achieve. The development process was highly iterative, guided by feedback and research insights. Beginning with wireframes, and then creating mockups to visualize the user interface, incorporating visual design elements and interactive features.

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1. Introduction

One of the main objectives of MainstreamBIO is the development and employment of a digital toolkit that effectively aligns bio-based technologies, social innovations, and sustainable nutrient recycling practices with the existing biomass and market trends. Additionally, it aims to enhance comprehension of the bioeconomy through a set of educational resources, building upon existing research findings and tools.

1.1 Description of Task 2.5 in Grant Agreement

The development and maintenance of MainstreamBIO digital toolkit is included in *Task 2.5: Development, upgrade and integration of digital tools in the MainstreamBIO digital toolkit* leading by DRAXIS and supporting by the entire consortium of the project.

The description of the task as described in the Grant Agreement is:

"*DRAXIS will develop and maintain the MainstreamBIO digital toolkit during the project. WR will be responsible for providing the necessary material for the implementation of the decision support system developed under Task 2.4 with support from INNV (for available business models), IUNG (for nutrients recycling practices), WHITE (for social innovations) and MTU (for education and awareness raising practices). Q-PLAN will be responsible for collecting the material for the Bioeconomy Repository and Tool Library, using as a starting point the respective TRANSITION2BIO awareness, communication and education toolkits. The digital toolkit (D2.4) will be fine-tuned based on data collected from its practical use across each of the project's two innovation support rounds.*"

The MainstreamBIO digital toolkit holds a significant importance for the project's progress and serves as a **crucial milestone**. Consequently, DRAXIS, with the support of all the partners, has devised a plan and timeline to ensure the efficient and on time development of the toolkit.

1.2 Approach and methodology

The development approach followed a three-step methodology, beginning with the analysis phase subsequent to the elicitation of user requirements, which was conducted through a comprehensive 50-question survey.

Our initial step involved crafting mockups using Whimsical, the details of which can be accessed in the ANNEX II. Following this, the first drafts underwent a rigorous review process, incorporating feedback received on these preliminary designs, which were shaped by user stories and supplementary materials like catalogues.

Transitioning from the conceptual stage to a more visually refined design, Figma was utilized, a widely recognized and extensively utilized design application, which can be found in the ANNEX II. Figma proved instrumental in helping us visualize the application's aesthetics, content, and navigation across its diverse functionalities.

Finally, the importing feature was used to integrated the designed pages from Figma into bubble.io to initiate the development phase of the toolkit. Bubble.io stands out as a no-code platform, renowned for its capability to facilitate the rapid creation of platforms like ours. It empowers us with high scalability, ease of use, and the flexibility to implement swift changes while ensuring that the end result is both functional and visually appealing.

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1.3 Action Plan

The action plan in Table 1 was presented at kick-off meeting in Thessaloniki and updated at 2nd project meeting in Cork and at the 3rd project meeting in Almere.

Table 1: Action plan for Task 2.5 was presented at kick-off meeting and updated at 2nd and 3rd project meeting.

No.	Action point	Who	By When	Month
1	Align with sister projects on synergies and avoiding overlaps regarding the toolkits	DRAXIS, WR, Q-PLAN	15/4/23	M8
2	Receive catalogue of small-scale bio-based technologies, business models and social innovations	WR, WHITE, INVV	30/4/23	M8
3	Receive catalogue of the collected nutrient recycling practices	IUNG	30/4/23	M8
4	Online meetings with material providers for the design and functionality of the toolkit	DRAXIS, WR, INVV, WHITE, MTU, Q-PLAN, IUNG	20/6/23	M10
5	Receive material for Bioeconomy Repository	Q-PLAN	30/6/23	M10
6	Results from the questionnaire for user requirements	DRAXIS	30/6/23	M10
7	Discuss implementation of multi-criteria decision model in Toolkit	WR, INNV	30/6/23	M10
8	Receive results for the MainstreamBIO digital toolkit functionality from the participants in the co – creation workshops	INVV	15/7/23	M11
9	Delivery 1st design multi-criteria decision model	WR, INNV	20/7/23	M11
10	Receive outcomes from WP1, which will be included in the toolkit	MTU, WHITE	31/7/23	M11
11	Creation of 1st MainstreamBIO digital toolkit's functional design	DRAXIS	31/7/23	M11
12	MainstreamBIO digital toolkit's development – 1st prototype	DRAXIS	30/11/23	M15
13	1st innovation support round	All partners	31/12/23	M16

14	Delivery of toolkit's 1st version	DRAXIS	29/2/24	M18

1.4 Content of deliverable

This deliverable outlines the development, content, and deployment of the initial version of the MainstreamBIO digital toolkit under T2.5. Here is the link to access the newly launched MainstreamBIO digital toolkit, now available to the public: https://mainstreambio-digital-toolkit.eu/

2.   MainstreamBIO Digital Toolkit

2.1 Home Page (Pop-up)

As shown in Figure 1, the user is welcomed by an introductory pop-up presenting vital information about the digital toolkit. This pop-up appears only once during the user's visit to the toolkit.
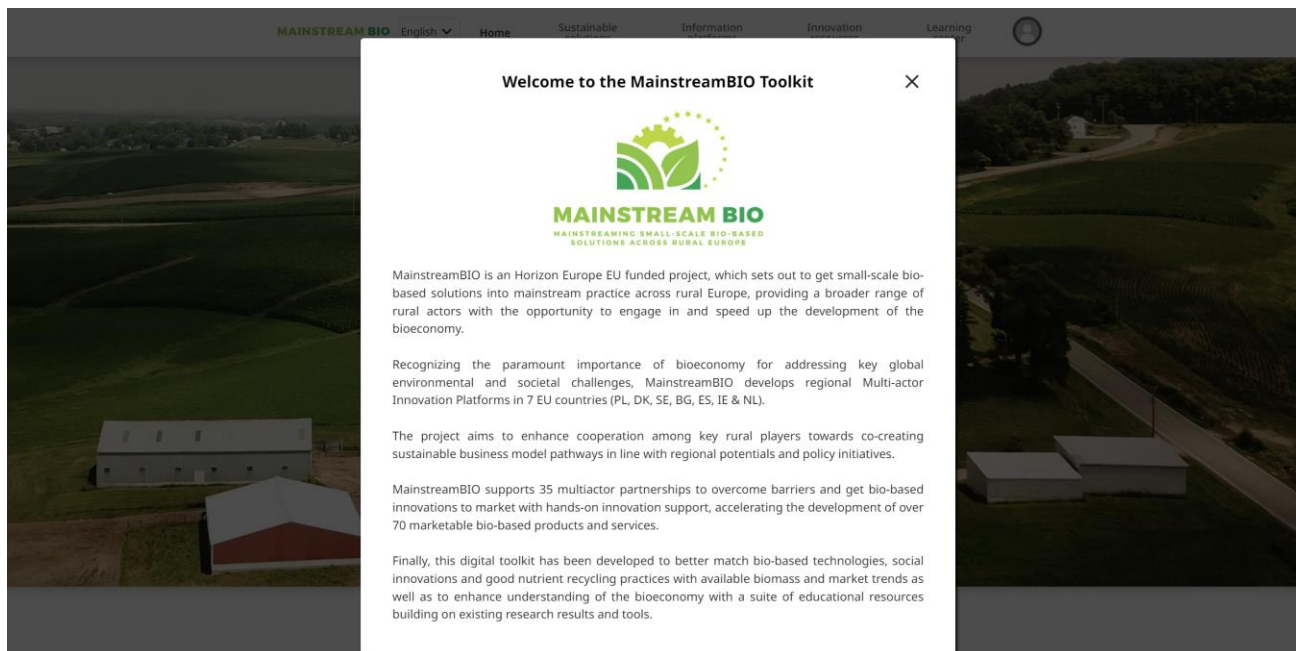
Figure 1: Home Page (Welcoming Pop-up)

2.2 Home Page

Upon closing the pop-up using the "X" button located at the top right corner or by clicking outside its contents, the user lands to the home page. In the header section, users are provided with several options. They can select their preferred language and explore the four main pillars of the toolkit: Sustainable Solutions, Information Platforms, Innovation Resources, and the Learning Center. These sections serve as gateways to all seven functionalities of the toolkit. Additionally, users can access the login or signup feature to create their own decision support systems (DSS) or participate in discussions on the BioForum. On the bottom of the page there is the "**Find Out More**" button, users can either scroll down or click this button to obtain a detailed overview of each functionality.
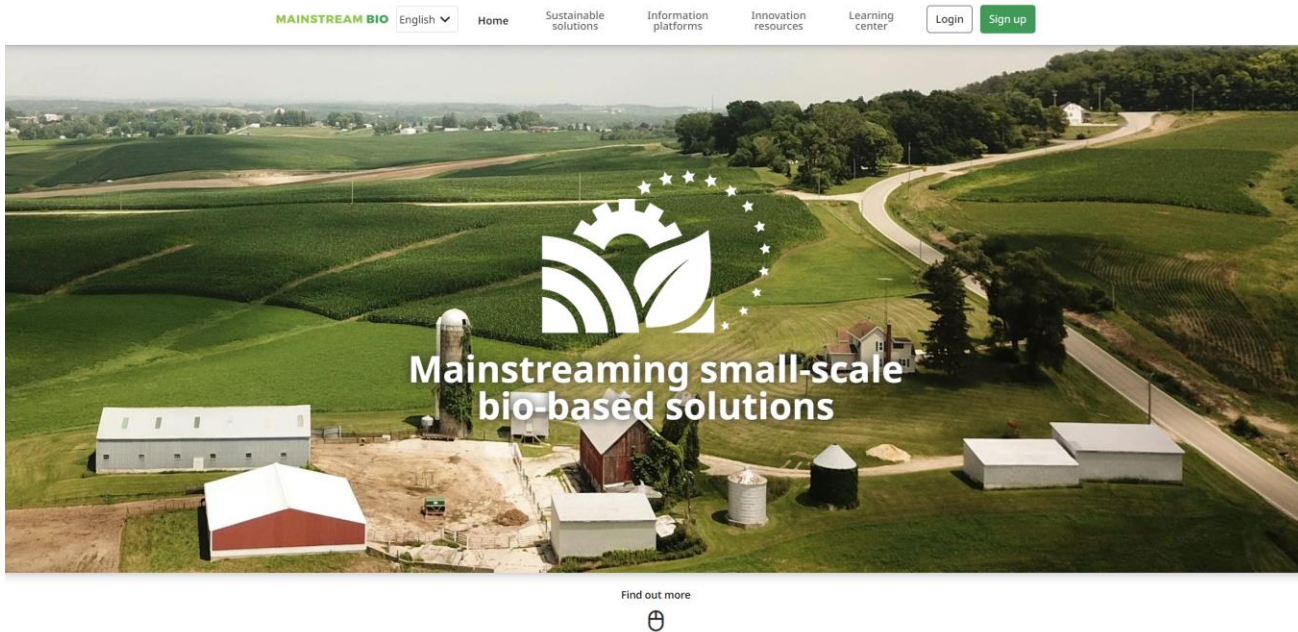
Figure 2: Home Page

2.3 Header (Sustainable solutions)

The Sustainable Solutions section of the toolkit encompasses three essential functionalities: the catalogue of small-scale bio-based solutions, nutrient recycling best practices, and the MainstreamBIO resources. Each functionality is accompanied by a brief description outlining its purpose and relevance within the toolkit.
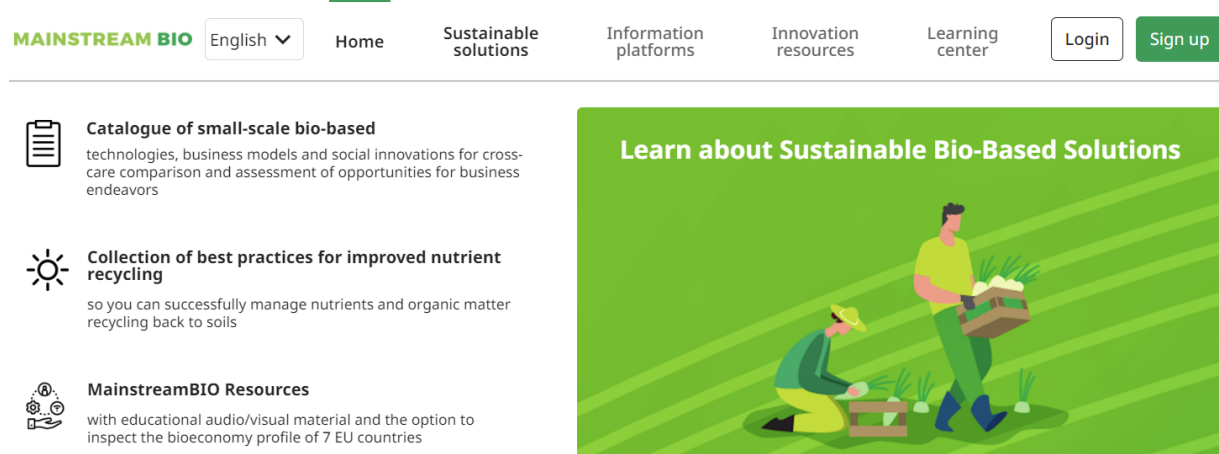

Figure 3: Sustainable solutions section (Header)

2.4 Header (Information platforms)

The Information platforms section houses the two primary features of the toolkit: the Decision Support System and the BioForum. These crucial components provide users with essential tools for decision-making and collaborative discussion within the bioeconomy community.
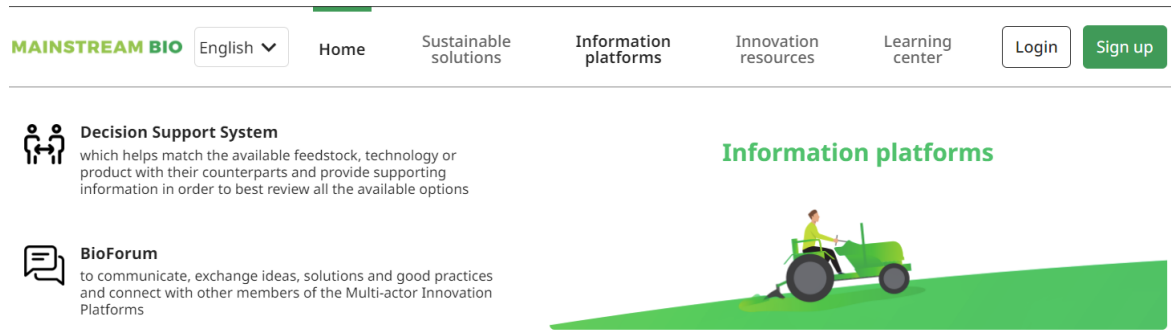
Figure 4: Information platforms section (Header)

2.5 Header (Innovation resources)

The Innovation resources section comprises the Bioeconomy Repository and the Tool Library, providing users with essential resources and tools for innovation in the field.
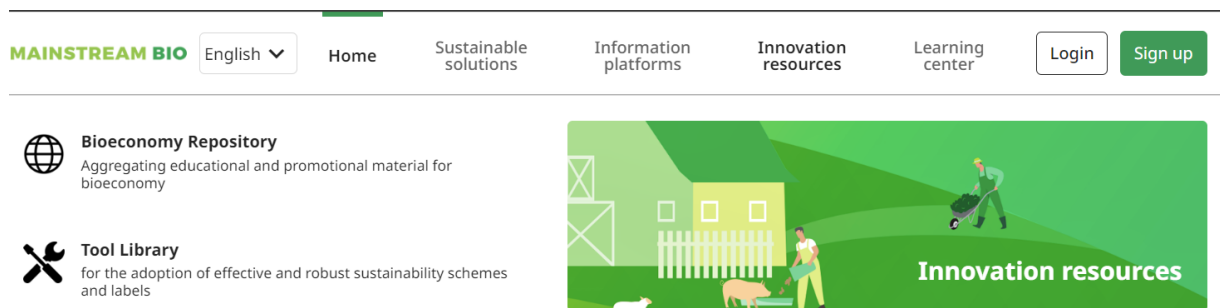
Figure 5: Innovation resources section (Header)

2.6 Header (Learning center)

Finally, the Learning center serves as the hub for instructional resources, featuring the Instructions page. Additionally, it has the potential to host future webinars offered by our esteemed partners.
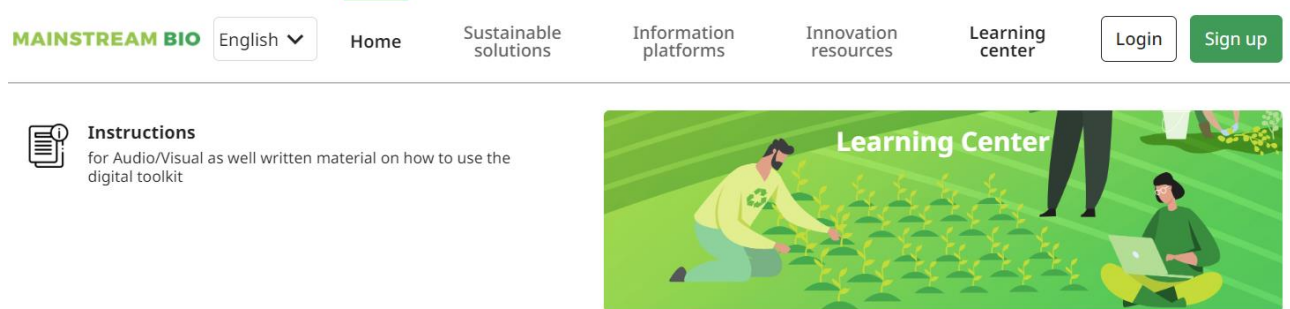
Figure 6: Learning center section (Header)

2.7 MainstreamBIO Login/Signup Page

Users can effortlessly log in using their email address and password. Additionally, if they've forgotten their password, they can easily reset it by clicking the "Forgot your password?" button. For those who do not have an account yet, they simply need to provide their desired username, email address, password, and confirm the password.

Figure 7: MainstreamBIO Log in Page

Figure 8: MainstreamBIO Sign up Page

2.8 Home page (Sustainable solutions)

On the home page's Sustainable solutions section, users will find a concise overview along with direct access to select the specific functionality they desire, between the Catalogue of small-scaled bio-based solutions, Nutrient recycling practices and MainstreamBIO Resources.

Sustainable solutions

This section covers a wide range of small-scale bio-based technologies, innovative business models, and social solutions. It also includes a collection of practices that aim to recycle nutrients and organic matter back to soils. Finally, it provides audio-visual resources and bioresources from 7 EU rural communities for a more sustainable future.

Catalogue of small-scale bio-based

technologies, business models and social innovations for cross-care comparison and assessment of opportunities for business endeavors

Collection of best practices for improved nutrient recycling

so you can successfully manage nutrients and organic matter recycling back to soils

MainstreamBIO Resources

with educational audio/visual material and the option to inspect the bioeconomy profile of 7 EU countries

Figure 9: Home Page (Sustainable solutions)

2.9 Home page (Information platforms)

The Information platforms section offers users the option to navigate to either the Decision Support System or the BioForum within the toolkit.

Information platforms

This section includes the decision support system, which assists in making informed choices, and bioforum, online platforms for discussion and collaboration within the field of biotechnology and related topics.

Decision Support System

which matches the available biomass and waste streams with small-scale bio-based technologies, business models and social innovations

BioForum

to communicate, exchange ideas, solutions and good practices and connect with other members of the Multi-actor Innovation Platforms
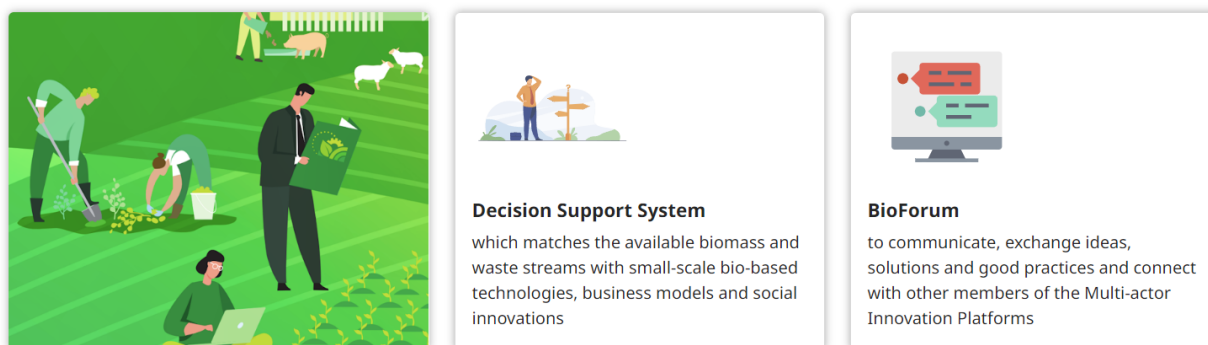
Figure 10: Home Page (Information platforms)

2.10 Home page (Innovation resources)

On the home page's Innovation resources section, users will discover the Bioeconomy Repository and the Tool Library.

Innovation resources

This section comprises a repository of resources and a library of tools dedicated to advancing the bioeconomy, offering valuable information, data, and software to support research, development, and sustainable practices in the field of biotechnology and related industries.

Bioeconomy Repository

its purpose is to aggregate educational material from such bio-based projects and raise awareness on bioeconomy educational resources

Tool Library

for the adoption of effective and robust sustainability schemes and labels
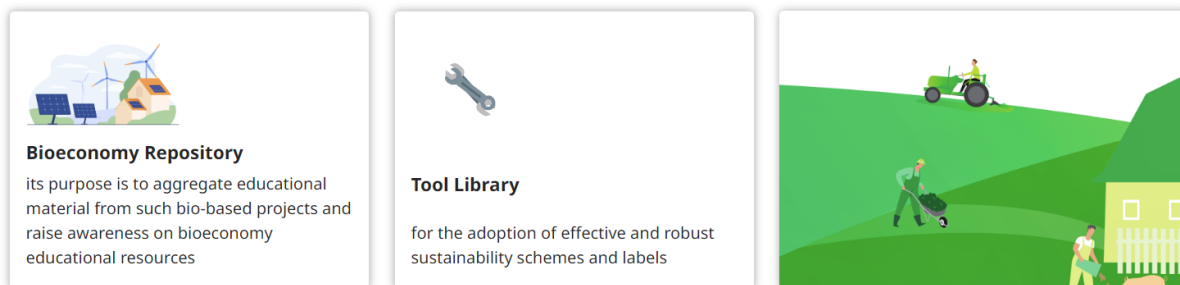
Figure 11: Home Page (Innovation resources)

2.11 Home page (Partners)

In this section of the home page, users can simply click on any of the partner buttons to be redirected to their respective webpages.

Partners

| Q-PLAN INTERNATIONAL (Q-PLAN) Greece | Munster Technological University (MTU) Ireland | Food & Bio Cluster Denmark (FBCD) Denmark | Innovarum (INNV) Spain | Wageningen University & Research (WR) Netherlands |
| Institure of Soil Science and Plant Cultivation (IUNG) Poland | White Research SRL (WHITE) Belgium | DRAXIS Environmental SA (DRAXIS) Greece | Agraren Universitet - Plovdiv (AUP) Bulgaria | Rise Processum AB (PROC) Sweden |

Figure 12: Home Page (Partners)

2.12 Footer

In the footer of the digital toolkit, users can locate the MainstreamBIO project logo. Clicking on this logo will redirect users to the official website of the project. Positioned centrally within the footer is the appropriate disclaimer indicating that this project is funded by the European Union. To the right of the footer, users will find the project's social media links along with a feedback section. This feedback

section allows any user to provide valuable input to help us enhance, expand, and rectify any aspects of the toolkit. Finally, at the bottom of the header, the copyright section can be found.

Figure 13: Footer

2.13 Catalogue of small-scale bio-based solutions (Selection Table)

The Catalogue page serves as a comprehensive repository of diverse bio-based technologies, meticulously categorized into biochemical, mechanical, and thermomechanical domains. Encompassing innovations such as aerobic digestion, blending or mixing, combustion, and thirteen others, it actively advocates sustainable practices, elevates environmental consciousness, and promotes technological diversity. Furthermore, users have the opportunity to explore thirty-four distinct business models originating from eighteen different countries. This extensive collection offers a panoramic view of global markets, inspiring innovation and furnishing strategic insights. Notably, users can refine their search criteria by description keyword or by country, thus enhancing their browsing experience. In the Catalogue section, users can immerse themselves in eighteen social innovations hailing from fourteen countries. These initiatives embody community-driven approaches that prioritize both environmental stewardship and social impact. This section facilitates comparative analysis, enabling users to evaluate the strengths and weaknesses of each solution comprehensively. Additionally, users can employ filters based on description keyword, country, or keyword for enhanced search precision.

Figure 14: Catalogue of small-scale bio-based solutions (Selection Table – Technologies)

Figure 15: Catalogue of small-scale bio-based solutions (Selection Table – Business models)

Figure 16: Catalogue of small-scale bio-based solutions (Selection Table – Social innovations)

2.14 Catalogue of small-scale bio-based solutions (Specific)

On the specific technology page, users are provided with a succinct overview of the technology they have selected, accompanied by detailed information on potential feedstock, technology specifications, associated product(s), and references for further exploration. As well as downloading all of its information in PDF format through the download button.

Figure 17: Catalogue of small-scaled bio-based solutions (Specific - Technology)

On the specific business model page, users have the capability to review detailed information including feedstock analysis, technological specifications, impact assessment, and reference materials. As well as downloading all of its information in PDF format through the download button.

Figure 18: Catalogue of small-scaled bio-based solutions (Specific – Business model)

Finally, users can explore a specific social innovation in-depth, examining its activities, the stakeholders involved, its impact on bioeconomy development, and its broader social implications. As well as downloading all of its information in PDF format through the download button.

L'Atelier Paysan

This cooperative of small-scale farmers, employees, and agricultural development organizations is a social innovation dedicated to empowering farmers by disseminating agricultural knowledge and promoting technical and technological sovereignty. Through an open source resource platform for farm production tools, the collective aims to collectively develop tools adapted to the regional agro-ecological practices. This platform provides access to online resources, videos, trainings on construction and autonomy, and knowledge exchange sessions.

📋 **Activities**	⊙ **Actors involved**	📊 **Impact for bioeconomy development**	👪 **Social impact**

Activities

The cooperative supports farmer-led research and development, disseminates open source materials for organic farming, and leads training sessions to create self-sufficient farming systems. The tools developed are adapted to the context in which they are used in concrete terms. The cooperative also encourages farmers to think innovatively and come up with sustainable solutions to the problems they face.

Back   **Download**

Figure 19: Catalogue of small-scaled bio-based solutions (Specific – Social innovatio)

2.15 Nutrient Recycling Practices (Selection Table)

The page of Nutrient Recycling Practices features a curated selection of 31 agricultural practices, meticulously designed to advance sustainable agricultural and environmental methodologies. Through the consolidation of proven strategies, this collection offers invaluable insights into optimizing nutrient management, minimizing waste, and maximizing resource efficiency. Catering to the needs of farmers, environmentalists, and policymakers alike, it serves as a definitive roadmap for the adoption of practices aimed at not only augmenting crop yields but also mitigating environmental footprints. By placing a strong emphasis on innovation and drawing from successful implementations, this compilation functions as a knowledge reservoir, facilitating the dissemination of efficacious strategies to address global challenges in nutrient cycling within agriculture. Ultimately, its overarching objective is to contribute to the cultivation of a more resilient and environmentally conscientious food production system.

Figure 20: Nutrient Recycling Practices (Selection Table)

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2.16 Nutrient Recycling Practices (Specific)

Upon selecting a specific Nutrient recycling practice, users gain access to a comprehensive overview comprising its description, objectives, contextual relevance, key elements, and processes. Additionally, users can delve into the intricacies of practice implementation, associated legislation, and a curated list of references for further exploration and validation. As well as downloading all of its information in PDF format through the download button.
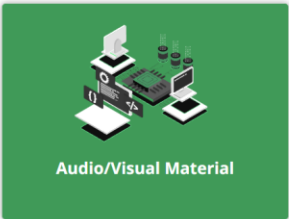
Figure 21: Nutrient Recycling Practices (Specific)

2.17 MainstreamBIO Resources (Audio/Visual Material)
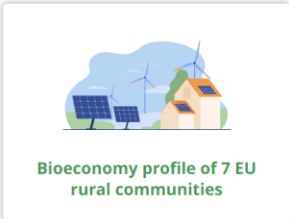
Upon accessing the MainstreamBIO Resources page, users are presented with a choice between two distinct categories: audio/visual material and bioeconomy profiles of seven EU rural communities. First in line is the audio/visual material section, this section will host a number of educational and promotional videos created from our partners.

Figure 22: MainstreamBIO Resources (Audio/Visual Material)

2.18 MainstreamBIO Resources (Bioeconomy profile of 7 EU rural communities)

Within this page, users will find a diverse array of resources meticulously curated to bolster bio-based projects, comprising comprehensive guidelines and instructional videos. Furthermore, users can explore in-depth bioeconomy profiles of seven distinct EU rural communities, spanning geographical locations such as the Netherlands, Poland, Denmark, Sweden, Bulgaria, Spain, and Ireland. These profiles offer detailed insights into various aspects including regional characteristics, areas of focus, resource utilization, and exemplary value chain models, highlighting resources such as grass, manure, pumpkin, among others. This expansive repository serves as a valuable asset for individuals

actively engaged in bio-based initiatives, providing both practical guidance and inspiring case studies from a myriad of European communities.
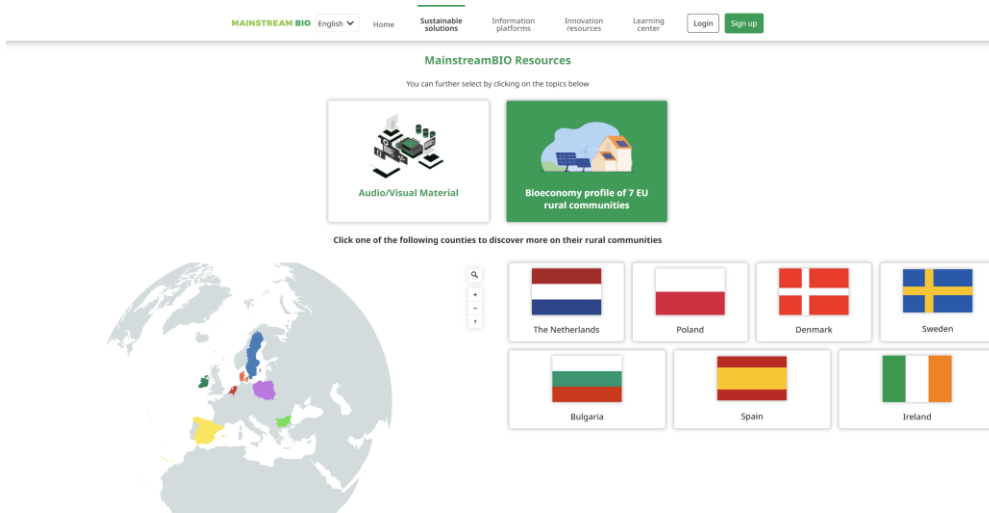

Figure 23: MainstreamBIO Resources (Bioeconomy profile of 7 EU rural communities)

Figure 24: MainstreamBIO Resources (Bioeconomy profile of The Netherlands)

2.19 Decision Support System

The Decision Support System (DSS) has been meticulously crafted with a streamlined 3-step system to adeptly guide users through the optimization process. Beginning with the first step, users engage with the Matching Table, facilitating the efficient pairing of feedstock with compatible technologies and products. Progressing further, the Scoring Table equips users with the ability to conduct comprehensive assessments across crucial criteria such as Social Impact, Economic Impact, Environmental Impact, and Requirements for Implementation. Users can make well-informed evaluations by leveraging additional information accessible through the info button positioned at the top left of each criterion. Moreover, users are encouraged to provide insightful comments elucidating the potential influence of each criterion on their project trajectory. Ultimately, the system reaches its culmination with the Radar Chart, presenting users with a visually intuitive summary of their assessments. This dynamic chart empowers users to swiftly identify both the strengths and

weaknesses of their project or solution in terms of implementability, social impact, environmental impact, and economic impact.
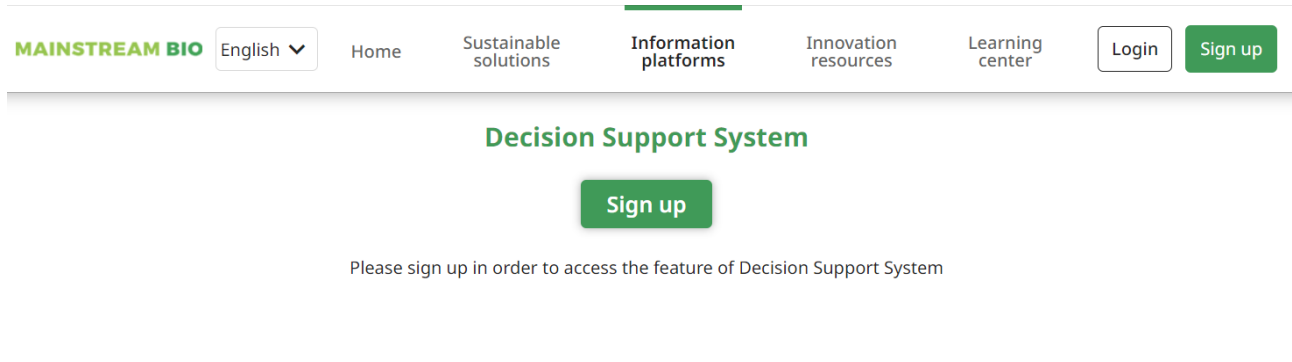

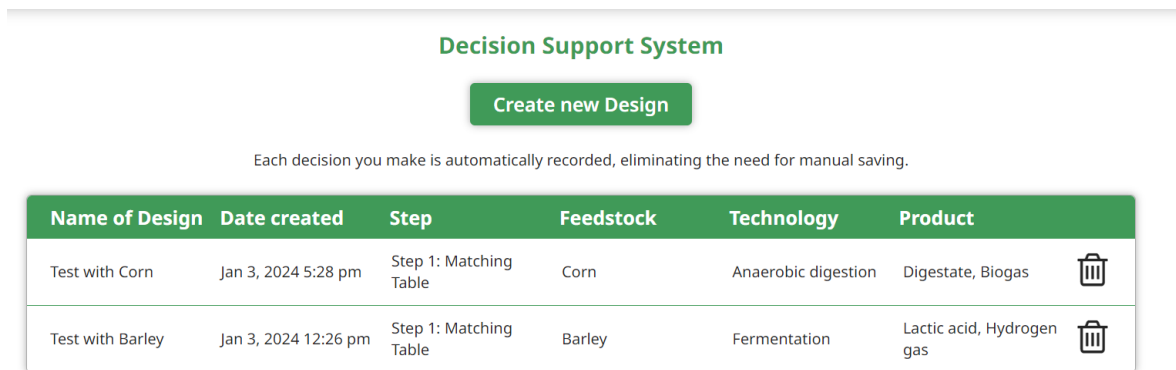Figure 25: Decision Support System (User Not Logged In)

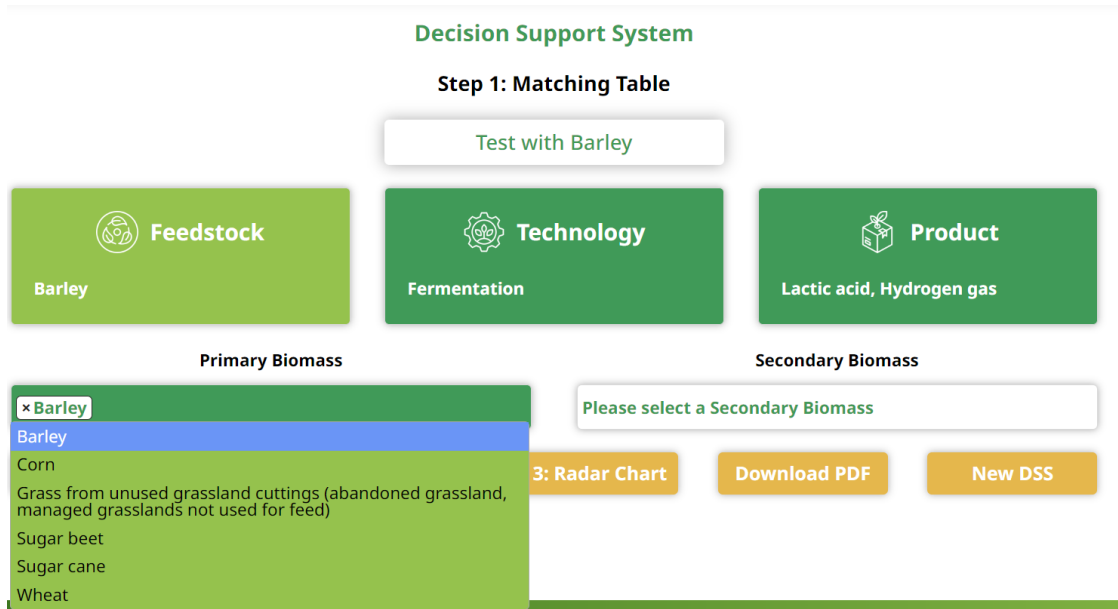Figure 26: Decision Support System (User is Logged In and has made two previous DSS)

Figure 27: Decision Support System (Step 1: Matching Table)

Decision Support System

Step 2: Scoring Table

Social impact

Social impact refers to the significant effects and consequences that your project will have.

Info	Criterion		Rating		Comment
(i)	Creation of new jobs	˅	2	˅	Type here...
(i)	Increased well-being of rural communities	˅	1.5	˅	Type here...
(i)	Increased political attractiveness	˅	2	˅	Type here...
(i)	Provision of education and training opportuniti ˅		1	˅	Type here...

Economic impact

Economic impact pertains to the measurable influence your particular project will exert on the financial aspects of the beneficiaries

Info	Criterion		Rating		Comment
(i)	Increased use of local biomass resources	˅	2	˅	This is helpful
(i)	Increased rural business opportunities	˅	2	˅	Type here...
(i)	Increased resource use efficiency	˅	0.5	˅	Type here...

Figure 28: Decision Support System (Step 2: Scoring Table)

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Figure 29: Decision Support System (Step 3: Radar Chart)

2.20 BioForum

The BioForum offers a collaborative space for user engagement with fellow users and experts dedicated to bio-based solutions. Within this space, the user can engage in inquiries, exchange ideas, share multimedia content such as photos and PDFs, access decision support systems, provide feedback, and actively participate in discussions. It serves as a dynamic hub that fosters knowledge-sharing and community interaction within the realm of bio-based solutions.
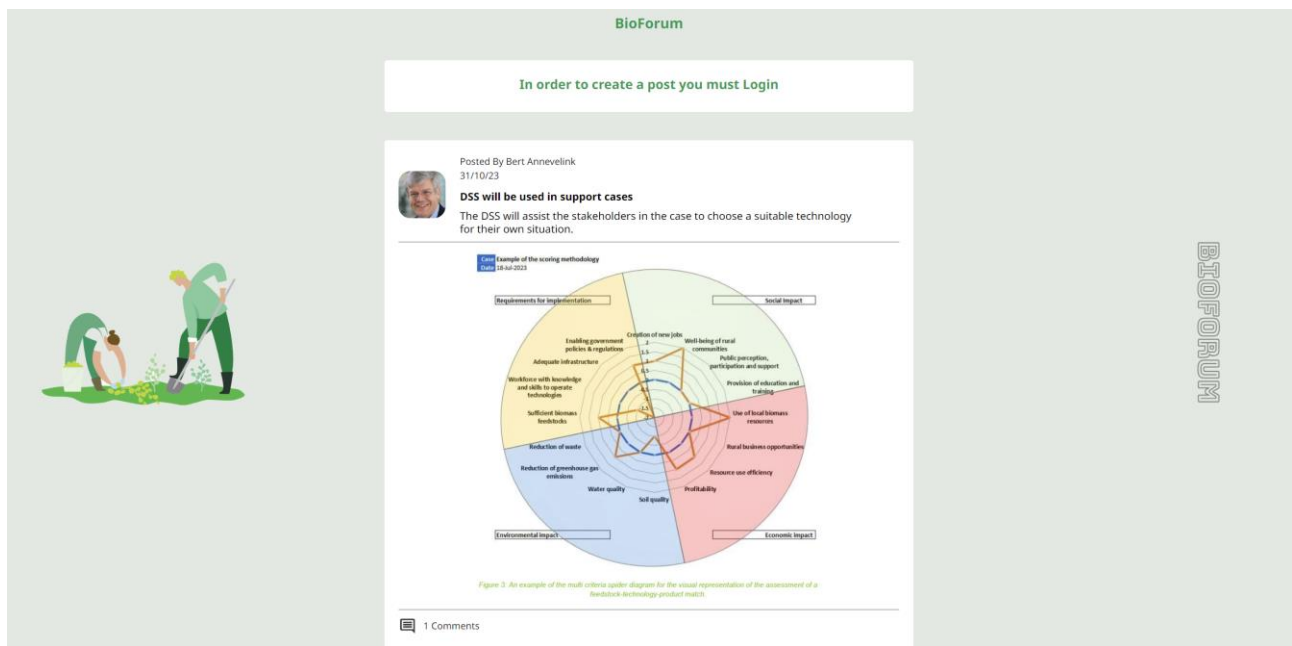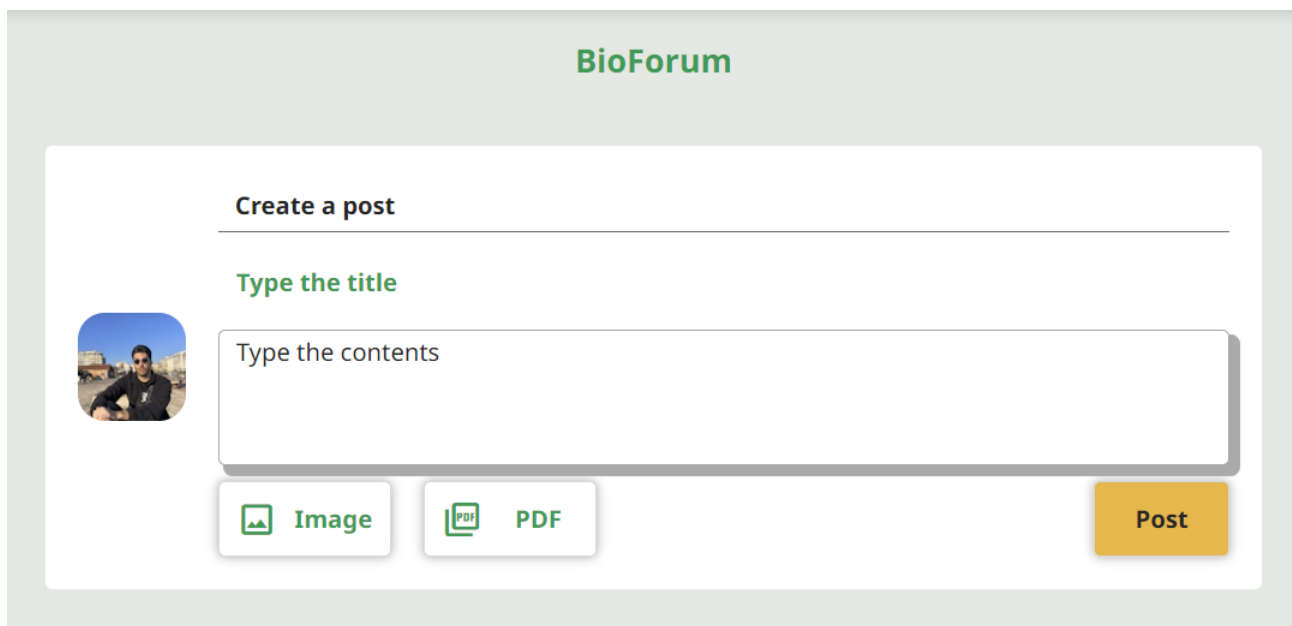
Figure 30: BioForum (User Not Logged In)

Figure 31: BioForum (User Logged In)

2.21 Bioeconomy Repository

In the page of the Bioeconomy Repository users will uncover a wealth of information spanning a broad spectrum of topics within the bioeconomy. Explore an extensive collection of audiovisual materials and documentation, offering the flexibility to filter content by category, stakeholder, description, language, year, or keyword. This resource hub serves as a comprehensive platform, providing users with valuable insights and keeping them informed about diverse facets of the

bioeconomy.
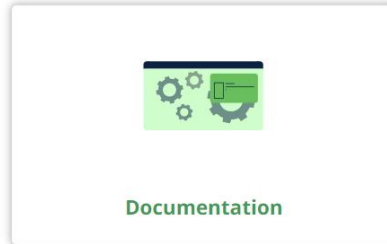
Figure 32: Bioeconomy Repository (Audio/Visual Material)

Figure 33: Bioeconomy Repository (Documentation)
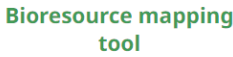
2.22 Tool Library

In the Tool Library page, the user can explore a range of tools designed to assist in planning, implementing, and monitoring the progress of bio-based projects for optimal sustainability.

Figure 34: BioForum (User Logged In)

2.23 Instructions

In the Instructions page, the user can have a comprehensive overview of the functionalities of the digital toolkit and its navigation with audio/visual material as well as written instructions.

Instructions

In this section you can see our instructional video on correctly using the toolkit, as it was designed

Welcome to the MainstreamBIO Toolkit ✕

MainstreamBIO is an Horizon Europe EU funded project, which sets out to get small-scale bio-based solutions into mainstream practice across rural Europe, providing a broader range of rural actors with the opportunity to engage in and speed up the development of the bioeconomy.

Recognizing the paramount importance of bioeconomy for addressing key global environmental and societal challenges, MainstreamBIO develops regional Multi-actor Innovation Platforms in 7 EU countries (PL, DK, SE, BG, ES, IE & NL).

The project aims to enhance cooperation among key rural players towards co-creating sustainable business model pathways in line with regional potentials and policy initiatives.

MainstreamBIO supports 35 multiactor partnerships to overcome barriers and get bio-based innovations to market with hands-on innovation support, accelerating the development of over 70 marketable bio-based products and services.

Finally, this digital toolkit has been developed 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.

Following the video instructions you can read through the transcript

Introduction
Welcome to MainstreamBIO, a digital toolkit that helps you explore small-scale bio-based solutions, best practices for nutrient recycling, the bioeconomy profile of 7 EU countries. In this video, we will guide you through the seven functionalities of MainstreamBIO and show you how to use them effectively.

Figure 35: BioForum (User Logged In)

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2.24 Account

By tapping on the profile icon located on the right side of the header, users can access their account page. Here, they have the option to modify their profile picture, update their email address and username, delete their account, change their password, and review the privacy policy.

Figure 36: Account

3. Conclusion

The MainstreamBIO project aims to foster the adoption and diffusion of small-scale bio-based solutions across rural Europe, by providing innovative digital tools and tailored innovation support to key stakeholders. The project has developed a digital toolkit that consists of four main components: a catalogue of bio-based technologies, business models and social innovations; a decision support system that matches biomass and waste streams with suitable bio-based solutions; a bioeconomy repository that aggregates educational material from various bio-based projects; and a Bioforum that facilitates communication and exchange of ideas among the members of the regional multi-actor innovation platforms. The digital toolkit is designed to enhance the understanding, awareness and engagement of rural actors in the bioeconomy, as well as to support them in identifying and implementing sustainable and circular bio-based solutions that fit their local context and needs. The digital toolkit is expected to contribute to the development of local inclusive and circular bioeconomies in rural areas, and ultimately to the creation of a strong EU-wide circular bioeconomy.

4. **Final Release**

In the forthcoming final release of MainstreamBIO's digital toolkit, a comprehensive enhancement initiative is set to unfold, guided by invaluable user feedback sourced from the "Helpful Feedback" section. The primary objective entails meticulous refinement and optimization of the application, leveraging insights gleaned from user interactions. Furthermore, anticipation surrounds the forthcoming workshops, expected to yield additional commentary and insights to inform optimization endeavors.

Concurrently, a commitment to expanding the toolkit's resource repository remains. This involves sourcing additional materials to enhance the offering, ensuring users have access to a comprehensive suite of resources relevant to their bioeconomy needs. Simultaneously, a rigorous review of existing processes and content is underway, aimed at enhancing overall quality, efficacy and user experience.

A notable enhancement to the offering is the introduction of a dedicated webinars section within the learning center. This addition serves to centralize and showcase the wealth of knowledge contributed by partners. Through the curation and hosting of these webinars, users are afforded an opportunity to engage with expert insights and stay informed of the latest developments within the industry.

In summation, the final release of MainstreamBIO's digital toolkit embodies a commitment to continuous improvement and user-centricity. Through refinement and analyzing the data of our how the users of the toolkit use it the goal is to achieve the most optimal version of the toolkit.

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5. ANNEX I

MainstreamBIO User Requirement Questionnaire

This questionnaire is created in the framework of the MainstreamBio project, funded by the European Union (https:/ mainstreambio-project.eu/). The scope of this questionnaire is to gather the user requirements for the development of the MainstreamBIO digital toolkit, which will enable better match of bio-based technologies, social innovations and good nutrient recycling practices with available biomass and market trends as well as will enhance the understanding of the bioeconomy with a suite of educational resources building on existing research results and tools (https:/ mainstreambio-project.eu/mainstreambio- toolkit/).

The main components of the MainstreamBIO digital toolkit will be:

a) Catalogue of small-scale bio-based technologies, business models and social innovations
b) Collection of best practices for improved nutrient recycling
c) Decision Support System
d) Bioeconomy Repository
e) Tool Library
f) BioForum
g) Bioeconomy profile of the 7 EU rural communities

Disclaimer: The answers are fully anonymized, and we **do not collect any personal data** from you (email address, name). Your answers will help us to design the tool and adjust itat your needs. Some statistical results will be included in the project's deliverable D2.5: MainstreamBIO digital toolkit – initial version, which will be public and available at 02/2024.

Skip to question 1

Background Information

We want to be sure that all of you are included :)

1. How do you define yourself?

Mark only one oval.

◯ Male

◯ Female

◯ Other

◯ Prefer not to say

2. In which age group do you belong?

Mark only one oval.

◯ < 20

◯ 20 - 30

◯ 30 - 40

◯ 40 - 50

◯ 50 - 60

◯ > 60

3. Where do you live now?

Mark only one oval.

◯ Netherlands

◯ Spain

◯ Greece

◯ Bulgaria

◯ Poland

◯ Denmark

◯ Ireland

◯ Sweden

◯ Other

4. What's your level of education?

Mark only one oval.

- School diploma
- Bachelor
- Master
- PhD
- Other

5. What's your employment status?

Mark only one oval.

- Permanently employed
- Periodical employed (e.g., only summertime)
- Employed with contract for a specific period of time
- Unemployed
- Other

6. Years of working experience

_____

7. Which of the following categories describe better your stakeholder status?

Mark only one oval.

- Biomass Producer
- Academic / researcher
- Agri-food and/or bio-based business
- Policy maker/ advisor
- General Public
- Other

8. If you are a representative of an industry or organization, will your organization/industry grow or downsize over the next 5 years (according to yourestimations/anticipations)?

Mark only one oval.

◯ Grow

◯ Downsize

◯ Stay stable

◯ I don't know

9. How did you first learn about our toolkit?

Mark only one oval.

◯ Looking for a similar product

◯ Just browsing

◯ Advertising

◯ Social Media

◯ From a project's partner

◯ Other

Skip to question 10

General Questions About the Toolkit

Your opinion matters!

10. How was your first reaction to the idea of the MainstreamBIO digital toolkit?

Mark only one oval.

◯ Very Negative

◯ Negative

◯ Neutral

◯ Positive

◯ Very Positive

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11. How innovative, do you believe, is the MainstreamBIO digital toolkit product(in a scale from 1 to 5)?

Mark only one oval.

Not at all

1 ⬭

2 ⬭

3 ⬭

4 ⬭

5 ⬭

Very innovative

12. For which of the components of the MainstreamBIO digital toolkit are youmore interested in?

Check all that apply.

☐ Catalogue of small-scale bio-based technologies, business models and social innovations

☐ Collection of best practices for improved nutrient recycling

☐ Decision Support System

☐ BioForum

☐ Bioeconomy Repository

☐ Tool Library

☐ Bioeconomy profile of 7 EU rural communities

13. How will you use the toolkit?

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Check all that apply.

☐ Design a solution (matching available biomass and waste streams with small-scale bio-based techs, business models and social innovations)

☐ Search and compare functionality for cross-case comparisons, across catalogue items

☐ Search for resources for successful management of nutrients and organic matter recycling back to soils in line with circular economy principles

☐ Search for educational material (fact sheets, publications, webinars, videos etc.) about bioeconomy

☐ All the above

14. In which way, will you or your organization use the MainstreamBIO digitaltoolkit?

_____

_____

_____

_____

_____

15. How long do you expect to use the MainstreamBIO digital toolkit?

Mark only one oval.

◯ < 1 year

◯ 1 - 2 years

◯ 3 - 4 years

◯ > 5 years

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16. Do you think this toolkit is something you need, or not?

Mark only one oval.

◯ Yes

◯ No

17. Is there any need for any additional services (e.g., contact of product owners,stakeholders, mapping of business models)?

Mark only one oval.

◯ Yes

◯ No

18. If yes, which ones?

_____

_____

_____

_____

_____

19. Are you currently using any advanced technologies to enhance your services?

Mark only one oval.

◯ Yes

◯ No

20. If yes, please specify.

_____

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21. Have you used similar toolkits in the past?

> *Mark only one oval.*
>
> ◯ Yes
>
> ◯ No
>
> ◯ Not at all (in case that the idea of a toolkit is something new to you)

22. If yes, which ones?

_____

23. Have you been satisfied by them?

> *Mark only one oval.*
>
> ◯ Yes
>
> ◯ No

24. Please explain shortly your answer

_____

_____

_____

_____

_____

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25. Could you please indicate the specific standards or methods (if any) used during the use of similar toolkits (e.g., use of search filter, providing instructionsfor using the tool, glossary, use of keywords for searching, links to similar projects etc.)?

_____

_____

_____

_____

_____

26. What are, in your opinion, the user's limitations on these types of toolkits?(You can choose more than one)

Check all that apply.

☐ Require specific information and data that might not be available

☐ Complicated and time consuming

☐ Are designed for well-trained users only

☐ Cannot guarantee secure data handling

☐ Do not take into account the comfort levels of the use

☐ Other

27. If you choose other, please specify

_____

28. In your opinion, what are the aspects that are not currently taken into account during the application of this type of programs (e.g., comfort level)?

_____

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29. Do the current toolkits (if you use any) provide interactive user visualization?

Mark only one oval.

No

1 ⬭

2 ⬭

3 ⬭

4 ⬭

5 ⬭

Yes

30. In your opinion, what type of functions can improve the performance ofsimilar toolkits?

Check all that apply.

☐ User profiling
☐ Cost signaling
☐ Customer clustering
☐ Other
☐ I don't know

31. If you chose other, please specify

_____

32. Are you going to use the toolkit alone or with your partners?

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Mark only one oval.

◯ Personally

◯ In collaboration with partners

33. How much time do you expect to invest on the MainstreamBIO digital toolkit(each time you use it)?

Mark only one oval.

◯ < 1 hour

◯ 1-3 hours

◯ 3- 6 hours

◯ > 6 hours

34. Where will you expect to be/mainly located physically when you access theMainstreamBIO digital toolkit?

Mark only one oval.

◯ At home

◯ At work (office)

◯ In the field

35. Which device will you use to access the toolkit?

Check all that apply.

☐ Computer
☐ Tablet
☐ Mobile phone
☐ All the above
☐ Other

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36. When is more possible to use the toolkit?

Check all that apply.

☐ Autumn
☐ Winter
☐ Spring
☐ Summer
☐ The whole year

37. In which languages do you prefer the MainstreamBIO digital toolkit be?

Mark only one oval.

◯ English

◯ Local Language

◯ Both

◯ Other

38. What do you like the most about the idea of this toolkit?

_____

_____

_____

_____

_____

39. What problems do you anticipate this digital toolkit to solve?

_____

_____

_____

_____

_____

Skip to question 40

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Functional Questions

Your convenience is a priority!

40. Would you like to provide user identity by placing username and passwordbased on the user access level?

Mark only one oval.

Strongly Disagree

1 ⬭

2 ⬭

3 ⬭

4 ⬭

5 ⬭

Strongly Agree

41. Would you like to log – in to specific components to the toolkit (e.g., in order to design a solution)?

Mark only one oval.

⬭ Log in to all components

⬭ Open access to all components

⬭ Log in specific components

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42. If yes, to which components do you want to login (e.g., BioForum, DecisionSupport System etc.)?

43. Would you like to save online your designs (through the decision supportsystem), for future use?

Mark only one oval.

◯ Yes

◯ No

44. Would you like to download your designs (through the decision supportsystem) instead of saving them on – line?

Mark only one oval.

◯ Yes

◯ No

45. As a user would you like to have the option to update or delete your design(through the decision support system)?

Mark only one oval.

◯ Yes

◯ No

46. Would you like to back up your data periodically and automatically?

Mark only one oval.

◯ Yes

◯ No

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47. Would you like to search in the history, your choices (e.g., previous designs, viewed educational material etc.)?

Mark only one oval.

◯ Yes

◯ No

48. Would you like the communication be supported through:

Mark only one oval.

◯ Email

◯ Platform

◯ Other

49. Who do you prefer to do the updates?

Mark only one oval.

◯ Yourself, manually

◯ The web

developer

Skip to section 5 (Thank you for your time and answers)

Thank you for your time and answers.

Stay tuned to enjoy the toolkit :)

6.   ANNEX I I

Mockups (Whimsical/Figma)

Figures from 37 to 61 are Whimsical wireframes.

Figure 37: Wireframe of the header of MainstreamBIO Toolkit

Figure 38: Wireframe of Sign-Up Pop-up Window

Figure 39: Log in of MainstreamBIO Toolkit
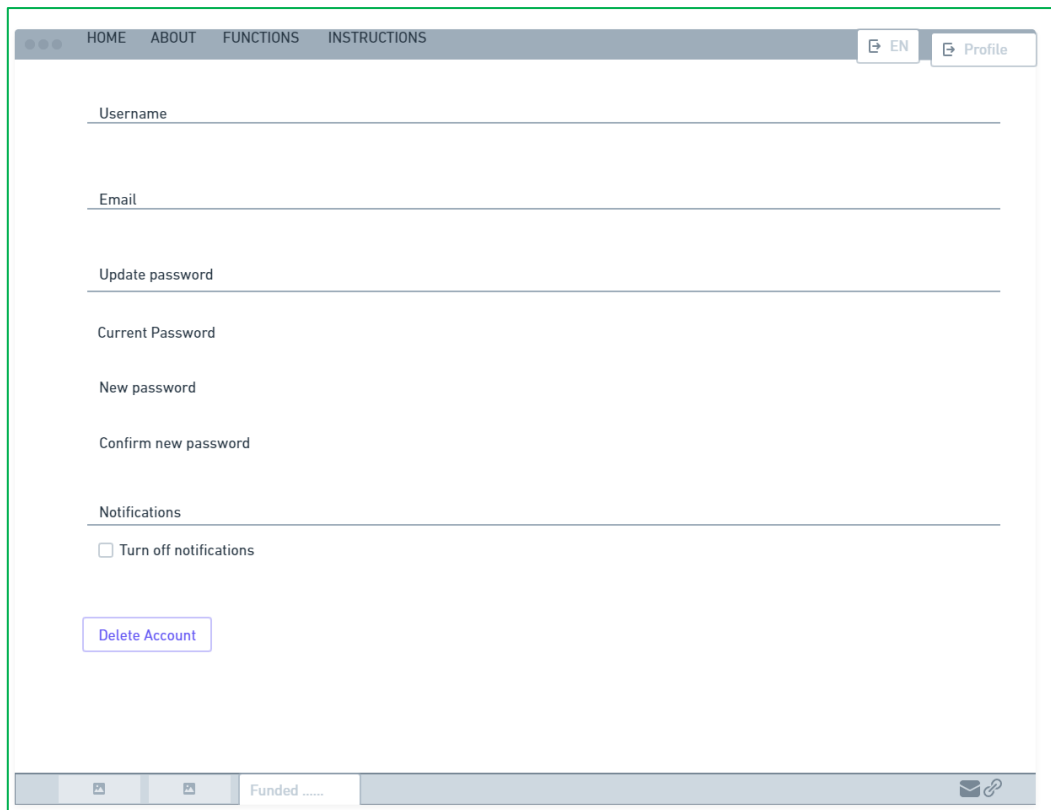
Figure 40: Wireframe of Account Page
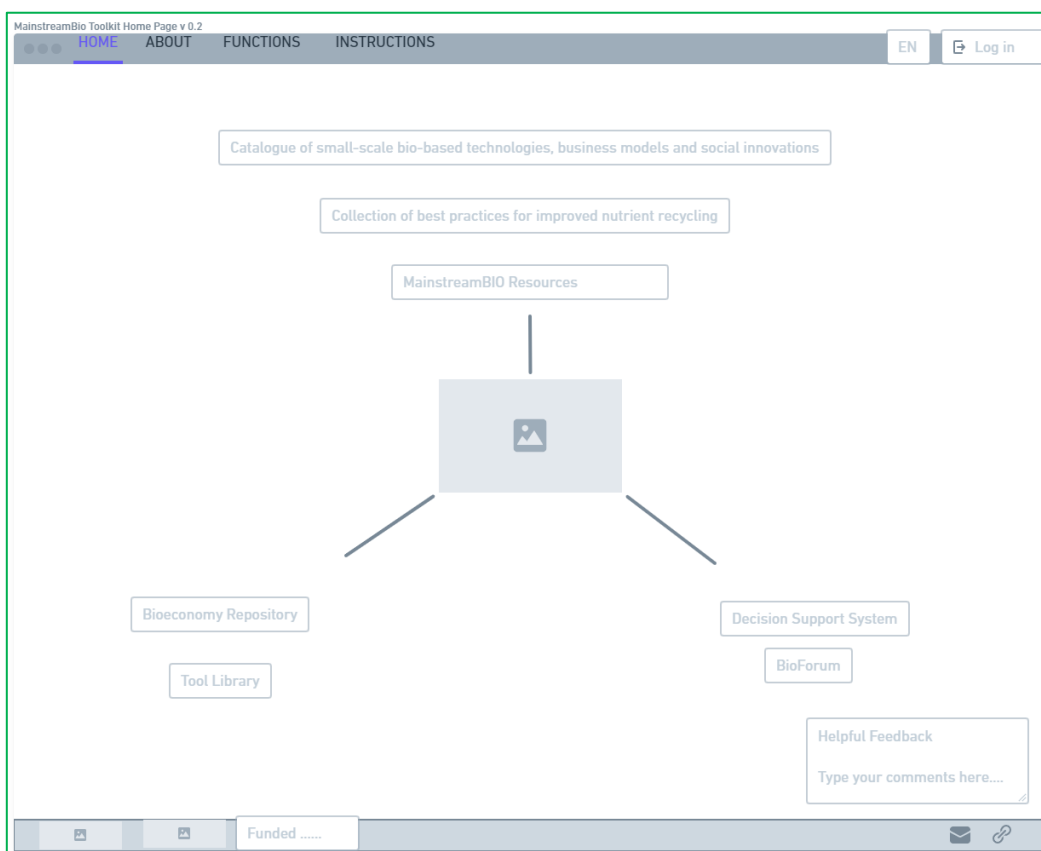
Figure 41: Wireframe of Home Page
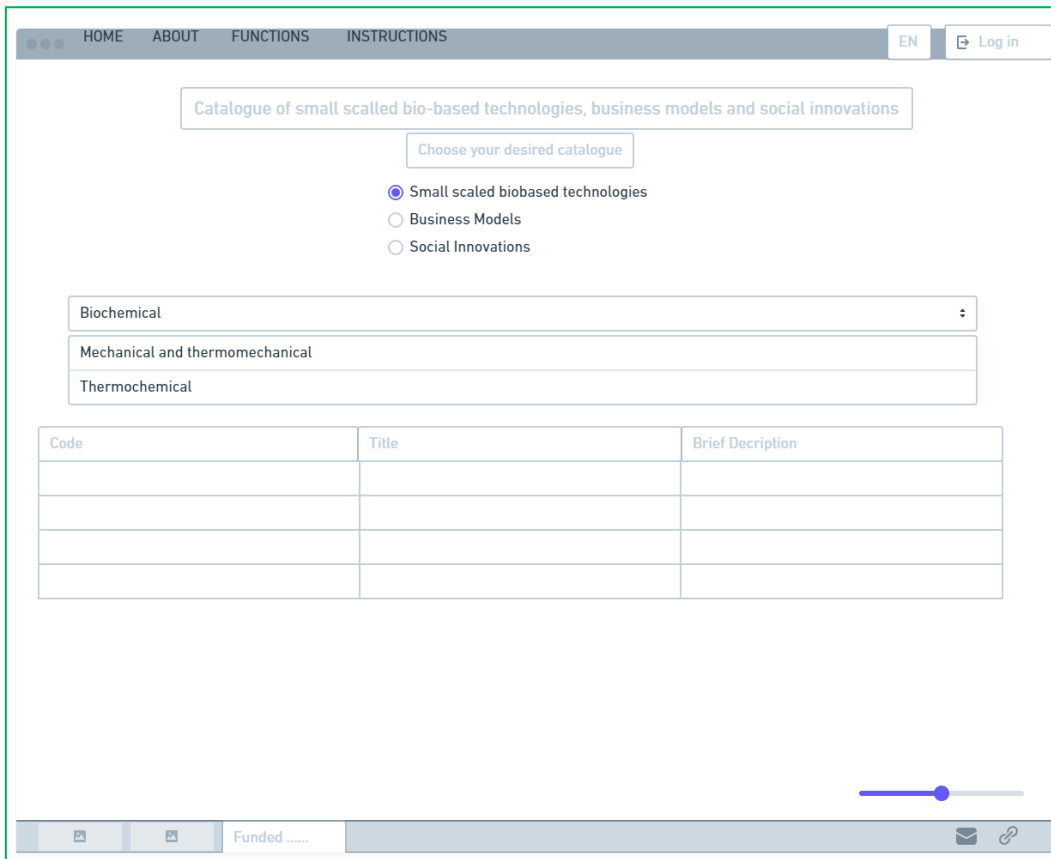
Figure 42: Wireframe of Catalogues Page with small - scale bio-based technologies selected.
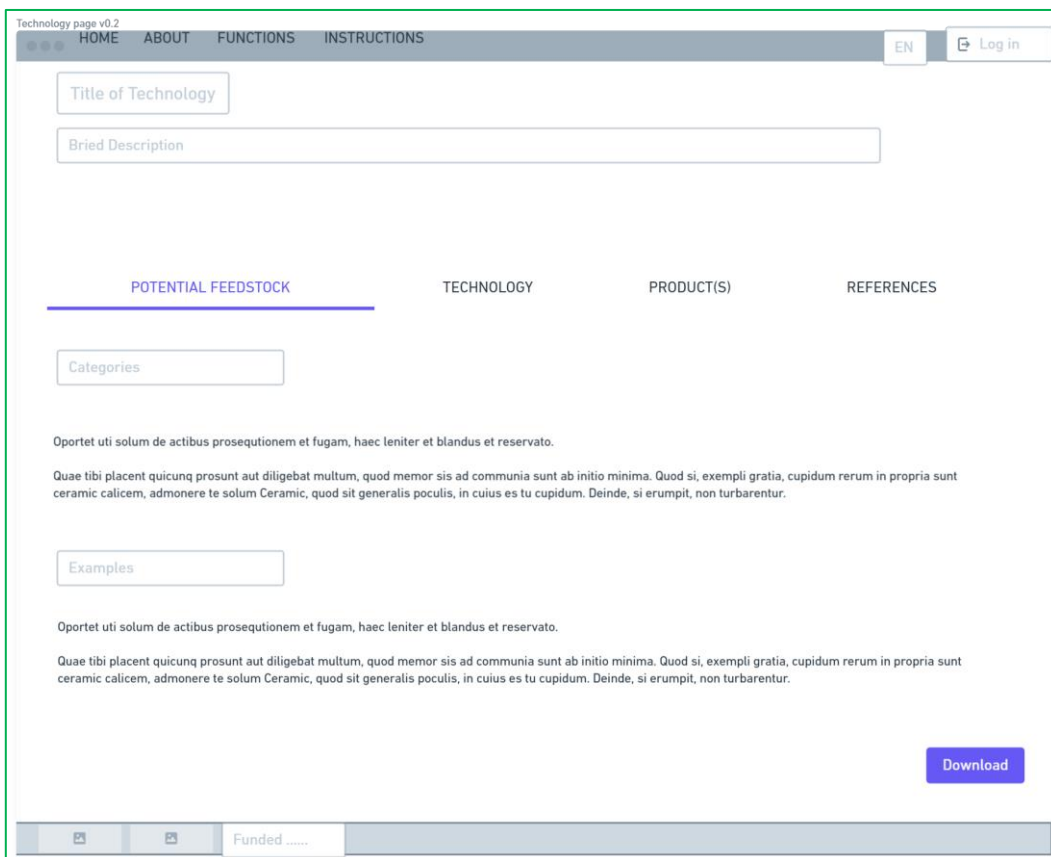
Figure 43: Wireframe of a specific small - scale bio-based technology.
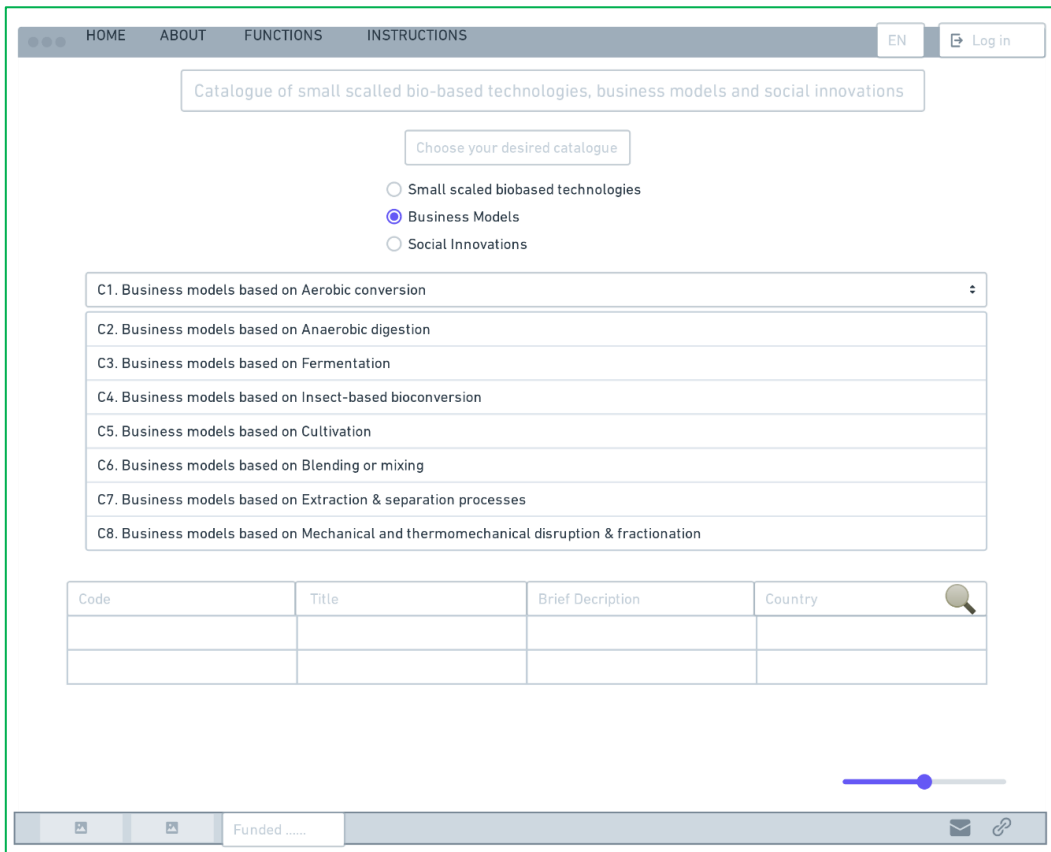
Figure 44: Wireframe of Catalogues Page with business models selected.
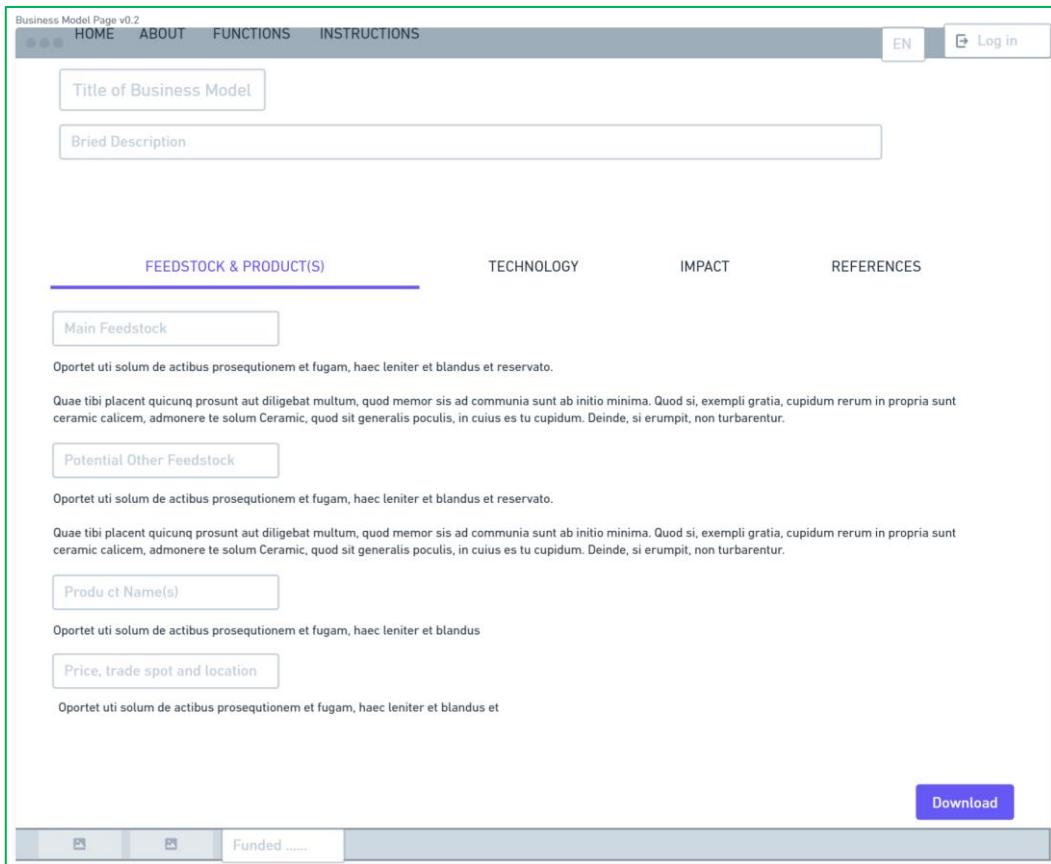
Figure 45: Wireframe of a specific business model
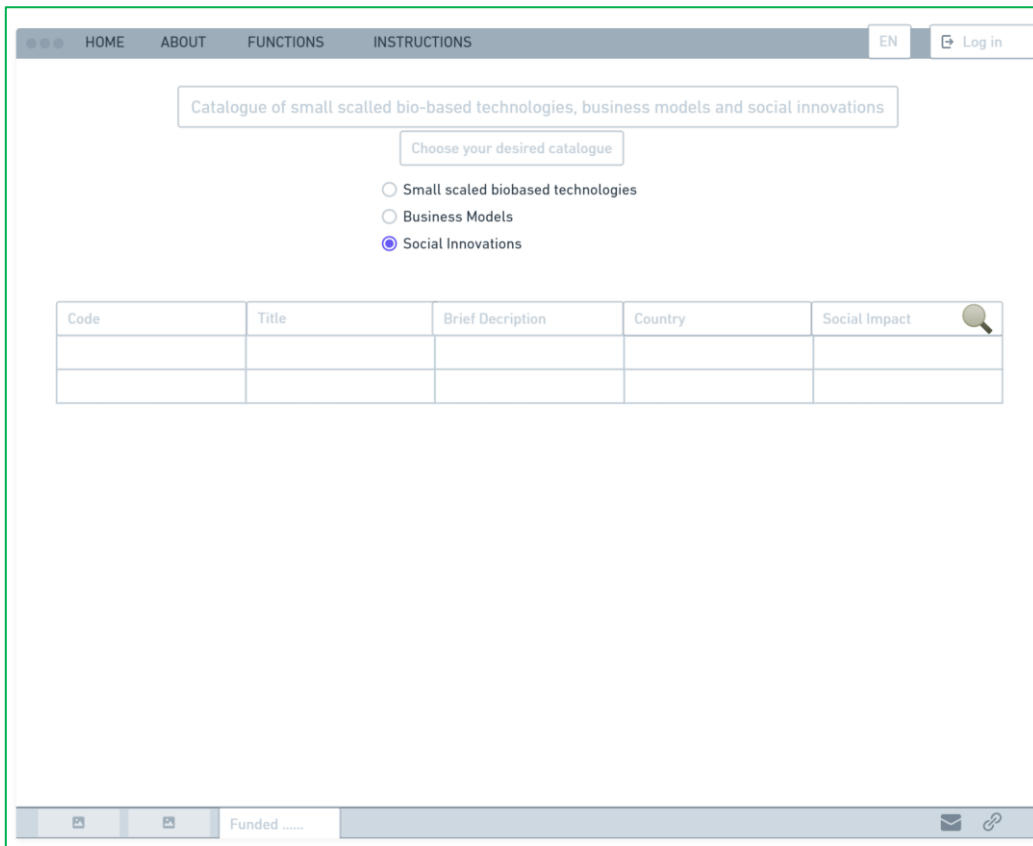
Figure 46: Wireframe of the catalogue Page with social innovations selected
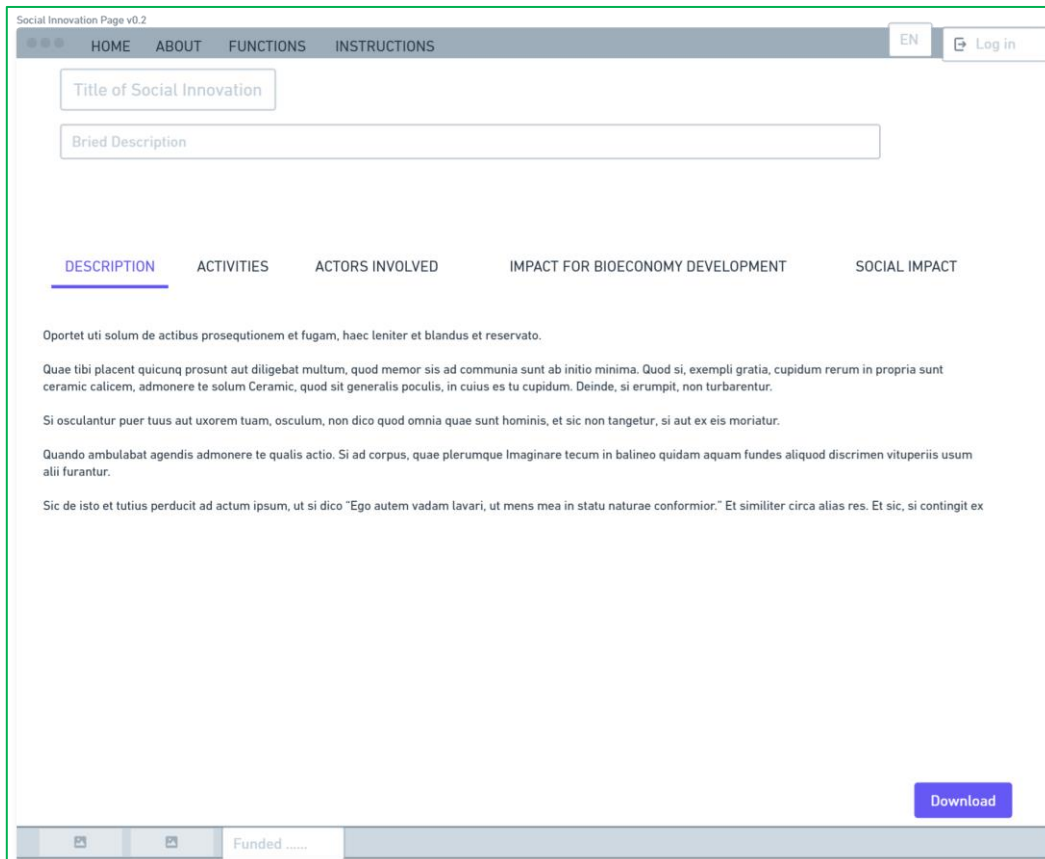
Figure 47: Wireframe of a specific social innovation
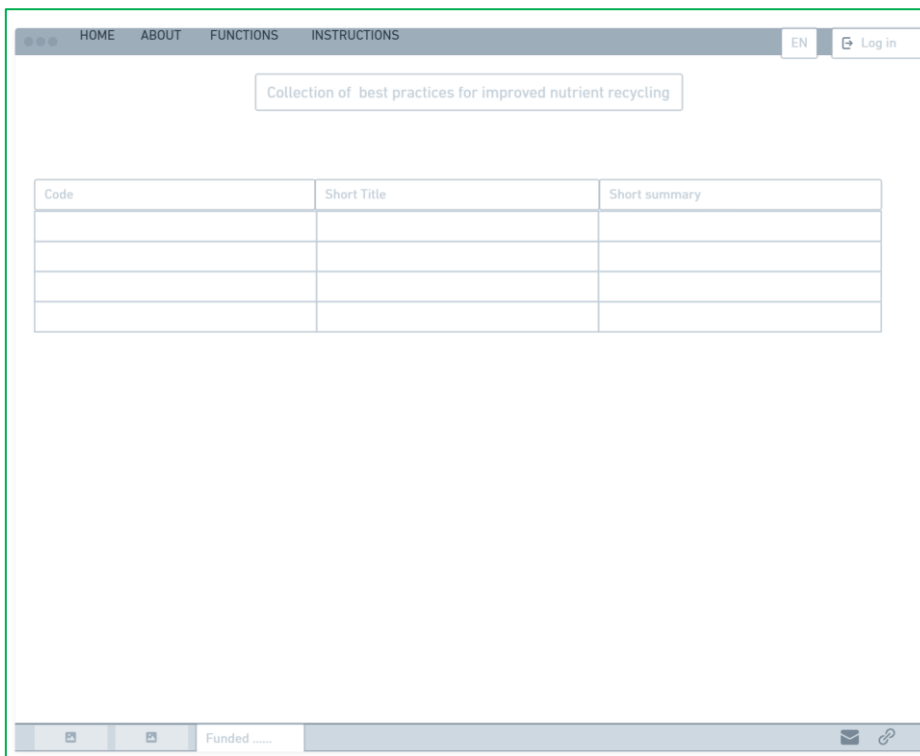
Figure 48: Wireframe of the Collection of the best practices for improved nutrient recycling
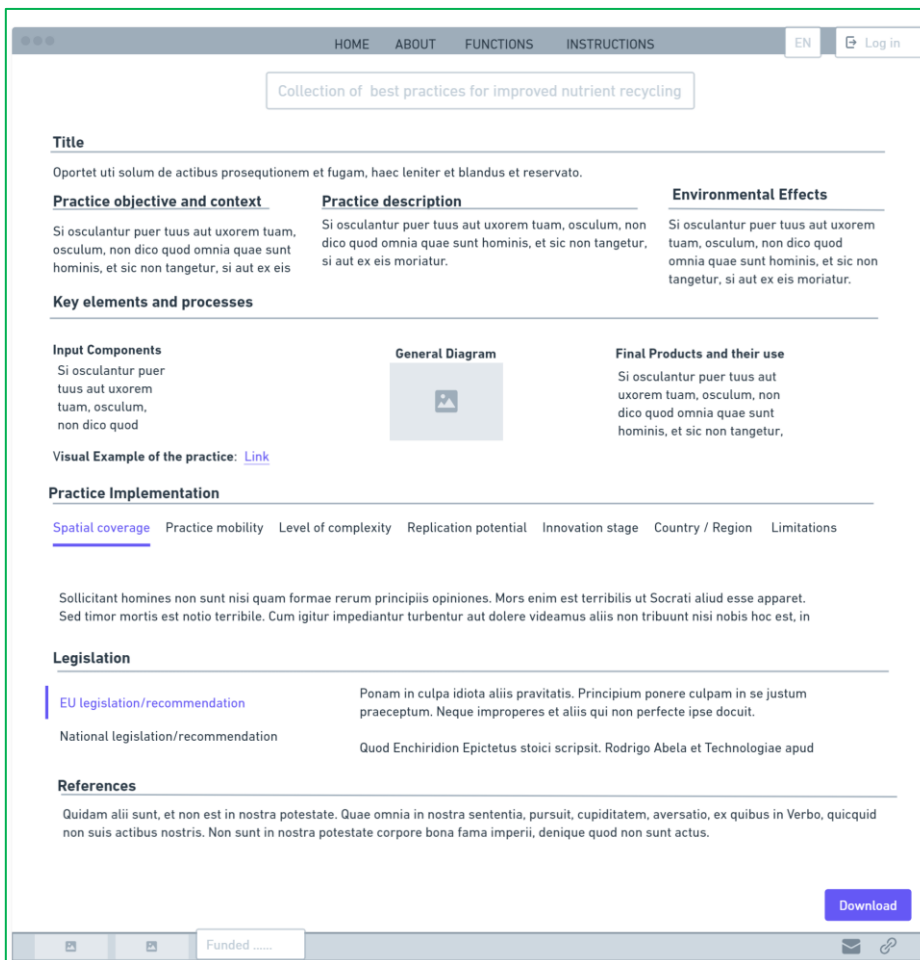
Figure 49: Wireframe of a specific nutrient recycling practice

Figure 50: Wireframe of the matching table of the DSS

Figure 51: Wireframe of the scoring table of the DSS

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Figure 52: Wireframe of the Supporting Information Table of the DSS
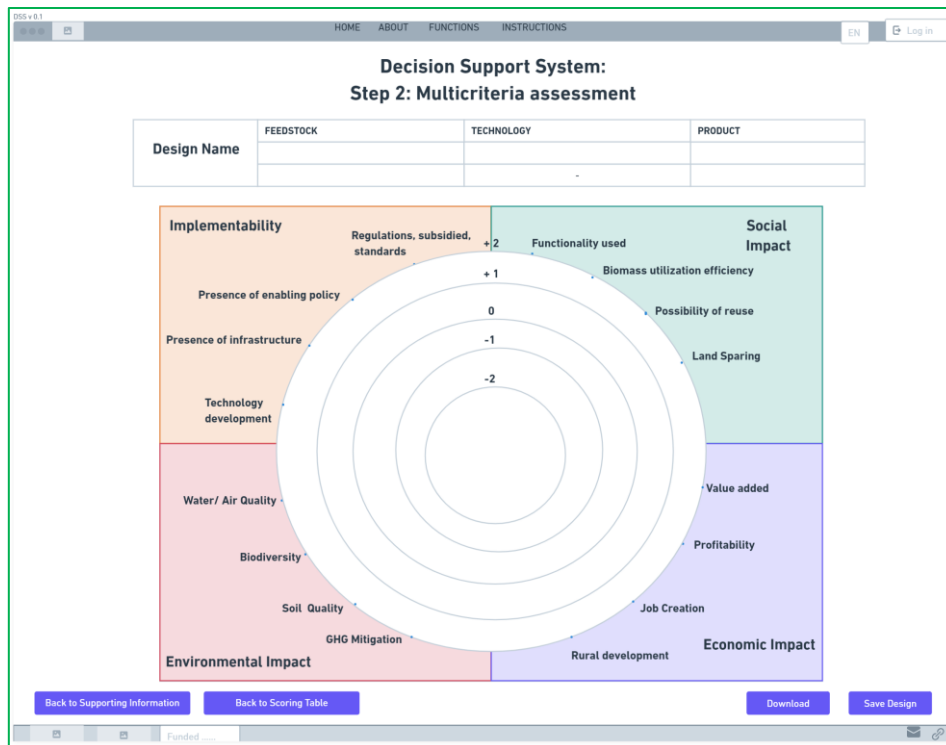
Figure 53: Wireframe of the Multicriteria Assessment (Spider - diagram)
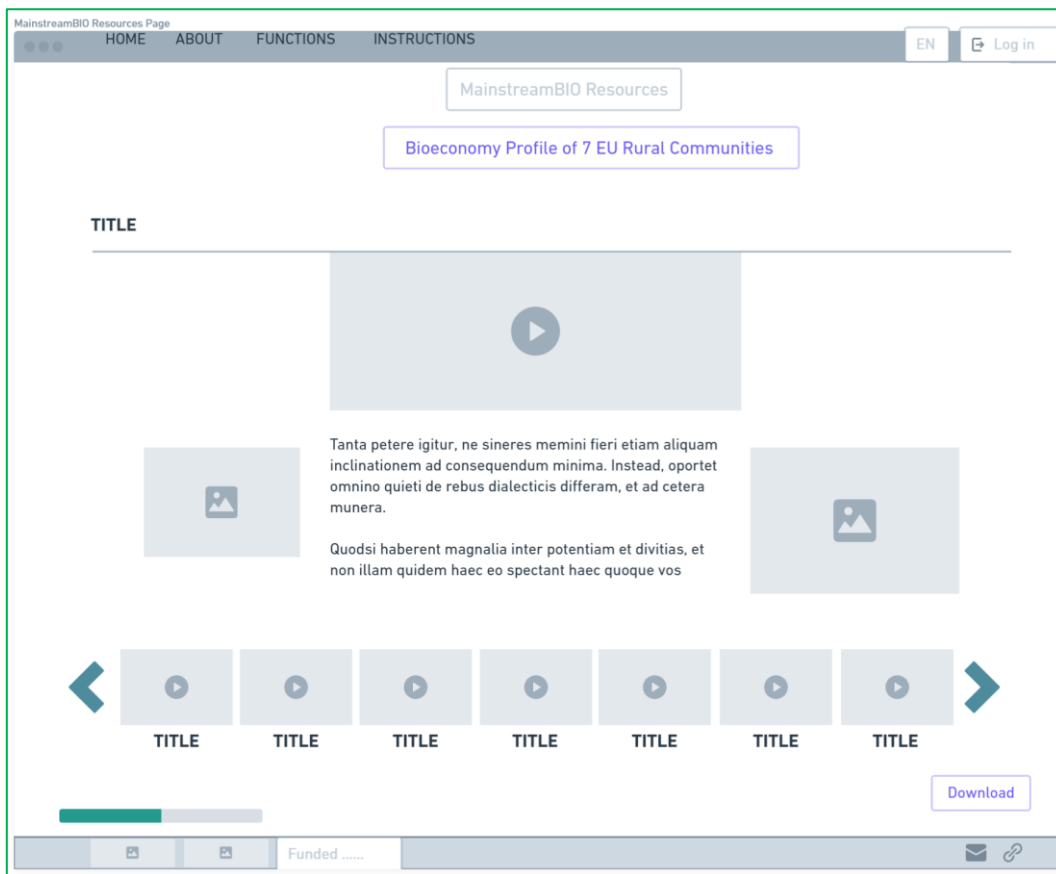
Figure 54: Wireframe of MainstreamBIO Resources page
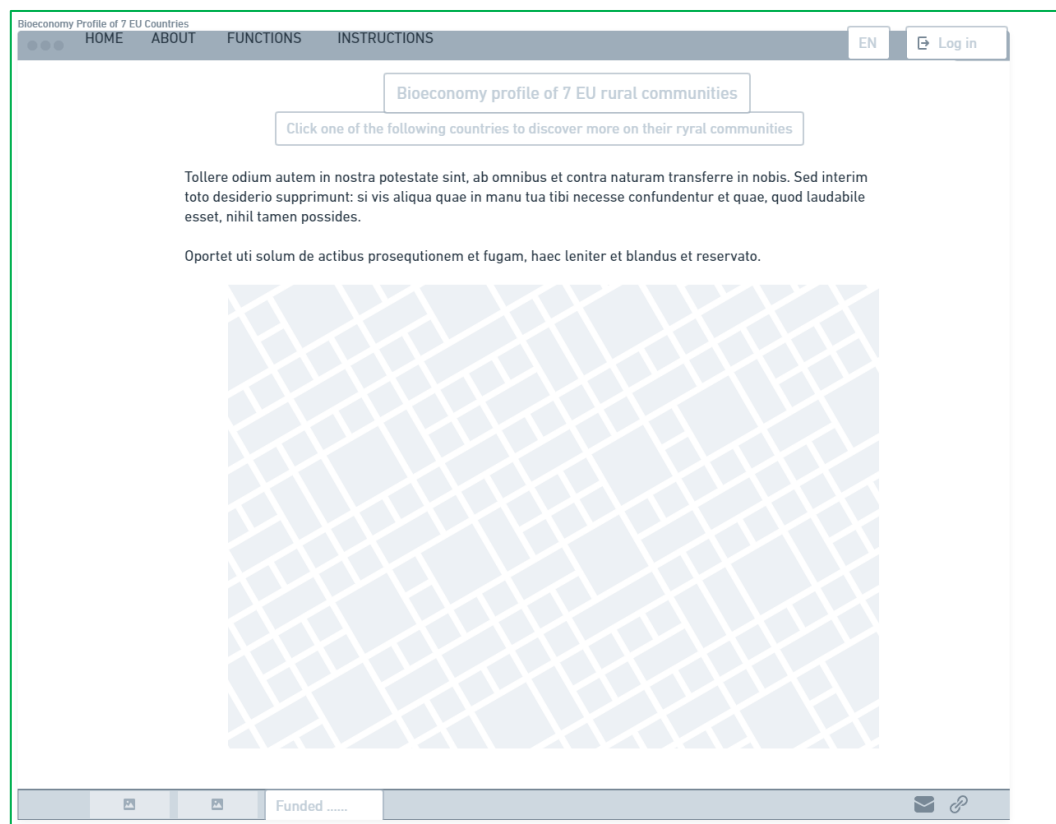
Figure 55: Wireframe of Bioeconomy Profile of 7 EU Rural Communities Page

Bioeconomy profile of an area of interest

HOME   ABOUT   FUNCTIONS   INSTRUCTIONS   EN   Log in

Click one of the following topics to discover more on bioeconomy in Netherlands

Regional needs for bioeconomy development

– Access to finance

– Public and private investments in R&D

– Investments in infrastucture

Regional barries hindering bioeconomy development

Nutrient recycling practices applied in the region

Business support services

Technical support services

Value chain example

Funded ......

Figure 56: Wireframe of the Bioeconomy profile of one country

Value chain example

HOME   ABOUT   FUNCTIONS   INSTRUCTIONS   EN   Log in

Title of selected point (B)

Narrative story of B

Funded ......
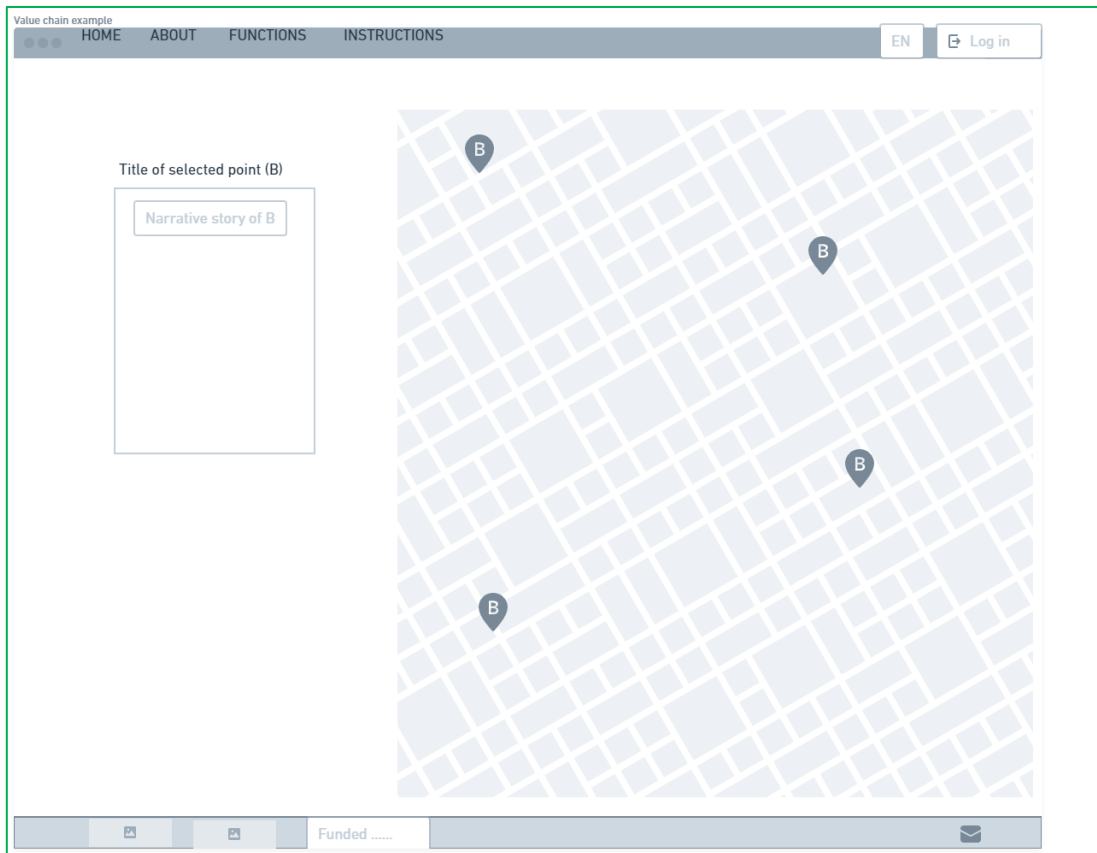
Figure 57: Wireframe of a Value Chain Example

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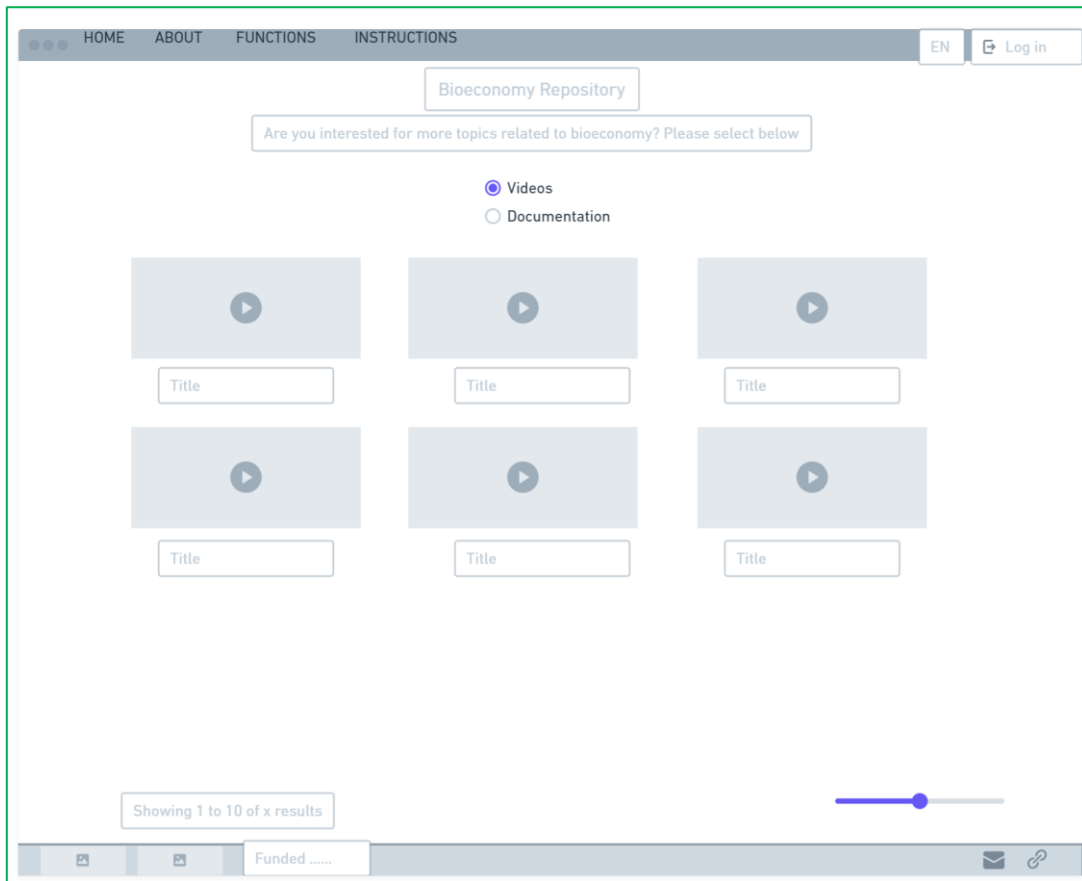
Figure 58: Wireframe of the Bioeconomy Repository with list of the videos
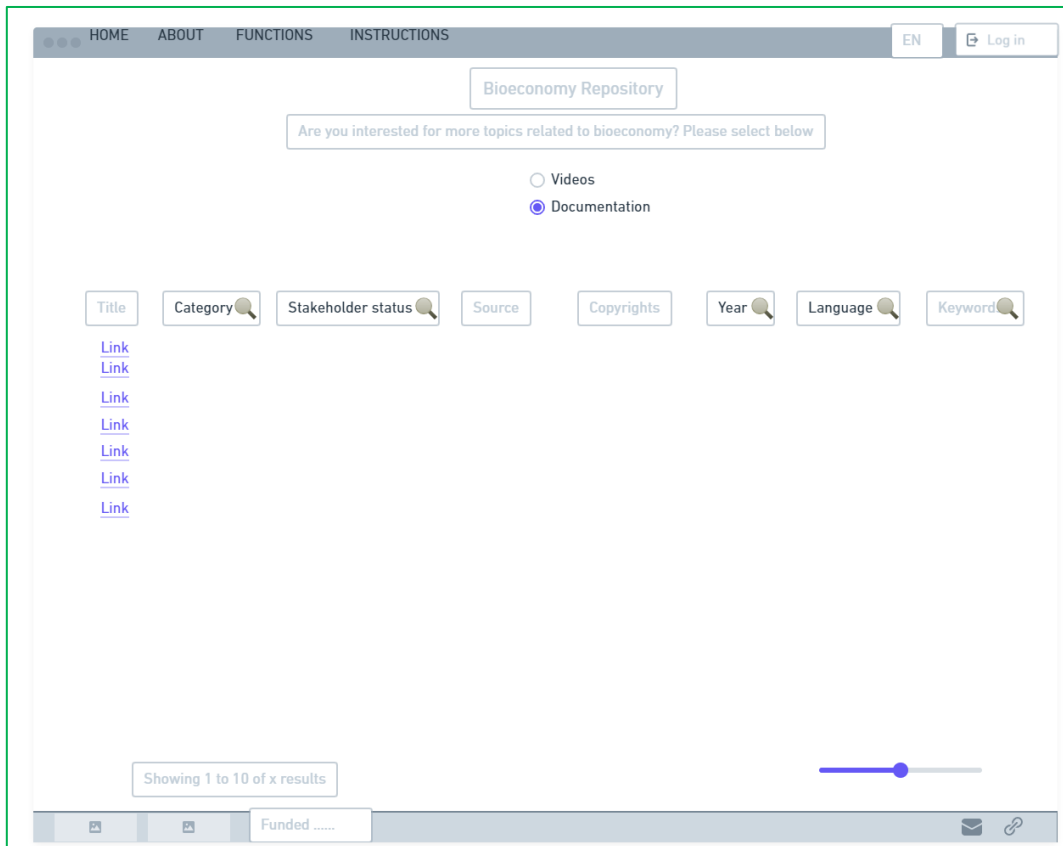
Figure 59: Wireframe of the Bioeconomy Repository with list of the documents
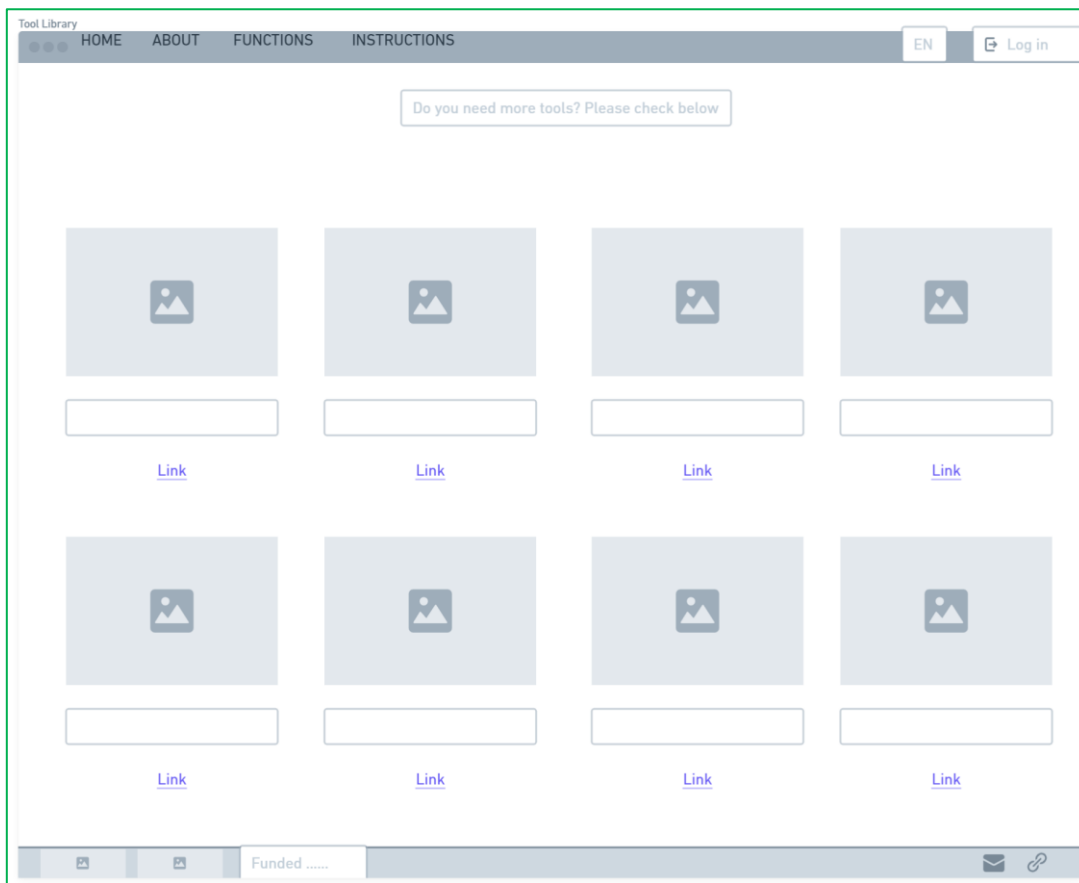
Figure 60: Wireframe of Tool Library page
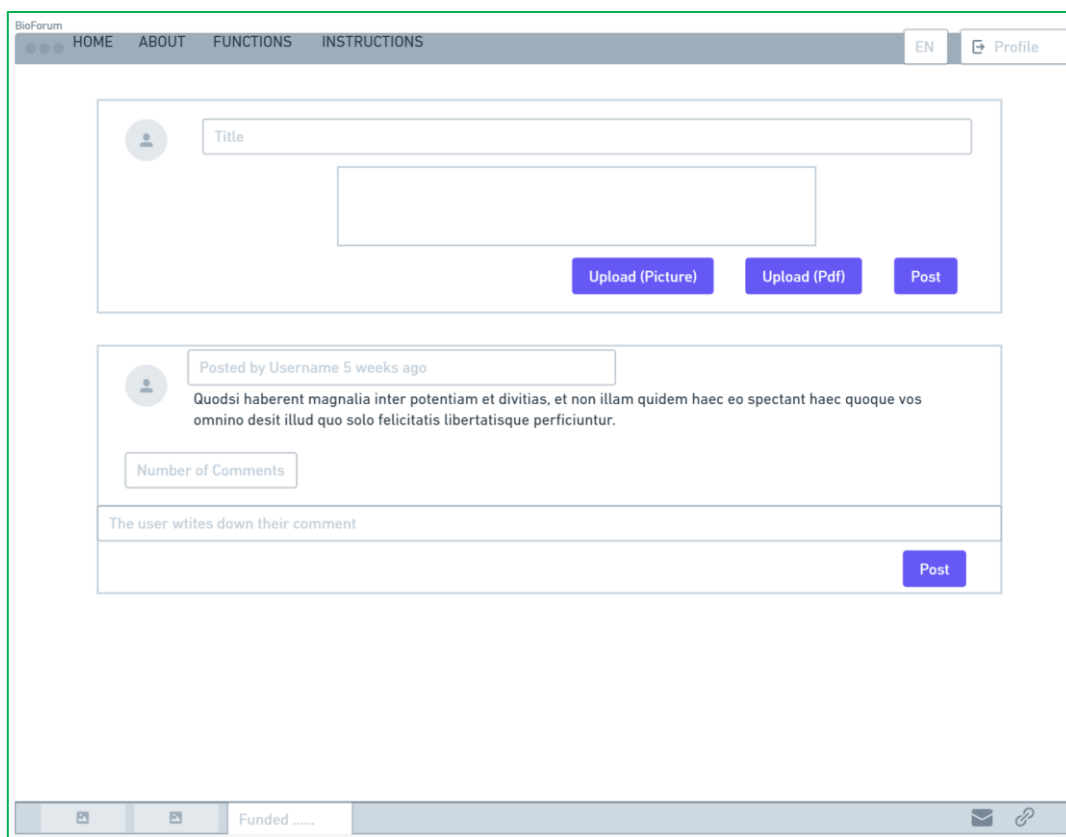
Figure 61: Wireframe of BioForum Page

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Figures from 62 to 74 are from Figma.
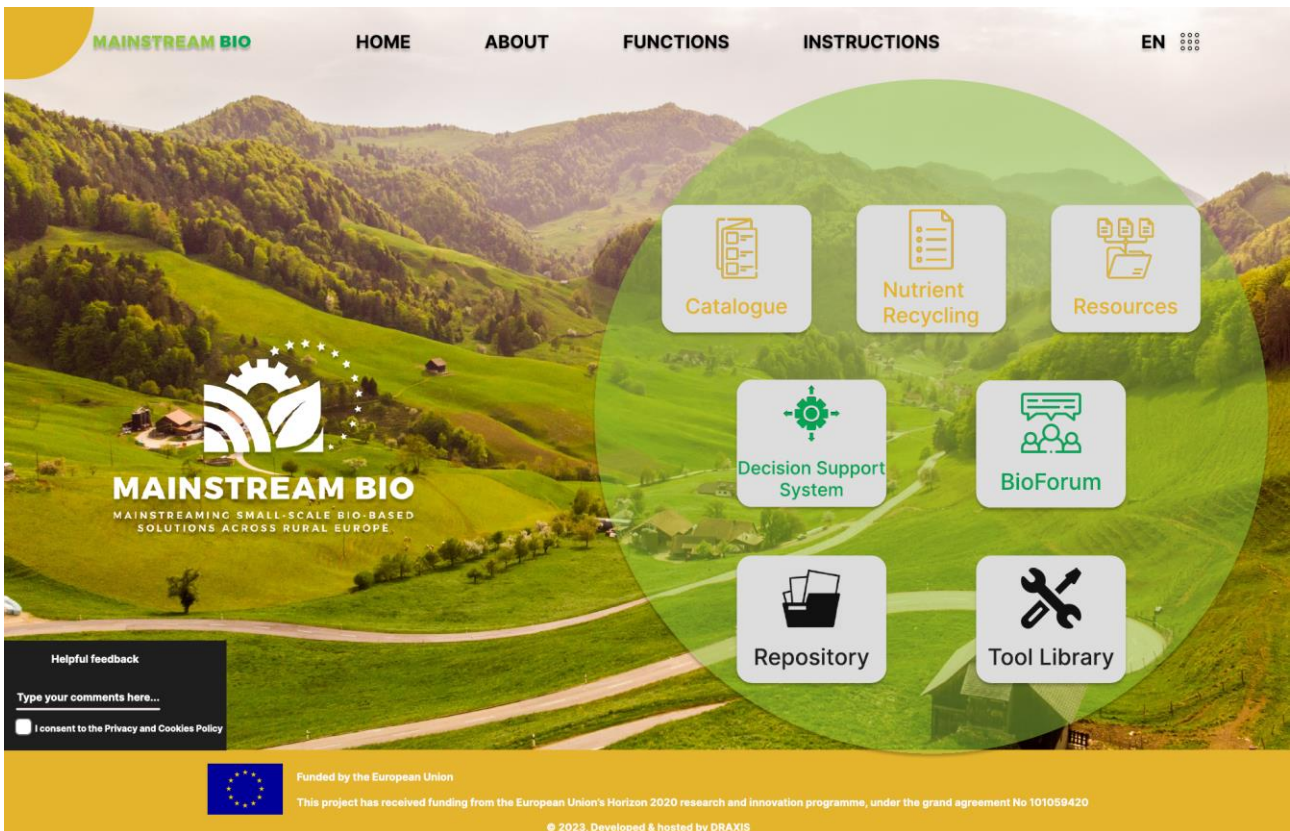
Figure 62: Mockup of Home Page

Figure 63: Mockup of Catalogue (Selection)
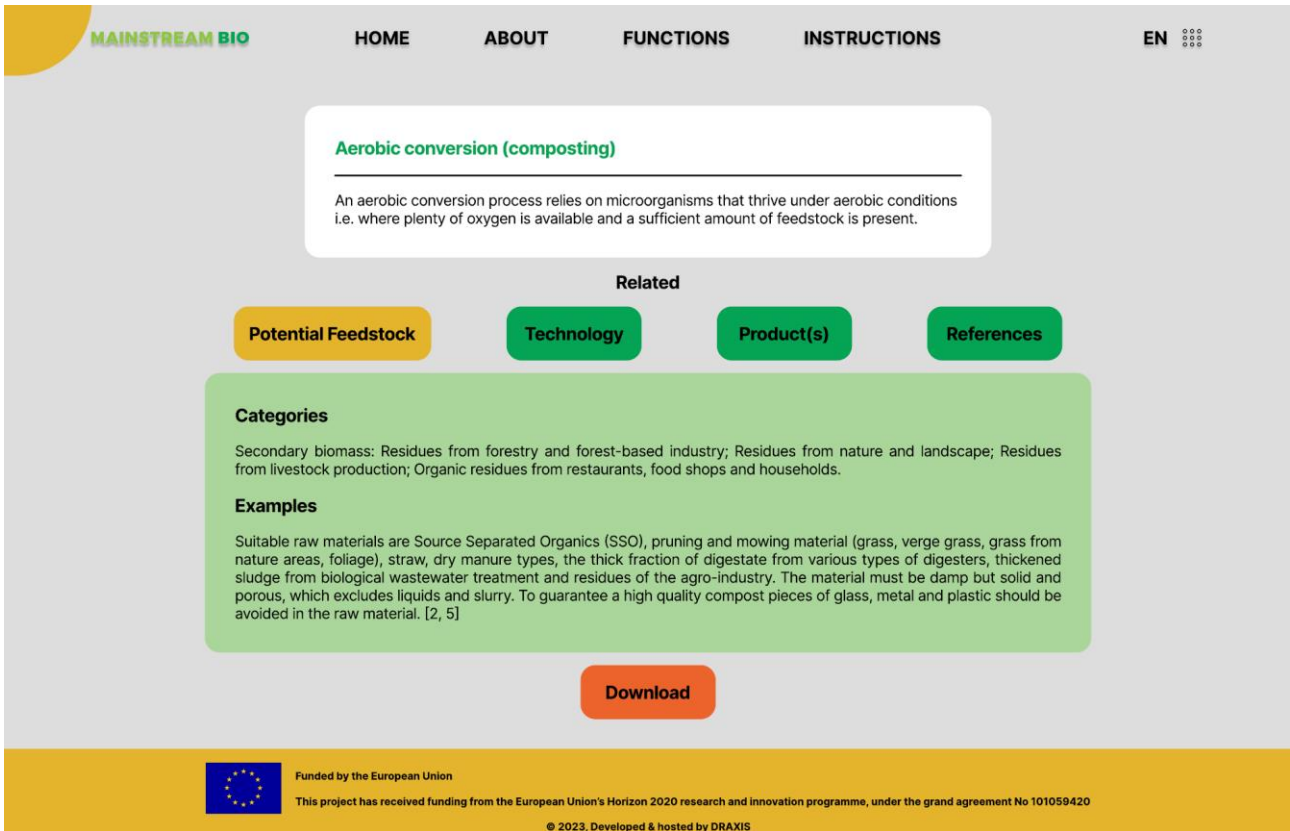
Figure 64: Mockup of Catalogue (Specific – Technology)
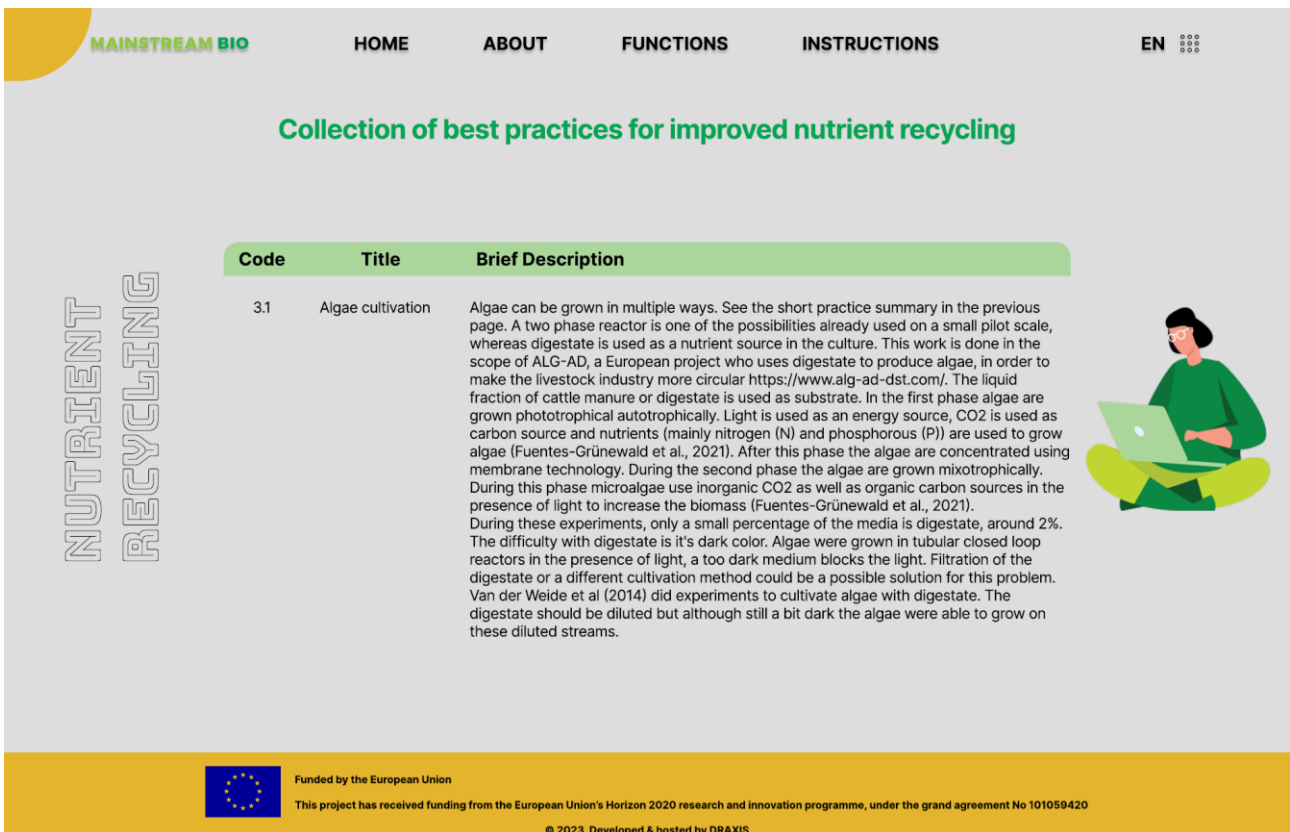
Figure 65: Mockup of Nutrient Recycling Practices (Selection)
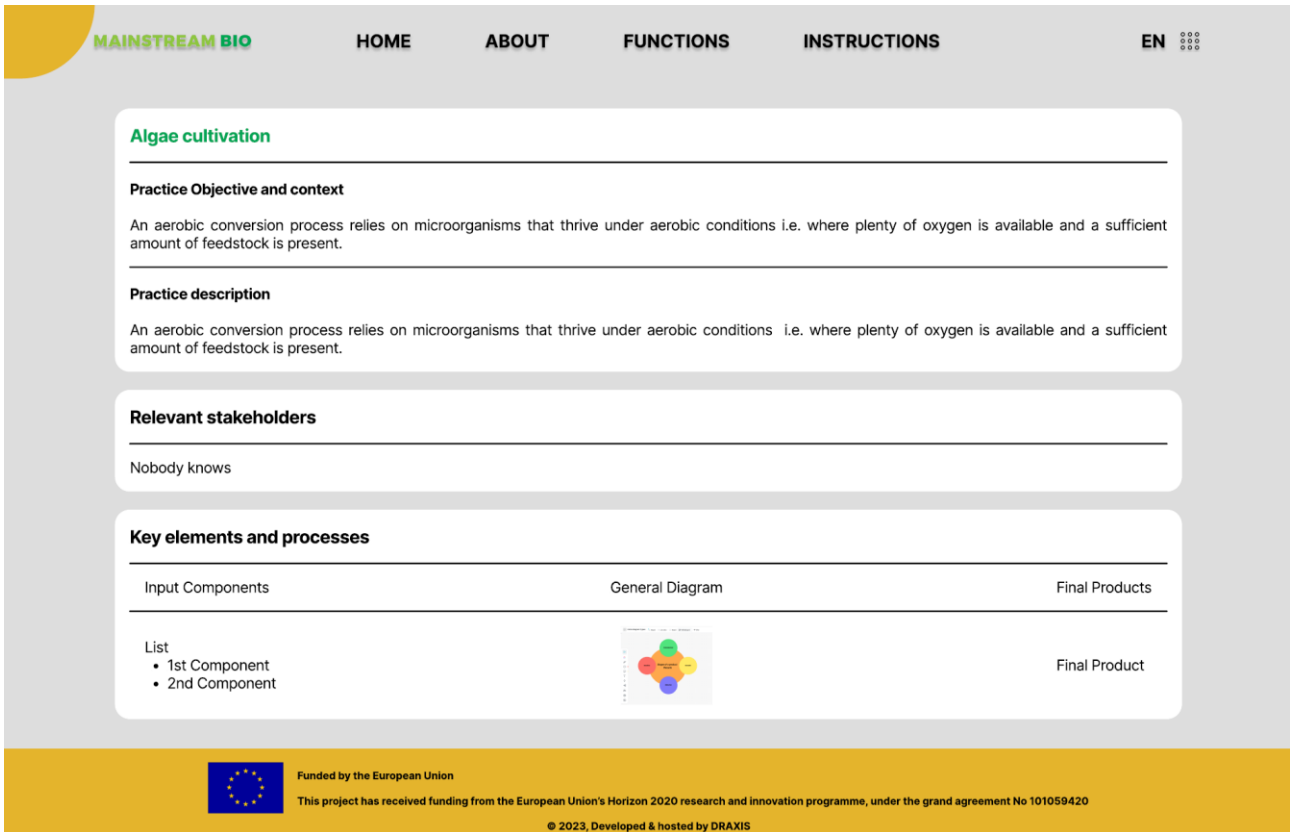
Figure 66: Mockup of Nutrient Recycling Practices (Specific)
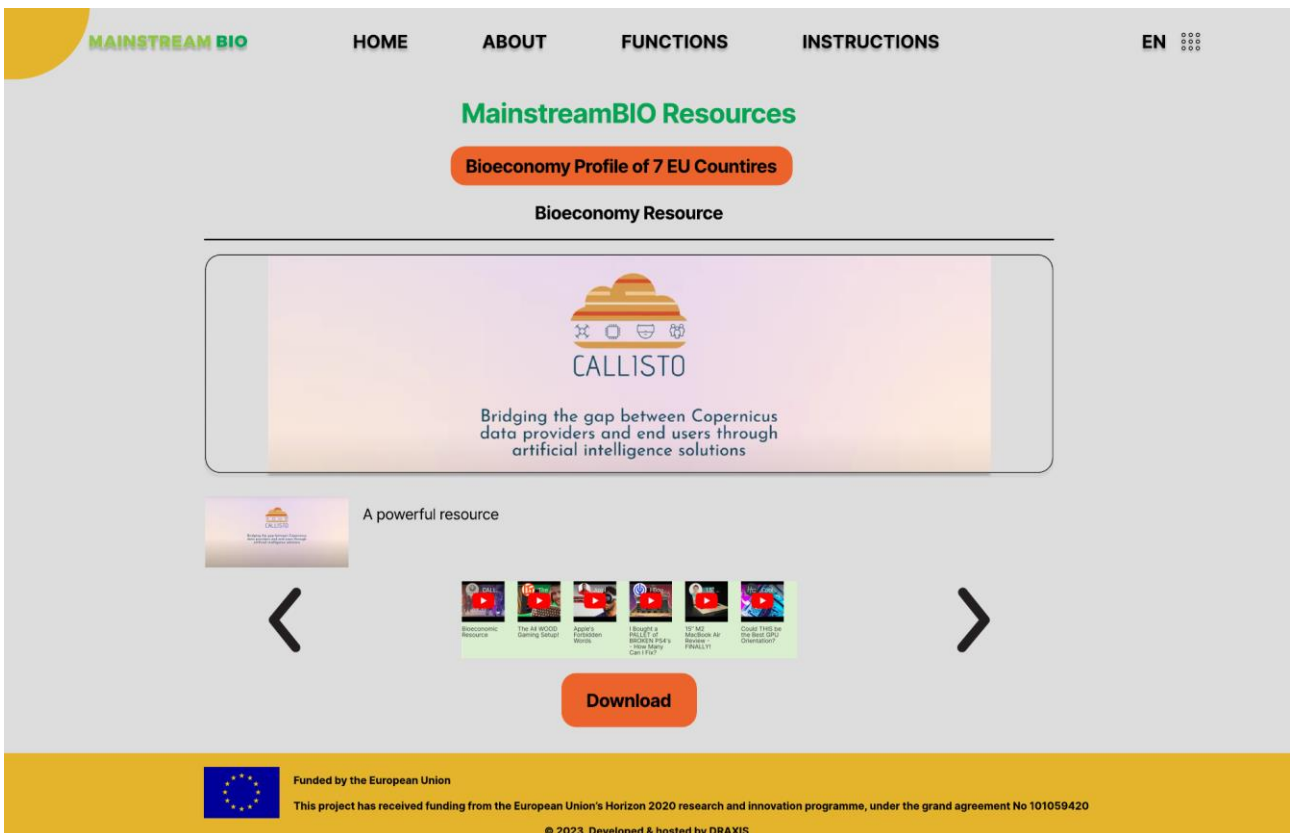
Figure 67: Mockup of MainstreamBIO Resources (Audio/Visual Material)
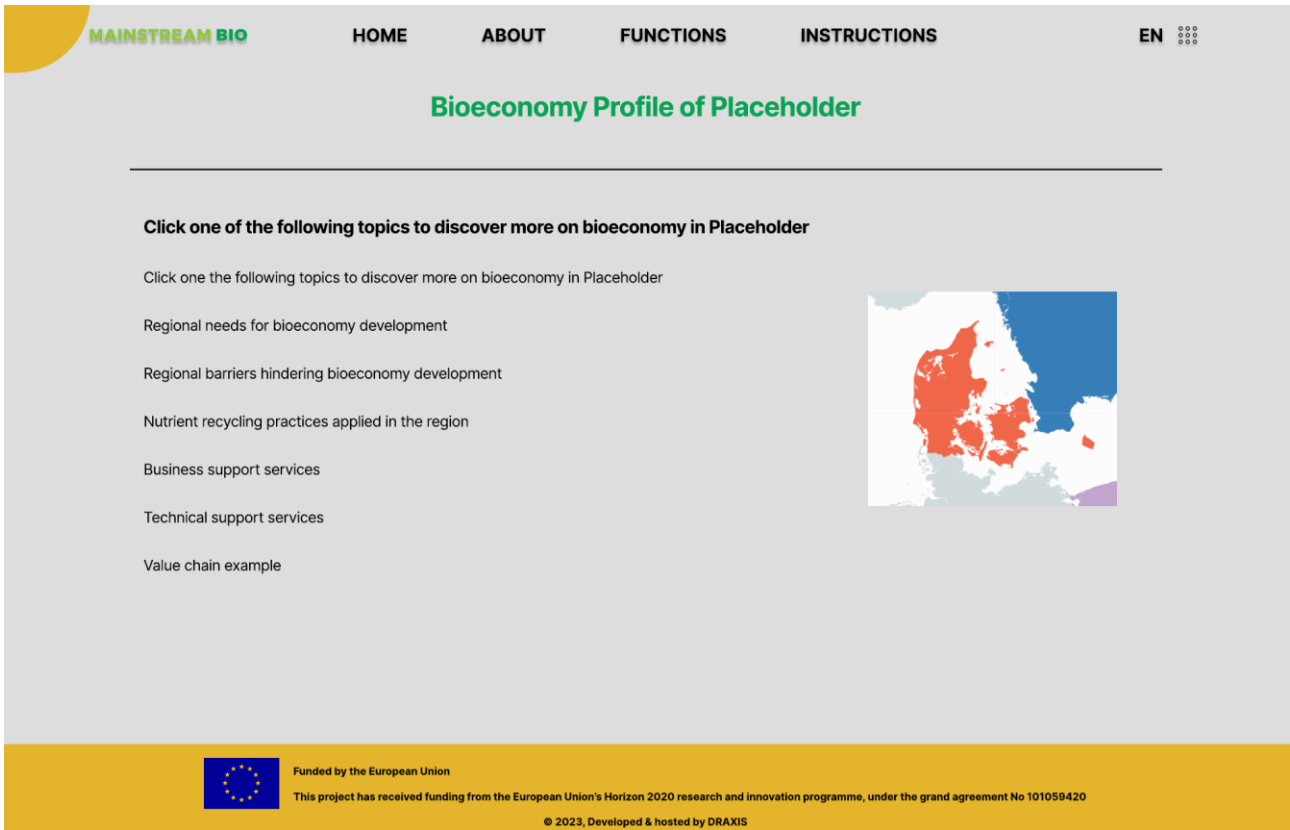
Figure 68: Mockup of MainstreamBIO Resources (Bioeconomy Profile of 7 EU rural communites)
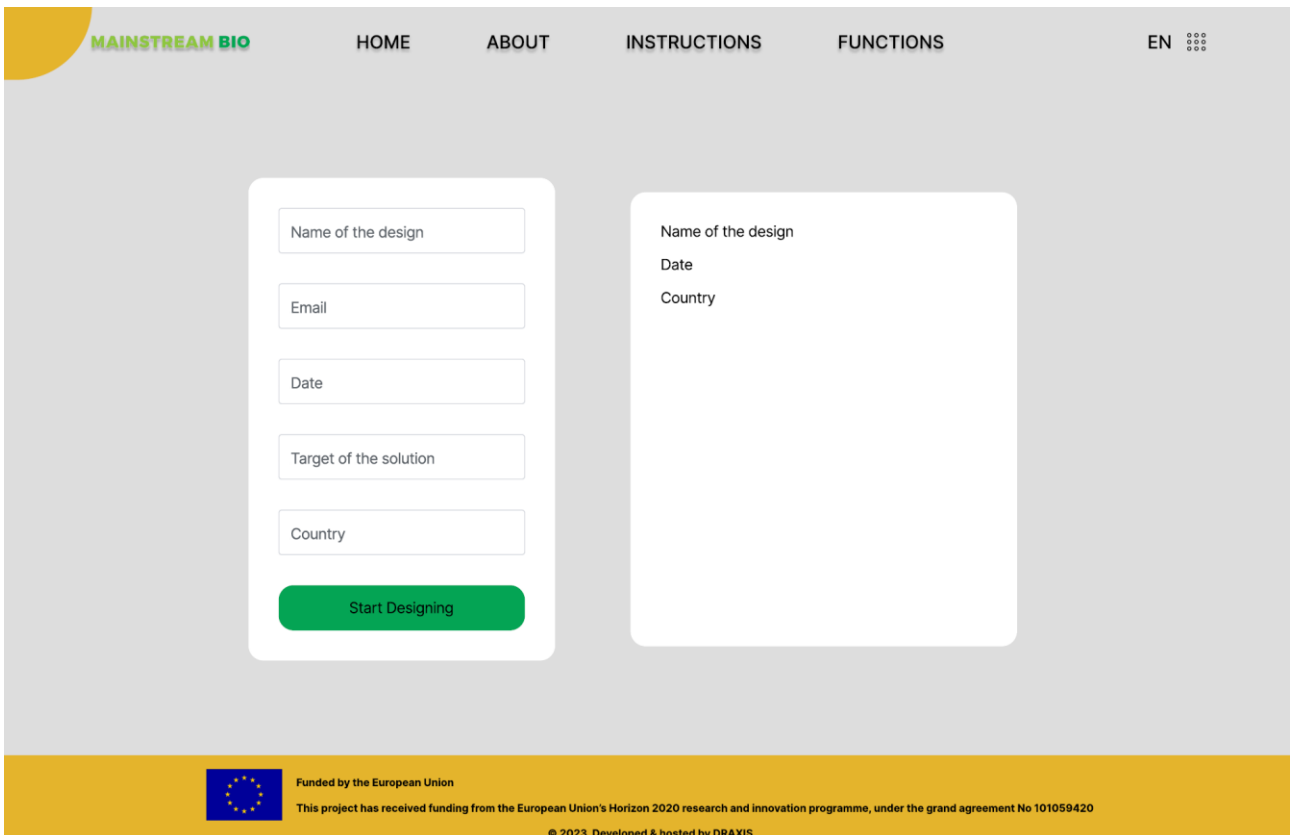
Figure 69: Mockup of DSS (Selection)
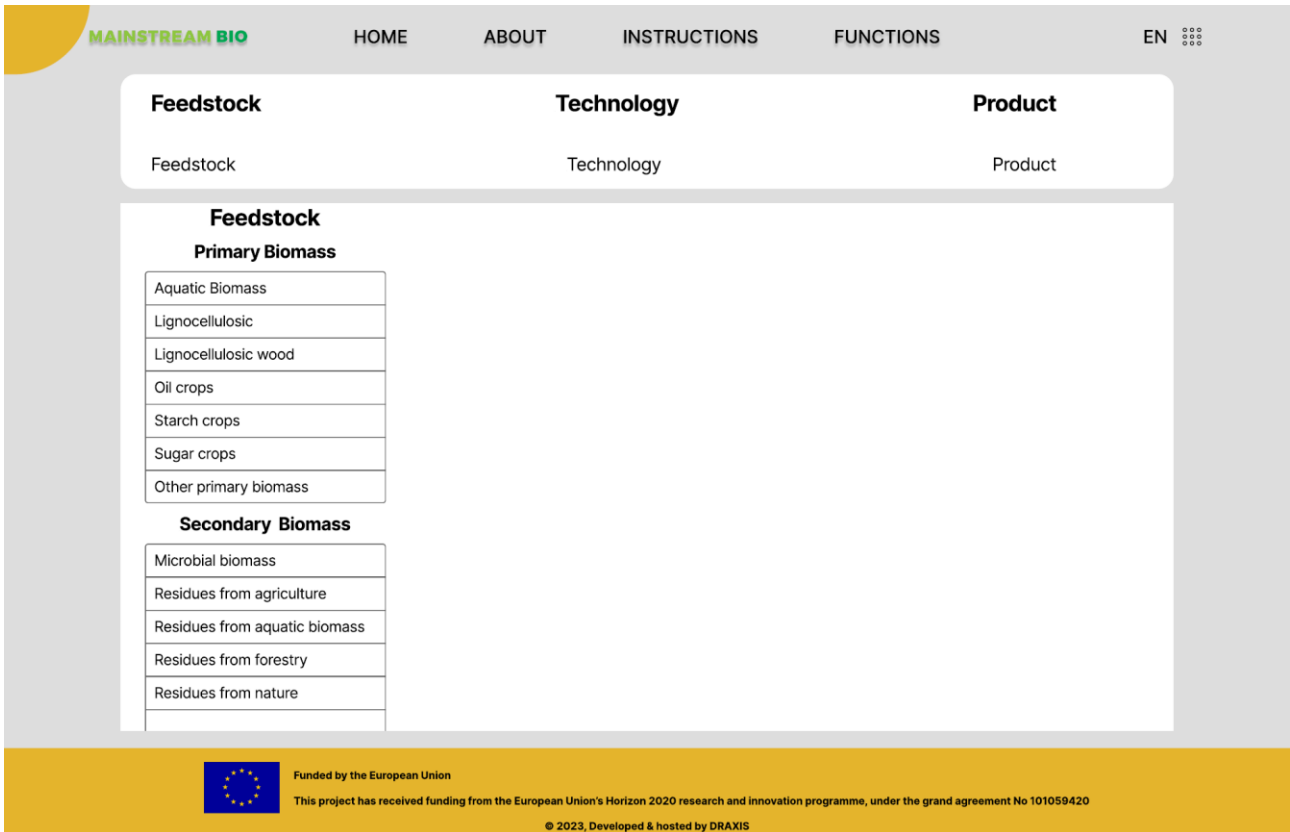
Figure 70: Mockup of DSS (Step 1: Matching Table)
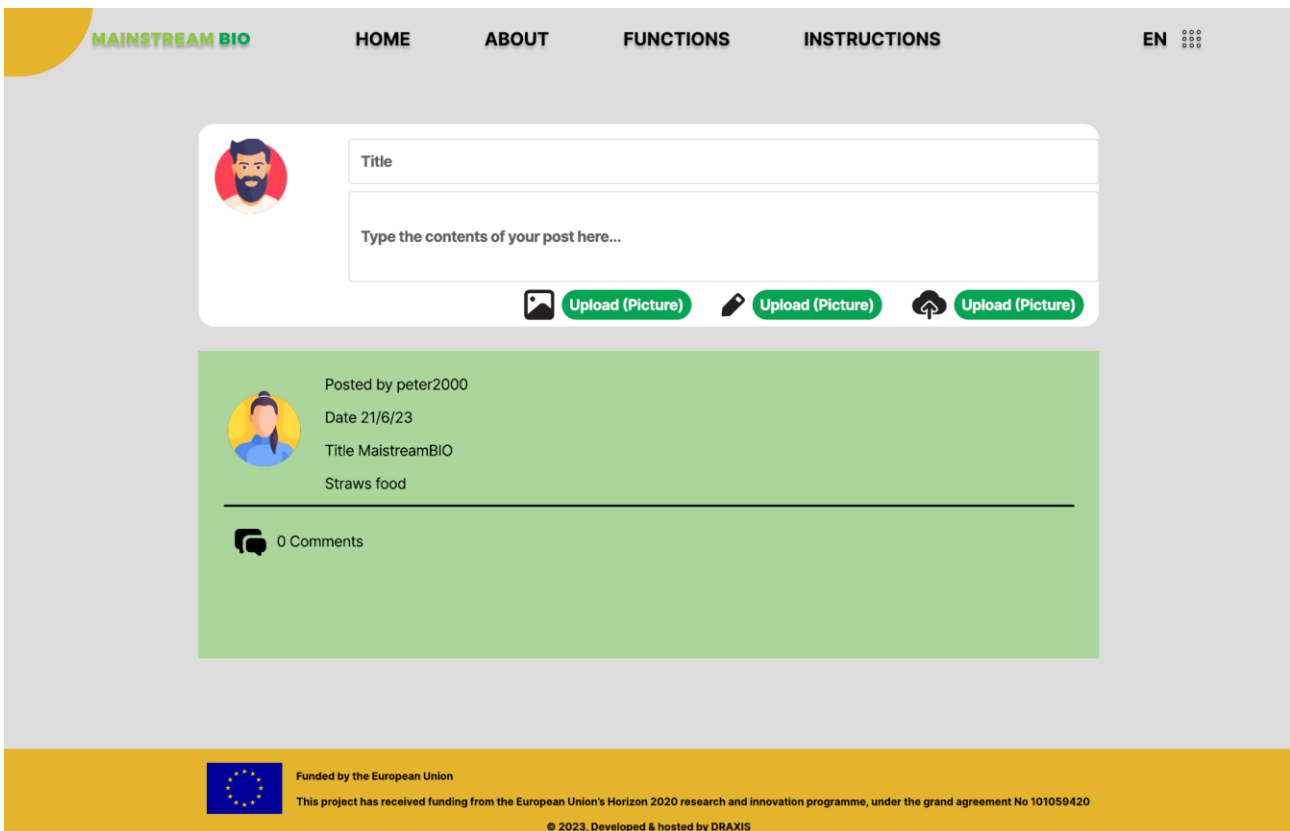
Figure 71: Mockup of BioForum

Figure 72: Bioeconomy Repository (Audio/Visual Material)

Figure 73: Bioeconomy Repository (Documentation)

Figure 74: Tool Library

The project

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

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

Partner		Short Name
	Q-PLAN INTERNATIONAL ADVISORS PC	Q-PLAN
	MUNSTER TECHNOLOGICAL UNIVERSITY	MTU
	STICHTING WAGENINGEN RESEARCH	WR
	INSTYTUT UPRAWY NAWOZENIA I GLEBOZNAWSTWA, PANSTWOWY INSTYTUT BADAWCZY	IUNG
	RISE PROCESSUM AB	PROC
	AGRAREN UNIVERSITET - PLOVDIV	AUP
	FBCD AS	FBCD
	EURIZON SL	INNV
	DRAXIS ENVIRONMENTAL SA	DRAXIS
	WHITE RESEARCH SPRL	WHITE

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