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FOR THE MARKETABILITY OF SUSTAINABLE BIO-BASED PRODUCTS

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**BIO-BASED
INDUSTRIES**
Public-Private Partnership

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Proceedings from the European, national and regional co-creation events and policy debates 2

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Duration 24 months (1st SEP 2018 – 31st AUG 2020) | **Website** www.biobridges-project.eu

Coordinator GLOBAZ, SA - LOBA (www.loba.pt) – Portugal - **Ms. Candela Bravo**

Project Overview

BIOBRIDGES is a 24 months action aiming at boosting the marketability of bio-based products - BBPs by establishing close cooperation and partnership between bio-based Industries - BBI, brand owners and consumers' representatives. The ultimate goal is to stimulate and support the active engagement of and interaction among all stakeholders (including local communities and local authorities) and improve market acceptance of BBPs.

BIOBRIDGES will design and implement replicable methodologies, procedures and good practices supporting multistakeholders' interaction, leading to new cross-sector partnerships. Main activities will be:

- Identify the cooperation challenges among consumers, brand owners and BBI
- Create a sustainable multi-stakeholder community involving consumer representatives, BBI and brand owners from different bio-based economy clusters and stimulate dialogue and cooperation
- Following a co-creation approach, increase consumers' and brand owners' awareness, confidence and trust on the benefits of BBPs compared to the fossil-based counterparts,
- Support the establishment of at least 2 new cross-cutting interconnections in bio-based economy clusters and define replicable procedures and good practices leading to the establishment of new cross-sector partnerships and business opportunities
- Stimulate the multi-stakeholder discussion toward pre-and co-normative research, new standardisation/labelling and emerging co-creation models (B2B and B2C).

At the end of the project, at least 2 new cross-sector interconnections in bio-based economy cluster will be established, while the foundations for the creation of new ones based on the arguments, best practices and recommendations deriving from the project will be formed.

The BIOBRIDGES consortium merges a variety of complementary expertise, aiming to build a consistent multi-actor approach integrating 9 partners already involve in other projects like BLOWAYS, BIOVoices and BIOSTEP.

Consortium	
Estonia	Civitta Eesti As
Italy	FVA Sas Di Louis Ferrini & C
Greece	Q-PLAN INTERNATIONAL ADVISORS PC
Germany	Ecologic Institut gemeinnützige GmbH
Italy	Agenzia Per La Promozione Della Ricerca Europea
Croatia	Particula group d.o.o
Slovakia	Pedal Consulting Sro
Spain	Asociacion Espanola De Bioempresas

Budget 995.485 EUR | **Contact** info@biobridges-project.eu

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1. Executive Summary

The Biobridges project (www.biobridges-project.eu) is funded by the Bio Based Industries Joint Undertaking under the European Union's Horizon 2020 research and innovation programme (Grant Agreement No 792236). The project aims to foster cross-sector partnerships between Bio-Based Industries, Brand owners and Consumer representatives, for the improvement of the marketability of sustainable bio-based products.

The project facilitates multi stakeholders' collaboration, raises their awareness on other's stakeholders' needs and expectations, addresses shared challenges, maximises opportunities and supports strategic partnerships, adopting a co-creation approach.

Biobridges' target stakeholders are Bio-based Industries, Brand owners/retailers and Consumers, but it involves also other relevant actors such as policy makers and the research community, to ensure that all perspectives are taken into consideration and the challenges are addressed, counting on the contribution of all the relevant players.

To reach the above-mentioned objectives, the project has designed, organized and run some of the 20 co-creation events at different geographical level:

- **The European co-creation events** (two) will be organized in the framework or in conjunction with EU fairs, conferences, etc. will result in unique perspectives on circular economy and value chains. They will be made up of the opinions of the stakeholders (industry, brand and consumer representatives) involved in these co-creation events.
- **The Biobridges National and regional co-creation events** (at least two in each partner country) will be targeted to an early engagement of the national communities. Stakeholder groups will be invited to collaborate on a bottom-up approach from the design of the entry strategy to assess the bio-based markets.

The findings described in this deliverable will support the Biobridges partners in the organisation and implementation of the remaining workshops, providing them with guidance on the how to design, implement and evaluate successfully the co-creation and Mobilisation and Mutual Learning workshops.

2. Introduction

The overall aim of D5.2 “Proceedings from the European, national and regional co-creation events and policy debates 2” is to report on the outputs of the events organized from M12 (August 2019) until M16 (December 2019) of BIOBRIDGES project, concretely in the scope of three tasks within WP5: Task 5.1 – European co-creation events; Task 5.2 National and regional co-creation events; Task 5.3 Triggering policy debates at the local and regional level. These tasks are based on the scientific presumption that the ideas within the collective can offer a fresh perspective on what BIOBRIDGES project aims to achieve.

In order to have a complex set of information and a round picture on the events organized, it is recommended to read this deliverable together with the previous one – D5.1 “Proceedings from the European, national and regional co-creation events and policy debates 1” – reporting on the events organized until August 2019.

More concretely, **European co-creation events** aim to obtain unique perspectives on partnerships between Bio-Based Industries, Brand Owners and Consumers representatives. The European level is interchanged by national and regional in the scope of **National and Regional co-creation events**. These events are targeted to the early engagement of the national and regional communities where the co-creation is based on the transformational engagement of multiple stakeholders named above. Participants are invited to address challenges identified in the scope of the project, discussing specific subjects and themes defined. Additionally, to this **Triggering policy debates at the local and regional level** is foreseen as part of the respective work package 5. Relevant stakeholders – industry, science, policy makers and civil society – are aimed to be involved to discuss the pros and cons of bio-based products and processes and come up with recommendations on how these could be tackled by policies. Identification of existing policy gaps should take place in order to name and then address these.

The result of task – organized events – will feed into a set of policy recommendations for improved public acceptance of bio-based products and processes on all respective levels. The results can also feed into relevant EU policy processes, such as monitoring and evaluation of the EU Bioeconomy Strategy and also of the Circular Economy Action Plan.

**Remark: During the first 12 months of the project the partners organized and reported 8 events. “Proceedings from the European, national and regional co-creation events and policy debates 1” is analysing these and offers quantitative and qualitative results, lessons learned from these events and also preliminary recommendations to be considered.*

3. Methodology

The organization of the three tasks – Task 5.1 European co-creation events; Task 5.2 National and regional co-creation events; Task 5.3 Triggering policy debates at the local and regional level – has been carried out based on the D4.1 “BIOBRIDGES PLATFORM design: WHAT, WHO and HOW” in scope of which guidelines were developed for the design of workshops that are relevant, attractive and motivating for the target stakeholders (Bio-based Industries, Brand owners/retailers and Consumers) to contribute and finally to deliver impactful outcomes.

D4.1 operationalized the co-creation process, defining the contents and subjects (WHAT), the stakeholders to be involved (WHO) and the plan for the activities (HOW). This document also harmonically integrated the three dimensions of the BIOBRIDGES platform design.

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4. Quantitative overview of the organized events

Seven co-creation events were organized between M13 and M16 (September – December 2019) of the BIOBRIDGES project. This chapter aims to provide the readers with a quantitative overview of these events. At first the scale of the event, the country where the event took place and the total amount of events organized are given in the chart (chart 1) below, together with the respective organization carrying out the event. **The overview of events which are covered by the deliverable D5.1 is available in the annex of this report.**

Table 1 - Number of events organized

Scale/country	Organizing partner	Total	Events	Date
Regional		2		
Slovakia, Bratislava	PEDAL	1	Regional co-creation workshop in Slovakia	07.11.2019
Estonia, Tartu	CIVITTA	1	Regional co-creation workshop in Estonia	02.11.2019
National		5		
Slovakia	PEDAL	2	National co-creation workshop in Slovakia 1 National co-creation workshop in Slovakia 2	17.09.2019 24.09.2019
Italy	APRE	1	National co-creation workshop in Italy	04.10.2019
Estonia	CIVITTA	1	National co-creation workshop in Estonia	06.11.2019
Portugal	LOBA	1	National co-creation workshop in Portugal	05.09.2019
Grand total		7		

Secondly, the total number of the participants, and also the number by type of stakeholders is provided. Altogether 182 participants took part in 7 respective events. Their background was in research, industry, civil society, public sector and also in other spheres (chart 2).

Audience (number by type of stakeholders)				Total Audience
Research	Industry	Civil Society	Public Sector	
75	59	59	18	211

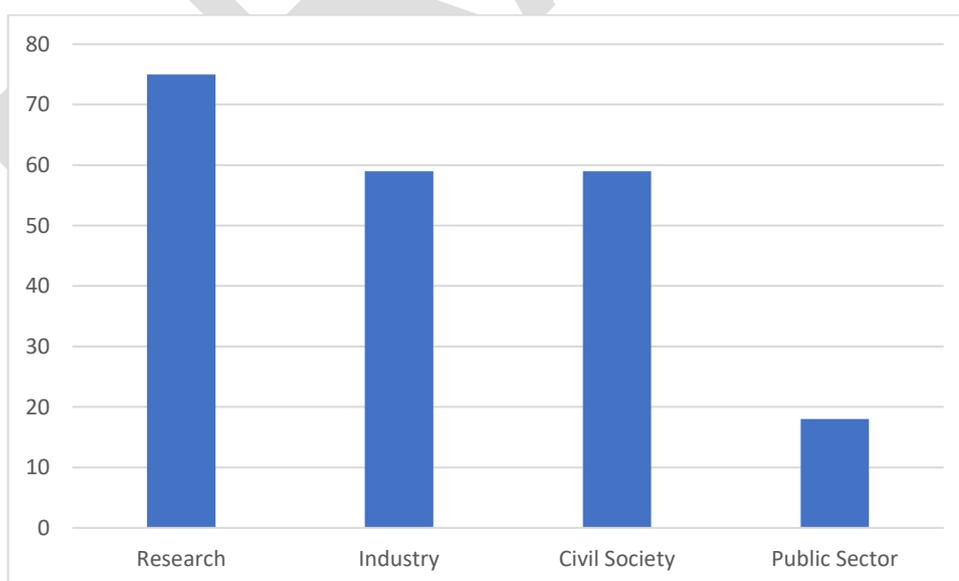


Chart 1- Audience

Thirdly, a chart offering an overview of the application sectors and their representation out of all the events carried out is given below (chart 3). Agrifood application sector was represented at one workshop, construction application sector also at one workshop, waste management at another one and all remaining application sectors (e.g. wood, chemistry, biomass and textile) were represented at the four remaining workshops.

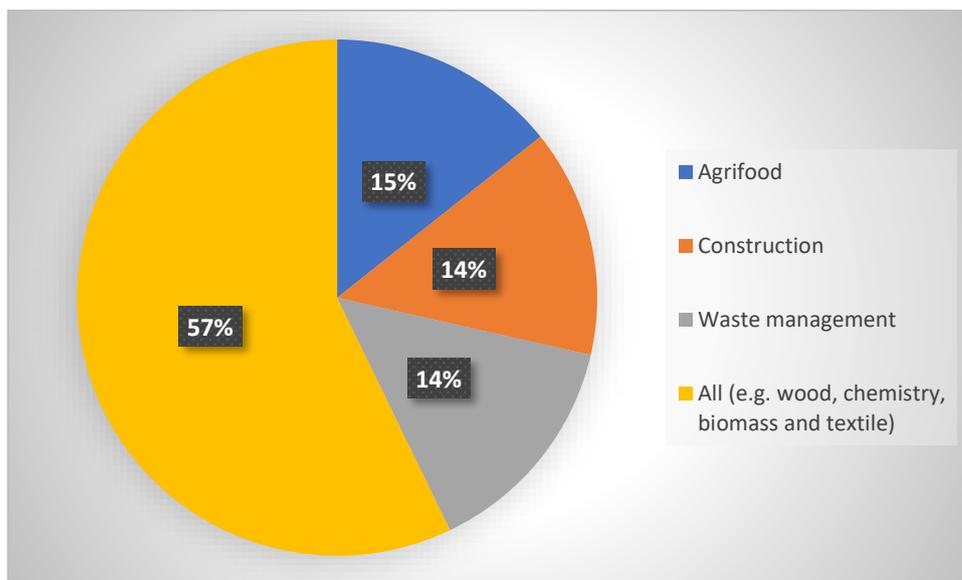


Chart 2 - Application Sector

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5. Qualitative overview of the organized events

This chapter provides the reader with a chronological overview of all the 6 workshops carried out during the period covered by this report. The basis of the chapter is made up of the 6 reports provided co-creation workshops are outlined and later on categorized based on the application sector, challenge, and type of stakeholder, for the readers to easily navigate.

5.1. National co-creation workshop in Slovakia 1

5.1.1. Event data

BIOBRIDGES representative (name and organization)	Robert Miskuf, PEDAL Martin Vlachynsky, PEDAL Eduard Miskuf, PEDAL Gabriela Mezeiova, PEDAL
Event venue	Hotel Viliam Fraňo, Nitra – Dolné Krškany, Slovak Republic
Date	17.9.2019
Event organized in partnership with	Food Biotech Conference 2019
- (Description)	The Food Biotech Conference 2019 was organized by the Faculty of Biotechnology and Food Science of the Slovak University of Agriculture in Nitra.
- (Website)	https://fbtcon.fbp.uniag.sk
Work package	WP5
Task number	Task 5.1

5.1.2. Description of the BIOBRIDGES event

Title (original language / English)	The Role of Bioeconomy in the Entire Value Chain: building bridges among the parties involved
Stakeholders attending (<i>Policy Makers, Researches, Business, Citizens, Civil society, Media</i>)	Policy makers, Researchers, Business, Civil Society
Total number of participants	37
Public sector	5

Private sector	12
Civil society	6
Research	14
Countries addressed	Slovakia, the Netherlands
Summary of main activities at the event	<ul style="list-style-type: none"> ▪ Introduction to the bioeconomy and to the Biobridges project ▪ Overview of the Biobridges analysis ▪ Food value chain context ▪ Ice-breaking interactive session with Mentimeter ▪ Round-table discussion: 1. From feedstock to industry, 2. From industry to market, 3. From market to consumers ▪ Workshop wrap-up
Material developed (link to the internal repository)	<p>Mentimeter: https://www.mentimeter.com/app/results/366d555ebe78d00d39d96dfa957968e8</p> <p>G-Drive: https://drive.google.com/drive/folders/1Odd-fLdgyy_37knwt_XqQE5omOSUZVKt</p>

5.1.3. Rationale and Purpose of the Event

The topic of biotechnology seen as one of the new innovative sources for human nutrition, health and environment safety, influenced the intentions of the Food Biotech Conference 2019, organized by the Faculty of Biotechnology and Food Science of the Slovak University of Agriculture in Nitra.

The purpose of the conference was to present actual results in the field of quality, safety and hygiene of raw materials and food hygiene, plants, animals and also microbial biotechnology, genetic sources, molecular markers of properties with perspective for breeding and a quality of production (for more information visit: <https://fbtcon.fbp.uniag.sk/info/conference-topics>).

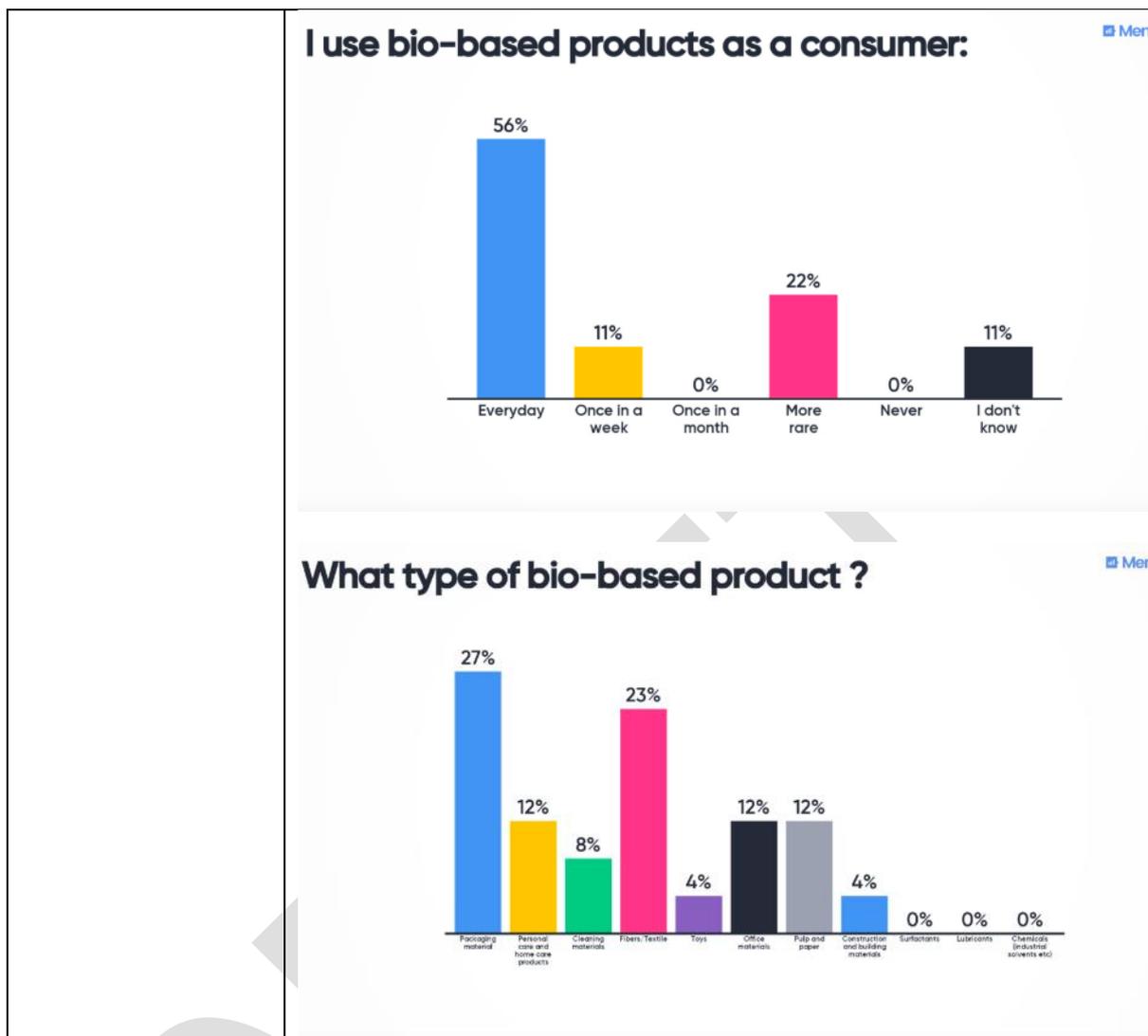
Among all the sessions taking place, in terms of topics focusing on the following areas – Biotechnology and Biology, Food Technology and Quality, Food Hygiene and Safety, Health and Risk Factors, Innovation Trends in Food Industry – the practical workshop of the Biobridges project, named *The Role of Bioeconomy in the Entire Food Value Chain: building bridges among the parties involved*, also happened in scope of the conference, organized and led by PEDAL.

5.1.4. Key outcomes from the workshop

Key topic	The Role of Bioeconomy in the Entire Value Chain: 1. From feedstock to industry 2. From industry to market 3. From market to consumers
Sector/s represented	

<p>Business Civil Society Policy Makers Research</p>	<p><u>From Feed-stock to Industry</u></p> <ul style="list-style-type: none"> ▪ There is a potential (sources, but not yet really used), but a potential for processing is missing ▪ Availability of feedstock is not considered to be a big problem ▪ Technology, data and resources are believed to be missing ▪ The bio-based business is not very well developed in Slovakia, and the same applies to food value chain ▪ The respondents were concerned that the potential of various strategies in order to boost bio-economy, is not very well used ▪ Lack of awareness, subsidies, and finances were identified as challenges negatively influencing the process ▪ There is not enough connection between suppliers and consumers ▪ The funding on local and regional level is necessary in order to support the industry ▪ Missing agricultural (food) policies, weak policymaking, and missing basic data ▪ Farmers should have a chance to benefit from bio-food economy ▪ There is a problem of abandonment of agricultural land what needs to be considered ▪ Missing public awareness, and limited sources to be used for promoting ▪ The question “How many consumers know they are buying bio-based products?”, was raised
<p>Business Civil Society Policy Makers Research</p>	<p><u>From Industry to Market</u></p> <ul style="list-style-type: none"> ▪ Considerations regarding import vs local production were open; it was said: “In Slovakia we rather import than use local resources, we even import bio-gas plants.” ▪ Some good practices were mentioned by the participants, for example: growing pumpkins and selling pumpkin seeds to Austria; making glue from corn; making toothbrushes from (imported) bamboo... ▪ Ad hoc, rather than systematic examples were also raised during the discussions, e.g. bio-based housing, extracts for cosmetics industry based on agro commodities ▪ Pure agro-sectoral approach is in general seen as a problem, and a need for multi-sectoral approach identified as a solution ▪ Lack of collaboration among farmers and market is a challenge to be faced ▪ Main driver for bio-food-chains in Slovakia should be the young generation and start ups ▪ Researchers should be more 'loud' when reporting on these issues
<p>Business Civil Society Policy Makers</p>	<p><u>From Market to Consumers</u></p>

<p>Research</p>	<ol style="list-style-type: none"> 1. Some opinions were considering that consumers should be focused first and their demand on the market will be heard and industry will react 2. There is a strong need for a critical mass of consumers purchasing bio-based products 3. According to experiences from a western country (the Netherlands), consumer behaviour influences the food value chain very much 4. Prices are in Slovakia still an issue, while there are some positive signals emerging (demand for ecological solutions is raising) 5. A desperate need for education was identified 6. In the Netherlands, buying bio-based products is a matter of life style and trend followed by many if not most of the people 7. Importance of philosophy, motivation, raising the level of knowledge is seen as crucial
<p>Any consensus points? Points/advice/perspectives agreed by all stakeholders to enable progression in driving the bio-based sector forward</p>	<p>The participants of the discussions were in general concerned about the lack of public awareness on bio-based products and about the need to educate people and raise their level of knowledge, so that a critical mass of consumers purchasing bio-based products can be built. It was considered within the discussion too that consumers should be focused first and their demand on the market will be listened to and the industry will consequently react to it too. The reason for this is that consumer behaviour is effective in influencing the food value chain very much. While all this should lead to a higher level of connection between suppliers and consumers. A special focus shall in this process be paid to young people and to innovative start-ups as they can be perceived as the main drivers for bio-food chains in Slovakia. Additionally, a multi-sectoral approach has been identified as a much more effective way of acting (compared to pure agro-sectoral approach). And last but not least, researchers should be heard more in order to transfer the research results into publicly consumable form, and this way raising awareness on the bio-based production and its benefits.</p> <p>Consensus points can also be found in the results of the Mentimeter session that involved a reasonable number of participants. When they were asked whether they use bio-based products as consumers and if yes, what type of products they use, they replied as it goes:</p>



5.1.5. BIOBRIDGES partner’s own perspectives and comments

On the meeting overall. Participants were open and willing to share their thoughts during the round table session on the three topics: 1. From feedstock to industry; 2. From industry to market; 3. From market to consumers. Additionally, they appreciated the invitation to get involved in the Mentimeter session.

On the challenges discussed. One of the challenges discussed – the motivational drivers for consumers to purchase bio-based products – was also asked in the Mentimeter session. Sustainability and carbon footprint got the most of the votes (see the figure below).

What are the motivational drivers for CONSUMERS to purchase bio-based products?

Mentimeter



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Consequently, the participants were asked what the motivational drives for industries are to switch to bio-based production and what are the motivational drivers for brands and/or retailers to adopt bio-based products.

What are the motivational drivers for INDUSTRIES to switch to bio-based?

Mentimeter



16

What are the motivational drivers for BRANDS/RETAILERS to adopt bio-based products?

Mentimeter

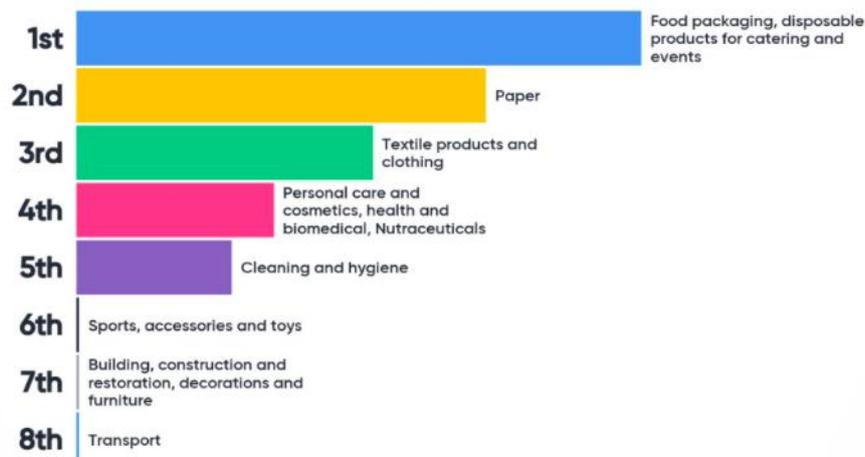


10

Consensus points. As a consensus point, a couple of very concrete bio-based application field has been rated in the Mentimeter poll. Participants were asked which are in their opinion the most mature bio-based application fields.

Which are, in your opinion, the most mature bio-based application fields?

Mentimeter



8

Additional consensus points are outlined in the section 5.1.4. *Key Outcomes from the Workshop* of this document.

Lessons learnt. Concretely, using Mentimeter session proved to be a very effective way of engaging people.

5.1.6. Evaluation of the event

According to the results of the questionnaires collected, the results were between “very good” and “excellent”.

5.1.7. Photos from the event



5.2. National co-creation workshop in Slovakia 2

5.2.1. Event data

BIOBRIDGES representative (name and organization)	Robert Miskuf, PEDAL Stanislav Thomka, PEDAL
Event venue	HOTELI 11, Ďurkova 11, Nitra
Date	24.9.2019
Event organized in partnership with	Slovak Bioeconomy Cluster
- (Description)	Bioeconomy Cluster (BEC) is an association of legal entities established in 2015 to promote cooperation in the field of innovation and mutual exchange of information between cluster members which mainly includes representatives of the business sector (agricultural farms and food processors), R&D actors, academia, regional and local governments as well as tertiary sphere. Since bioeconomy is a very complex topic, the cluster is not focused only on agriculture but also on cross-cutting and cross-sectoral cooperation (energy, waste and environment, and also ICT, plastic industry, engineering, etc.).
- (Website)	http://bioeconomy.sk/en/
Work package	WP5
Task number	Task 5.2

5.2.2. Description of the BIOBRIDGES event

Title (original language / English)	Co-creating the Bioeconomy Strategy in Slovakia
Stakeholders attending (<i>Policy Makers, Researches, Business, Citizens, Civil society, Media</i>)	SMEs and representatives of the Slovak Bioeconomy Cluster (Association)
Total number of participants, out of which	14
Public sector	
Private sector	11

Civil society	
Research	3
Countries addressed	1
Summary of main activities at the event	<p>This co-creation workshop was organized in conjunction with the Annual General Assembly meeting of the Slovak Bioeconomy Cluster, of which PEDAL is a member. Held on 24 September 2019 in Nitra, Slovakia, the event featured the following key topics:</p> <ol style="list-style-type: none"> 1. Co-creating the Bioeconomy Strategy in Slovakia 2. Financial instruments for the agriculture in the framework of the rural development of Slovakia 2014-2020 3. The next Financial programming period 2021-2027 and related opportunities 4. BIOBRIDGES co-creation event built around the following questions: <p>How to create new relationships between individual bioeconomy actors?</p> <p>How to search for common points of interest and interconnection?</p> <p>How to create new value chains at regional level and better align existing ones?</p> <p>How to ensure the successful involvement of various actors at regional level?</p>
Material developed (link to the internal repository)	https://drive.google.com/drive/folders/1nf4ziarKPFHx89Wx1w9t9NUvwamKft1n

5.2.3. Rationale or Purpose of your Event

The meeting was organized at the occasion of the Annual General Assembly meeting of the Slovak Bioeconomy Cluster. The discussion focused on:

- The preparation of the Slovak National Bioeconomy Strategy
- Financial instruments for the agriculture in the framework of the rural development of Slovakia 2014-2020
- The next Financial programming period 2021-2027 and related opportunities
- Specific questions formulated by the BIOBRIDGES project targeting the Slovak Bioeconomy Cluster and its members.

The Slovak Ministry of Agriculture and Rural Development (<http://www.mpsr.sk/en/>) entrusted the Slovak Bioeconomy Cluster to prepare the National Bioeconomy Strategy.

- The very first internal document called “Introductory Report to the Slovak Bioeconomy Strategy” was finalized last week and it was shared also with PEDAL.

- The timeline is very ambitious: The Slovak Bioeconomy Cluster plans to finalise it by the end of this year.
- The Slovak Ministry of Agriculture will then present it to the National Government and the plan is to have it approved before the end of February 2020.
- Slovakia will be the first country from the Central Eastern Europe that will have its own strategy (currently only 10 out of 28 member states have it).

PEDAL is now reviewing the Introductory report and based on the knowledge acquired thanks to the BIOVOICES, BIOBRIDGES and BIOWAYS projects, the company will suggest some concrete improvements. Also, it is expected that the activities of the European Bioeconomy Network will be reflected in the strategy.

5.2.4. Key outcomes from the workshop

Key topics	Financing; national bioeconomy strategy; establishment of new relationships; creation of new value chains; involvement of key actors, human resources;
Sector/s represented	Agriculture, Food, Feed, Additives
Business	<ol style="list-style-type: none"> 1. Industry members of the cluster currently see a challenge in the lack of human resources available on the market, not only on the level of the least qualified professions, but also on the side of middle and upper management, partly due to robotization. 2. There is also no infrastructure in the primary production (slaughterhouses, rendering plants). 3. The Slovak Agriculture University is currently preparing a Catalogue of bio-based measures, including examples of good practices. In general, the positive promotion of food and bio-economy to the public is also necessary. In Slovakia, it is recommended to support the purchase of local products, and to support consumer education. 4. In the context of the preparation of the next EU programming period 2021-2027, it was agreed that the pressure from “the bottom”, especially from the SMEs, is needed to reflect the real needs of the market. 5. Bioeconomy cluster is preparing a strategy for bioeconomy in Slovakia on the basis of a contract with the Ministry of Agriculture and Rural Development of the Slovak Republic. It should be prepared within upcoming 6 months. 6. Upon the successful preparation of the strategy, an Action Plan will be prepared where the detailed measures will be presented together with the division of responsibilities and allocation of resources. 7. The aim is to cover all relevant sectors, not only food industry - especially those that are relevant for Slovakia. 8. Given the current trend of reducing plastics, the paper industry seems to be very promising, namely cooperation with the Pulp and Paper Research Institute. 9. The Biobridges project was introduced by Stanislav Thomka, the topics for discussion were presented by Radoslav Považan: 1) <i>How to create new relationships between individual actors in the bioeconomy?</i> 2) <i>How to search for common points of interest and interconnection?</i> 3) <i>How to create new</i>

	<p><i>value chains at regional level and better align existing ones? 4) How to ensure the successful involvement of various actors at regional level?</i></p> <ol style="list-style-type: none"> 10. A representative of the Slovak Agriculture University in cooperation with Slovak Energy and Innovation Agency are organising a Bio Hackaton in Nitra on 15.10.2019. They plan to invite about 30 participants, especially skilful students, including startups, and suggested to involve PEDAL especially as a "topic proposer" for the Hackaton. The central theme is "Food Waste", around which the participants should propose their solutions to the real-life challenges faced by the businesses. 11. Some scholarships are also planned to motivate the best participants. The support should go to the best, most innovative and concrete solutions. 12. Participants also discussed other good practices including the training of 80 students in Slovakia, designing business models that support the environment (eg. garment disposal). 13. Another example of good practice is the use of coffee capsule wastes - aluminium can be recycled and fertilizer is produced from coffee grounds, and is also considered to be used as a fuel. In the future there would be a demand for the use of packaging materials from the feed. 14. An interesting opportunity is the renewal of cannabis cultivation for textile purposes. Hemp cosmetics are also made from hemp in the Czech Republic. 15. It was mentioned that the processing industry of packaging plastic materials from forage is still missing: There is a lot of plastic, which ends up in the landfill. 16. As an example of good practice, the processing of whey, which is processed into nutritional protein supplements (for bodybuilders).
<p>Any consensus points? Points/advice/perspectives agreed by all stakeholders to enable progression in driving the bio-based sector forward</p>	<ul style="list-style-type: none"> • The Bioeconomy cluster agreed to continue addressing the challenges defined by the BIOBRIDGES project. • PEDAL will send to the Slovak Bioeconomy Cluster the most tangible and relevant outcomes of the Biobridges, Biovoices and Bioways projects as well as of the European Bioeconomy Cluster. They will be considered when preparing the Slovak National Bioeconomy Strategy. • After the event, we agreed to explore the opportunity to participate to the workshop dealing with the "Green Banking". In particular, it would be beneficial to discuss how can green banking be aligned with the objectives in the Slovak National Bioeconomy Strategy.

5.2.5. BIOBRIDGES partner's own perspectives and comments

On the meeting overall. Since the co-creation workshop was dedicated to the members of the Slovak Bioeconomy Cluster, the discussion was centred around the specific topics which are of their interest, especially from the business point of view. The round-table composed of 14 representatives served as a good platform to exchange ideas and directly expressed concerns and proposals.

On the challenges discussed. Without a doubt, the key focus is placed on the co-creation of the Slovak Bioeconomy Strategy. The main goal is to gather the best ideas, using all the available resources and data sets. PEDAL really appreciates the openness and transparency of the Slovak Bioeconomy Cluster in consulting their members on the specific issues related to this document.

Consensus points. PEDAL will send to the Slovak Bioeconomy Cluster the most tangible outcomes of the Biobridges, Biovoices and Bioways projects as well as of the European Bioeconomy Cluster. They will be considered when preparing the Slovak National Bioeconomy Strategy.

After the event, we agreed to explore the opportunity to participate to the workshop dealing with the “Green Banking”. In particular, it would be beneficial to discuss how can green banking be aligned with the objectives in the Slovak National Bioeconomy Strategy.

Lessons learnt. The format of a roundtable within a smaller group composed of mainly SMEs active in the field of bioeconomy proved to be working well.

5.2.6. Evaluation of the event

Considering the fact that the workshop was closed to “outside” audience, we decided not to hand out evaluation questionnaires. The participants will anyways meet in the series of other Annual Assembly Meetings.

5.2.7. Photos from the event



5.3. Regional co-creation workshop in Slovakia

5.3.1. Event data

BIOBRIDGES representative (name and organization)	Stanislav Thomka (PEDAL Consulting) Robert Miskuf (PEDAL Consulting) Radovan Považan (PEDAL Consulting)
Event venue	Smart City Hub Bratislava
Date	7.11.2019
Event organized in partnership with	Urban Summit Bratislava, Biovoices project
- (Description)	The biggest “urban” festival in Bratislava, which focuses on various aspects of living in a city through discussions, workshops and presentations. The topics include architecture, transport, active citizenry, or environmental issues.
- (Website)	https://urbansummit.sk/
Work package	WP5
Task number	Task 5.3

5.3.2. Description of the BIOBRIDGES event

Title (original language / English)	Biomass and city waste as innovation boost for small scale businesses
Stakeholders attending (<i>Policy Makers, Researches, Business, Citizens, Civil society, Media</i>)	representatives of public sector, industry, research institutions, civic organizations
Total number of participants, out of which	12
Public sector	4
Private sector	4
Civil society	3
Research	1
Countries addressed	Slovakia
Summary of main activities at the event	Introduction of the Biobridges projects Introduction of the workshop agenda and aim

	Icebreaker session Group discussion
Material developed (link to the internal repository)	Agenda, presentation, photos, list of participants https://drive.google.com/drive/u/0/folders/181_jNkrPeynf-o8WmtD0NYL24-2HeZbR

5.3.3. Rationale and Purpose of the Event

This regional co-creation workshop aimed to facilitate dialogue between different stakeholders in the field of bio-economy, bringing together representatives of local governments, industry, research institutions, and civic organizations to share experiences on biomass and city waste, with special regard on innovation as boost for small scale businesses.

The event offered attendants of the biggest “urban” festival in Bratislava, which focuses on various aspects of living in a city through discussions, workshops and presentations, opportunity to discuss biomass and bio waste reality in urban environment. Bratislava is a home to rising green movement and biomass processing is one of the key issues. This workshop was part of joint-event with the project Biovoices.

The participants were answering several questions regarding biowaste :

1. How to create new relations between various actors in the bioeconomy
2. How to find mutual points and connections
3. How to involve new stakeholders in regional level

5.3.4. Key outcomes from the workshop

Key topic	Biomass and city waste as innovation boost for small scale businesses
Sector/s represented	public sector, industry, research institutions, civic organizations
Business	<p>The common points should rotate around business opportunities, these will attract new stakeholders.</p> <p>Search for new value chains on regional level.</p> <p>Legal barriers for waste management and biomass should be audited and removed.</p> <p>Bioeconomy Cluster http://bioeconomy.sk/ (of which PEDAL is a member) is a good example of cooperation of various stakeholders, which helps to discover and nurture new connections and common points. It was mentioned during the discussions that one of the relevant ongoing projects is the “Chain Reactions”.</p> <p>The area of central Europe is well industrialised but not fully using the innovation potential generated by large leading corporations headquarters with strong research and development activities. As a result, the local small- and medium-sized companies (SMEs)</p>

	<p>show rather low performances in the indicator “innovating in-house and with others” as measured by the European Innovation Scoreboard.</p> <p>The CHAIN REACTIONS project aims to increase the capacity of industrial businesses to innovate. The idea is to absorb new knowledge and turn it into competitiveness edge and business value, growth and profits. There is especially a need to help SMEs to overcome operational stress and a capacity shortage with respect to innovation as well as a stronger integration into emerging transnational and global value chains.</p> <p>The project focuses on a few key sectors based on their embedding in regional smart specialisation strategies. These include advanced manufacturing, ICT and electronics, energy and environment, health and bioeconomy. The partnership will develop practical instruments (e.g. maturity models) to measure innovation potentials and capacities; set up triple helix “Innovation and Growth Alliances” and develop their capacity to support value chain innovation; and set up value chain observatories to analyse selected industrial sectors and their value chains. More information is available here: https://www.interreg-central.eu/Content.Node/CHAIN-REACTIONS.html</p>
<p>Civil Society</p>	<p>Approximately 67 percent of waste ends up in landfills, with 11 percent incinerated. Recycling and composting together account for only 5 percent of waste in Slovakia¹.</p> <p>Other waste ends in illegal dumps, according to the latest data published by Eurostat, the EU statistics office. In comparison, Denmark recycles and composts almost half of the waste it generates.</p> <p>Biobased products need to market their sustainability and outperformance intensively. Sustainability is a keyword which can attract a lot of new stakeholders, especially on a local level. Education plays an important role, in all directions (policymaker – citizens – business – civic society).</p>
<p>Policy Makers</p>	<p>Slovak Business Agency project MOVECO (http://www.interreg-danube.eu/approved-projects/moveco - Mobilising Institutional Learning for Better Exploitation of Research and Innovation for the Circular Economy) is a good example of generation new relations between stakeholders. It analyses relations between innovations and circular economy and offers a digital marketplace for materials.</p> <p>We need an overall strategy for the management of waste with a long-term vision to at least 15 to 20 years which would address each phase of the life cycle of products according to the method Life Cycle Assessment.</p>
<p>Research</p>	<p>Real estate developers are important stakeholders, when it comes to waste. Other groups should try to attract them.</p> <p>Universities can play a very important role not only in promotion,</p>

¹ <https://spectator.sme.sk/c/20124437/slovakia-pursues-a-circulation-economy.html>

	but also in establishing news connections. Good example is the The European Institute of Innovation and Technology (EIT) Food Hub at the Agricultural University Nitra (https://eit.uniag.sk/home)
Any consensus points? Points/advice/perspectives agreed by all stakeholders to enable progression in driving the bio-based sector forward	Creating new connections and common points is a dynamic process, all stakeholders should be active in searching them, there is no single entity which can be a “connection generator”, but both universities and business alliances/clusters can play very important role.

5.3.5. BIOBRIDGES partner’s own perspectives and comments

On the meeting overall. Participants were very enthusiastic and willing to share their ideas. Most of them had good knowledge of the situation in Slovakia and were able to offer examples to their peers.

On the challenges discussed. There are many projects/ local initiatives / alliances / etc. which connect stakeholders on a small scale, connecting these small cells into bigger “organisms” can provide economy of scale in creating big stakeholder network.

Consensus points. Creating new connections and common points is a dynamic process, all stakeholders should be active in searching them, there is no single entity which can be a “connection generator”, but both universities and business alliances/clusters can play very important role.

Lessons learnt. Define the topics more narrowly to get more specific answers to more challenges. Participants were eager to talk, but that often resulted than the discussion got stuck in a single issue and required lot of effort to move forward. Provide clear opportunities for follow-up communication, so the network which was created by the event is further forged stronger.

5.3.6. Evaluation of the event

n/a

5.3.7. Photo from the event



5.4. National co-creation workshop in Italy

5.4.1. Event data

BIOBRIDGES representative (name and organization)	Matteo Sabini, Serena Cheren (APRE) Susanna Albertini (FVA)
Event venue	Via Partenope,36, Napoli, Italy
Date	04/10/2019

Event organized in partnership with	Biovoices, Biopen, Power4Bio
<ul style="list-style-type: none"> (Description) 	The workshop was a satellite event of IFIB – the International Forum on Industrial Biotechnology and Bioeconomy
<ul style="list-style-type: none"> (Website) 	https://ifibwebsite.com/program/
Work package	WP5
Task number	Task 5.2

5.4.2. Description of the BIOBRIDGES event

Title (original language / English)	New bioeconomy value chains from local resources: challenges and opportunities
Stakeholders attending (<i>Policy Makers, Researches, Business, Citizens, Civil society, Media</i>)	Researchers, policy makers, business, citizens
Total number of participants, out of which	15
Public sector	1
Private sector	4
Civil society	3
Research	8
Countries addressed	Italy
Summary of main activities at the event	<p>The workshop took place within the <i>IFIB – International Forum on Industrial Biotechnology and Bioeconomy</i>, the most important conference of the sector organized every year in Italy by the National Cluster on Green Chemistry (Cluster SPRING) and Federchimica, in partnership with other relevant networks and initiatives.</p> <p>BioBridges – sponsor of the IFIB2019 – organized a side event during the last day of the conference, titled “<i>New bioeconomy value chains from local resources: challenges and opportunities</i>”. The topic was addressed by speakers selected for representing different perspectives in the value chain, in terms of activities implemented in the bioeconomy sector or various stakeholders’ interests.</p> <p>Initially, as explained better in a following section of this report, organizers shaped a different workshop concept that was then changed in order to avoid the overlapping with another side event. Biobridges workshop was organized jointly with the Power4Bio project – that involved also BioBridges in their site visit to Novamont research plant –</p>

	<p>and with Biopen project.</p> <p>The event was organized using the format of an “<i>interactive</i>” <i>round table</i>, thanks to the use of <i>Mentimeter</i> software. The workshop begun with a slot of question to collect initial feedback from the public in the room. Then, the roundtable started and it involved also the audience in the discussion through <i>Mentimeter</i>. Indeed, each speaker was asked to reply to one question that, in the same time, appeared on the screen, giving the possibility to audience to actively participate in the discussions through smartphones. Then, BioBridges moderator and facilitator integrated in the discussion the contributions collected, using them for asking comments to speakers or for shaping new questions.</p> <p>After two rounds, each speaker was addressed with a specific question regarding its own project or the role it has in the bioeconomy sector as a stakeholder. In the meantime, audience had the possibility to write on <i>Mentimeter</i> questions for speakers.</p>
Material developed (link to the internal repository)	https://drive.google.com/open?id=1J-Be9f3ZZxUulu8n9NuRFp542BsHOrsa

5.4.3. Rationale or Purpose of your Event

Event concept

In the context of IFIB 2019, Biobridges project is organizing a co-creation workshop to ease the dialogue among actors along the value chain (industry, policy makers, consumers, researchers, investors, feedstock providers, etc.) and to highlight challenges and opportunities for the valorisation of local resources in the bioeconomy framework. Starting from the analysis of local available feedstocks, speakers of the round table will present technologies solutions, innovative ideas, opportunities and challenges within the context of bioeconomy. Thanks to interactive tools, the audience will be actively engaged in the co-creation of new solutions, business opportunities and concrete actions to boost local development through the potentialities offered by bioeconomy.

Round table speakers

Serena CHIERICI - Stazioni Sperimentale per l’Industria delle Conserve Alimentari (SSICA), Agrimax project

Valorization of agricultural wastes (tomatoes, potatoes, olives and cereals)

Ignacio MARTIN JIMENEZ – Fundacion CIRCE, Power4Bio Project

Empowering regional stakeholders for realising the full potential of bioeconomy

Mariantonella PALERMO – Tecnoalimenti, Biobarr Project

Bio-based food packaging: improving properties and sustainability

Patrizia CIRCELLI - CiaoTech, Biopen Project

Tools for supporting companies in the bio-based sector

Pierpaolo ROVERE – Agrifood & Bioeconomy Cluster Agency

Defining and implementing an holistic regional strategy for supporting bioeconomy

5.4.4. Key outcomes from the workshop

<p>Key topic</p>	<p>New bioeconomy value chains from local resources: challenges and opportunities</p>														
<p>Sector/s represented</p>	<p>All, but with a prevalence of the agrifood sector</p>														
<p>Mentimeter results*</p> <p><i>*For round table questions, the document reports a resume of the main insights from each speaker reply</i></p>	<p>Which stakeholder category you belong to?</p> <table border="1"> <caption>Stakeholder Category Results</caption> <thead> <tr> <th>Category</th> <th>Count</th> </tr> </thead> <tbody> <tr> <td>Business/Investors</td> <td>6</td> </tr> <tr> <td>Policy makers</td> <td>3</td> </tr> <tr> <td>University/Research Institute</td> <td>9</td> </tr> <tr> <td>Civil Society</td> <td>1</td> </tr> </tbody> </table>	Category	Count	Business/Investors	6	Policy makers	3	University/Research Institute	9	Civil Society	1				
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Business/Investors	6														
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University/Research Institute	9														
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<p>Which stakeholder category you belong to?</p>	<p><i>(This content is merged into the previous cell for better readability)</i></p>														
<p>What is your position along the value chain?</p>	<p>What is your position along the value chain?</p> <table border="1"> <caption>Value Chain Position Results</caption> <thead> <tr> <th>Position</th> <th>Count</th> </tr> </thead> <tbody> <tr> <td>Research together</td> <td>1</td> </tr> <tr> <td>R&D provider</td> <td>1</td> </tr> <tr> <td>Bio-based industry</td> <td>2</td> </tr> <tr> <td>Export activities</td> <td>0</td> </tr> <tr> <td>Commercialization</td> <td>1</td> </tr> <tr> <td>Supporting environment</td> <td>10</td> </tr> </tbody> </table>	Position	Count	Research together	1	R&D provider	1	Bio-based industry	2	Export activities	0	Commercialization	1	Supporting environment	10
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<p>Use a keyword to describe your expectations for the workshop:</p>	<p>(Empty space for text input)</p>														

	<p>Use a keyword to describe your expectations for the workshop:</p>
<p>Round table – Round 1 What are the main opportunities that bioeconomy can offer to the local communities?*</p> <p><i>*Speakers were asked to reply considering actions implemented by them. Their replies are grouped in macro-topics, in order to reduce redundancies</i></p>	<p><u>Speakers' replies:</u></p> <ul style="list-style-type: none"> ▪ The establishment of pilot plants can boost business opportunities at local level, in particular in less developed rural areas, and contribute to the creation of new workplaces. Moreover, such plants represent also an opportunity for empowering communities with new knowledge. ▪ The main opportunity provided by the bioeconomy to local communities is the possibility for farmers to valorize their wastes through the transformation in new products, able to differentiate and increase their incomes. Moreover, this process leads to the creation of new and sustainable materials and value chains. ▪ Thanks to the wastes valorization, bioeconomy can create new value chains to which also small farmers can join to. In order to achieve this goal and to valorize the greater part of biomaterials available at local level, it is necessary to put around the table all the different actors along the value chain. ▪ For improving the number of opportunities offered by the bioeconomy, it is essential to include all stakeholders of the local communities – from consumers to industry – in the local decision process. Stakeholders must have their say and can contribute providing solutions.

	<p>What are the main opportunities that bioeconomy can offer to the local communities?</p> <p>Development opportunities</p> <ul style="list-style-type: none"> Rural development Valorisation of local products <p>What are the main opportunities that bioeconomy can offer to the local communities?</p> <ul style="list-style-type: none"> Reuse of food waste Finding new ideas for reusing byproducts <p>Opportunities for farm reconversion</p> <ul style="list-style-type: none"> Waste minimization Giving voice to small producers <p>Enhanced societal exchange on feedstock and consumption</p> <ul style="list-style-type: none"> Business opportunities Support information on local producers & Farmers Cross country and cross sectorial Matchmaking <p>Jobs, value adding, improving livelihoods</p> <ul style="list-style-type: none"> To create a network with others local communities share knowledge and information Increase visibility Regaining appreciation of local resources and food production <p>Organize the value chain (!)</p> <ul style="list-style-type: none"> Interconnected production streams. What is planted and harvested can be processed and used within the area. New business models with long-term commitments, mutual interdependency and partnership along the value chains, especially from the aspect of AG feedstock production (farming) New business opportunities <p>Local production and regional goods with the mark of regional/local status may enhance revenue, but also tourism.</p> <ul style="list-style-type: none"> reducing transportation ways Addendum to 'new business models': the strengthening of vertical coordinations <p>The sustainability of the open Innovation platform is an obstacle to face</p> <ul style="list-style-type: none"> The different platforms should communicate each other Lack of connection among different Digital environments
<p>Round table – Round 2 What are the main barriers in the engagement of local stakeholders for building new</p>	<p><u>Barriers identified by speakers:</u></p> <ul style="list-style-type: none"> • Feedstock availability on the ground and its seasonality. • Scarce level of public and private investments in the sector. • In many cases, existing regulation discourage innovation on bio-based products. In this case, a change in the legislation is mandatory and it is necessary to gather also new ideas for improving the European policies on the sector.

<p>value chains? Possible solutions?</p> <p><i>*Speakers where asked to reply considering actions implemented by them. Their replies are grouped in macro-topics, in order to reduce redundancies.</i></p>	<ul style="list-style-type: none"> • There is often a scarce cooperation among stakeholders and there is the urgency to create a stronger connection. <ul style="list-style-type: none"> ○ <i>(Solution suggested by a speaker):</i> In particular, it should be useful to analyse more in deep the various existing value chains for identifying where the gaps are and which (new) partner is needed for improving it. ○ <i>(Solution suggested by a speaker):</i> Bioeconomy can be boosted through the promotion of adequate business models for a specific local community: the choice of the most promising model should be done having in mind the already existing value chain at regional level (e.g. if it is integrated or not), and not prioritizing a specific final product. • At the moment, there are several bioeconomy strategies at different levels – European, national and in some cases also regional – but, in many cases, it is missing a concrete implementation plan of these strategies, for instance explaining who is responsible for doing what and without a clear resources commitment, and this is a shortcoming. Furthermore, in this case the issue is also how to maintain the interest on bioeconomy sector in the long period. For instance, if the cooperation among different organizations and stakeholders last till the end of a European funded project we will not be able to produce impacts in the long period. <ul style="list-style-type: none"> ○ <i>(Solution suggested by a speaker):</i> Change the perspective: to switch from a short to a long-term view able to offer long term solutions, with a clear implementation plan of strategies elaborated at various levels, supported by a concrete resources commitment. ○ <i>(Solution suggested by a speaker):</i> Bioeconomy can be boosted through the promotion of adequate business models for a specific local community: the choice of the most promising model should be done having in mind the value chain existing at regional level (e.g. if it is integrated or not), and not prioritizing a specific final product. • Terminology is a barrier: the bioeconomy meaning is often unknown and this discourages the cooperation among various actors. <ul style="list-style-type: none"> ○ <i>(Solution suggested by a speaker):</i> to align the terminology used in the bioeconomy sector, ensuring that everybody speaks the same language and can understand each other. On this issue, the application of quadruple helix model can ease the interaction and the alliance among various stakeholders, enhancing a better level of dialogue and cooperation.
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What are the main barriers in the engagement of local stakeholders for building new value chains? Possible solutions?

Lack of investment capital and time	Unawareness of possible cooperation partners	Risk and uncertainty. Need investment.
Mistrust in new business, in new partners, in value chain itself.	Illegal activities (e.g. tax avoidance), lack of transparency along the value chains, lack of trust, information asymmetry, lack of education and management skills, the market distorting effects of AG direct payments, etc. Solutions?	Lack of connection between different partners of value chain
Lack of overview as to which biobased business models will really prevail	Create and promote champions and best practices	Give them control of what they want to share

What are the main barriers in the engagement of local stakeholders for building new value chains? Possible solutions?

Bureaucracy. Too much controls coming to bioeconomy production sites. Attitude of local people to new production in the area, or to the use food/ feed crops not in food sector.	Make things simple, do coaching	Stakeholder retention
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Round table – Round 3 Specific questions to each speaker*

**Please, note that document reports the question made for each speaker (in italic) followed by the reply.*

Mariantonella Palermo – Biobarr project (Tecnoalimenti)
 BioBarr project is developing new bio-based materials for food packaging. In your opinion, what are the main barriers that you will face for introducing such new materials on the market (for instance: pricing, standardization issues, labeling, etc)
 Project is reaching outstanding results, in particular on materials performance, however there are for sure **two existing barriers to overcome: price of final products**, that at the moment is higher than fossil-based products and barely acceptable for consumers, and **legislation**, that in some cases is out-of-date and must be updated.

Serena Chierici – Agrimax project (SSICA)
 Agrimax project aims to create a platform where stakeholders can join for converting their wastes into new bio-based products. Can you please tell more about the platform and business model that inspired the idea, highlighting also eventual existing barriers and implementation issues to be faced?
 The main existing **barriers** regard the **legislative framework**, that in some cases is not clear or out-of-date; and **the way how the waste to be re-used is handle before to be processed**, since wrong treatments can compromise the resource.

Ignacio Martin Jimenez – Power4Bio project (CIRCE)
 At the regional level, what are the variables that influence the definition and the implementation of a business model? What are the main differences and common features among regions addressed by Power4Bio project?

	<p>Regions share the same cultural barriers on bioeconomy sector. Such issue determines that, at the moment, there are no systems adequately mature to tackle all opportunities provided by the sector.</p> <p><i>Pierpaolo Rovere – Cluster Agrifood FVG</i> <i>Bioeconomy is changing business models and production systems thanks to its new approaches, requiring also new skills and different training activities (both in schools and for companies). At the regional level, what are the main requests coming from stakeholders on this point and how are you addressing these challenges?</i></p> <p>An open innovation ecosystem is needed. In addition, it is necessary to define adequate business models – and then to implement them – easing the discussion among various stakeholders. At the moment, the system seems not really mature to properly tackling opportunities provided by the bioeconomy: this is due to the existing mentality, not due to the culture.</p> <p><i>Patrizia Circelli – Biopen project (CiaoTech)</i> <i>At the moment, there are various instruments (both public and private) foreseen at regional, national and European level for supporting companies and researchers providing innovative solutions in the bioeconomy sector. In your opinion, what are the most useful supporting instruments and what are the missing (or not well developed) ones?</i></p> <p>At the moment, there is not a strong alignment between the bioeconomy strategies at various level (regional, national and European) and there is the need of a better coherence among them, in particular in terms of funding instruments. Indeed, regions and Member states should define common financial instruments, aligned with the European ones.</p>
<p>The previous speeches stimulated new ideas for:</p>	<p>The previous speeches stimulated new ideas for:</p> <p>The infographic features a landscape background with mountains and a lake. Six clusters of blue circles are overlaid on the landscape, each with a number and a label: 8 Possible collaborations (top left), 2 New opportunities (top middle), 0 New value chains (top right), 6 Best practices exchange (bottom left), 1 New territorial action plans (bottom middle), and 5 New solutions (bottom right).</p>
<p>Possible collaboration: for what? With whom?</p>	<p><i>Other comments from speakers:</i></p> <ul style="list-style-type: none"> • The existing platforms on bioeconomy can help various actors to create new collaborations • Enhance cooperation between companies and consumers

	<p>Possible collaborations: for what? with whom?</p> <div style="display: flex; justify-content: space-around;"> <div style="border: 1px solid blue; padding: 5px; width: 30%;">Among industries, among primary producers....</div> <div style="border: 1px solid yellow; padding: 5px; width: 30%;">Support the dialogue among different stakeholders</div> <div style="border: 1px solid green; padding: 5px; width: 30%;">Offer your community the testing and usage of an existing IT platform for unused capacity sharing and for Open Innovation - provided by Marusquere</div> </div>																
<p>Which kind of resources should be committed?</p>	<p><i>Other comments from speakers:</i></p> <ul style="list-style-type: none"> • More effort in trying to engage actively the ones that at the moment are not involved in the discussion or that are not properly aware about bioeconomy • More effort in defining a common and understandable language (in particular for the consumer) <p>Which kind of resources should be committed?</p>  <table border="1"> <caption>Resource Commitment Levels</caption> <thead> <tr> <th>Resource Category</th> <th>Commitment Level (%)</th> </tr> </thead> <tbody> <tr> <td>Awareness raising activities & stakeholders engagement</td> <td>35.1</td> </tr> <tr> <td>Research/technological infrastructures</td> <td>71.2</td> </tr> <tr> <td>Public fundings</td> <td>35.5</td> </tr> <tr> <td>Private investments</td> <td>25.5</td> </tr> <tr> <td>Supporting policies & regional roadmaps</td> <td>40.1</td> </tr> <tr> <td>Know-how, skills and capacity building</td> <td>76.2</td> </tr> <tr> <td>Labelling, standards and certifications</td> <td>64.9</td> </tr> </tbody> </table>	Resource Category	Commitment Level (%)	Awareness raising activities & stakeholders engagement	35.1	Research/technological infrastructures	71.2	Public fundings	35.5	Private investments	25.5	Supporting policies & regional roadmaps	40.1	Know-how, skills and capacity building	76.2	Labelling, standards and certifications	64.9
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Labelling, standards and certifications	64.9																
<p>Any consensus points? Points/advice/perspectives agreed by all stakeholders to enable progression in driving the bio-based sector forward</p>	<ul style="list-style-type: none"> • The greatest value of the bioeconomy is that it could be able to generate new incomes for farmers thanks to the valorization of wastes. • For exploiting all opportunities provided by bioeconomy it is necessary to include actively all the stakeholders (in particular at regional level) in the strategies design and implementation, as well as in the process for filling the gaps in the regional value chains. • Need to align and clarify terminology in the bioeconomy sector among all stakeholders (having also in mind differences in the awareness they have about it). • Previous two actions can contribute to make the regional systems more mature and aware on bioeconomy as well as prepared for exploiting all opportunities provided by it. 																

5.4.5. BIOBRIDGES partner’s own perspectives and comments

On the meeting. Participants were actively engaged in the discussion, also thanks to event format used (please, see comments below). Moreover, the event contributed to strengthen relations with other ongoing initiatives. For instance, organizers discussed with Agrimax and Biopen projects’ representatives about potential cooperation for promoting or enrich the

platform they established (in order to set a favorable ecosystem for the creation of new possible cross-cutting interconnections). Moreover, the event was organized also with the collaboration of Power4Bio (various project partners attended and actively participated to the discussion) and they invited us to join the site visit to the Novamont plant in Caserta.

Finally, after the event, some interviews were registered and they will be used for creating project promotional materials.

On the challenges discussed. Speakers highlighted the need to actively involve stakeholders in the bioeconomy strategies definition and implementation: this topic could be particularly interesting for the Task 5.3 of the project and the deliverable 5.4.

Moreover, another point to be further investigated regard any possible existing actions (and best practices) in the analysis of bioeconomy business models aimed to identify the one(s) suitable for a specific region.

Any lessons learnt for shaping/managing future events. The “interactive round table” worked very well and it succeed in engaging actively the audience during all event. In particular, to leave Mentimeter open during the round table (with the same question for speakers and audience) enriched the discussion with further inputs and contributed to maintain high the audience attention level. The format could be replicated in other co-creation event, in particular when events are hosted in classical conference rooms that do not allow to arrange non-formal meetings (e.g. with a podium and/or chairs fixed to the floor).

Moreover, speakers were selected for representing different point of views: indeed, there were representatives from private organizations (CiaoTech and Tecnoalimenti), research centers (SSICA, CIRCE, Tecnoalimenti), regional innovation ecosystem (Cluster Agrifood FVG). Moreover, they represented projects involved in different sections of the value chain: feedstock use and valorization of agricultural wastes (Agrimax), creation of new materials and products (Biobarr), set up of a favorable ecosystem (Biopen), and supporting regions in developing and implementing bioeconomy strategies (Power4Bio and Cluster Agrifood FVG). The speakers' selection criteria worked and they were able to provide different opinions, stimulating the debate with audience and also among them. In particular, starting from diverse point of views, they were able to reach both some consensus points and to diverge (e.g. on the discussion on if the regions ecosystems are not open to bioeconomy due to cultural issues or low maturity levels), animating the discussion among speakers.

However, the consumers' perspective missed: despite the invitation sent to Altroconsumo and various attempts made for involving one representative, unfortunately, consumers were not represented and this is a shortcoming to address in next events. Moreover, organizers tried to invite and involve also a representative of the regional government but they were not available for that day.

Despite the change in the format event, the first concept elaborated deserves to be implemented in next co-creation events and it seems able to attract the brands' owners' interest. For this reason, it constituted the basis for an event format that BioBridges partners proposed to some big companies.

Before the event, organizers created a registration form, in order to have an overview about the number of registered people. Despite the good premises (around 70 registered people), the event was attended by a smaller number of people, probably also due to the parallel session in the main room. For these reasons, in future events organizers should avoid

competition with other sessions or should invite only selected people to attend as audience.

5.4.6. Evaluation of the event

No feedback forms were distributed to participants. However, participants and speakers expressed the will to work together again in future activities.

5.4.7. Photo from the event



5.5. Regional co-creation workshop in Estonia

5.5.1. Event data

BIOBRIDGES representative (name and organization)	Janely Pae, Civitta Eesti AS
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	Liina Vaher, Civitta Eesti AS
Event venue	SPARK BizHub, Narva mnt 3. Tartu, Estonia
Date	02.11.2019
Event organized in partnership with	University of Tartu Tartu Biotechnology Park (EIT Health) BioCC (EIT Food) Civitta (Biovoices) StartupLab StartMeUp Elisa
- (Description)	<p>EIT Health and EIT Food, EIT Health Alumni network, Biovoices and Biobridges projects co-organised Bioinnovation days 2019, which is an international hackathon devoted to finding innovative solutions in the fields of BIOeconomy, BIOtechnology and BIOMedicine. The event focused on three areas: 1. Health & wellbeing challenges under this theme range from core medicine topics to healthy living & active aging, from early diagnosis and prevention to gadgets that enable bringing care home, and enable us to live longer, healthier life. 2. Making food healthy - Food challenges, everything that connects food to health and bio-sustainability. 3. Biosustainability is an important goal for humanity given the urgency of our global challenges. Ranging from designing cell factories for replacing fossil-based chemicals and creating novel bio-based materials to the design of biosensors for environmental or medical use, synthetic biology plays a crucial role in this development.</p>
- (Website)	https://bid.voog.com/
Work package	WP5
Task number	Task 5.2

5.5.2. Description of the BIOBRIDGES event

Title (original language / English)	Bioinnovation days 2019 - Biosustainability
Stakeholders attending (<i>Policy Makers, Researches, Business, Citizens, Civil society, Media</i>)	Businesses, researchers, association representatives, civil society.
Total number of participants, out of which	76
Public sector	
Private sector	11
Civil society	37
Research	28
Countries addressed	Estonia (but there were some participants from different countries), the workshop was held in English.
Summary of main activities at the event	<p>The event was divided into 2-days: The introduction, inspiration and ideation day; The development and validation day. Besides introducing the project/organisation and bio-concepts (1st day), each project/organization acted as mentors, who held discussions, supported and guided the participants (2nd day) that formed round-table groups and teams. The best ideas won prizes.</p> <p>During the discussions and mentoring Biobridges focused on questions how startups and new businesses can apply bio-sustainability principles, how new businesses could be created thinking in terms of "bio" and guided the participants to a adopt "valorisation and value-addition" approach, helped to analyse and think of entire value chains in terms of the participant's business ideas.</p>
Material developed (link to the internal repository)	https://drive.google.com/drive/folders/1R_OCCH37u5ZqcnvWLNy4iYw_hwvduLvJg

5.5.3. Rationale and Purpose of the Event

The first co-creation workshop in Estonia was held on the 1-2nd November in Tartu, in the framework of BioInnovation Days 2019. BioInnovation Days 2019 is an international hackathon - early stage business idea development bootcamp for innovative ideas in the fields of biotechnology: health & wellness, active aging, healthy food and environmental sustainability devoted to finding innovative solutions in the fields of BIOeconomy, BIOtechnology and BIOmedicine.

Biobridges collaborated with EIT Health and EIT Food, EIT Health Alumni network, Biovoices projects. The event focussed on understanding the bio concept, the participants could come up with innovative ideas and solutions, develop and test the ideas in teams with the assistance of experienced mentors, after which participants pitched the ideas to the jury, audience of peers and industry and won a trip (EIT Health) + special awards from organising institutions and sponsors! The event included networking, design thinking training, Pitch coaching, Entrepreneurship training, Citizen engagement workshops.

The introduction of the first day stimulated the discussions and idea-flow on the next day.

5.5.4. Key outcomes from the workshop

Key topic	What are the main challenges, How startups and new businesses can apply bio-sustainability principles, how new businesses could be created thinking in terms of “bio” and how the participants can adopt "valorisation and value-addition" approach, how to analyze and think of entire value chains in terms of the participant’s business ideas.
Sector/s represented	Wood, chemistry, food and feed, agriculture, medicine.
<p>Business</p>	<p>The main challenge for businesses going or starting “bio” was collectively agreed to be that the bioeconomy in Estonia is not well developed. It is hard to understand for the companies, what bioeconomy is and what biobased products are. Moreover, currently, there is a lack of a good support system, which is necessary for making the change.</p> <p>Although, the “bio” concept is not yet very widely emerged into the businesses’ approach and into the consciousness of the civil society in Estonia. The discussion led to the understanding that it can be a very strong argument for <u>exporting</u>, as in foreign markets, responsible companies are often valued and can establish B2B, B2C relationships and obtain wider acceptance. Moreover, it was pointed out that underdeveloped bioeconomy in Estonia should be seen as the opportunity to occupy an empty niche.</p> <p>It was also pointed out that many funding bodies (EU, EAS, etc.) offer funding opportunities nowadays for the starting or expanding businesses and that are specifically targeted to sustainability, resource efficiency, and environment protection, which has become a great motivator for many businesses to either start a “bio” business or shift its focus more bio. Even though in some cases, money can be the only motivator - just to have better funding opportunities, businesses adapt their in-development-product to the financing scheme. It was also mentioned by several participants, especially the ones that had the “bio” idea, that investors are not yet interested in bio businesses. The concept is still new to them, and in many cases they don’t see big enough market for the bio.</p> <p>In terms of the value-chain, many participants agreed that within their area it is not only necessary to collaborate with</p>

	<p>stakeholders in the value chain “next” to them, but also other value chain “links”, i.e. the retailer can be as much dependent on the feedstock as the industry.</p> <p>Biobased packaging was thought to be the readiest sector to collaborate with, and bio-packaging easiest to apply to generate more biobased value-chain for their ideas. Especially in the light of the new laws prohibiting retailers to give free disposable plastic bags, which has brought up lots of attention and making people aware of the plastic bag situation. Many are looking for new alternatives and have started to offer those at the shops.</p> <p>It was discussed how startups and new businesses can apply bio- and sustainability principles and how businesses could be created thinking in terms of “bio” and how they can adopt the “valorisation and value-addition” approach. The main points outlined were:</p> <ol style="list-style-type: none"> 1. Creating more awareness not only for the consumers, but within the private sector, demonstrating “bio” as an opportunity. 2. A support system for the transition or starting “bio”, such as trainings for startups. 3. For the businesses, the easiest way to become more environmentally friendly was found to be to collaborate with other enterprises to direct any leftovers from production, etc. back to the circulation – to adopt the circular economy approach. 4. Biobased is challenging, as businesses feel that they have to target an extra “audience”. If their main non-bio product is selling well, then they rather see themselves adding an extra product line than changing the existing one to bio based. On the other hand, the environmentally aware customer numbers are growing, and “being bio” would help to create a unique value proposition for the customers.
<p>Civil Society</p>	<p>It was pointed out that actually, especially younger generation, is well-aware of the bioeconomy and bio-based products and its benefits for the environment, health and especially sustainability, and many big events etc. that get lots of attention in the media, help to facilitate the change, such as younger generation stepping up to protect the planet (Greta Thunberg). However, much of the older generation is not as aware. In addition, the overall economic situation has to be good, otherwise, people select based on the price, especially as biobased tend to be more expensive.</p> <p>It was also outlined that there are so many enterprises already producing or using biobased products, even R-kiosk (which is one of the retail chains, offering to-go coffee) is using environmentally friendly cups, but it should be advertised even more so that this example could show the lead. One of the good practices was highlighted – another huge retail chain,</p>

	<p>Circle K (gas station and small shop), that sell enormous amounts of to-go coffee, offer a 10% discount to all coffee drinks if the customers bring their own cups. These good examples should be advertised “loudly” in the media.</p> <p>It was also mentioned that now that the society has reached a certain convenience level, there is less demand for innovative solutions, because everything “works well,” thus the approach should be taken that focuses on the “do good for the environment” aspect that can influence consumers more than “buy this, because it works better.” However, the biobased products cannot be less convenient compared with the regular ones.</p>
Policy Makers	<p>There were no policy makers present. But it was pointed out by the other stakeholders, that the policy makers have to take the lead, which could bring quite a rapid change in bioeconomy, as generally, the Estonian society is acceptive of regulations and rules.</p>
Research	<p>It was mentioned several times that “bio” or “green” may not always be actually green, i.e. with a lower carbon footprint. Although, generally it’s believed that collaboration partners within the value chain have to be local, but it is necessary to perform deeper assessment and seeing the big picture. People also argued that “bio” (feedstock) is not the solution in many cases, as it is not enough bio feedstock to turn everything bio based, that the circular economy approach was considered better than biobased one.</p> <p>As many of the participants with the business idea are university students and researchers, they pointed out that all the “easy-to-establish” bio ideas are already out there, it is now in the hands of researchers to dig deeper and bring new innovations on the table.</p> <p>The policy should also support research; since studying is free in Estonia, the government essentially “orders” the professions that will be learned at the university. If the government would place the focus on “ordering” free places in the bio areas and bio innovation, the research could keep up with the fast pace of the bio market development and also meet the growing need for certain specialists in the field. Especially when the specialists play also a major role in knowledge-dense bio businesses and where analysis and testing is one part of the value-chain.</p> <p>In many cases, the researchers pointed out the lack of Industry/academia communication and cooperation and the low entrepreneurship among academia, but also said that in Tartu the new Centre for Entrepreneurship and Innovation of the University of Tartu is trying to solve that exact problem, by bringing business and science under one roof and supports members of the academia in the creation and development of knowledge-based enterprises.</p>

	<p>It was also highlighted that the newest technology and innovations still happen in the non-bio sector, and thus drives the market. The “bio” field could put their efforts to become more innovative and thereby could bring great change and draw lots of attention, and usage (i.e the “bio” products have to become the new Apple).</p>
<p>Any consensus points? Points/advice/perspectives agreed by all stakeholders to enable progression in driving the bio-based sector forward</p>	<ul style="list-style-type: none"> • Even if the bioeconomy is not well developed in the country, the businesses should think “bio” nevertheless, because it can provide a great opportunity for export markets, where the bio concept is more known, and can provide an opportunity for the business to occupy an untapped niche in the local market. • There should be a special part of the trainings provided to startups (currently numerous projects and supporting institutions have programs for startups) that is dedicated to sustainability and bio, enabling to focus deeper on the subject compared to the narrow timeframe of the event. • Many financing schemes support biobased businesses; however, investors are still bit reserved. • The Bio industry should also focus on research and knowledge-dense innovation in order to drive the bioeconomy forward.

5.5.5. BIOBRIDGES partner’s own perspectives and comments

On the meeting overall. Hackathons appeal to younger generation and the participants were very eager to learn and are much more aware of the bioeconomy concept and sustainability compared with the older generation. Moreover, as there were several prizes at the end, the participants were very eager to contribute.

The concept of the value chain is still very confusing to some.

The event gathered many PhD level students that can drive forward the bio-innovation.

On the challenges discussed. Same as below. If the event is targeted to businesses, the bio-concept should be formed around not only the problems, and why it is important, but what opportunities it can provide for businesses.

Any consensus points. It can be of great benefit to introduce “bio” concept to new forming businesses, as no well-established system exists yet, and it is easier to direct their change towards sustainability. It is especially important to introduce “bio” as an opportunity, and not something that is forced upon people, as there is still only a small amount of people understanding the environmental and health benefits of bio.

Lessons learnt. It is good to organize together with different projects, if the target group is same, as the advertising of the bigger event attracts more attention. However, since there were also many topics, including health, many participants had idea regarding this area, and not

related to the bio based products as such. Thus, a lesson learned is, if to collaborate, it's best to organize a side event, otherwise with such a large group it is hard to control, who will be participating, and thus hard to control the outcome of the event for the project. Also, hackathons in general are quite intensive, thus there is little room for deeper discussions, and lots is happening, thus many valuable ideas may go unnoticed.

5.5.6. Evaluation of the event

Oral evaluation was gathered from three participants. Two of them rated the overall organization very good and mentioned that the information through discussions (bio concept, value chains, etc.) was useful for their business ideas, and they now see "bio" more as the future, and see it more as the opportunity rather than "something that somebody does." The third one was pleased with the event, but as he came without an idea, he mostly could only support other ideas, and mentioned that besides understanding the "bio" concept better, he didn't gain much from the event. Nevertheless, many other participants came to thank for the mentoring their business towards (more) "bio." One researcher mentioned that hackathons are a very good way to help their bio-based idea to the market, as it provides in many ways the missing piece for the researchers – the business angle. As the event was two days, and the lunch was served on the spot, lots of networking opportunities were provided, thus many people also mentioned that the networking part was great and that they exchanged several contact details.

5.5.1. Photos from the event



5.6. National co-creation workshop in Estonia

5.6.1. Event data

BIOBRIDGES representative (name and organization)	Janely Pae, Civitta
Event venue	Nordic Hotel Forum, Conference centre, Viru square 3, 10111 Tallinn
Date	06.11.2019
Event organized in partnership with	The Estonian Ministry of Environment, Environmental Agency, and Biovoices
- (Description)	<p>The Ministry of the Environment (Estonian: Keskkonnaministeerium) is a government ministry of Estonia responsible for the issue of policies regarding climate, mineral resources, environmental awareness. Estonian natural values and resources form a national wealth, which shall be used sustainably. The task of the Ministry of the Environment is to create such prerequisites and conditions which ensure us and the following generations diverse nature and clean-living environment as well as the sustainable use of natural resources.</p> <p>The Estonian Environment Agency is a state authority administered by the Ministry of the Environment that was created on 1 June 2013 as a result of the reorganisation of the Estonian Environment Information Centre and the Estonian Meteorological and Hydrological Institute. The Estonian Environment Agency's field of activity is the fulfilment of the national environmental monitoring programme, the preparation of national and international reports in the field of environment, evaluating environmental status, ensuring vital services, including weather forecasts, and the maintenance and renewal of monitoring stations and equipment.</p> <p>The Estonian Ministry of Environment and Environmental Agency organized one of the biggest bioeconomy related conferences in Estonia - The Circular Economy Conference - Smart Storms! The conference introduced the circular economy principles, objectives and supporting activities to entrepreneurs.</p>
- (Website)	https://www.conference-expert.eu/et/ring2019
Work package	WP5
Task number	Task 5.2

5.6.2. Description of the BIOBRIDGES event

Title (original language / English)	Biomajandusest läbi väärtusahela perspektiivi ja huvigruppide kaasamise võimaluste/From the bioeconomy through a value chain
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	perspective and opportunities for stakeholder engagement.
Stakeholders attending (<i>Policy Makers, Researches, Business, Citizens, Civil society, Media</i>)	Policy makers, researchers, Businesses, civil society
Total number of participants, out of which	26 (Some represent several sectors)
Public sector	7
Private sector	14
Civil society	2
Research	3
Countries addressed	1
Summary of main activities at the event	The Estonian Ministry of Environment and Environmental Agency organized one of the biggest bioeconomy related conferences in Estonia - The Circular Economy Conference - Smart Storms! The conference introduced the circular economy principles, objectives and supporting activities to entrepreneurs. This included demonstrating through various inspirational examples and practical solutions why it is worthwhile to move towards practicing business models in a circular economy. The conference brought together different actors, such as entrepreneurs, experts, the public sector, to share knowledge about the circular economy. The conference was divided into two parts: 5 th of November the Conference day, 6 th of November, various workshops, including Biobridges (3,5 h) 9.30 to 13.00; Biovoices workshop (3,5 h) from 14.00 to 17.30 (Biobridges dissemination).
Material developed (link to the internal repository)	https://drive.google.com/drive/folders/1TxuJyV6y62yANXOijdiJ0szTybCte2EZ

5.6.3. Rationale or Purpose of your Event

Workshop title: From the bioeconomy through a value chain perspective and opportunities for the stakeholder engagement.

The design thinking workshop will focus on the opportunities and bottlenecks of the European and Estonian bio-economy, together we will think about how to create a bio-based value chain and implement it with the support of different stakeholders. The combination of business design thinking, interactive exchange and exciting ideas, the workshop aims to answer the central questions of the circular and bio-economy - how to valorise biomass and how to build value chains between different bio-economy stakeholders? The workshop provides participants with

the opportunity to co-design innovative concepts, practical solutions, and network for their implementation. A speaker, Mayri Tiido, a CEO of an NGO Circular Economy Estonia and start-up Recyclist, mentored the participants and provided practical ideas for bio-businesses.

The workshop was at foremost directed towards businesses, either to support the bio-business or to facilitate the change from non-bio to bio-business.

The workshop started with a small introduction of the Biobridges project and Biovoices project (the latter was introduced for dissemination purposes), which was followed by a networking/ice-breaking game MÄRKA (NOTICE! in English), during which the **majority** of participants already **exchanged business cards and contact information**. The workshop continued with a small introduction of bioeconomy and bio based value-chains. Then the participants were divided into groups and the workshop continued as a practical hands-on training in the form of case studies. Each group had at least one entrepreneur/founder of the (bio)company, who was selected for the following task, a case study. The entrepreneur explained to the group with what his/her company does/produces and together with the group, the entrepreneur had to draw an entire value-chain of his/her company - from feedstock to the consumer. Even if their company only places somewhere in the middle part of the value-chain. Then, the group had to take a red pen and mark within the following things and answer one-by-one the following questions:

1. Where are the weak-spots, challenges, bottle-necks in the value-chain that inhibit the acceleration/expansion of the bio-business?
2. Why? What causes it?
3. How to overcome these challenges, bottle-necks? What could be the solution?
4. Who to contact collaborate and cooperate with to overcome the challenges?

Then all the “problem owners” presented their challenges, solutions and value-chains and the next steps towards the solutions, including, who they will be contacting to solve those challenges.

5.6.4. Key outcomes from the workshop

Key topic	1. Where are the weak-spots, challenges, bottle-necks in the value-chain that inhibit the acceleration/expansion of the bio-business? 2. Why? What causes it? 3. How to overcome these challenges, bottle-necks? What could be the solution? 4. Who to contact, collaborate and cooperate with to overcome the challenges?
Sector/s represented	Business (B), civil society (CS), policy makers (PM), research (R) Agriculture, chemistry, food, biowaste, energy,
Overall discussions: B: <ul style="list-style-type: none"> • Real estate developers do not dare to implement bio solutions • Cost-effective usage of specific production equipment, for example co-using the expensive technology, e.g. in the competence centres. • Legislative rigidity in implementing solutions. 	

- Changing consumption and economic models to encourage the deployment of renewable resources at affordable prices.
- Promoting the usage of the organic fertilizer (which is more expensive)/or any other bio product (even if it is more expensive) nationally as it does not burden the land and is important for the environment and could be cost-efficient in the long run - a big picture by all the stakeholders must be seen.

CS:

- The danger of green washing, the awareness of seeing the system so as not to fall victim to green washing
- Currently, there are very good “food-circles”, meaning that one organisation is collecting the produce from different organic farms, and taking orders and distributing it, same could be done for the biomass collection.
- Local biomass “production” by the civil society. Civil society could be involved in the production of biomass, via urban gardening, collection of biowaste, etc. which would partially solve the problem, if there is lack of enough feedstock, and would also provide an opportunity to perhaps even obtain some kind of benefits, e.g. support, reduce in taxes, reduction, get some produce (exchange for biomass).
- Product marketing, competition, "standard products" (including creating a competitive price) Currently, Bio products are promoted with their bio aspect only, but should also be advertised similarly to regular products that attract attention.
- Sorting bio-waste, people do not want and do not know how, it is not the norm in society. One of the good examples in apartment buildings is that the sorting guide with pictures is up in the hallway, no-one can miss it when they enter or exit the building.

PM:

- It should be strongly considered, that there are sustainability criteria for biomass in the EU.
- Ignorance of local resources, under-utilization.

R:

- If the biomass has to be grown, and with a certain quality, it can lead to that the producers use hazardous substances, which can be even more harmful for the environment.
- Too little attention to intellectual property in the bio field.
- It takes a lot of time, funding, and effort to come up with new solutions and do research, however, research funding is very weak in Estonia.

1. Case Study – the value chain of the Biofertilizer (producer).

B: A biofertilizer producer Turps (<https://turps.ee/>) finds several bottle-necks in their value chain from feedstock to consumer. They are the industry that produces the biofertilizer and need feedstock. The feedstock was pointed out as the most problematic at the moment that inhibits the expansion of usage of the biofertilizer. The fertilizer is made out of peat and ash and chicken excrements, the latter being the “bottle neck” as they currently have to import it, rather than using Estonian one, as the excrements have to come from organic chicken farms, which are very small in Estonia. The collaboration challenge was also to obtain a certificate and a lack of funding and support from institutions.

CS: One participant knew a small-scale organic chicken farm, and they exchanged contacts with Turps. It was also recommended to map all the small-scale organic chicken farms in Estonia, and establish a collection circle to gather the amount of necessary

<p>feedstock.</p> <ul style="list-style-type: none"> • Their solution was to (a) contact small-scale farms to initiate the feedstock “collection circle” in Estonia.
<p>2. Case Study – the value chain of the Biofertilizer II (producer).</p> <p>B: A researcher, who wants to produce biofertilizer from charcoal, mud from overgrown lakes, peat, and food waste. Their idea’s bottle-neck is the lack of food waste, and that as it is currently named as waste, the legislations restrict it to use as feedstock.</p> <p>PM: Pointed out that in most cases legislations are not that restrictive and there are ways to work together with the legislations. Moreover, policy makers are welcoming problems and ideas to change legislations if possible, and if many people come with the same problem the policy makers can’t ignore the request.</p> <ul style="list-style-type: none"> • They exchanged contacts with Nutriloop (below), who pointed out that they are planning to establish a better food waste collecting system.
<p>3. Case study – the value chain of a bio compost producer (rich soil) for gardens, landscaping, and food growing.</p> <p>B: In Estonia, 32% of household waste is food waste. The company Nutriloop (https://nutriloop.org/) produces compost from food waste and several other components. The key bottle neck for them is the feedstock – food waste. Mostly due to the fact that by law, once it called waste, it is not usable for producing, thus legislations have to change. The second thing is the low recycling and collection of food waste among the citizens. To promote the collection of food waste and to use it as feedstock from people at homes, a system must be established: a convenient collection and conveyance. As well as raising the awareness of people, so they would start collecting the waste and want to be part of that value chain.</p> <p>CS: Civil society perspective, it has to be convenient and collected from home, they do not want to deal with it to put it somewhere. It was also pointed out that once the government or companies themselves, who need food waste as feedstock, would bring in financial benefits, people would be interested to collect it and even transport it to required places. The latter would make it easier to establish the “transportation and collecting circle”</p> <p>PM: Again, it was pointed out that in most cases legislations are not that restricting and there are ways around it. Moreover, policy makers are welcoming problems and ideas to change legislations if possible, and if many people come with the same problem.</p> <ul style="list-style-type: none"> • Nutriloop found that in order to expand its business, the company needs to collaborate with different parts in the value chain to offer a complete solution. (a) Producer of more convenient collection systems (“buckets”) (b) Explore options to establish the best transportation and collection of waste from the people. (c) Increase the awareness of people, collaborate with local initiatives and city councils (d) Collaborate with different industries, who want to use food waste as feedstock, initiate a collective proposal for the government to change legislations.
<p>4. Case study – the value chain of bio briquettes producer from reed.</p> <p>B: Mäeotsa talu is producing bio briquettes from the reed and waste plants from the fields. Their main bottle neck is that the briquettes are more expensive than wood and other materials used for heating, which is why they have to lower the price affecting the profit. Moreover, the price of the product is low and transportation forms a big part of the price. In</p>

order for it to be profitable, the transportation circle would marginally improve the profit.
B, CS, R: It was suggested to them that they should upscale the reed to produce products with higher price, and an alternative chain was proposed, using reed for heating as the last step: reed->product->waste->heating, which would bring even more value to the same feedstock. It was also suggested that after burning the briquettes, perhaps it is possible to collect the ashes that one of the participants could use for their biofertilizers.

- They plan as the next step to map the already existing transportation circles to collaborate with to decrease the cost of the transport and distribution of the product to costumers.

5. Case study – the value chain of the company that reprocesses residual wheat.

B: Biochemtec is processing waste/residual wheat to produce different proteins, starch, glucose, ethanol, etc.. As they are just starting, they are looking for funding, transport, and finding collaboration partners to get large amounts of waste wheat (wheat that can't be used for food directly) – the feedstock. In order to start large production, their major bottle neck is also a lack of specialists, such as chemists, etc. who would be responsible for and develop more efficient processing.

R: As one of the participants pointed out that in the value-chain a weak spot is that the skilled specialists are lacking, there are not enough researchers for their businesses, but then one person from academia pointed out that there probably are, as many graduates actually can't find jobs, and they should form collaborations with the university, who could facilitate the trainings as part of the curricula (which exists) in their business, because most of these results usually also the workforce in there.

- Their first step is to find collaboration partners to collect waste wheat and other grains and find investors to start large-scale production.

6. Case study – the value chain of wheat “products” (such as vegan sausages).

B: Researchers from the Food and Fermentation Technology Development Center Ltd, want to produce vegan products from “wheat” and with less impact on the environment. Their main problem is packaging, currently there is a lot of garbage generated by the packages, and not very good solutions.

R: One other searcher pointed out that collaboration with material scientists from the University of Tartu, would perhaps help to produce a package using residual wheat, so that the most valuable parts of the wheat would be used for the products and residues to produce the bio packaging.

- The researcher will be looking into collaboration with materials scientists.

7. Case study – value chain of the biofertilizer III (producer)

B: The Paargu Ltd is wanting to start producing biofertilizers for agriculture using cattle manure, oil shale ash and limestone as feedstock. The product improves the pH of the soil that in many parts In Estonia is too acidic. The main bottle neck for them is the legislation that forbids the usage of oil shale ash. The oil shale ash is categorized currently as hazardous waste. The ash is hazardous only when inhaling and experts have acknowledged the ash non-hazardous and beneficial for the soil.

P: Pointed out that the Ministry of Environment has been trying to remove oil shale ash from the hazardous waste list and permit its usage. However, there will be still legislations that ensure the safety of the transport and processing of the ash.

<ul style="list-style-type: none"> The company is going to develop ways to ensure the safety of the transport and processing of the oil shale ash, to be prepared once the legislation supports the usage of it they can provide maximum safety. 	
<p>Any consensus points? Points/advice/perspectives agreed by all stakeholders to enable progression in driving the bio-based sector forward</p>	<ul style="list-style-type: none"> Renaming the valuable waste, and initiating the change in legislations, that it would be easier to use waste as feedstock. In many cases, industries, etc. are overthinking that regulations are restricting their activities and they can't do much about it. In reality, it is vice versa, politicians welcome ideas, and concern points, people were very much encouraged to contact the politicians.

5.6.5. BIOBRIDGES partner's own perspectives and comments

On the meeting overall. Participants were a bit reserved at first, but after the game MÄRKA everybody was very open and participative.

One person asked how mapping the problems can help them, but once they mapped the problems they found challenges they didn't know existed in their product value-chain, and from that they found the solutions easily. This question was turned into demonstration of good examples and Mayri used a handy quote by Einstein "If I had an hour to solve a problem I'd spend 55 minutes thinking about the problem and 5 minutes thinking about solutions."

The participants were at very different level, some were experts and some needed the exact definition of bioeconomy.

Overall people were very participative and seemed to enjoy and benefit from the workshop.

On the challenges discussed. Many aspects were discussed and collaboration challenges outlined that have been already validated by our experts at the focus group meeting.

Consensus points. The need for awareness, not only among consumer, but biobased industry, brands, and consumer representatives of each other.

That collaboration is the key, and if the most problematic points lie within the legislations, people should collaborate and be proactive to turn to policy makers and facilitate the change.

It was even more highlighted that every problem in the value chain and every bottle neck can be solved with collaboration.

Lessons learnt. The game MÄRKA worked extremely well for getting people to network, to relax and get to know each other. It helped to establish a very nice relaxed atmosphere and form close group of people.

Always, think a way to bring value for participants. The project needs insights and collects ideas from the participants. However, nowadays it works better if it is very well defined how the workshop will bring value also for the participants. In today's world no-one is interested in spending their time if they don't gain much. It must be carefully considered every time. Also, the expectations vary. With this workshop it was achieved.

5.6.6. Evaluation of the event

The feedback was collected via e-mail and much later after the event on purpose, as most of the participants exchanged contacts during the event, and it was intentionally given some time for them to form partnerships. Two participants responded the feedback questionnaire.

Cited from the feedback I: "I thought everything was great. I was lucky enough to get to introduce a NutriLoop solution and everyone provided me input. Like a borrowed expert workforce :) I really got a lot of good ideas from there. Contacts also. With one contact we are just about to enter into a contract with whom I met in the workshop. And he wasn't on my working group. This game was very important for everyone to get to know each other."

Cited from the feedback II: "I was very pleased with the workshop. Interesting and open debate worked well. It is nice and interesting to talk to people who think innovatively. I got ideas, information and very good contacts. Good contacts are always needed. We have been in closer contact with 3 people."

5.6.7. Photos from the event



5.7. National co-creation workshop in Portugal

5.7.1. Event data

BIOBRIDGES representative (name and organization)	Alexandre Almeida, Pietro Rigonat, Catarina Pereira LOBA
Event venue	Avenida General Humberto Delgado, 47, 2829-506, Costa da Caparica - Lisboa – Portugal
Date	5 September 2019
Event organized in partnership with	Lipor Wastes 2019
- (Description)	Lipor: entity responsible for the management, recovery and treatment of the Municipal Waste produced in the eight associated municipalities: Espinho, Gondomar, Maia, Matosinhos, Porto, Póvoa de Varzim, Valongo and Vila do Conde.
- (Website)	(https://www.lipor.pt/en/) (https://www.biovoices.eu/) (https://www.wastes2019.org/)
Work package	WP5
Task number	T5.2

5.7.2. Description of the BIOBRIDGES event

Title (original language / English)	#WasteToProducts
Stakeholders attending (<i>Policy Makers, Researches, Business, Citizens, Civil society, Media</i>)	
Total number of participants, out of which	29
Public sector	1
Private sector	4
Civil society	7
Research	17

Countries addressed	
Summary of main activities at the event	Portugal
Material developed (link to the internal repository)	

5.7.3. Rationale or Purpose of your Event

#WasteToProducts

5 September 2019 | TRYP Lisboa Caparica Mar Hotel, Costa da Caparica, Portugal

**Is it possible to develop environmental and economical sustainable bio-based products from waste in Portugal?
What are the potentialities? What are the barriers?**

The [BIOVOICES](#) Project, funded by the European Union’s Horizon 2020 Research and Innovation programme, and the [Biobridges](#) Project, funded by the Bio-Based Industries Joint Undertaking, will try to **answer these questions**, give **inspiring examples** and ask the audience for **potential success stories** during the National Workshop #WasteToProducts, hosted by [Wastes2019](#).

5.7.4. BIOBRIDGES partner’s own perspectives and comments

On the meeting overall. Participants showed a general positive engagement, demonstrated by the wide Mentimeter participation and reinforced by the “format” already tested by LOBA at EUBCE 2019 (presentation of Lipor’s sustainable business plan, general overview of Portuguese Mediterranean feedstock potential, Mentimeter questions followed by general discussion).

Lipor CEO, Mr. Fernando Leite, who attended the event as “normal participant” without informing LOBA, enthusiastically proposed to replicate the exact same workshop format at Lipor premises.

On the challenges discussed. When it comes to using waste as feedstock for new or existing value chains, or the production of waste byproducts, the major challenges faced regard:

1. Portuguese legislation is not flexible enough, or better, is too rigid when categorizing waste, making it extremely difficult for companies to do all the paperwork to have the license for re-using waste. On the other hand, it was raised by the audience the fact that waste is an extremely diversified product (i.e. hospital waste is very difficult to process, it requires expensive machines and technologies, however, bureaucracy is even a higher barrier in this regard as besides the complexity of the waste, healthcare is public in Portugal, therefore licenses and public procurements come into place making companies renounce to certain opportunities, creating at the same time a “monopoly” of those big companies which have the contacts and resources to face all bureaucratic steps).

This led to the conclusion that to tackle such challenge, we should work on two sides:

- Update of current legislation (sometimes it's a matter of pure terminology, one word may completely change the interpretation of certain categories)
- Training for companies to face all bureaucratic steps

2. Transparency of the waste process which affects public opinion and their reception of the products once (and if) they enter the market: there should be more clarity, and more accessible language, on the labels of waste derived products as in Portugal waste is broadly not considered as a resource by the general public. It should be clearly stated how the product was processed and its (safe) characteristics, in order to raise awareness of users who, in most of cases, would gladly purchase a product which has a less environmental impact. Things as are now, do not create a favorable environment for these products, especially for the food industry which could use waste to produce pigments for food (“people feel like they are eating waste”).

3. Logistics and transportations. Again, as happened in the co-creation workshop held in Lisbon during EUBCE'19, it was raised the problem of logistics and transportation connected to the fact Portugal lacks a broad presence of plants and processing units, making indispensable for companies to transport waste to facilities far away, raising production costs. In this regard, the audience agreed that there is a lack of support from the government, which is not adequately considering the option of setting up integrated (across regions) and cross-border transport services.

4. Connected to the challenge mentioned in point 1, concerning the fact that waste management involves the public sphere, it was complained by the audience that policy makers and big companies spend more time and resources in lobbying (to “ensure” business opportunities stemming from public procurement) rather than investing in know-how, such as trainings for companies and policy makers. Resulting into experts moving to Spain, among others.

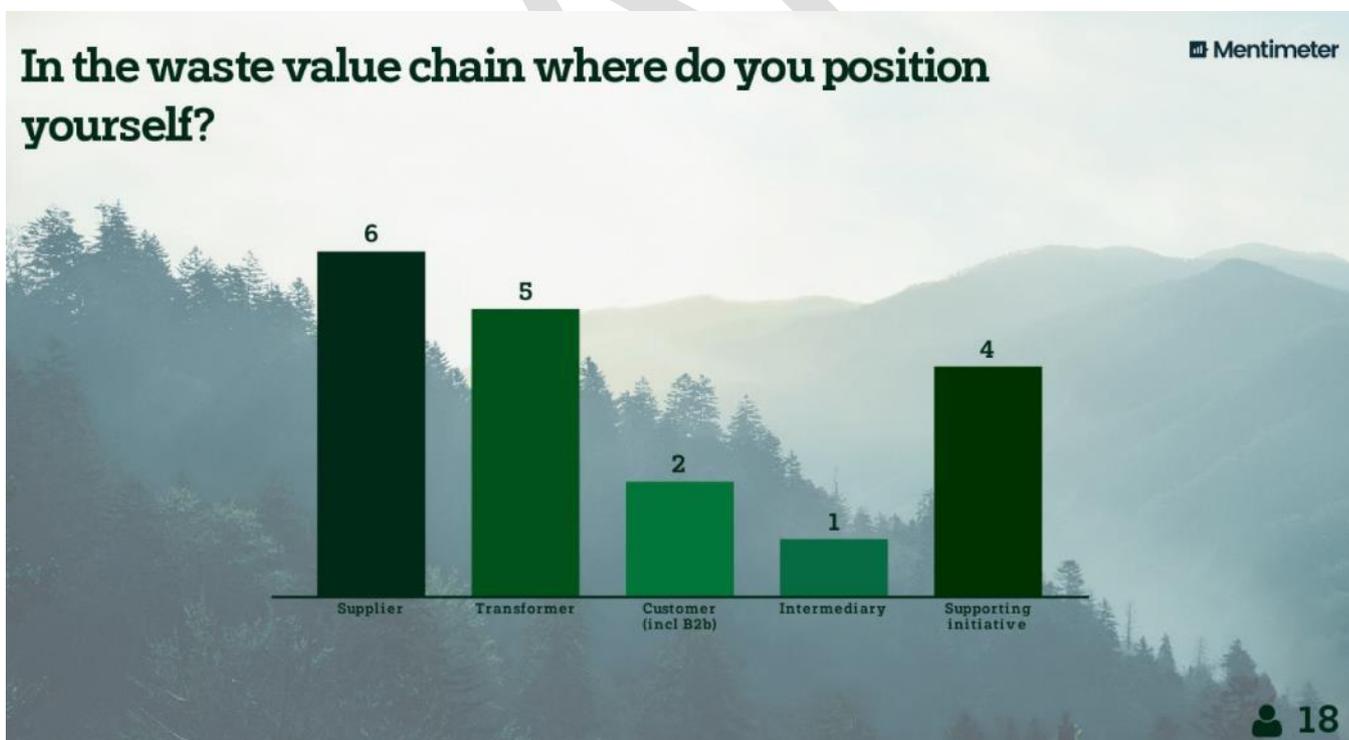
Consensus points. One of the most important consensus points was raised when presenting “Imagine Biobridges can put you in contact with a key bioeconomy actor, who would you choose?”.

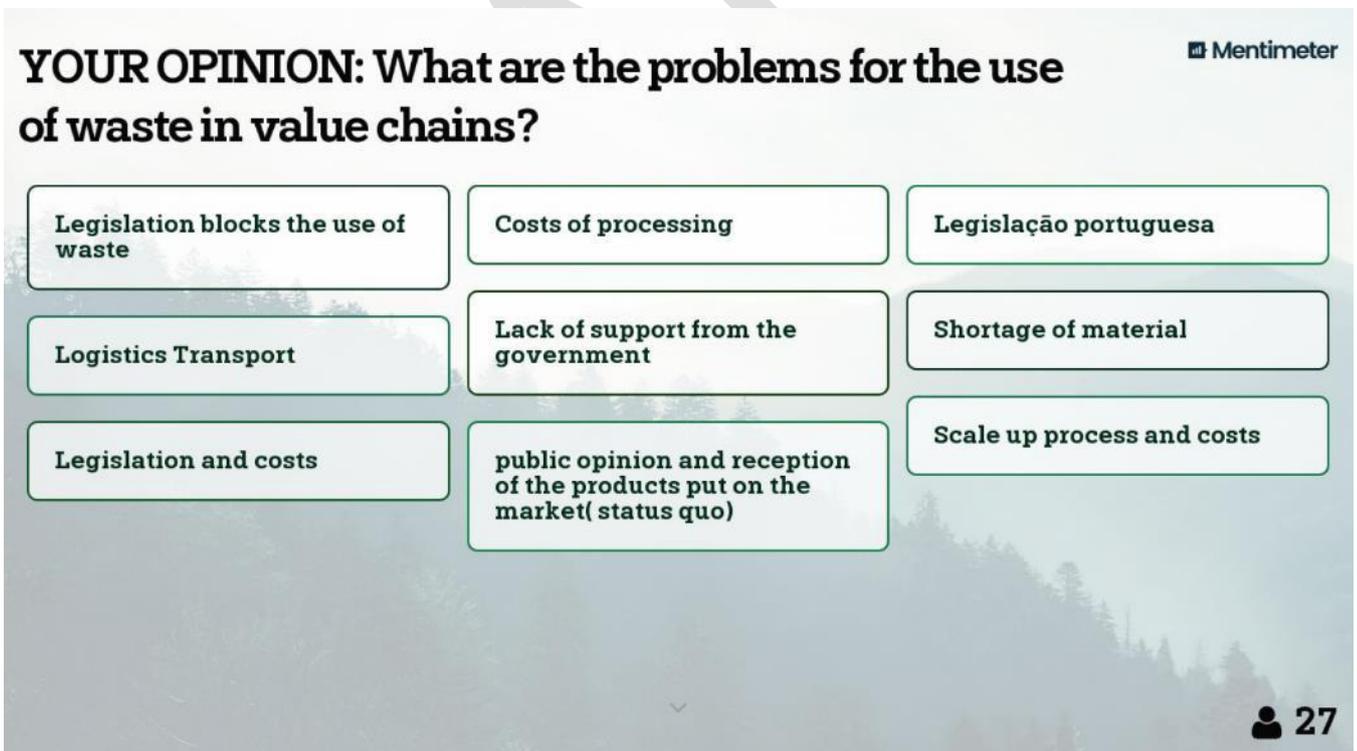
The audience homogeneously gave a positive response to all actors presented, having as top three: “Trainers”, “Research institutes”, “Consumer representatives” (7 votes each), and giving the lowest score to “Business angle/ alternative financing” (4 votes).

The results were discussed with the audience and the main reason for having such results (showcased in the slides in chapter 6) consisted in the fact most of participants were doing research in the bio-based/ biotechnology domain (asking for further training; to get in contact with peer reviewers or for consumer representatives for accessing surveys or running user tests).

Lessons learnt. The workshop, focused on waste value chains and waste derived products, was hosted by the conference Wastes'19, and saw the participation of Lipor (entity responsible for the management, recovery and treatment of the Municipal Waste produced in eight associated municipalities). The 3 elements combined resulted into a quite focused event, with proper argumentations and most of all, an audience very prepared on the matter and committed to providing good insights.

5.7.5. Evaluation of the event





YOUR OPINION: What are the problems for the use of waste in value chains? Mentimeter

Problems of collect and treatment.	Certification	Is a question of acceptance of Waste as a resource
Safety or quality of wastes to reuse them	Costs of transportation	The incentives to do it, and to change behavior
Companies seem to put the money above everything	Transparency of the process is often questioned	Because it is too cheap and easy not to do it

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YOUR OPINION: What are the problems for the use of waste in value chains? Mentimeter

Lobbying costs know-how	Public acceptance	Accept products from waste as pigments to be used in food industry
Public	Public acceptance	Toys
Toys	Biofuels	Sustainable construction

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What sectors (textile, etc) can benefit the most from waste re-use and bioeconomy?

Mentimeter

Agrofood	agriculture	Cosmetics
Bio-waste	Agrofood	Biofuels
Toys	Food agriculture	Textiles

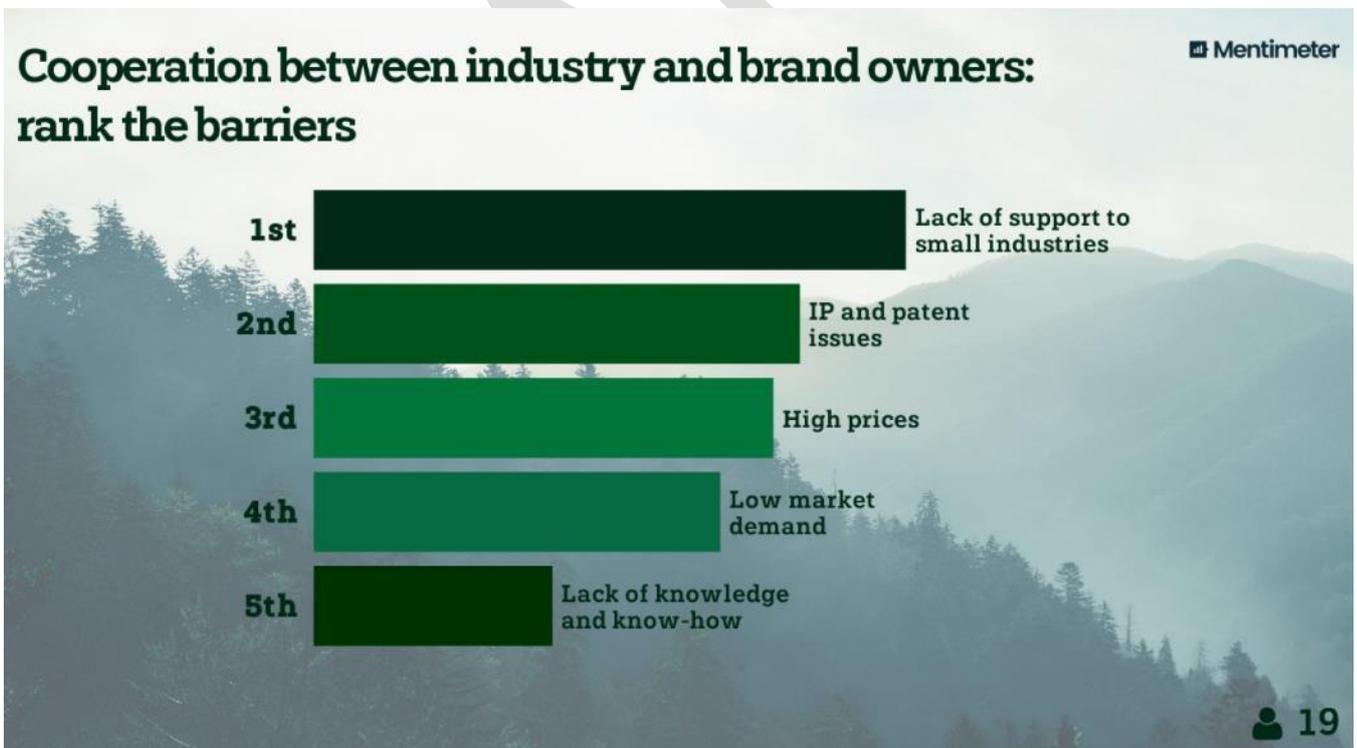
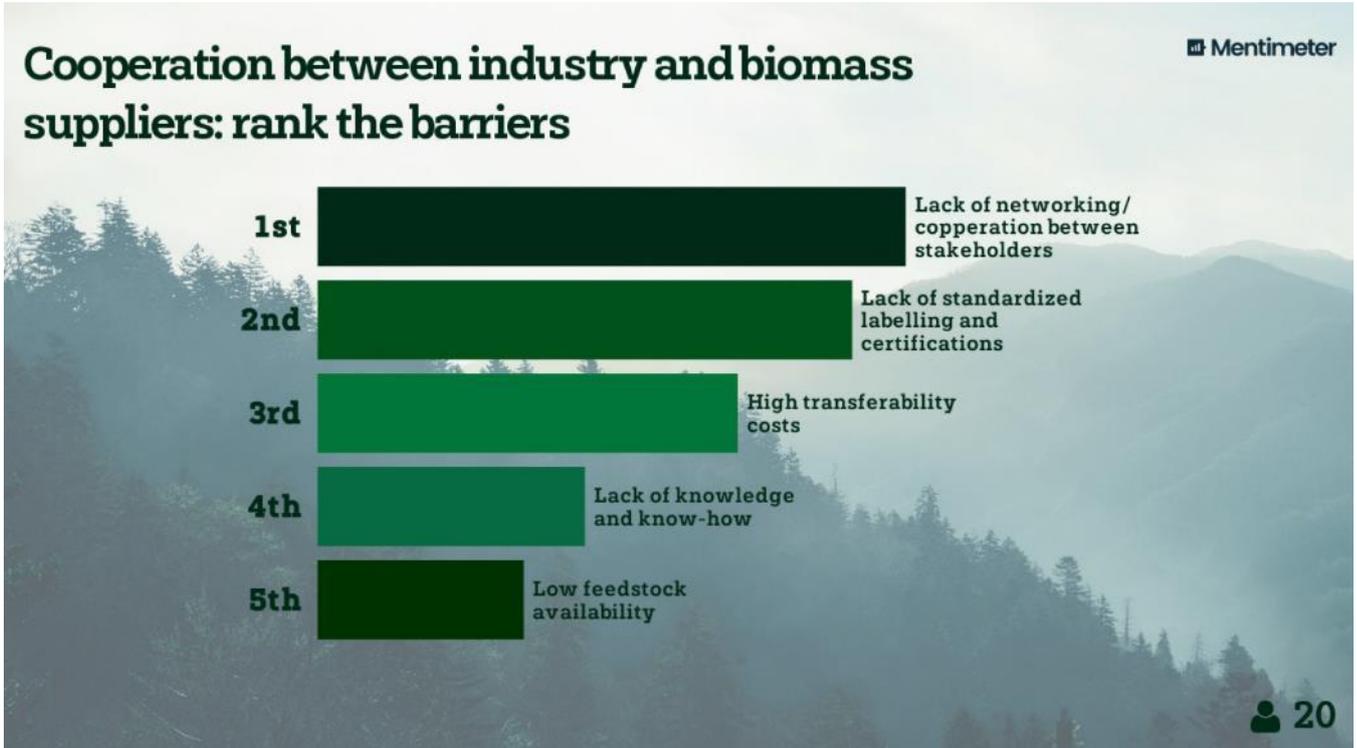
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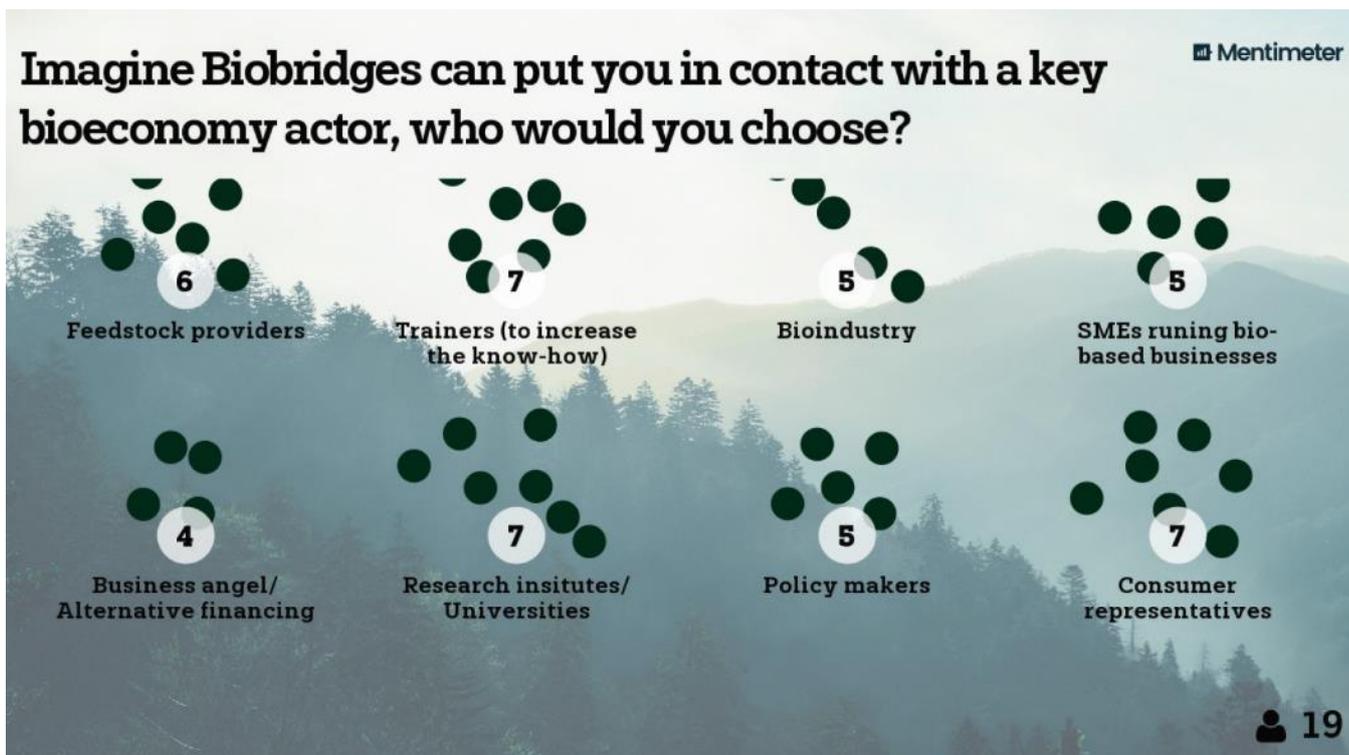
What sectors (textile, etc) can benefit the most from waste re-use and bioeconomy?

Mentimeter

Energy sector	Construction, cosmetics, fuels, biomaterials	Construction
Bio energy	pharmaceutic, agriculture, energetic	Agrofood industry

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5.7.6. Photo from the event



5.8. Categorized outputs from co-creation workshops

In the following chart, the most important outputs are presented to the readers, categorized by application sectors, challenges and also by the type of stakeholders bringing up those.

Application Sector	Type of stakeholder	Most important outputs
Agrifood	All	<p><u>From Feed-stock to Industry</u></p> <ul style="list-style-type: none"> Potential for processing is missing Availability of feedstock is not considered to be a big problem

		<ul style="list-style-type: none"> ▪ Technology, data and resources are believed to be missing ▪ Bio-based business is not very well developed in SK; the same applies to food value chain ▪ The potential of various strategies in order to boost bio-economy is not very well used ▪ Lack of awareness, subsidies, and finances identified as challenges negatively influencing the process of feedstock to industry ▪ Lack of connection between suppliers and consumers ▪ Funding on local and regional level is necessary in order to support the industry ▪ Missing agricultural (food) policies, weak policymaking, and missing basic data ▪ Farmers should have a chance to benefit from bio-food economy ▪ There is a persisting problem of abandonment of agricultural land what needs to be considered ▪ Missing public awareness, and limited sources to be used for promoting ▪ Low consumer awareness <p><u>From Industry to Market</u></p> <ul style="list-style-type: none"> ▪ Import vs local production (“In Slovakia we rather import than use local resources, we even import bio-gas plants.”) ▪ Using good practices as a tool (e.g. producing glue from corn) ▪ Pure agro-sectoral approach is in general seen as a problem, and a need for multi-sectoral approach is identified as a solution ▪ Lack of collaboration among farmers and market is a challenge to be faced ▪ Main driver for bio-food-chains in SK should be the young generation and start-ups ▪ Researchers should be louder when reporting on these issues <p><u>From Market to Consumers</u></p> <ul style="list-style-type: none"> ▪ Some opinions were considering that consumers should be focused first and their demand on the market will be heard and industry will react ▪ There is a strong need for a critical mass of consumers purchasing bio-based products ▪ Consumer behaviour influences the food value chain very much ▪ A need for education was identified ▪ Buying bio-based products is a matter of life style and trend followed by many ▪ Importance of philosophy, motivation, raising the level of knowledge is seen as crucial
Agriculture, Food, Feed, Additives	Business	<ul style="list-style-type: none"> ▪ Industry members of the cluster currently see a challenge in the lack of human resources available on the market, not only on the level of the least qualified professions, but also on the side of middle and upper management, partly due to robotization. ▪ There is also missing infrastructure in the primary production (slaughterhouses, rendering plants). ▪ The Slovak Agriculture University is currently preparing a Catalogue of bio-based measures, including examples of

		<p>good practices. In general, the positive promotion of food and bio-economy to the public is also necessary. In Slovakia, it is recommended to support the purchase of local products, and to support consumer education.</p> <ul style="list-style-type: none"> ▪ In the context of the preparation of the next EU programming period 2021-2027, it was agreed that the pressure from “the bottom”, especially from the SMEs, is needed to reflect the real needs of the market. ▪ Bioeconomy cluster is preparing a strategy for bioeconomy in Slovakia on the basis of a contract with the Ministry of Agriculture and Rural Development of the Slovak Republic. ▪ Upon the successful preparation of the strategy, an Action Plan will be prepared where the detailed measures will be presented together with the division of responsibilities and allocation of resources. ▪ Given the current trend of reducing plastics, the paper industry seems to be very promising, namely cooperation with the Pulp and Paper Research Institute. ▪ Participants discussed good practices including a concrete training of 80 students in Slovakia, designing business models that support the environment (e.g. garment disposal). ▪ Another example of good practice is the use of coffee capsule wastes - aluminium can be recycled and fertilizer is produced from coffee grounds and is also considered to be used as a fuel. ▪ An interesting opportunity is the renewal of cannabis cultivation for textile purposes. Hemp cosmetics are also made from hemp in the Czech Republic. ▪ It was mentioned that the processing industry of packaging plastic materials from forage is still missing: There is a lot of plastics, which ends up in the landfill. ▪ As an example of good practice, the processing of whey, which is processed into nutritional protein supplements (for bodybuilders).
Construction	Policy makers	<ul style="list-style-type: none"> ▪ Slovak Business Agency project MOVECO - Mobilising Institutional Learning for Better Exploitation of Research and Innovation for the Circular Economy - is a good example of generation new relations between stakeholders. It analyses relations between innovations and circular economy and offers a digital marketplace for materials. ▪ We need an overall strategy for the management of waste with a long-term vision to at least 15 to 20 years which would address each phase of the life cycle of products according to the method Life Cycle Assessment.
	Business	<ul style="list-style-type: none"> ▪ The common points should rotate around business opportunities, these will attract new stakeholders. ▪ Search for new value chains on regional level. ▪ Legal barriers for waste management and biomass should be audited and removed. ▪ Bioeconomy Cluster (of which PEDAL is a member) is a good example of cooperation of various stakeholders, which helps to discover and nurture new connections and common points. ▪ The area of central Europe is well industrialised but not

		<p>fully using the innovation potential generated by large leading corporations' headquarters with strong research and development activities. As a result, the local small- and medium-sized enterprises (SMEs) show rather low performances in the indicator "innovating in-house and with others" as measured by the European Innovation Scoreboard.</p> <ul style="list-style-type: none"> There is especially a need to help SMEs to overcome operational stress and a capacity shortage with respect to innovation as well as a stronger integration into emerging transnational and global value chains. A few key sectors based on their embedding in regional smart specialisation strategies include: advanced manufacturing, ICT and electronics, energy and environment, health and bioeconomy. The partnership will develop practical instruments (e.g. maturity models) to measure innovation potentials and capacities; set up triple helix "Innovation and Growth Alliances" and develop their capacity to support value chain innovation; and set up value chain observatories to analyse selected industrial sectors and their value chains.
	Civil society	<ul style="list-style-type: none"> Approximately 67 percent of waste ends up in landfills, with 11 percent incinerated. Recycling and composting together account for only 5 percent of waste in SK. Biobased products need to market their sustainability and outperformance intensively. Sustainability is a keyword which can attract a lot of new stakeholders, especially on a local level. Education plays an important role, in all directions (policymaker – citizens – business – civic society).
	Research	<ul style="list-style-type: none"> Real estate developers are important stakeholders, when it comes to waste. Other groups should try to attract them. Universities can play a very important role not only in promotion, but also in establishing news connections. - Good example is the European Institute of Innovation and Technology (EIT) Food Hub at the Agricultural University Nitra (https://eit.uniag.sk/home)
All	All	<ul style="list-style-type: none"> The establishment of pilot plants can boost business opportunities at local level, in particular in less developed rural areas, and contribute to the creation of new workplaces. Moreover, such plants represent also an opportunity for empowering communities with new knowledge. The main opportunity provided by the bioeconomy to local communities is the possibility for farmers to valorize their wastes through the transformation in new products, able to differentiate and increase their incomes. Moreover, this process leads to the creation of new and sustainable materials and value chains. Thanks to the wastes valorization, bioeconomy can create new value chains to which also small farmers can join to. In order to achieve this goal and to valorize the greater part of biomaterials available at local level, it is necessary to put around the table all the different actors along the value chain. For improving the number of opportunities offered by the bioeconomy, it is essential to include all stakeholders

		<p>of the local communities – from consumers to industry – in the local decision process. Stakeholders must have their say and can contribute providing solutions.</p> <p><u>Barriers identified by speakers:</u></p> <ul style="list-style-type: none"> ▪ Feedstock availability on the ground and its seasonality. ▪ Scarce level of public and private investments in the sector. ▪ In many cases, existing regulation discourage innovation on bio-based products. In this case, a change in the legislation is mandatory and it is necessary to gather also new ideas for improving the European policies on the sector. ▪ There is often a scarce cooperation among stakeholders and there is the urgency to create a stronger connection. <ul style="list-style-type: none"> ○ <i>(Solution suggested by a speaker):</i> In particular, it should be useful to analyse more in deep the various existing value chains for identifying where the gaps are and which (new) partner is needed for improving it. ○ <i>(Solution suggested by a speaker):</i> Bioeconomy can be boosted through the promotion of adequate business models for a specific local community: the choose of the most promising model should be done having in mind the already existing value chain at regional level (e.g. if it is integrated or not), and not prioritizing a specific final product. ▪ At the moment, there are several bioeconomy strategies at different levels – European, national and in some cases also regional – but, in many cases, it is missing a concrete implementation plan of these strategies, for instance explaining who is responsible for doing what and without a clear resources commitment, and this is a shortcoming. Furthermore, in this case the issue is also how to maintain the interest on bioeconomy sector in the long period. For instance, if the cooperation among different organizations and stakeholders last till the end of a European funded project we will not be able to produce impacts in the long period. <ul style="list-style-type: none"> ○ <i>(Solution suggested by a speaker):</i> Change the perspective: to switch from a short to a long-term view able to offer long term solutions, with a clear implementation plan of strategies elaborated at various levels, supported by a concrete resources commitment. ○ <i>(Solution suggested by a speaker):</i> Bioeconomy can be boosted through the promotion of adequate business models for a specific local community: the choose of the most promising model should be done having in mind the value chain existing at regional level (e.g. if it is integrated or not), and not prioritizing a specific final product. ▪ Terminology is a barrier: the bioeconomy meaning is often unknown and this discourage the cooperation among various actors.
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		<ul style="list-style-type: none"> ○ <i>(Solution suggested by a speaker):</i> to align the terminology used in the bioeconomy sector, ensuring that everybody speaks the same language and can understand each other. On this issue, the application of quadruple helix model can ease the interaction and the alliance among various stakeholders, enhancing a better level of dialogue and cooperation.
Wood, chemistry, food and feed, agriculture, medicine	Policy makers	<ul style="list-style-type: none"> ▪ Policy makers have to take the lead, which could bring quite a rapid change in bioeconomy.
	Business	<ul style="list-style-type: none"> ▪ Creating more awareness not only for the consumers, but within the private sector, demonstrating “bio” as an opportunity. ▪ A support system for the transition or starting “bio”, such as trainings for startups. ▪ For the businesses, the easiest way to become more environmentally friendly was found to be to collaborate with other enterprises to direct any leftovers from production, etc. back to the circulation – to adopt the circular economy approach. ▪ Biobased is challenging, as businesses feel that they have to target an extra “audience”. If their main non-bio product is selling well, then they rather see themselves adding an extra product line than changing the existing one to bio based. On the other hand, the environmentally aware customer numbers are growing, and “being bio” would help to create a unique value proposition for the customers.
	Civil society	<ul style="list-style-type: none"> ▪ Good examples should be advertised “loudly” in the media. ▪ Biobased products cannot be less convenient compared with the regular ones.
	Research	<ul style="list-style-type: none"> ▪ Collaboration partners within the value chain have to be local, but it is necessary to perform deeper assessment and seeing the big picture. ▪ All the “easy-to-establish” bio ideas are already out there, it is now in the hands of researchers to dig deeper and bring new innovations on the table. ▪ The policy should also support research. ▪ Lack of industry/academia communication and cooperation and the low entrepreneurship among academia. ▪ Bringing business and science under one roof and supports members of the academia in the creation and development of knowledge-based enterprises. ▪ The “bio” field could put their efforts to become more innovative and thereby could bring great change and draw lots of attention, and usage (i.e the “bio” products have to become the new Apple).
	All	<ul style="list-style-type: none"> ▪ Even if the bioeconomy is not well developed in the country, the “bio” can provide a great opportunity for export markets or can provide an opportunity for the business to occupy an untapped niche in the local market.

		<ul style="list-style-type: none"> ▪ The training programs for start-ups should have a dedicated session about the sustainability and “bio”, thus, facilitating the change early on. ▪ Although investors are still bit reserved in terms of supporting bio businesses there are many financing schemes supporting biobased businesses. ▪ The Bio industry should also focus on research and knowledge-dense innovation in order to drive the bioeconomy forward. ▪ The government could prioritize and finance the specific studies, bio-research and innovation. ▪ For the businesses, the easiest way to become more environmentally friendly was to collaborate with other enterprises to direct any leftovers from production, etc. back to the circulation – to adopt the circular economy approach. ▪ Businesses rather see themselves adding an extra product line than changing the existing one to bio based. ▪ Good examples should be advertised more “loudly” in the media.
All	All	<ul style="list-style-type: none"> ▪ For biobased feedstock that is not found in large-enough amounts, a “collection circle” could be established. ▪ People should take a proactive approach to change the policies, as policy makers welcome new views of the legislations and ideas for their improvement. ▪ If the transportation of biobased feedstock of product is expensive, an already well-established transportation system could be explored and utilised. ▪ If the biobased company is lacking specialists, they could provide vocational training opportunities for students, which can improve the future status.

Chart 4 – Categorized outputs from CO-CREATIONS

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6. Lessons learnt

By December 2020, 14 (8+6) co-creation workshops already took place in the framework of the Biobridges project. The list of the lessons learnt from the latter 6 workshops is included in this chapter. Observations of partners organizing the workshops concerning things that have worked and on the other side of what can be improved in the future, will enable the readers to learn from them and take them actively into account when organizing their own impactful workshops. The lessons learnt are categorized, providing the reader with an easier orientation in the feedback from the organizers.

What has worked?

Participant-orientation

- Involving large number of participants is complex and time consuming, but it decreases the risk of having a poor discussion or missing stakeholders.
- Events with up to 20 participants are better due to the fact that everyone can participate in discussions and give presentations.
- The format of a roundtable within a smaller group composed of mainly SMEs active in the field of bioeconomy proved to be working well.
- Universities can be focal points for creating stakeholder networks when it comes to biomass and bio waste.

Inspirational pitches as a key to success

- The short series of inspirational pitches presented before the actual co-creation workshop are perceived very positively; this creates a common understanding, stimulates collaboration and creativity.
- In order to keep the level of engagement high, it is recommended to alternate Mentimeter sessions with pitches.
- Selecting speakers to represent different points of view, and also projects involved in different sections of the value chain.

New technology support for more interaction

- Using Mentimeter, with the pre-defined questions is highly recommended.

Collaborations

- Collaboration with bigger events have had a positive effect on the CO-CREATION events organized. Organising the workshops in scope of an international conference proved to be an efficient tool for mobilising stakeholders. Using the dissemination channels of the conference organizers and being part of the official programme were also very beneficial for attracting participants.
- The involvement of local players, multipliers and different other stakeholders is highly recommended.
- To break down local resistances to change, it is important to involve local actors (chamber of commerce, clusters of industries, policy makers, etc.) in the organization of the event. They can appear as co-organizers of the CO-CREATION event.

- Connections between stakeholders can be created reasonably easily, but if these connections are not based on common business opportunities, they are not very productive, and turn often inactive/useless.
- Bioeconomy clusters and business associations should play a primary role in offering a much-needed platform to exchange ideas and initiate new connections.
- It is good to organize CO-CREATIONS together with different projects, if the target group is same, as the advertising of the bigger event attracts more attention.
- If to collaborate, it's best to organize a side event, otherwise with such a large group it is hard to control, who will be participating, and thus hard to control the outcome of the event for the project.

Practical tips

- Preparations of the workshop should start minimum 3 months in advance.
- Lunch break organized after the workshop gives participants time to discuss ideas and potential cooperation "post festum".
- Succeeding in engaging the audience during all event was in particular supported by leaving Mentimeter open during the whole duration of round table discussions.
- Organizers should avoid competition with other sessions and/or should invite only selected people to attend as audience.
- Always, think a way to bring value for participants. The project needs insights and collects ideas from the participants. However, nowadays it works better if it is very well defined how the workshop will bring value also for the participants. In today's world no-one is interested in spending their time, if they don't gain much. It must be carefully considered every time. The expectations also vary.

What could be improved?

Good timing

- To moderate the risk of last minute cancellations, it is suggested to involve higher number of participants.
- Avoiding sub-optimal timing of the workshop (just before a public holiday) and trying to overcome a general 'stakeholder fatigue' regarding bioeconomy workshops (resulting e.g. from an overflow of ongoing projects in this topic).

Co-organizing events

- Some countries are currently holding many competitive sustainability related events. It is a good idea to co-organise events having similar focus with other actors. However, collaboration with bigger events may have also a negative effect. It is recommended to negotiate all the details beforehand.
- It is a challenge to organize a workshop in scope of a big fair or similar sized event (e.g. big international conference) because the participants cannot spend four hours at one workshop, they usually plan meetings and participation at other workshops/sessions during such events too.

Workshop content

- When designing the agenda of the event, all partners should integrate the pre-defined questions related to the set of policy recommendations for improved public acceptance of bio-based products and processes at the local and regional level.
- Presented experiences in terms of challenges but also good practices should be mainly focused on the multi-stakeholder and cross-sectoral collaboration which is the main KPI of the BIOBRIDGES project.
- Workshop addressing issues/topics of relevance for related but still – in some point – distinct projects can result in a rather broad workshop agenda, which might discourage some stakeholders from attending.
- It is complex to have an exhaustive overview of the topic, keeping into consideration all the angles. For that, it's recommended to organize the events in collaboration with experts in the domain to advise if the events are covering all the aspects and he/she might suggest new angles.

GDPR and feedback

- It is important to take the GDPR aspects very carefully into consideration.
- Only a few participants were filling in the feedback form (if feedback giving was offered to the attendees at all), mostly by only completing the closed questions without providing additional details. The survey was perceived as very long and not entirely related to the content of the workshop. In addition, the time for filling it in was limited. More time, maybe even a dedicated time slot during/after the workshop, should be given to participants for filling in the survey or try to collect feedback in bilateral talks during the breaks, which could be a great opportunity for getting more detailed and targeted feedback.

Involving relevant stakeholders

- In some cases, it is difficult to have particular stakeholders involved.
- The expertise and background of the participants is not always easy to be evaluated and if there are just a few participants present, there is a risk that one table is addressing challenges or topics not relevant/interesting/motivational for them.
- The Government representatives and other policy makers should be given a detailed plan of the event in order to avoid resistance to participate.
- Representatives of financial sector should be invited as participants, which was even more the case of the event focusing on Green banking and financing.
- Lacking success in involving representatives from consumer associations while one of the reasons for this might be the lack of awareness on bioeconomy and lack of knowledge on bio-based products and processes, as well as that consumer associations might not feel to be affected by the topic in first place. Therefore, a more systemic work with this stakeholder groups needs to be carried out for a greater success.
- More participation of actors with a different perspective should be stimulated (e.g. representatives that have concerns on bioeconomy or on the actions implemented in the sector by a specific actor).
- The presence of business is of core importance as its representatives are capable to frame the problems of bio-based marketability from different points of view: “pure business” (prices and competition), “users’ perspective”, “regulatory frameworks”, etc.
- As per the research sector, the representatives dispose of high expertise, but in some

- cases lack “the entire picture”.
- Policy makers’ engagement and participation is a key factor, perhaps the most critical in terms of impact and credibility of project’s activities.
 - Participants from other projects, consumers associations, etc. can be invited to give a speech about their projects or services within the scope of the organized CO-CREATIONS, widening the range of stakeholders group involved and ensuring participation.

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7. Preliminary recommendations

During the co-creation events a variety of policy challenges and opportunities for the uptake of sustainable bio-based products and the bioeconomy as a whole have been identified. The ideas how these can be tackled by policy makers and public bodies at all levels, from regional to national and European, range from concrete financial instruments such as additional tax incentives for bio-based products and providing funding for cluster activities to more efficient and transparent citizen engagement. These outcomes of the discussion will feed into the policy paper D 5.3 “Improving the public acceptance of bio-based products and processes at the local and regional level.

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8. Conclusions

The overall aim of D5.2 “Proceedings from the European, national and regional co-creation events and policy debates 2” was to report on the outputs of all the six events organized from September 2019 until November 2019 of BIOBRIDGES project, concretely in scope of 2 tasks within WP5: Task 5.1 – European co-creation events and Task 5.2 National and regional co-creation events. These tasks were carried out based on the scientific presumption that the ideas within a collective approach can offer a fresh perspective on what BIOBRIDGES project aims to achieve.²

More concretely, **European, National and Regional co-creation events** were mostly targeted to an early engagement of the national and regional communities where the co-creation was based on transformational and cross-sectorial engagement of multiple stakeholders. Participants were invited to address challenges identified in scope of the project, discussing specific subjects and themes defined beforehand. Relevant stakeholders – industry, research, policy makers and civil society – were involved to discuss the pros and cons of bioeconomy, bio-based products and processes to come up with recommendations on how these could be tackled by existing and future policies.

The results of tasks categorized in this document, together with preliminary recommendations are planned to feed into a set of policy recommendations for improved public acceptance of bio-based products and processes on all respective levels. Lessons learnt during event organization are also summed up and will be taken into account in future organization actions.

² In order to have a complex set of information and a round picture on the events organized, it was recommended to the readers of this deliverable to read it together with the previous deliverable called D5.1 “Proceedings from the European, national and regional co-creation events and policy debates 1”, as it was reporting on the events organized until August 2019. The events organized from September 2019 until November 2019 are therefore better understood when read in tandem with the previous ones.

9. Annexes

The Template for the Feedback Form of the CO-CREATION workshops can be found here:

<https://drive.google.com/open?id=1R5wV8M0IAUcCfUUuUyRcxuvuOLhKrZwB>

The list of co-creation workshops organized until August 2019 is provided in the chart below:

Table 2 - Number of events organized until August 2019

Scale/country	Organizing partner	Total
Regional		2
Italy	FVA	1
Spain	ASEBIO	1
National		5
Portugal	LOBA	1
Germany	ECO	2
Croatia	PARTICULA	2
European		1
Italy	APRE	1
Grand total		8

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