BIOVOICES

CONNECTING BIO-BASED FORCES FOR A SUSTAINABLE WORLD

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This Project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 774331

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National Research Council of Italy

Overview of the

BIOVOICES Focus Group workshop

DATE

13-14 November 2018

LOCATION

Rome, Italy

Palazzo Falletti (Via Panisperna 207, 00184 Roma – Rione Monti)

https://goo.gl/maps/PxLMF8SWd852

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RATIONALE

The implementation of bioeconomy solutions and related value chains depends heavily on the market acceptance of bio-based products and the development of technologies with a sustainable feedstock supply. A recent pan-European study under the BIOWAYS EU-funded project revealed that even though consumers have a positive perception of bio-based products (BBPs), they have little awareness and knowledge about them. Moreover, cooperation within bio-based value chains and along bio-based value chains is still unusual. In order to target research in BBP science, technology and innovation and to meet the views and expectations of society, a broad, inclusive assessment of the challenges and opportunities at hand is necessary. Furthermore, multi-actor approaches are needed to identify and address both the risks and different stakeholders' interests and aspirations and eventually maximise the benefits of new bio-based business models within society.

In this context, BIOVOICES aims to ensure the engagement of all relevant stakeholder groups to tackle bio-based related challenges, by animating open dialogue through a Mobilization and Mutual Learning (MML) approach.

SCOPE OF THE BIOVOICES FOCUS GROUP

EXPECTED CONTRIBUTION OF ITS MEMBERS

The **BIOVOICES Focus Group** constitutes a **community of (external to the project's consortium) experts in the bioeconomy field** acting as a "consultation body" that will:

- Validate and improve the identified barriers and opportunities for the development of bio-based value chains and the mapping of bio-based products (applications) based on stakeholders' interests and expected benefits, that has been conducted by the consortium to set the contextual framework of the BIOVOICES MML activities;
- Test and validate the BIOVOICES MML approach, before applying it to national, regional and European events; and
- Provide best practices, lessons learnt, knowledge and advice related to the uptake of bio-based products and the evolution of the bioeconomy.

COMPOSITION OF THE BIOVOICES FOCUS GROUP

The BIOVOICES Focus Group is made up of **multi-disciplinary experts in the knowledge fields of bioeconomy representing consumers/ general public, business community, research community, policy and public administration** from organizations such as:

- Advisory bodies
- Executive government and administration as well as legislative bodies
- Civil Society Organisations (CSOs), Non-Governmental Organisations (NGOs), and consumers associations
- Academic and educational institutions

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- Research centres, cooperative research networks and knowledge transfer organisations
- Collaborative projects and initiatives at both national and European level
- Bio-based enterprises and business clusters

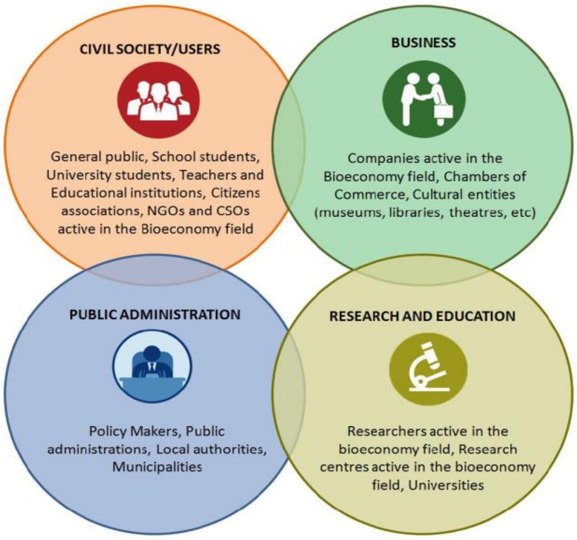

Figure 1: The Quadruple Helix model

STRUCTURE OF THE WORKSHOP

The **first day** will be devoted to validating, enriching or revising the challenges identified by BIOVOICES to date and exchanging ideas on how to better address them during Mobilisation and Mutual Learning (MML) events, namely: **a)** Which are the key discussion topics that better address each challenge? and **b)** In which application sector(s) is each challenge more evident?

Four (4) *teams (tables)* will be formed by mixing participants with different backgrounds (i.e. different type of stakeholders) and geographical areas representing different bioeconomy maturity levels and interests. The BIOVOICES team will 'assign' each participant to a team.

Three (3) *team-discussion sessions* will be organised where different clusters of challenges will be addressed by each table. The discussions in each table will be moderated by a member of the BIOVOICES team. The aggregate results of the discussions will be outlined by the respective moderators at the end of the day.

The **second day** will be devoted to discussing the organisation of MML events to address the identified challenges, namely: **a)** At which level (local/regional, national or European) each challenge should be (better) addressed during a mutual learning event? **b)** Who should be involved? **c)** Are there any events already planned during the next year which should be targeted for the organisation of an MML event?

Three (3) sessions will be organised each one focusing on the identified challenges within a different *development phase.*

SOCIAL PROGRAMME

The discussions during the first day will end with an informal classic "Aperitivo Italiano" session at the premises of the meeting venue.

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AGENDA OF THE WORKSHOP

DAY 1 – TUESDAY, 13 NOVEMBER 2018

9:00 – 9:30	Registration	
Plenary session		
9:30 – 9:40	**Welcome – BIOVOICES overview**	APRE
9:40 – 9:50	**Scope, structure and expected outcomes of the event**	Q-PLAN
9:50 - 10:00	**Short introduction from each participant** *(e.g. background expertise, application sector of interest, geographical perspective, etc.)*	
10:00 – 11:00	**Overview of the identified challenges affecting the market uptake of bio-based products** *(BIOVOICES analysis, Sep 2018)* *Open discussion (comments, questions, suggestions)*	FVA, WR
11:00 – 11:30	*coffee break*	

"Working in teams" sessions

Grouped in 4 teams (tables) the participants will share ideas on how to better address the identified challenges during MML events (during each session a different cluster of challenges will be targeted by the team), namely:

- Which are the key discussion topics that better address each challenge?
- In which application sector(s) each challenge is more evident?

	Table 1	Table 2	Table 3	Table 4
11:30 – 12:30	Cluster A	Cluster B	Cluster D	Cluster E
12:30 – 13:45	*Light lunch*			
13:45 – 14:45	Cluster B	Cluster D	Cluster E	Cluster A
14:45 – 15:45	Cluster D	Cluster E	Cluster A	Cluster B
15:45 – 16:10	*coffee break*			

Plenary session		
16:10 – 17:30	**Conclusions of the day – planning of Day 2**	Moderators
17:30 – 18:30	Informal classic "Aperitivo Italiano" session	

Remark: the challenges of "introducing EU/national incentives" and "realising standardisation" (Cluster C) will be addressed in all tables within the framework of the respective discussions of each session.

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DAY 2 – WEDNESDAY, 14 NOVEMBER 2018

9:00 – 9:15	Registration
The participants will share ideas on the organisation of MML events to address the identified challenges, within a *development phase*, namely: ➢ At which level each challenge should be (better) addressed during a mutual learning event? A local/regional, national or European level? ➢ Who should be involved? ➢ Do you know of an event already planned during the next year which should be targeted for the organisation of an MML event?	
9:15 – 10:15	**Session 1 - Development phase 1: "Business case"** *(Product is 95% mature and becomes a business case)*
10:15 – 11:15	**Session 2 - Development phase 2: "Go-to-market"** *(Product is mature, and market increases to 5% among niche groups)*
11:15 – 11:45	*coffee break*
11:45 – 12:45	**Session 3 - Development phase 3: "Acceleration"** *(Market increases above and reaches new user groups)*
12:45 – 13:00	**Conclusions and further steps**
13:00	*End of the workshop – light lunch*

<u>Legend</u>

Clusters	Development phase		
	1 Business case: Product is 95% mature and becomes a business case	2 Go-to-market: Product is mature, and market increases to 5% among niche groups	3 Acceleration: Market increases above and reaches new user groups
A: Market development	A1 FIND FIRST CUSTOMERS	A2 SPECIFY UNIQUE SELLING POINTS (USP)	A3 UP-SCALING
B: Awareness & trust building		B2 CHANGES IN PURCHASE HABITS	B3 INCREASE THE ADOPTION
C: Supporting strategies & standards		C2 INTRODUCE EU & NATIONAL INCENTIVES	C3 REALISE STANDARDISATION
D: Supporting environment	D1 IMPROVE THE ECOSYSTEM TO ENHANCE BUSINESS CASES	D2 B2B USERS AS FRONTRUNNERS	D3 INCREASE SUSTAINABLE 2G FEED-STOCK FOR BB PRODUCTS
E: Regional/Local development	E1 ENHANCE LOCAL BIOECONOMY STRATEGIES & ACTION PLANS	E2 BOOST LOCAL DEPLOYMENT	

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OVERVIEW OF THE BOIVOICES ANALYSIS

CHALLENGES FOR THE MARKET UPTAKE OF BIO-BASED PRODUCTS

The use of renewable natural resources for bio-based products (BBP) such as packaging and furniture is proceeding slowly. Although a larger market size of BBP would contribute to a more sustainable society, the transition towards a European bio-based economy requires more attention. BIOVOICES has identified twelve challenges to contribute to the market uptake of bio-based applications.

Many policy concepts concerning the bio-based economy occur repeatedly in 'vision' papers without addressing the reasons why market introduction is faltering. Currently, there is only a limited number of business cases for BBPs that can compete effectively with their fossil-based rivals. Contributing factors to this situation are that entrepreneurs are often too optimistic at the prototype stage of producing a BBP; civil society would now like to know the end-of-life options of BBPs which may currently be unclear, and start-ups coming out of the world of research and development are focused on the lower range of TRLs (1-6). To compete effectively, greater attention needs to be focused on the upper Technological Readiness Levels (TRL 7-9) in order to drive and deliver sustainable business models, adjustments to laws and regulation, training and education for potential users, and clear methods for upscaling. Greater attention to the requirements of achieving upper TRLs is necessary because without it many start-ups die off before a steady stream of revenue can be established.

BIOVOICES aims to contribute to the market uptake of bio-based applications with established upper TRLs, with reference to three development phases: 1. **Development** - business cases with 95% mature products, 2. **Take-off** - with mature products for niche groups, and 3. **Acceleration** - to mainstream groups. Based on a literature search (Overbeek & Hoes, 2018) and interviews (Diogo & Urze, 2018) BIOVOICES has identified five clusters (identified below) and twelve individual challenges that need to be addressed to enhance market uptake (Albertini et al., 2018):

1. **Market development** to produce BBPs for niche markets and broader markets.
2. **Building awareness and trust** with interested business and consumers.
3. **Supporting European and national strategies** (incentives), regulatory frameworks, legislation and standards to stimulate the production and use of BBP.
4. **Developing a supporting environment** to improve second generation (2G) feedstock and more intermediaries to stimulate the production and use of BBP.
5. **Regional/local action plans and activities** to stimulate the production and use of BBP.

Solving these challenges requires cooperation between stakeholders from government, business, research and civil society, or the so-called "quadruple helix" stakeholders. Establishing a quadruple helix is not an easy task, because it requires agreement on shared objectives and development of a common language among and between stakeholders. Usually, in the bio-based economy, research and business, supported by the government, (the triple helix) cooperate to realise technological development (TRL1-6). To create social innovation and increase adoption for applications with TRL 7-9, a change is required from triple helix to the quadruple helix (including civil society), and consideration of the different perspectives of all these stakeholder groups. BIOVOICES will animate collaboration between these stakeholder groups through Mobilization and Mutual Learning events to be held in 2019 and 2020 (MMLs, Hoes et al., 2018).

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STAKEHOLDERS

Civil society organisations (CSOs), non-governmental organisations (NGOs) and citizens play an important role in creating pressure that can trigger value chains to change their practice. To safeguard the legitimacy of bio-based innovations vis-à-vis European citizens, the globally agreed Sustainable Development Goals (SDGs) have the potential to drive a louder and more persistent voice to demand and implement the bio-based economy. Most CSOs and NGOs appear to have a watchful to critical stance towards the use of biomass for BBP (Meeusen et al., 2015). Corporate engagement has become an important issue for major NGOs/CSOs, which are actively working on issues related to BBP, bio-degradability and sustainability certificates during take-off and acceleration phases.

Businesses that contribute to market uptake of as yet uncompetitive and unadopted bio-based applications may be potential adopters of innovations (Rogers, 2003). Potential adopters evaluate an innovation on its relative advantage in comparison with current tools or procedures, its compatibility with the existing system, its complexity or difficulty to learn, its testability, its potential for reinvention, and its observed effects. Even with this high learning curve and high-risk profile, potential adopters might be willing to adopt the innovation. Businesses in the acceleration phase as early adopters are more discreet in their adoption choices. Business may reconsider their value creation and define the problems of their customers by addressing social values and cooperate with them to obtain a shared mission (PWC, 2017).

Policy makers are important players in enhancing or hampering an innovation. Governments could adjust the current legislation to stimulate the adoption of the new products. They can also create markets by introducing a more favourable taxation regime or provide incentives for BBP, compared to fossil-based rivals, in particular in the take-off innovation phase when the dominant bio-based designs become clear. Another important role of policy makers and investors is to stop innovations with too little potential through a reduction in the financial investments and incentives available.

Besides contributing to technological development, the research community conduct feasibility studies, and contribute to conferences, workshops and knowledge exchange events. Besides undertaking research, universities and schools also have an important task in educating students as potential developers of new BBP and in informing citizens about new circular bio-based perspectives.

CHALLENGES

To identify shared challenges across the quadruple helix, it is important to distinguish the phases in innovation systems in which all helix actors are interested and in which they can contribute effectively (Hekkert et al., 2011). During the ***Development*** phase resulting in accepted business cases, the policy and socio-economic landscape for the establishment and operation of the bio-based economy are created. The phase of ***Take-off*** shows substantial growth: the first competitive bio-based products are sold in the market to niche groups, new companies join the value chain, and the infrastructure is established with both public and private funding. This phase ends with a fast market growth. In the phase of ***Acceleration***, competitive bio-based products are produced at an extensive scale and can count on increasing demand. This phase ends with market saturation. Based on the clusters and the development phases, BIOVOICES has framed a 'menu' of twelve challenges for market uptake. (*See Table 1 below*). Stakeholders will select one or two challenges that they consider most appropriate for collaboration

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Clusters	Development phase		
	1 Business case: Product is 95% mature and becomes a business case	2 Go-to-market: Product is mature and market increases to 5% among niche groups	3 Acceleration: Market increases above and reaches new user groups
A: Market development	A1 FIND FIRST CUSTOMERS	A2 SPECIFY UNIQUE SELLING POINTS (USP)	A3 UP-SCALING
B: Awareness & trust building		B2 CHANGES IN PURCHASE HABITS	B3 INCREASE THE ADOPTION
C: Supporting strategies & standards		C2 INTRODUCE EU & NATIONAL INCENTIVES	C3 REALISE STANDARDISATION
D: Supporting environment	D1 IMPROVE THE ECOSYSTEM TO ENHANCE BUSINESS CASES	D2 B2B USERS AS FRONTRUNNERS	D3 INCREASE SUSTAINABLE 2G FEED-STOCK FOR BB PRODUCTS
E: Regional/Local development	E1 ENHANCE LOCAL BIOECONOMY STRATEGIES & ACTION PLANS	E2 BOOST LOCAL DEPLOYMENT	

Table 1: Challenges for market uptake of bio-based products.

Once the twelve challenges had been identified, BIOVOICES partners considered the elements that should be taken into consideration for the design of the planned MML workshops to create favourable conditions for the market development of BBP. These challenges are explained below and grouped into the five clusters.

Cluster A: Market development

Cluster A: Market development	**Development phases**		
	1 Business case	**2 Go-to-market**	**3 Acceleration**
Challenges	**A1: FIND FIRST CUSTOMERS**	**A2: SPECIFY UNIQUE SELLING POINTS (USP)**	**A3: UP-SCALING**
Explanation	Launching a BBP requires investments that can be made if first customer(s) are present. The launching customer guarantees the first sales, can provide feedback on early versions of the product and share risks and benefits.	Identify bio-based (BBP) unique selling point such as additional features and functions which go beyond providing a sustainable alternative compared to FBP and bio-degradability.	Find BBP that are consistently available in large quantities. Create, find and extend new markets by bringing more and diverse BBP to mainstream user groups.
Application sectors	Packaging, Building.	Textile, Packaging, Building.	Cleaning and hygiene, Packaging, Building.

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Cluster A: Market development	Development phases		
	1 Business case	2 Go-to-market	3 Acceleration
Main questions	• How to increase BBPs ability to meet user's expectations and to select identified markets? • How to organise extended warranty, service contracts and take-back options? • How to increase the role of policy makers to boost the BBP market?	• Which features of BBP solve problems or add value? • Which USP perceive stakeholders as valuable? • Which BBP have better life-cycle analysis and end-of-life options compared to FBP rivals?	• How to scale up (transition pathways)? • How to respond better to the circular economy by providing more cascading value? • How to develop more BBP markets through hybrids versus 100% BB (scenario's)?

Cluster B: Awareness and trust building

Cluster B: Awareness and trust building	Development phases		
	1 Business case	2 Go-to-market	3 Acceleration
Challenges	-	**B2: PROMOTE CHANGES IN PURCHASE HABITS**	**B3: INCREASE THE ADOPTION**
Explanation		Raise awareness among early adopters (e.g. supermarkets, schools) and consumers to use BBP. Guarantee safety to increase trust in BBP, develop a coherent terminology (CEN/TC 411).	Making BBP widely available, easy to use discard and cheap. Identify ways to increase adoption by better communication and by finding better contexts to sell BBP products.
Application sectors	-	Packaging, Building.	Cleaning and hygiene, Packaging.
Key Questions		• What are the positive and negative connotations about BBP? • In which cases is a premium price allowed and which clarified benefits are important? • What are successful awareness raising concepts and info-educational stories?	• Which media campaigns to include BBP in daily life (key messages, success stories)? • What do brand owners and NGOs require to enhance adoption? • Which arguments contribute to force the adoption of BBP?

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Cluster C: Supporting strategies and standards

Cluster C: Supporting strategies and standards	Development phases		
	1 Business case	2 Go-to-market	3 Acceleration
Challenges	-	C2: INTRODUCE EU & NATIONAL INCENTIVES	C3: REALISE STANDARDISATION
Explanation	-	Develop policies that favour BBP above FBP, e.g. enhance SDGs, reduce toxic materials (e.g nutraceuticals) and CO2 by several incentives (e.g. green taxes, information campaigns, regulation), and, similar to biofuels, oblige to increase % bio-based in products.	Realise standardisation & certification of BBP & waste behaviour. Ensure standardisation of logos and labels and develop a strategy for their effective communication.
Application sectors	-	All sectors	All sectors
Key Questions		• Which incentive policies have proven effective for BBP, i.e. work in different national contexts? • How to improve Green Public Procurement in order to become more effective?	• Which strategic commitments (SDGs) to a long transition are implemented? • What are the Pros and Cons of increasing the % of bio-based materials in products?

Cluster D: Supporting environment

Cluster D: Supporting environment	Development phases		
	1 Business case	2 Go-to-market	3 Acceleration
Challenges	D1: IMPROVE RESOURCES TO ENHANCE BUSINESS CASES	D2: B2B USERS AS FRONTRUNNERS	D3: INCREASE SUSTAINABLE FEEDSTOCK FOR BB PRODUCTS
Explanation	To improve agricultural practises, consumer behaviour patterns, infrastructures (innovation support, marketing, LCA, crowd funding), to involve more intermediaries and to increase cooperation with users?	To inform intermediaries (B2B) to reach users, e.g manufacturers about BB packaging, architects and constructers about BB building and construction, surgeons about BB pins.	To increase sustainable bio-based feedstock (waste, side streams, by products) and to find appropriate BBP that are more sustainable and cheaper but usually less strong with 2G compared to 1G.

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Cluster D: Supporting environment	Development phases		
	1 Business case	2 Go-to-market	3 Acceleration
Application sectors	Textile, Packaging, Biofuels, Building.	Cleaning and hygiene, Packaging, Building.	Textile, Packaging, Building, Biofuels.
Key Questions	• How to create a sense of urgency for BBP business cases through new user patterns and agricultural practises? • How to improve infrastructures?	• What are good channels to communicate sustainable BBPs? • How to increase the connections among brand owners and BBPs?	• When to use 2G instead of 1G for identified BBP? • How improve legislation and incentives to consider waste a resource? • How to achieve a fair competition between biofuels and other BBPs?

Cluster E: Regional/Local development

Cluster E: Regional/Local development	Development phases		
	1 Business case	2 Go-to-market	3 Acceleration
Challenges	**E1: ENHANCE LOCAL BIOECONOMY ACTION PLANS**	**E2: BOOST LOCAL DEPLOYMENT**	
Explanation	Creation of an ecosystem to implement BBP business cases as a strategic asset for local development. Focus on cities and rural regions with feedstock and business cases.	Opportunities of local economies to contribute to increase the market uptake of BBP (through more feedstock, transport, advice etc.) and local value chains targeted to the specific circular challenges.	
Application sectors	In regions with feedstock and BBP business cases (RIS3).	In regions with feedstock and BBP in mature sectors, e.g. Packaging and Building.	
Key Questions	• Which BBP business cases and its feedstock are relevant to implement? • How to develop local cooperation to improve business cases? • How to create a local action plan to assess opportunities and challenges?	• How can local economies contribute successfully to the market uptake of BBP? • How to maintain the territory sustainably (soil, water etc.) through BB feedstock for new markets? • How to exploit territorial value chains of new BBP?	

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FURTHER PROGRESS AND VALIDATION OF THE CHALLENGES IN BIOVOICES

This briefing document produced to support the BIOVOICES Focus Group meeting (Rome 13/14 November 2018) describes the challenges relevant for the quadruple helix stakeholders to be addressed during the project's Mobilisation and Mutual Learning (MMLs) events to help unlock the potential of the bio-based economy. Some challenges may receive more attention from stakeholders than others. So far, BIOVOICES partners foresee that challenges B2, B3, C2 and E1 will receive most attention. The twelve challenges will be validated and improved during several rounds with stakeholders and experts to design MMLs to be held in 11 European countries at different geographical levels during 2019 and 2020.

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ABOUT BIOVOICES

The BIOVOICES project is a three-year Coordination and Support Action funded by the EU under the H2020 Research and Innovation Programme with the overarching aim to support pro-active discussion and co-creation among the bioeconomy relevant stakeholders (civil society/consumers, business community, research and education community, public administration and policy making) to tackle societal, environmental and economic challenges towards the uptake of bio-based products (BBPs). Following a mutual learning and co-creation approach (MML- Mobilization and Mutual Learning), a variety of activities are foreseen to promote the collaboration among stakeholders, such as:

- Define a framework for Mobilization and Mutual Learning in bioeconomy, by reviewing barriers, opportunities for the development of bio-based value chains and by mapping bio-based products (applications) based on stakeholders' interests and expected benefits;
- Involve the stakeholders within the bio-based value chain (policy makers, researchers, the business community and the civil society) in co-creation events, at European, National and Local/Regional levels;
- Create a multi-stakeholder's community, supporting and enabling discussion, workshops, mobilisation and mutual learning (MML) events (live and online), knowledge exchange and co-creation of knowledge and action plans;
- Create a social platform and online mutual learning activities to foster the multi-stakeholder's community activities and deliver related knowledge and contents to the different stakeholders; and
- Transform the experience of the BIOVOICES community into Actionable Knowledge for the different stakeholders by publishing recommendations and policy briefs to address the challenges related to development and delivery of the bioeconomy.

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