

Coordination & Support Actions for Europe's bio-based industries

February 2018

Coordination & Support Actions for Europe's bio-based industries

February 2018

FOREWORD

The Bio-based Industries Joint Undertaking (BBI JU), a public private partnership between the Biobased Industries Consortium (BIC) and the European Commission, supports projects within the Horizon 2020 (H2020) programme through specific calls for proposals. One specific type of BBI JU projects are the Coordination and Support Actions (CSAs).

CSAs address strategic aspects and cross-cutting challenges to enable bio-based industries to grow as a sector and to accelerate the market-uptake of bio-based products and applications.

The CSAs will help tackling some of the potential hurdles involved in deploying new bio-based products that may stem from policy and regulatory requirements, a lack of consumer awareness and acceptance, low public demand or unfavourable public perception of bio-based products and applications.

Consumer awareness and acceptance of the benefits of bio-based products will be addressed through dialogue and communication with consumer representatives.

Information about the impacts of bio-based products, the full value chains from feedstock cultivation to application, and their benefits in terms of sustainability, will help boost consumer confidence in bio-based products.

This report provides a status update of the BBI JU CSAs and was first presented at the occasion of BIC's General Assembly on 20 February 2018, during which representatives of the BBI JU projects BioCannDo, BIOWAYS, BiOPEN, Pilots4U, RoadToBio, STAR4BBI were invited to present their projects and engage directly with our industry members.

We hope that this report, which will be updated regularly with information about additional CSA projects, helps raising awareness of the value of the BBI JU CSAs, and will lead to a higher participation of industry in future CSAs and help the projects to be successful in making the bio-based industries thrive in Europe.

February 2018



Dirk Carrez
Executive Director



Suzy Renckens
Communications &
Stakeholder Relations

TABLE OF CONTENT

FOREWORD	3
EXECUTIVE SUMMARY	5
INTRODUCTION.....	6
Background.....	6
BBI JU Objectives.....	6
Coordination and Support Actions	7
Call management rules for CSAs.....	7
CSA TOPICS IN THE BBI JU ANNUAL WORK PLANS.....	8
CSA topics in the 2015 - BBI JU Annual Work Plan.....	8
2015 BBI JU Call outcome	8
CSA topics in the 2016 BBI JU Annual Work Plan.....	8
2016 BBI JU Call outcome	10
CSA topics in the 2017 BBI JU Annual Work Plan.....	10
2017 BBI JU Call outcome	11
CSA topics in the 2018 BBI JU Annual Work Plan.....	11
2018 BBI JU Call information.....	12
CURRENT BBI JU CSA PROJECTS.....	15
BioCannDo - Bioeconomy awareness and discourse.....	15
BiOPEN - Open innovation platform.....	19
BIOWAYS - Increase public awareness of bio-based products	23
Pilots4U - Open access pilot and demo facilities	28
RoadToBio - Roadmap for the chemical industry	33
STAR4BBI - Standards and regulations.....	36

EXECUTIVE SUMMARY

Coordination and Support Actions (CSAs) funded by the Bio-Based Industries Joint Undertaking (BBI JU), the Public-Private Partnership between the European Union and the Bio-based Industries Consortium (BIC), address **non-technological** aspects to support further development of the bio-based sector in Europe. CSAs may address cross-sectorial challenges (public awareness & market uptake, regulation & standardization) or support bio-based value chains through knowledge development (studies), clustering, road-mapping, networking and open innovation. Future CSA projects could support market analysis for bio-based products and processes and thus support 'market pull'.

CSA topics have been introduced in the BBI JU Annual Work Plans (AWPs) as of 2015. Following the 2015 and 2016 Calls, **6 CSA projects** with a total budget of **EUR 5.85 million** were funded by the BBI JU.

The CSAs included in the **2015 BBI JU AWP** were dedicated to boost the use of standards, address regulatory hurdles that hinder investments in bio-based industries and enhance the awareness of the broad public of bio-based products. The selected projects: **STAR4BBI** (Standards and regulations for the bio-based industry), **BioCannDo** (Bioeconomy awareness and discourse) and **BIOWAYS** (Increase public awareness of bio-based products and applications supporting the growth of the European bioeconomy) are described in detail in this paper.

The **2016 BBI JU AWP** included CSA topics to assist in setting the framework for a successful uptake of innovations and providing the industries with a

favourable and predictable operating environment and yielded 3 selected projects: **RoadToBio** (Roadmap for the chemical industry in Europe towards a bioeconomy), **Pilots4U** (A network of bioeconomy open access pilot and multipurpose demo facilities) and **BiOPEN** (Open innovation platform).

The **2017 BBI JU AWP CSA** topics stimulated the formation of partnerships with brand owners to create a 'market pull' for bio-based products and the identification of opportunities for the introduction of ICT to increase the efficiency and sustainability of biomass supply chains for the bio-based industry. The outcome of the 2017 BBI JU Call has not been made public yet, pending the respective grant agreements.

The **2018 BBI JU AWP** calls for a 'global overview' of the results of CSAs funded by the 6th and 7th Framework Programmes, Horizon 2020 or other European programmes that jointly have addressed many aspects related to the bio-based industry. Other CSA topics aim to stimulate bio-based industry expansion into Eastern Europe and identification of opportunities to promote careers, education and research activities in the European bio-based industry. The 2018 BBI JU Call will be launched on 11 April 2018.

This paper presents the objectives and expected impacts of the **running BBI JU CSA projects**, as well as the results obtained so far and next steps. It also discusses how the CSA projects will support the bio-based industry sector throughout Europe and how industry, and in particular the members of Bio-based Industries Consortium (BIC), can help the projects to succeed.

INTRODUCTION

Background

The Bio-Based Industries Joint Undertaking (BBI JU) is a Public-Private Partnership between the European Union and the Bio-based Industries Consortium (BIC), as one of the pillars of the EU Bioeconomy strategy¹ (2012). Operating under Horizon 2020, the BBI JU is driven by the Vision² and Strategic Innovation and Research Agenda (SIRA)³ developed by the industry. The SIRA describes the main technological and innovation challenges that need to be overcome in order to develop sustainable and competitive bio-based industries in Europe. It identifies research, demonstration and deployment activities to be carried out by the BBI JU, focusing on 4 strategic orientations: Feedstock, Process, Products, and Market uptake.



Each year BIC's Programming working group defines the topics of the BBI JU Annual Work Plans, following consultation of the EC and the BBI JU Advisory bodies, the Scientific Committee and States Representative Group. After approval by the BBI JU Governing Board, the AWP's will be published and a few months later launched as the annual calls of the BBI JU.

BBI JU Objectives

The objective of the BBI JU is to implement a programme of research and innovation activities in Europe that will assess the availability of renewable biological resources that can be used for the production of bio-based materials, and on that basis support the establishment of sustainable bio-based value chains. Those activities should be carried out through collaboration between stakeholders along the entire bio-based value chains, including primary production and processing industries, consumer brands, SMEs, research and technology centres and universities.

The objectives of the BBI JU are to contribute to a more resource-efficient and sustainable low-carbon economy and to increasing economic growth and employment, in particular in rural areas, by developing sustainable and competitive bio-based industries in Europe, based on advanced biorefineries that source their biomass sustainably, and in particular to:

- Demonstrate technologies that enable new chemical building blocks, new materials, and new consumer products from European biomass, which replace the need for fossil-based inputs;
- Develop business models that integrate economic actors along the value chain from supply of biomass to biorefinery plants to consumers of bio-based materials, chemicals and fuels, including through creating new cross-sector interconnections and supporting cross-industry clusters; and

¹ Commission Communication of 13 February 2012 entitled "Innovating for Sustainable Growth: A Bioeconomy for Europe": <http://ec.europa.eu/research/bioeconomy/index.cfm?pg=policy&lib=strategy>

² BIC Vision: Accelerating innovation and market uptake of bio-based products http://biconsortium.eu/sites/biconsortium.eu/files/downloads/BIC_BBI_Vision_web.pdf

³ BIC SIRA: <http://biconsortium.eu/sites/biconsortium.eu/files/downloads/SIRA-2017-Web.pdf>

- Set-up flagship biorefinery plants that deploy the technologies and business models for bio-based materials, chemicals and fuels and demonstrate cost and performance improvements to levels that are competitive with fossil-based alternatives.

Coordination and Support Actions

Coordination and Support Actions (CSAs) are actions that cover not the research itself, but the coordination and networking of projects, programmes and policies. They are meant to support further development of the bio-based sector through clustering, networking and open innovation. They address non-technological aspects for a bio-based industry in Europe such as cross-sectorial challenges and supporting value chains through knowledge development (studies) and networking.

Coordination and Support Actions funded by the 6th and 7th Framework Programmes, Horizon 2020 including the BBI JU, various Interreg and other European programmes have addressed many aspects related to the bio-based industry. These include: standardisation; awareness and communication; identifying regulatory hurdles; technological and non-technological road-mapping; foresight and market studies; biomass availability; sustainability; and analysing bio-based industries in Member States and regions. Future CSA projects could support market analysis for bio-based products and processes and thus support 'market pull'.

CSA topics have been introduced in the BBI JU work plans as of 2015. Following the 2015 and 2016 'Calls for proposals' (further referred to as 'Calls'), 6 CSA projects with a total budget of EUR 5.85 million were funded by the BBI JU⁴. CSAs had notably higher success rates (50.6%) than all other BBI JU project types (RIAs, Demos & Flagships).

⁴ BBI JU Interim evaluation report <http://ec.europa.eu/research/evaluations/pdf/bbi.pdf>

Call management rules for CSAs

The BBI JU operates under Horizon 2020 rules for participation⁵. For Coordination & Support Actions (CSAs), only SMEs; secondary and higher education establishments; non-profit legal entities, including those carrying out research or technological development as one of their main objectives; the JRC; and international European interest organisations are eligible for funding⁶. Large enterprises are not eligible for funding.



⁵ Regulation (EU) No 1290/2013 of the European Parliament and of the Council of 11 December 2013

⁶ Commission delegated regulation (EU) No 623/2014 of 14 February 2014

CSA TOPICS IN THE BBI JU ANNUAL WORK PLANS

CSA topics in the 2015 - BBI JU Annual Work Plan

The CSAs included in the 2015 BBI JU AWP⁷ were dedicated to boost the use of **standards**, address **regulatory hurdles** that hinder investments in bio-based industries and enhance the **awareness** of the broad public of bio-based products.

BBI 2015.S1 - Standards and regulations

Specific challenge:

1. To boost the use of instruments, in particular common standards, reducing barriers to trade in bio-based products among value chains and across the EU and hence expand their market potential.
2. To address regulatory hurdles across sectors hindering investments into existing and new value chains, products and applications as well as the establishment of a level playing field for bio- based products.

BBI 2015.S2 - Communication and awareness

Specific challenge:

Enhancing the awareness of the broad public on bio-based products and applications and their benefits to increase the public acceptance and the success of a bioeconomy, in cooperation with communications programmes within H2020 on bio-based products and to Regional activities addressing the same to achieve synergy.

2015 BBI JU Call outcome

Respectively 2 (S1 - Standards and regulations), and 4 (S2 - Communication and awareness) project proposals were submitted.

Selected projects: **STAR4BBI** (S1), **BioCannDo** (S2) and **BIOWAYS** (S2).

CSA topics in the 2016 BBI JU Annual Work Plan

In the 2016 BBI JU AWP⁸ 'Cross-sectorial integration along and across value chains' was chosen as the base mode of operation for the bio-based industry in Europe, cross-cutting the 'vertical' orientations'.

The AWP 2016 included effective coordination and support actions (CSAs) to assist in setting the framework for a successful **uptake** of innovations and providing the industries with a favourable and predictable operating **environment**.

BBI 2016.S1 - A roadmap for the chemical industry to a bioeconomy

Specific challenge:

The chemical industry in Europe is facing a number of challenges that may affect its global competitive position: the enormous growth of the market and subsequent investments and production in China; the production of chemicals and materials in the Middle East based on amply available oil and gas; and the 'shale gas revolution' in the USA. To meet these challenges, the chemical industry in Europe has stepped up its drive towards higher resources- and energy-efficiency and has focused on business and operational excellence towards sustainability. While safeguarding base chemicals production, the industry has started to utilise renewable raw materials, making

7 https://www.bbi-europe.eu/sites/default/files/documents/bbi-ju-wp-2015-amendment-2_en.pdf

8 https://www.bbi-europe.eu/sites/default/files/documents/bbi-ju-awp-2016-final_en.pdf

'drop-in' bio-based chemicals to replace fossil-based products where justified, and at the same time making new bio-based products with new functionalities for initial niche market applications.

The challenge is to make a clear overview of the hurdles in the fields of regulation and acceptance, set up a plan for their removal and agree on a roadmap for the chemical industry to increase production of bio-based building blocks for market applications that meet societal needs. The roadmap will specify the benefits for the chemical industry along the path towards a bioeconomy.

BBI 2016.S2 – Bioeconomy related open access research infrastructure and assessing its capabilities for industry driven development projects

Specific challenge:

1. improve access to existing bioeconomy related open access research infrastructure in Europe, 'interconnect' these to create a Europe-wide open access infrastructure for the bio-based industry; and
2. catalyse the expansion of capabilities of the infrastructure to cost-efficiently meet the (future) needs of bio-based industries. This should include multi-purpose demonstrators which enable SMEs and larger industries to progress from technology development to demonstration and subsequently into deployment and the commercialisation stage.

The Europe-wide open access infrastructure must be capable to protect IP Rights of users.

BBI 2016.S3 – Open-innovation Platform strengthening cooperation and joint development of bio-based industries and downstream sectors

Specific challenge:

As bio-based intermediates are becoming more mature, and entering new markets, one of the major hurdles to develop new bio-based solutions is the lack of adequate knowledge of the bio-based industries of the applications; and vice-versa the unawareness of down-stream industries of those new materials. Cross-sectorial exchanges and joint development are therefore essential to imagine tomorrow's products and solutions.

BBI 2016.S4 – Clustering and networking for new value chains

Specific challenge:

Establish cooperation and integration across sectors, value chains and geographical borders to develop new bio-based value chains and facilitate market uptake.

In the new bioeconomy, actors in bio-based industries integrate in 'cross-sectorial' partnerships within their traditional value chains and develop new value chains that lapse across the traditional ones. One significant result hereof is that intermediate 'by-product', 'waste' and 'residue' streams from separate value chains can be utilised as feedstock in other value chains through biorefining. This will imply an integrated biorefinery approach and establish a circular bioeconomy. In addition, actors in bio-based industries have developed new schemes for cascading exploitation of biomass in order to maximise the efficient use of resources and the value of products.

The challenge is to establish new industrial value chains across the EU (for example, based on industrial side-streams including those of food industry, urban bio-waste or aquatic biomass, etc.), crossing

boundaries of traditional sectors and value chains as well as enhancing the exploitation of local resources. Clusters, being networks of cities/local authorities, waste operators, biomass producers (forest, agriculture), regions across Member States, are instrumental to develop new value chains and support the development of new processes and materials.

2016 BBI JU Call outcome

Respectively 2 (S1 - A roadmap for the chemical industry), 1 (S2 - open access research infrastructure), 2 (S3 - Open-innovation Platform) and 2 (S4 - Clustering and networking project proposals) were submitted for the specific CSA topics.

Selected projects: **RoadToBio** (S1); **Pilots4U** (S2); **BiOPEN** (S3). One CSA topic (S4) was not covered by retained proposals.

CSA topics in the 2017 BBI JU Annual Work Plan

The AWP 2017 refocused on the need to better integrate biomass feedstock suppliers on the front end of the chain to create a demand for biomass feedstock from biorefining processes. Similarly, the AWP stimulated the formation of partnerships with end market actors to create a 'market pull' for bio-based products for identified applications. The AWP 2017 moved away from a strict biomass feedstock 'push' based on the traditional value chains, towards a demand for biomass to enable processing to respond adequately to a 'pull' from the end markets, focusing on 4 strategic orientations: Feedstock, Process, Products, and Market uptake.

BBI 2017.S1 – Establish cooperation and partnership with brand owners and consumer representatives to improve the market access of sustainable bio-based products

Specific challenge:

The implementation of bioeconomy solutions and related value chains on large scale depends heavily on the market acceptance of bio-based products. The fact that the price of bio-based products generally tends to be higher than the relevant fossil-based counterparts is still hindering the widespread take-up of these products. In addition to developing more features and better performance for the bio-based products and justifying a potentially premium price, the bio-based industry also needs to further increase consumers' and brand owners' awareness of the sustainability of bio-based products.

The specific challenge is to provide routes and means to increase cooperation and partnership between the different actors to achieve the market uptake of bio-based products. Industry should cooperate with brand owners and consumer representatives since they have a strategic role in better understanding market behaviours and needs. Meeting this challenge will also accelerate the crossing of the 'valley of death' from the research phase to commercialisation of a new product.

BBI 2017.S2 – Identify opportunities for ICT to increase the efficiency of biomass supply chains for the bio-based industry

Specific challenge:

Biomass suppliers and technology providers need to jointly provide significant improvements in logistical issues such as biomass supply, collection, storage and the preparatory steps towards biorefining. Introducing and/or increasing the application of information and communications technology (ICT) and tools could

provide the desired efficiency improvements. These tools are already playing a role in forestry and this experience could serve as example for the bio-based industry supply chain. Applying ICT will also provide links with ‘the internet of things’ and Industry 4.0 (the current trend for automation and data exchange in manufacturing technologies). Efficiency gains will result in the creation of sustainable value chains.

The specific challenge is to identify opportunities for the introduction of ICT to increase the efficiency and sustainability of biomass supply chains for the bio-based industry. Sustainable feedstock supply chains will permit the creation of sustainable bio-based value chains, which could serve as engines for the economic development of rural areas.

2017 BBI JU Call outcome

The outcome of the 2017 Call has not been made public yet, pending the respective grant agreements.

CSA topics in the 2018 BBI JU Annual Work Plan

The AWP 2018 continues to focus on the need to better **integrate biomass feedstock suppliers** at the front end of the value chain, **creating a demand** for biomass feedstock from biorefining processes. Similarly, the AWP will stimulate the building of **partnerships with end market actors to create a ‘market pull’** for bio-based products for identified applications. The 2018 Annual Work Plan follows the structure of the updated Strategic Innovation and Research Agenda (SIRA) and the 4 strategic orientations (SO): Feedstock, Process, Products, and Market uptake.

The AWP 2018 puts particular emphasis on four areas:

1. promotion of the **widening participation** strategy targeting countries not enough represented;
2. further develop **synergies and complementarities** with other initiatives;

3. develop and implement a specific action plan towards **SME participation**;
4. **business intelligence** to monitor and analyse the current status and trends of the bio-based industries in Europe.

BBI 2018.S04.S1 – Benefit from previous and current work to create a coherent and stimulating ‘environment’ for a sustainable bio-based industry in Europe

Specific challenge:

Coordination and support actions (CSAs) funded by the 6th and 7th Framework Programmes, Horizon 2020 including the BBI JU, various Interreg and other European programmes have addressed many aspects related to the bio-based industry. These include: standardisation; awareness and communication; identifying regulatory hurdles; technological and non-technological road-mapping; foresight and market studies; biomass availability; sustainability; and analysing bio-based industries in Member States and regions. Current CSAs continue to address similar and different aspects to help the bio-based industry.

However, there is no ‘global overview’ of the results of completed work, the objectives of ongoing actions or a gap analysis versus long-term objectives. Moreover, these results and analyses are not collected or made available centrally for use in follow-up and future work. More needs to be done to communicate these results to the relevant stakeholders and a wider public.

The specific challenge of this topic is to benefit from the results from previous projects and from ongoing actions in the bio-based industry at the regional, national and European levels and to map the CSA projects of all European programmes during the past ten years that address non-technological aspects for a bio-based industry in Europe.

BBI 2018.SO4.S2 – Expand the bio-based industry into Eastern Europe

Specific challenge:

The level of activities of the Bio-based Industries Consortium (BIC) is not balanced throughout Europe. This may be the result of insufficient knowledge of the potential for the bio-based industry in these countries, by actors in bio-based activities in these countries as well as by BIC. Additionally, actors in these countries may not be fully aware of the opportunities offered by BIC and the Bio-based Industries Initiative. In order to explore how to remediate this situation, BIC has started in 2017 a pilot study in Portugal, Romania and Poland, identifying opportunities to expand the bio-based industry into these countries on a sustainable basis. This pilot study includes mapping local biomass sources that potentially could be used as sustainable feedstock for the bio-based industry and mapping the major actors in the various relevant sectors. Additionally, the study sets up an action plan that seeks to establish interest and commitment from the actors and governmental institutions in the countries for expanding their industrial bio-based activities. BIC will continue this work in 2018 for Estonia, Latvia and Lithuania. Similar work needs to be done in other countries, building on the ongoing work.

The specific challenge of this topic is to increase bio-based industrial activities in countries where these activities are relatively low.

BBI 2018.SO4.S3 – Identify opportunities to promote careers, education and research activities in the European bio-based industry

Specific challenge:

Crossing the boundaries between existing and new industrial sectors and involving partners in a variety of fields entails working in areas where different academic disciplines cross paths and in diverse teams to speed up innovation. Adequately skilled people will be needed to operate innovative value chains while establishing and sustaining a bio-based industry in Europe. The bio-based industry is looking to forge a true partnership with academia that delivers the right skills for the 21st century. This partnership should also raise the profile of career opportunities in the bio-based industry and related academic fields.

In recent years a number of sectors have carried out many activities and programmes to address a rising skills mismatch and prevent a widening skills gap in the future. These programmes are running at the regional, national and European levels. The bio-based industry does not have such programmes at European level. As the bio-based sector is expected to bring growth and jobs, particularly in rural and coastal areas, it could play a significant role in tackling unemployment in areas such as southern Europe, where youth unemployment is high. Often this may require retraining to provide the skills needed.

The specific challenge of this topic is to identify education needs and gaps in Europe's bio-based sector and point to career opportunities in research and the industry.

2018 BBI JU Call information

The 2018 BBI JU Call will be launched on 11 April 2018.





CURRENT BBI JU CSA PROJECTS

BioCannDo - Bioeconomy awareness and discourse

 <http://www.allthings.bio>
 @CommNet_eu

Coordination

Agency for Renewable Resources (FNR)
 Erik Lohse - e.lohse@fnr.de



SUMMARY

Bio-based solutions will be vital in driving Europe's ambitions to become a smarter, greener and more circular economy. A core component of a successful bioeconomy sector will be **public support** for the benefits. Unfortunately, in many settings, there is little awareness or enthusiasm yet.

The **BioCannDo** (*Bioeconomy awareness and discourse*) project will help **bridge awareness gaps** and inform about the **potential and long-term benefits of a vibrant bioeconomy sector** to the wider public. It will show to the public that the bio-based economy offers something desirable, with new products, functionalities and day-to-day applications.

BioCannDo will also offer a **platform for feedback, interaction and engagement** in the wider discussion on the value of a bio-based economy.

EXPECTED IMPACTS

- **Increase of awareness and acceptance** of bio-based products by society.
- **Increased societal confidence** related to (new) bio-based products and bio-based industries.
- **Increased engagement** by end-consumers in the bioeconomy.

START DATE

01 October 2016

END DATE

30 September 2019

BBI-JU CONTRIBUTION

€ 998,345

BioCannDo - CONSORTIUM PARTNERS

AGENCY FOR RENEWABLE RESOURCES (FNR)

Germany - <https://www.fnr.de/>

BIOMASS TECHNOLOGY GROUP BV (BTG)

The Netherlands

<http://www.btgworld.com>

PROSPEX BVBA

Belgium

<http://www.prospex.com/>

AVANS UNIVERSITY OF APPLIED SCIENCE

The Netherlands

<http://www.avans.nl/international>

YOURIS.COM (YOU)

Italy

<http://www.youris.com>

BioCannDo - OBJECTIVES

- Develop multi-stakeholder proven key messages for communicating functionality and sustainability aspects of bio-based products with the broader public (bioeconomy in general, cleaning products, insulation materials, food packaging)
- Engage a European stakeholder network dealing with communication issues regarding the bioeconomy in a joint communication undertaking towards the general public
- Create synergies for existing materials and develop missing communication formats and educational material to communicate topics of the bioeconomy and bio-based products to the European citizens
- Engage a European educational Community of Practice on bioeconomy

How will the project achieve the objectives?

- Key messages will be developed in three separate case studies starting with a literature review. Identified draft messages will be discussed with experts and stakeholders in webinars and workshops. Refined key messages will be tested in consumer focus groups. Finally, all key messages will be tested in a market survey. Key messages will be presented in separate fact sheets and accompanying communication formats.
- Communication network: Potentially relevant projects and initiatives are being identified through desk research and interviews. A series of bi-annual webinars is organised as a place for sharing ideas and good practices. The last webinar (November 2017) was used to present German research results on public perception of bioplastics.
- Communication materials: AllThings.Bio serves as a touch point between the project and consumers looking for information and resources about bio-based products. The editorial team regularly publishes on the AllThings.Bio website original and external materials such as articles, factsheets, videos, storytelling resources, educational content and other materials about bio-based consumer products in the following categories: catering, clothing, construction, gardening, home and transport.
- Educational Community of Practice: A mapping of educational resources and actors from primary school to universities has been conducted in four European countries (DE, FI, BE, NL). A series of bi-annual webinars will be organised. After identifying gaps new educational materials will be developed. Educational actors and partners will be invited to join a competition to develop innovative educational materials.

BioCannDo – DELIVERABLES

Results until today?

- BioCannDo info portal: www.allthings.bio
- First AllThings.Bio slideshow: <http://www.allthings.bio/page4flow/pageflow1/>
- Bioeconomy Map with projects and initiatives communicating about bio-based products and bioeconomy: <http://www.allthings.bio/resources-map/>
- Communication network and Educational Community of Practice is set up; Network activities: Recordings of webinars are available here: <http://www.allthings.bio/past-events/>
- Mapping Report on educational actors and materials

What is still to be done?

- First series of videos covering different bio-based consumer products will be published in January/February 2018
- First set of key messages on household cleaning products will be published in January/February 2018
- Key message development on bio-based insulation materials and food packaging respectively in early and late 2018
- Next workshop on key messages for bio-based insulation materials to be held in the Netherlands in April 2018
- Series of bi-annual webinars of communication and education network
- Ongoing publishing of content on AllThings.Bio info portal
- Competition to develop new educational material



BioCannDo - INDUSTRY RELEVANCE

How does the project support the bio-based industry sector throughout Europe?

- BioCannDo raises the awareness, knowledge and acceptance of end-consumers and thereby the broader public on bio-based products and applications.
- BioCannDo will communicate stories that relate to people's life and will transfer scientific and technical language and jargon about bio-based products to layman language so that communication about key aspects of products and related functionalities will be also understood outside of scientific circles
- Communication activities will also address the positive role of bio-based industries within the process and therefore help to improve confidence in bio-based industries in general.
- BioCannDo brings together educational actors to strengthen education in the field of bioeconomy.

What can BIC and its members do to support the project?

- BIC members can help with expertise in upcoming case studies and key message development (insulation materials and food packaging) e.g. by providing feedback on draft key messages, participating in workshop or providing contacts of interested stakeholders.
- Our editorial team is always looking for interesting stories about bio-based products and the bioeconomy to communicate to the general public.
- BIC members being aware of any projects or initiatives communicating about bio-based product to the general public are welcome to inform us.
- BIC members interested in joining our project activities or exchanging on ideas are very welcome to contact the project coordinator.

BioCannDo - ADDITIONAL INFORMATION

Similar or complementary R&I projects? Collaboration with other projects?

- In general, there is only a very limited number of projects and initiatives with a strong focus on communication and awareness raising towards end consumers. Projects that we already engage with include BioWays, BioStep, and BiNa.
- The BioCannDo approach is to cooperate with all projects and initiatives on European, national, and regional level that are within the scope of the project. We engage networks to offer a place for sharing good practices, ideas, stories and communication and educational materials to create synergies and increase impact of our communication activities. In addition, we offer a channel to boost the communication of other research projects.

What will be done to ensure that outputs will serve the bio-based R&I community?

- Key results of BioCannDo will be public and can be used by and will be shared with the bio-based community (e.g. key messages and communication materials on AllThings.Bio.)
- All projects are welcome to contact the BioCannDo team to assess if and how their project (results) can be communicated on AllThings.Bio.

BiOPEN - Open innovation platform

🌐 <https://www.biopen-project.eu> 📍 @BiOPEN_Project

Coordination

CIAOTECH SRL

Patrizia Circelli - p.circelli@ciaotech.com



SUMMARY

The bio-based economy thrives on integrated value chains that cross sectoral barriers, oriented to developing products driven by societal needs. These require sectors to collaborate across these bio-based value chains, from feedstock to products. Rather than hope they will form spontaneously, it can be advantageous to stimulate their development.

The **BiOPEN** project is a specialised consortium made up of five European bio-based clusters, three open innovation expert companies, and one research centre. It intends to drive a programme of **collaboration and knowledge sharing** within the bio-based industry. This will **stimulate innovation partnerships** for developing new products and markets in the sector. In so doing, it will provide a single voice for the bio-based industries in Europe, bringing together expertise and promoting engagement and involvement of industry, researchers and academia at European and national level, by setting up an **Open innovation platform addressing strategic cross-cutting challenges**.

EXPECTED IMPACTS

The BiOPEN project aims to **realise the full potential of the bio-based industry** in Europe with the following impacts:

- establish an **efficient, collaborative and common platform** that bring together the professionals and scientific experts around bio-based products development and downstream applications. This will help build a **common vision and prospective** of the challenge ahead.
- establish a **Knowledge and Innovation Centre**, with a web platform, assisting scientists and economic operators to develop new solutions suited to the market's current and future needs.
- undertake a series **perspective studies** on major applications sectors of the bioeconomy.
- create **at least ten new co-innovation partnerships**
- It will ensure that the **Open Innovation platform continues** beyond the lifespan of the project.

START DATE

01 May 2017

END DATE

31 October 2019

BBI-JU CONTRIBUTION

€ 994,531

BiOPEN - CONSORTIUM PARTNERS

CIAOTECH SRL (PNO Group),

Italy

<https://www.pnoconsultants.com/it/>

INNOVATION ENGINEERING SRL,

Italy

<https://www.innovationengineering.eu/>

EUROPE UNLIMITED S.A., Belgium - <https://www.e-unlimited.com/>

NATIONAL TECHNICAL UNIVERSITY OF ATHENS,

Greece - <https://www.ntua.gr/el/>

STOWARZYSZENIE ZACHODNIOPOMORSKI KLASTER

CHEMICZNY ZIELONA CHEMIA, Poland - <http://zielonachemia.eu/en/>

TURKU SCIENCE PARK, Finland - <http://www.turkusciencepark.com/>

CLUSTER INDUSTRIELLE BIOTECHNOLOGIE 2021

E.V., Germany - <http://www.clib2021.de/en>

BCM BIOECONOMY CLUSTER MANAGEMENT GMBH,

Germany - <http://en.bioeconomy.de/>

STICHTING BIO-BASED DELTA, The Netherlands -

<http://bio-baseddelta.nl/>

BiOPEN - OBJECTIVES

- To conduct five perspective studies on new bio-based products and markets, examining the entire value chain. These studies will define the ecosystem of stakeholders required to develop these coinnovation partnerships, as well as defining the market and societal needs that will drive the value chains.
- To establish an open innovation platform to match-make projects and share knowledge and create a 'network of networks'. It will provide a knowledge centre that will allow participants to share information, collecting the insights of

the community, and access a semantic search engine that can search millions of patents, scientific papers, organisations, and other relevant information.

- To establish at least 20 co-innovation partnerships for developing new bio-based products and markets through on-line matchmaking, brokerage events and direct support in structuring the collaborations. To disseminate the activities and results of the project to maximise the impact and guarantee sustainability of the Open Innovation platform.

How will the project achieve the objectives?

- With a balanced mix of on-line and off-line support. While information technology tools are the place where information is stored and shared, and where initial matchmaking can be performed, to stimulate and support the set-up of partnerships it is also needed to organize matchmaking events and direct support to identify partners for collaborations. BiOPEN will therefore include, aside from the Open Innovation Platform, a set of support actions aimed at favoring the set-up of co-innovation partnerships, including the realization of matchmaking events.

BiOPEN - DELIVERABLES

Results until today?

- Open Innovation platform released at M8 (December 2017) and available at the following link: <https://www.biopen-project.eu/> .
- Organisation of 2 brokerage events:
 - The first in Bologna (Italy)
 - The second in Rome (Italy) (Within the IFIB event)

What is still to be done?

- Engagement of stakeholders
- 5 Perspective studies

- Organization of brokerage events and workshops to share knowledge and support matchmaking
- Direct support services to find partners for specific needs and projects
- Evaluation of funding opportunities to co-finance such projects

BiOPEN - INDUSTRY RELEVANCE

How does the project support the bio-based industry sector throughout Europe?

- BiOPEN will stimulate the business and innovation potential of the bio-based sector in Europe, setting up a nurturing environment for value generation paradigms driven by innovative applications of bio-based products and markets.

- BiOPEN will gather European experts in the bio-based sector in a unique Open-innovation platform by engaging large industries (including brand owners), SMEs, and researchers that will actively exchange knowledge (technologies, competencies, needs and ideas). Five perspective studies on new bio-based products and markets will be realised.
- BiOPEN project partners will actively provide support for the establishment of co-innovation partnerships, through matchmaking, projects' ideasharing, brokerage events, and identification of projects' co-funding opportunities.





What can BIC and its members do to support the project?

BIC members can participate as stakeholders and their active participation to the project's activities is a pre-requisite for the success of the project. The involvement of stakeholders will, in fact, provide inputs to the perspective studies, will be at the base of co-innovation partnerships, and is essential for the Open Innovation platform success. Finally, stakeholders will be the recipients of the dissemination of the project results.

BiOPEN - ADDITIONAL INFORMATION

Similar or complementary R&I projects? Collaboration with other projects?

- BioLinX: <http://www.biolinx-project.eu/>
- We are trying to organize at least one event together and we are also to exploit the results of BioLinX that is finishing this year.

What will be done to ensure that outputs will serve the bio-based R&I community?

The BiOPEN international event will become a reference event in the bio-based scenery and will become self-sustainable through sponsorships and entrance fee in the years after the project's end.

BIOWAYS - Increase public awareness of bio-based products

🖥️ <http://www.bioways.eu>

🐦 @BIOWAYS_EU

Coordination

INSIGHT PUBLISHERS Ltd

William Davis - wdavis@ipl.eu.com



SUMMARY

The European bioeconomy is an exciting prospect; the **BIOWAYS** (*Increase public awareness of bio-based products and applications supporting the growth of the European bioeconomy*) project will provide the materials and activities to **engage the public** and excite them about its potential.

The project will analyse the potential of the sector and **identify champions** to help increase its visibility. It will also identify and develop a method for ensuring there is **ongoing communication on the value of bio-based products**. Its other role is to help build constructive dialogue between BIOWAYS and the other bio-based initiatives in Horizon 2020.

BIOWAYS will oversee the development of **educational materials** on the benefits of the bioeconomy, while helping to ensure that the BBI JU programme as a whole is implemented effectively.

EXPECTED IMPACTS

To raise awareness of the potential of bio-based products and promote their benefits:

- **Increase awareness** amongst Europe's general public, students, scientists, media and policy makers of the value of bio-based products and applications to industry, the economy and the whole of the wider society, both in terms of what they deliver now and in terms of their future potential.
- **Promote collaboration** of research effort with complementary projects and researchers.
- Increase the **opportunities for further funding** into more research or seed investment for commercial roll-out.
- Increase awareness of a particular challenge or opportunity, thus **promoting further scientific research**.
- **Inspire young scientists** to become involved in bio-based scientific research.
- **Increase female interest** toward science
- Encourage contacts and **exchanges among researchers** and the bio-based industry.

As a result of the project's recommendations, the European bio-based industry could benefit from new demanded scientific discoveries creating new markets and increasing competitiveness.

START DATE

01 October 2016

END DATE

30 September 2019

BBI-JU CONTRIBUTION

€ 965,750

BIOWAYS - CONSORTIUM PARTNERS

INSIGHT PUBLISHERS Ltd.

United Kingdom - <http://ipl.eu.com/>

Q-PLAN

Greece - <https://qplan-intl.com/>

LOBA

Portugal - <https://www.loba.pt/>

FVA

Italy - <http://research.fvaweb.eu/>

PEDAL CONSULTING

Slovakia - <http://www.pedal-consulting.eu/>

ALMA MATER STUDIORUM, University of Bologna

Italy - <http://www.unibo.it/en/homepage>

CIVITTA EESTI AS

Estonia - <http://www.civitta.ee/>

AINIA

Spain - <http://www.ainia.es/en>

BIOWAYS - OBJECTIVES

With the five broad application areas of the BBI JU Scientific Innovation and Research Agenda, which defines the key areas around which projects should be developed, at its core, the BIOWAYS action will develop excellent promotional and educational materials and design and implement public engagement activities, based on this material. These activities will be focused on promoting bio-based industries and the huge potential of their products. BIOWAYS intends to meet the need for better communication of bio-based products and applications and the benefits they bring. In order to attain this ambitious challenge, the BIOWAYS Consortium proposes providing a wide range of integrated, high-level activities and tools with recognised added value for communication programmes, having EU Citizens as their main target.

Tools being developed to achieve this include an innovative online collaboration platform and social network, an accessible library of bio-based products, the development of training materials, social hack days, co-creation workshops, an eConference, BarCamps and thematic Charettes.

How will the project achieve the objectives?

1. Thematic workshops: Based on the review and assessment of the bio-based products and applications and their future potential, BIOWAYS will organize 7 Thematic Workshops to disseminate them at national and European level. These will be targeted to both, researchers and stakeholders (policy makers, public institutions, civil society, trade unions, practitioners etc.) from a multidisciplinary policy perspective.

2. Social Hack Days: BIOWAYS will hold the social hack day, where various invited participants get in a room for a day and work on a brief. These briefs may take different forms

3. E-Conferences: BIOWAYS partners will convene an e-conference of all stakeholder representatives at which they will present the key findings. The conference will be planned back-to-back with other relevant events in order to assure the widest and the most representative sample of audience as possible.

4. Bio Barcamps: BarCamps are born from the desire for people to share and learn in an open environment. They will be run as intense events with discussions, demos and interaction from attendees. Anyone with something to contribute or with the desire to learn about the selected projects will be welcome to join.

5. Thematic Charrettes: A Charrette is a structured brainstorming session, which tries to bring insights in from as many angles as possible by engaging various shareholders. Charrettes involve representatives from the BIOWAYS project and representatives from several relevant EU projects as well as several external experts. They will mainly serve for the validation of the project findings.

6. Training seminars: Training seminars with different groups of end-users will be organized within the BIOWAYS project to increase their knowledge and awareness on current and promising bio-based products and their potential uses. In particular, stakeholders, researchers, young students, adults with no specific knowledge on this topic will be invited to attend the seminars during which the Bio training materials and tools developed within the project will be distributed.

7. Games: "Bio...What?" is an online game developed by BIOWAYS in partnership with the BioSTEP project, which are both funded by BBI-JU under Horizon 2020. can raise young generations' awareness on the bioeconomy, stimulating curiosity and delivering information and content about bio-based products. The BIOCHALLENGE Quiz was developed in collaboration with the STAR-ProBio project, who has provided the content and BIOWAYS has designed and developed the game.

8. BioWatch interactive digital platform and eLibrary. BioWatch is a digital platform that allows to read, watch videos, listen and interact with research projects within the world of the bioeconomy and discover all about their latest innovations.

BIOWAYS – DELIVERABLES

Results until today?

- The BioWatch library is an online resource for the interactive dissemination of project information, news and other valuable materials related to the bioeconomy. 108 documents relating to the bioeconomy have been collected and categorized and stored in the library, while 15 projects are participating on the platform to date. All BBI-JU projects have been invited to participate as well as other projects with whom BIOWAYS is collaborating. http://library.bioways.eu/library_home



- The project has produced three games that can be used with various audiences as an effective way of raising awareness of bio-based products and their applications – one of the core aims of the project.
- The project has embarked upon a series of interactive events designed to engage with the public about the bioeconomy. These include workshops and presentations, as well as more interactive demonstrations and public engagement with the general public by researchers. The methodology used in devising these events can be replicated by other projects.
- The project conducted the largest survey of public perception of bio-based products and their applications to have been conducted in Europe to date. The results of this survey have been used to inform the partners about communications used in at events and in other communications. The results also formed the basis of an accessible fact sheet and infographic.
- The project conducted research into the current state of bio-based products and their applications in Europe in terms of market access, barriers to market and public perception. This involved basic desk research of 100+ information sources and existing literature as well as interviews with more than 40 experts working in the bioeconomy sector.
- Seven fact sheets about different bio-based product categories have been developed and are available online and in printed format.
- A policy brief about the state of the European bioeconomy has been produced and is available online.
- Research has been undertaken to identify the target audience for the educational materials being produced by the project and the topics selected for inclusion in this material have also been identified to hit this target.
- The project has established a monitoring methodology in order to assess the impact its activities is having on the perception of bio-

based products amongst the general public.

- Several 'Science in 60 seconds' videos have been produced in which scientists and researchers explain complex research findings in an interesting and easy to understand way.

What is still to be done?

- The BioWatch Platform will be populated over the last year of the project to include all BBI JU projects – and more. A publicity campaign will be activated to recruit members and more projects. A explainer video will be produced as well as material to help users get the most out of the platform.
- The project will be hosting and facilitating several more events across Europe. These will be aimed at raising awareness of bio-based products of the general public. A whole range of materials will be produced for these events, including brochures, leaflets, facts sheets and infographics. Researchers from complementary projects will also be recruited to help explain their work to audiences in an accessible way.
- A video is in production explaining in an accessible and entertaining way that bio-based products are already in our lives and bring many benefits. We should use more of them. This film will be supported by a social media campaign to ensure it gains maximum visibility.
- Several more "science in 60 seconds" videos will be produced.
- All communications activities will continue with the aim of raising awareness of bio-based products.
- All activities will be monitored and assessed to evaluate the impact they have had on public perception of bio-based products. A report will be written in order to provide valuable lessons about what activities work for research projects and industry seeking to raise awareness of bio-based products and so generate a demand for their availability on the market.

- Further games will be developed to be used to raise awareness of the bioeconomy in general. These will be showcased at public events and amongst target audiences.

BIOWAYS - INDUSTRY RELEVANCE

How does the project support the bio-based industry sector throughout Europe?

- By raising awareness of bio-based products and their benefits to society in general, BIOWAYS will generate a demand for these products and so foster their commercial viability. This will in turn create a vibrant market for bio-based products, so benefitting producers of these products.
- The BioWatch platform provides a valuable platform for the dissemination of industry news in this sector. This news is disseminated in a contextualized environment amongst an audience with a known interest in bio-based products and the bioeconomy. This will help raise the profile of industry amongst an extremely influential audience.
- BIOWAYS will help industry stay up to date with the latest research information and also help research stay engaged with industry. This will provide a virtuous circle of information distribution, benefitting all.
- BIOWAYS has developed a valuable database of stakeholder across the bioeconomy that will be valuable in the sharing of knowledge and fostering collaboration opportunities.

BIOWAYS - ADDITIONAL INFORMATION

Similar or complementary R&I projects? Collaboration with other projects?

BIOWAYS works in collaboration with several complementary R&I projects and CSAs, sharing information for the development of valuable content in terms of games, collaborating in the development of content for the BioWatch platform and teaming up with projects to take part in events, workshops and

public demonstrations of research. These projects include all BBI JU-funded projects as well as several funded through H2020 and involved in research related to biomass, the process industry and the bioeconomy in general.

What will be done to ensure that outputs will serve the bio-based R&I community?

- BIOWAYS is committed to continuing the development of the BioWatch platform after the project ends and will continue to support participating projects and industry members.
- BIOWAYS is also looking at ways it can package up the methodologies employed in the project to deliver impactful public events designed to raise awareness of bio-based products.
- BIOWAYS will maintain the existing games designed to raise public awareness of bio-based products and partners will be actively involved in working with ongoing projects to help them employ gamification techniques to better communicate their research results.

Pilots4U - Open access pilot and demo facilities

🖥️ <http://biopilots4u.eu>

📍 @BioPilots4U

Coordination

BIO BASE EUROPE PILOT PLANT

Lieve Hoflack - Lieve.hoflack@bbeu.org



SUMMARY

A key challenge for the bioeconomy is to bring newly developed molecules and techniques from the lab to the market. The **main bottleneck in the innovation chain is the step from technology development to deployment**. This step has to be performed first in a pilot plant and later in a demonstration plant where a production process can be tested and optimized in an industrial production setting. **Pilot- and demo-plants are expensive**, require **specific expertise** to run and most SMEs and also a lot of large companies have **no direct access** to such facilities. As a result, promising innovation processes can grind to a halt.

A solution to this problem are '**open access pilot- and multipurpose demo-infrastructures**'. These are infrastructures that are open to all companies and research institutes and can thus be seen as shared investments in research infrastructure. However, these infrastructures are not well known in Europe. Potential user communities are often unaware of the nature and type of equipment and facilities available.

Pilots4U (*A network of bioeconomy open access pilot and multipurpose demo facilities*) aims to address this problem by grouping all European open access bioeconomy pilot- and multipurpose demo facilities under one, very visible and easily accessible network. Pilots4U also wants to assess the current and future needs of the European bioeconomy and take the first steps to invest in equipment modules that are judged essential to catalyse the European bio- economy.

EXPECTED IMPACTS

- One, very visible **Europe-wide network of open access pilot and multipurpose demo-facilities** with a single point of entry (containing a searchable database of infrastructure and equipment modules).
- Assessment of industry and SME needs, at present and in the near-future, and identification of **options for future investments** in relevant plants and equipment to **enable the scale-up** and demonstration of biorefinery processes
- **Business plans for future investments**
- In the long term: Increase the number of promising innovations that are scaled-up, leading to new investments in production facilities and concomitant job creation

START DATE

01 June 2017

END DATE

31 May 2019

BBI-JU CONTRIBUTION

€ 902,461.78

Pilots4U - CONSORTIUM PARTNERS

BIO BASE EUROPE PILOT PLANT

Belgium - www.bbeu.org/pilotplant/

CLIC INNOVATION OY

Finland - www.clicinnovation.fi

TEKNOLOGIAN TUTKIMUSKESKUS (VTT) OY

Finland - www.vtt.fi

KUNGLIGA TEKNISKA HOEGSKOLAN (KTH)

Sweden - www.kth.se

SWANSEA UNIVERSITY

United Kingdom - www.swansea.ac.uk/

UNIVERSITEIT GENT

Belgium - www.ugent.be

EUROPEAN REGIONS RESEARCH AND INNOVATION NETWORK (ERRIN) - www.errin.eu

THE NATIONAL NON-FOOD CROPS CENTRE

United Kingdom - www.nnfcc.co.uk/company

Pilots4U - OBJECTIVES

- To set up a highly visible and easily accessible network of open access pilot and multipurpose demo-infrastructures for the European bioeconomy, with Europe-wide coverage and IP user rights protection.
- To provide an analysis of the current capabilities of the open access pilot-and multipurpose demo infrastructure network.
- To provide an analysis of the needs of the European bio-based industry regarding pilot-and multipurpose demo-infrastructures, both now and in the near term, and provide a gap analysis to identify deficiencies in the current offer of scale-up equipment.
- To draft a plan with remedies, actions and proposals for bridging the identified gap(s) between the current capabilities of the pilot

facilities and the actual needs of the European bio-based industries. This will involve identifying priorities and potential funding mechanisms for future investments in scale-up equipment and pilot facilities, as well as identifying how existing open access facilities can better serve client needs, by drawing on best practice examples and means of improving cooperation.

How will the project achieve the objectives?

By

1. Mapping existing open access pilot infrastructure in Europe, and gathering the info in an easily searchable database on the Pilots4U website
2. Improving access to pilot infrastructure and by looking into how a pilot infrastructure network should be organized and governed, and how to keep the network alive after project end
3. Assessing industry demand and future needs in relation to open access pilot infrastructure
4. A gap analysis between offer (mapping exercise in point 1) and demand (assessing industry demand in point 3), and looking into financing strategies to catalyze the expansion of capabilities

Pilots4U - DELIVERABLES

Results until today?

Equipment database ready to be filled:
<https://biopilots4u.eu/add-asset>

- Database on bioeconomy pilot-scale equipment hosted at open access facilities across the EU
- Target audience: European Enterprises/ Institutes with bioeconomy pilot-scale equipment, willing to offer the facilities in an open access mode (against a fee-for-service). Equipment must be semi-pilot, pilot or demo-scale (from TRL4 to TRL6 or higher).

- Survey ready to be filled in: <https://biopilots4u.eu/survey>
- Survey designed to gather information about the type of equipment and services that organisations require, when bringing an innovative process towards commercialisation.
- Target audience: Entrepreneurs that brought, or with plans to bring, a bio-based, biorefinery or biotechnology innovation process towards commercialization.

What is still to be done?

Equipment database

- The database goes live March 2018, will be searchable online and new entries will be accepted

Survey

- The summarised, anonymised results of the survey are anticipated from June 2018

Gap analysis & financing strategies

- The identified gaps will be discussed with the community in the 'Horizon scan workshops' and out of that, investment propositions should follow. These will be discussed in the financial round table.

Pilots4U - INDUSTRY RELEVANCE

How does the project support the bio-based industry sector throughout Europe?

The project is setting up a network of open access bioeconomy pilot infrastructure. Bio-based industry actors can make use of these infrastructures to scale-up their bioprocess to industrial scale. The bioeconomy sectors covered are: Industrial biotech, Thermal conversion, Chemical conversion, Fractionation and purification, Pulping, Material Technologies, Algal cultivation, Anaerobic digestion, Nutrient recovery



Industrial
Biotechnology



Thermal
conversion



Algal
cultivation



Chemical
conversion



Pulping



Anaerobic
digestion



Fractionation
Purification



Material
technologies



Nutrient
recovery

What can BIC and its members do to support the project?

- Fill in the database: <https://biopilots4u.eu/add-asset>
- Fill in the survey: <https://biopilots4u.eu/survey>
- Subscribe to the Pilots4U newsletter (bottom of website pages)
- Promote the survey/ database in your network
- Use the database from April 2018 onwards
- Attend Pilots4U workshops about
 - Best practices in cooperation with open access infrastructures
 - Expert horizon scan workshop: to obtain expert advice about the gap analysis

Pilots4U - ADDITIONAL INFORMATION

Similar or complementary R&I projects? Collaboration with other projects?

The project partners are all coordinating infrastructure networks in respective bioeconomy fields namely SmartPilots (industrial biotech), Erifore (forest economy), Enalgae (algal cultivation), Brisk (thermochemical conversion), Biorefine (anaerobic digestion and nutrient recovery), BioPilotsUK (UK based bioeconomy pilot network):

Bio Base Europe Pilot Plant is an independent, state-of-the-art facility that operates from a laboratory level to a multi-ton scale. In Pilots4U, Bio Base Europe Pilot Plant is representing the **SmartPilots network**: SmartPilots' objective is to improve regional policies in support of Shared Pilot Facilities to increase their impact on the Key Enabling technology (KET) Industrial Biotech and the bioeconomy. The network consist of the six largest, open access multifunctional pilot facilities active in the Industrial biotech sector.

CLIC Innovation is an open innovation cluster with the mission of creating breakthrough solutions in bioeconomy, energy and cleantech. CLIC's mission is to create comprehensive solutions with global business impact far beyond the capabilities of individual actors.

CLIC is the core local node of global cross-industrial and disciplinary competence network with business relevance. In Pilots4U, CLIC is interacting with the **bio-based industry** in general and the **BIC expert group** in particular.

VTT Technical Research Centre of Finland Ltd is one of the leading research and technology organisations in Europe. In Pilots4U, VTT is representing the **ERIFORE network**: European Research Infrastructure for Circular Forest Bioeconomy is an infrastructure development project under the Horizon 2020 Framework Programme of the European Union. It builds on a firm alliance aiming to establish an open access distributed forest bioeconomy research infrastructure across Europe, enabling scientific discoveries to be transferred to new business models, novel products and services asserting sustainable growth.

KTH Royal Institute of Technology in Stockholm has grown to become one of Europe's leading technical and engineering universities, as well as a key centre of intellectual talent and innovation. In Pilots4U, KTH represents the **BRISK network**: BRISK developed a European Research Infrastructure for Thermochemical Biomass Conversion, supporting R&D on innovative processes to convert second generation sustainable feedstocks (agricultural/forestry wastes and energy crops) into liquid, gaseous or solid fuels. BRISK is a research infrastructure. Its main activity is to fund researchers from any EU country to carry out research at any of the 26 partners' facilities.

Swansea University is a research-led university (Higher Education Institute) with UK charity status. It has a broad remit and expertise in multidisciplinary research topics. In Pilots4U, SU is representing **Algal networks** in which sustainable technologies for algal biomass production, bioenergy and greenhouse gas (GHG) mitigation are developed, taking them from pilot facilities through to market-place products and services.



Ghent University is a top 100 university and one of the most important academic institutions for higher education and scientific research in Belgium. In Pilots4U, UGent represent anaerobic digestion and nutrient recovery networks, through the **Biorefine Cluster Europe**, which is an initiative bridging multiple projects in the domain of nutrient and energy cycling.

ERRIN is a unique Brussels-based platform of more than 120 regional stakeholders organisations most of whom are represented by their Brussels offices. ERRIN promotes knowledge exchange between its members, focusing on joint actions and project partnerships to strengthen regional research and innovation capacities. Through these actions ERRIN seeks to contribute to the implementation of the Europe 2020 Strategy, the Innovation Union flagship initiative and Smart Specialisation strategies. In Pilots4U, ERRIN is representing **European regions**, and is taking care of communication.

NNFCC is a leading consultancy with expertise in the conversion of biomass into bioenergy, biofuels and biochemicals. In Pilots4U, NNFCC is representing the **BioPilotsUK network**: a collaboration created by five established biorefining open-access centres who recognise the importance of partnerships to develop UK bio-based value chains.

What will be done to ensure that outputs will serve the bio-based R&I community?

The database will be publically searchable (expected from April 2018 on <http://biopilots4u.eu>). The network will stay alive after the project end, so that the database stays updated.

RoadToBio - Roadmap for the chemical industry

🖥️ <http://www.roadtobio.eu>

🐦 @RoadToBio

Coordination

DECHEMA GESELLSCHAFT FUER CHEMISCHE TECHNIK UND BIOTECHNOLOGIE E.V.
Jochen Michels - michels@dechema.de



SUMMARY

The focus of the European chemical industry will have to change within the next 15 years because of the diminishing fossil resources, climate change and growing chemical industry in Asia. **RoadToBio's focus on globally competitive bio-based chemicals** will help shape the future of Europe's chemical industry and help to secure jobs in Europe's rural and less developed regions.

Specifically, RoadToBio (Roadmap for the chemical industry in Europe towards a bioeconomy) will **deliver a roadmap and action plan illustrating the 'sweet spots' for Europe's chemical industry** towards the Bioeconomy over the coming decade, up to 2030.

RoadToBio **will create a platform** to bring together the chemical industry, civil society and governing bodies to establish a dialogue on the activities needed to **deliver the full potential of the action plan**.

EXPECTED IMPACTS

RoadToBio will seek to **identify new opportunities for marketable bio-based products** within several branches of the chemicals sector, specifically in the manufacture of:

- Adhesives
- Agrochemicals
- Cosmetics
- Lubricants
- Man-made fibres
- Paints / coatings / dyes
- Plastics / polymers
- Solvents
- Surfactants

RoadToBio will strengthen existing bio-based value chains and aid the development of new ones by **connecting and expanding existing networks** within the bioeconomy.

START DATE

01 May 2017

END DATE

30 April 2019

BBI-JU CONTRIBUTION

€ 996,820

RoadToBio - CONSORTIUM PARTNERS

DECHEMA Gesellschaft für Chemische Technik und Biotechnologie e.V.

Germany - http://dechema.de/dechema_eV/en/

BIOMASS TECHNOLOGY GROUP BV (BTG)

The Netherlands - <http://www.btgworld.com>

E4TECH (UK) Ltd.

United Kingdom - <http://www.e4tech.com/>

NOVA-INSTITUT FÜR POLITISCHE UND ÖKOLOGISCHE INNOVATION GMBH

Germany - <http://www.nova-institute.eu/>

RoadToBio - OBJECTIVES

In order to meet the societal needs and help shape the future of the industry, a roadmap is being developed which will outline a path for achieving a 30 per cent share of bio-based products in the organic chemical industry in 2030 (as compared to 12 per cent in 2016)

How will the project achieve the objectives?

RoadToBio will create

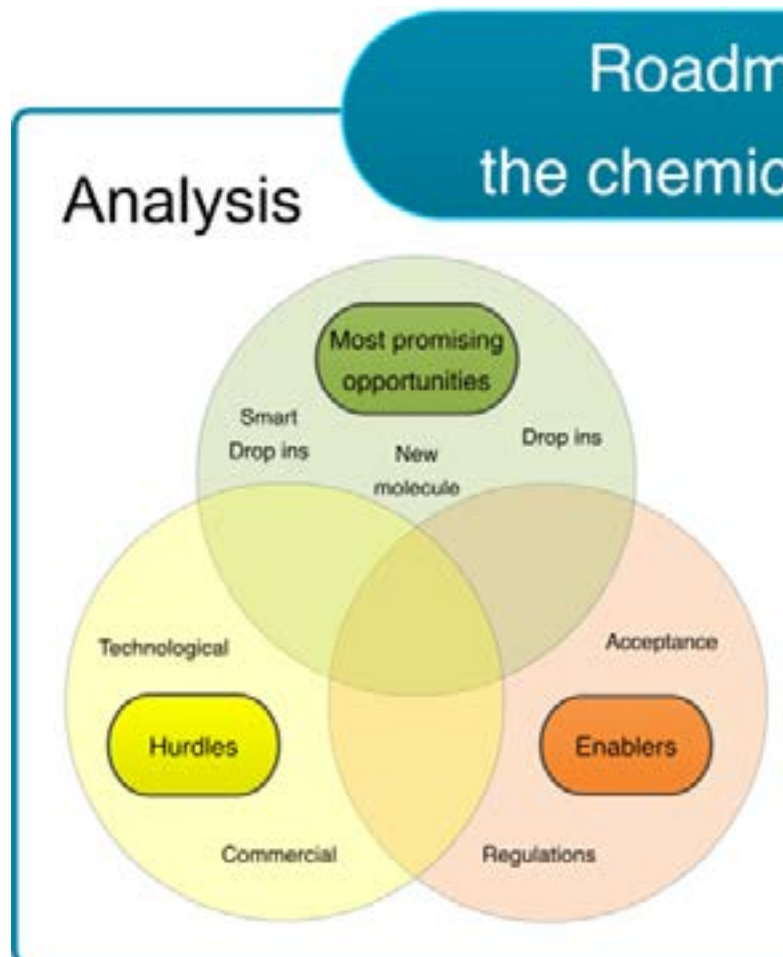
- an overview of
 - the current status of the bio-based portfolio of the chemical industry, and how bio-based products can compete with fossil-based ones
 - new markets (or chemical industry sectors) where bio-based feedstocks or intermediates can play a role
 - the business case of several 'sweet spots' (the most attractive opportunities according to the priorities of the chemical industry)
- a series of dialogues (e.g. workshops) with the chemical industry:
 - Connecting different chemical companies (both bio and fossil-based), to create support within the sector for jointly pursuing BBI targets.

- Connecting the chemical industry with governmental organisations, to help communicate the chemical industry's critical role as a driver of change into the bioeconomy (and the circular economy), and for the removal of regulatory hurdles.
- Connecting the chemical industry with non-governmental organisations, to help identify societal needs and show the benefits of bio-based products, with a view to increasing public awareness and trust.

RoadToBio - DELIVERABLES

Results until today?

As outcome of the first stakeholder workshop a paper on "Bio-based drop-in, smart drop-in and dedicated chemicals" has been published by partner nova (available on the RoadToBio webserver)



Public deliverables are also available on the RoadToBio webserver:

- Public perception of bio-based products
- Bio-based opportunities for the chemical industry
- Webinar: The best of two worlds – making chemicals more biobased

What is still to be done?

The consortium will develop

- reports on regulatory barriers and ways to overcome them
- a qualitative analysis of social stakeholders' concerns

- a set of nine business cases for the introduction of bio-based products in the chemical industry which all feed into the roadmap and the action plan.

RoadToBio - INDUSTRY RELEVANCE

How does the project support the bio-based industry sector throughout Europe?

RoadToBio will deliver a roadmap and action plan illustrating the 'sweet spots' for Europe's chemicals industry towards the bioeconomy over the coming decade, up to 2030.

Industry will receive an analysis of business opportunities, combined with an overview of non-technical issues to be addressed (e.g. legal barriers) as well as consumer attitudes which will influence the future market developments of bio-based chemicals.

What can BIC and its members do to support the project?

BIC members are already supporting the project with an Industry Expert Group with experts from some BIC members.

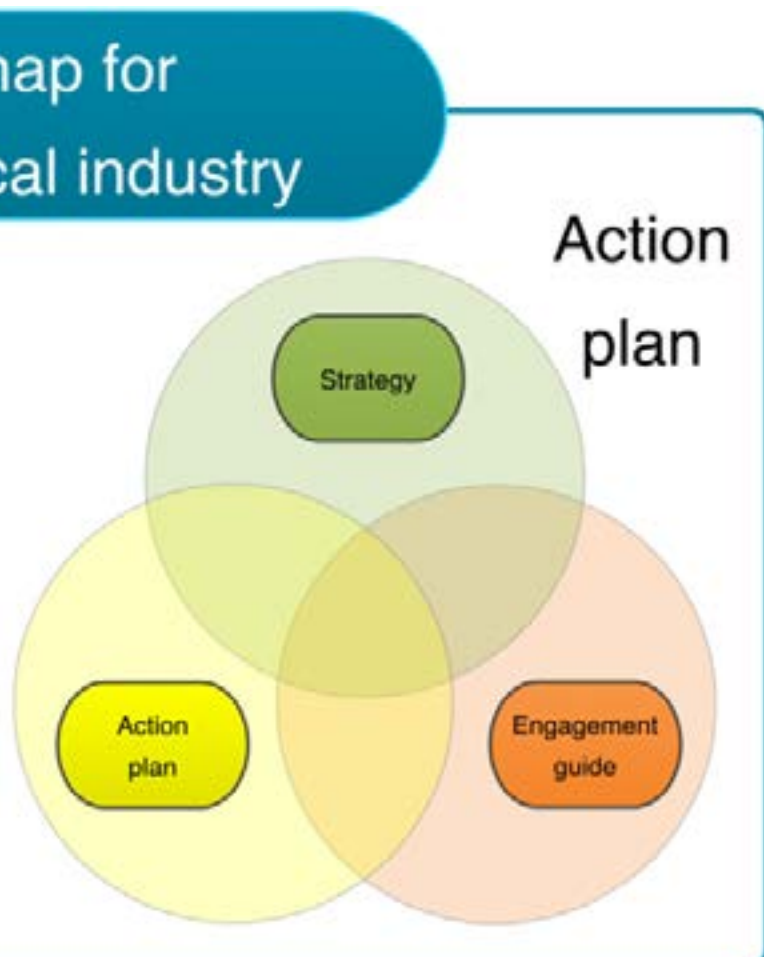
RoadToBio - ADDITIONAL INFORMATION

Similar or complementary R&I projects? Collaboration with other projects?

We are aware of complementary CSA projects like BioCannDo, BIOWAYS, and STAR4BBI and are in contact with the coordinators.

What will be done to ensure that outputs will serve the bio-based R&I community?

The outputs will be served to the bio-based R&I community by webinars, workshops and newsletters. Finally, the roadmap will be advertised and distributed to the existing networks of the project partners as well as to the stakeholders, we get in contact with during the project term.



STAR4BBI - Standards and regulations



 <http://www.bio-basedeconomy.eu/projects/star4bbi>  @STAR4BBI

Coordination

NEDERLANDS NORMALISATIE INSTITUUT/NETHERLANDS STANDARDIZATION INSTITUTE (NEN)
Ortwin Costenoble - Ortwin.Costenoble@nen.nl

SUMMARY

A proactive regulatory approach is an important driver in developing emerging industries and attracting investment. Similarly, a proactive approach to **standardisation** can help harmonise supply chains and create an environment that stimulates investment by reducing risks and offering a better potential return on investment.

The STAR4BBI (*Standards and regulations for the bio-based industry*) project will help establish a coherent, well-coordinated and favourable regulatory framework that helps develop a cutting-edge bio-based economy for Europe.

STAR4BBI will support adaption of the regulatory framework and of relevant standards for selected existing value chains and the development of new value chains based on biomass from forests, from agriculture and from organic waste.

EXPECTED IMPACTS

- To contribute to an improved access to market, access to feedstock of bio-based products and thereby the achievement of a shorter time to market for bio-based products and materials
- Contribute to more coherent policy environment, better interrelations between regional, national, EU and global bioeconomy policies
- Contribute to the removal of barriers to investments to grow towards a bioeconomy, for example link to waste legislation
- Specific proposals to amend existing legislation or for new legislation regulations to promote the factual cooperation in joint projects by actors across sectors and value chains
- Concrete support of the European Standardization Body, CEN, to improve horizontal aspects for better integration across boundaries
- New standards providing increased commonality between different bio-based industrial sectors
- Commonly agreed vocabulary throughout value chains, from feedstock suppliers to biorefining to downstream actors in the application sectors

START DATE

01 September 2016

END DATE

30 August 2019

BBI-JU CONTRIBUTION

€ 995,880

STAR4BBI - CONSORTIUM PARTNERS

NEDERLANDS NORMALISATIE INSTITUUT (NEN)

The Netherlands - <https://www.nen.nl/>

TECHNISCHE UNIVERSITÄT BERLIN (TUB)

Germany - <http://www.tu-berlin.de/menue/home/>

WAGENINGEN UNIVERSITY AND RESEARCH (WUR)

The Netherlands - <https://www.wur.nl/>

NOVA-INSTITUT FÜR POLITISCHE UND OEKOLOGISCHE INNOVATION GMBH

Germany - <http://www.nova-institute.eu/>

STAR4BBI - OBJECTIVES

- To establish a coherent, well-coordinated and favourable regulatory framework for supporting the development of a cutting-edge bio-based economy for Europe, through selection and assessment of example bio-based product value chains
- To support the adaption of the regulatory framework and of relevant standards for the full deployment of selected existing value chains and for the concrete development of new value chains based on biomass from forests, from agriculture and from organic waste
- To promote a level playing field for bio-based products

How will the project achieve the objectives?

STAR4BBI will support adaption of the regulatory framework and of relevant standards for selected existing value chains and the development of new value chains based on biomass from forests, from agriculture and from organic waste. The project partners have identified 7 value chains to be evaluated more closely. Interviews have been conducted with the case studies as well as the entire value chains to get to the roots of the problems and challenges in the bio-based economy. The (preliminary) hurdles have been identified and the project consortium is working

on the development of appropriate solutions. In the next steps a forward-looking analysis of regulations, standards and investment will be carried out. As an output, recommendations will be given to policy makers and companies in order to address identified hurdles, streamline legislation and improve market conditions. In parallel, suggestions will be made to CEN for harmonized and improved standards for bio-based products.

STAR4BBI - DELIVERABLES

Results until today?

2 interview rounds with the operators of selected value chains have been conducted so far. The list of (preliminary) hurdles has been identified.

As a first step, the consortium carried out a screening of the existing bio-based value chains in Europe and identified the most relevant ones for which key stakeholders were involved. After the analysis of the collected value chains, seven value chains were chosen:

- Poly-lactic acid (PLA) intermediates and foam for construction works based on sugar and starch
- Building blocks for bio-based plastics processed from vegetable oils
- Pine chemicals from wood and forestry by-products
- Succinic acid from starch
- Packaging based on wood and starch derivatives
- Biorefining cellulosic fibres into diverse lignin-based components
- Oleochemical products, mainly metal soaps for industrial applications, especially plastic additives

What is still to be done?

More interviews will be conducted to tackle challenges around standards and technology trends.

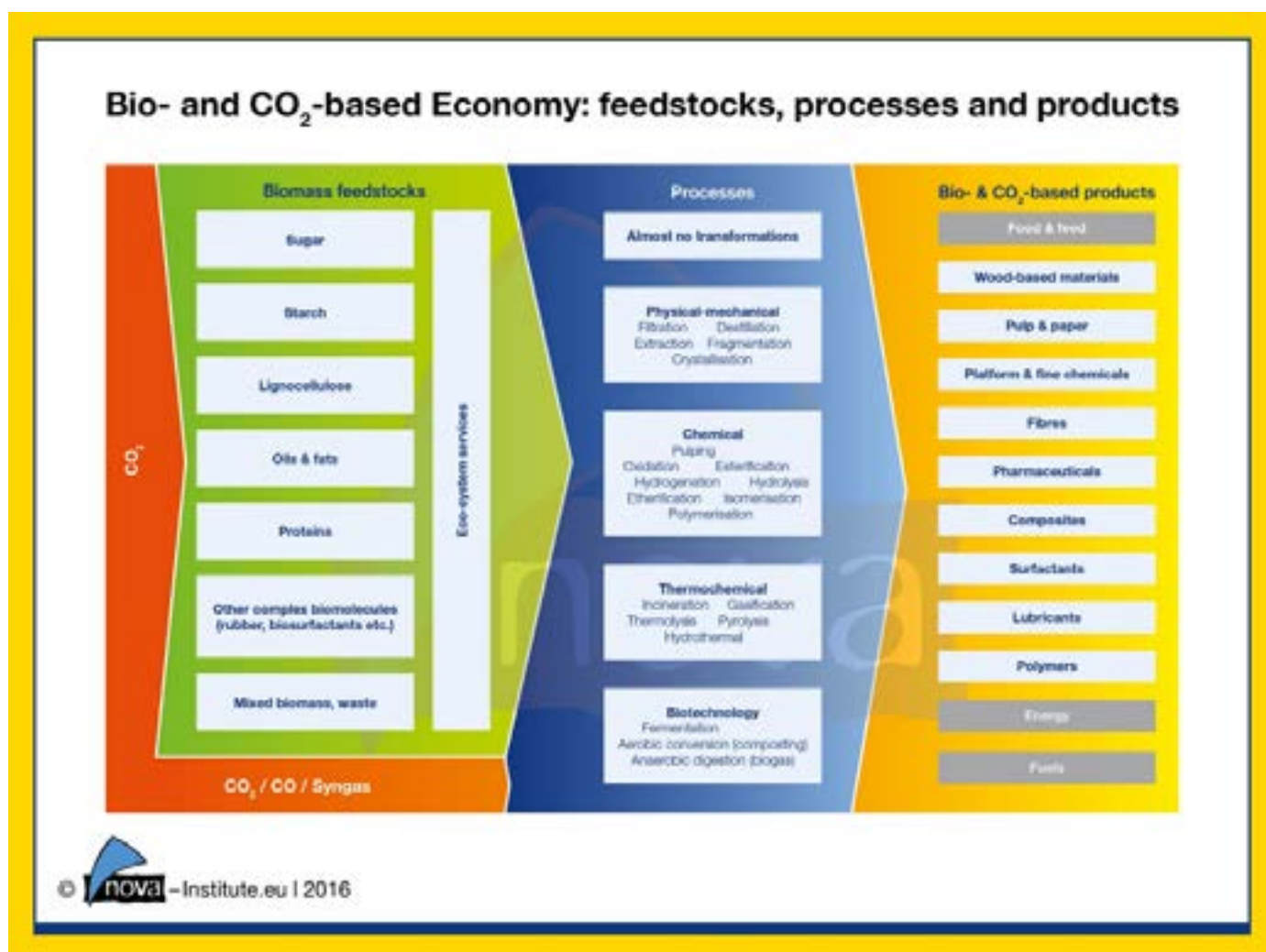
At the end of the project, a regulation action plan will be produced to propose amendments to existing regulation or to develop new (European) regulations and links to standards therein.

Currently, the consortium is working on identifying the market entry barriers. The companies operating in the several parts across the selected value chains will be interviewed to collect data on the hurdles they face to enter and remain competitive in the market. For all value chains, the project focuses on foresight activity on regulations, standards and investment.

Technological trends in selected value chains will be analysed and surveys on the supportive regulatory and standardisation frameworks will be carried out to develop proposals for the future supportive and investment-friendly regulatory and standardisation framework for rapid technological changes of the bio-based economy.

In the final phase of the project, concrete suggestions will be made how to integrate the results into standards and regulations and they will be disseminated to decision makers.

A selection of rules and regulatory items that are in most need of removal or that show the best chance for successful adaptation will be selected.



STAR4BBI - INDUSTRY RELEVANCE

How does the project support the bio-based industry sector throughout Europe?

A proactive regulatory approach is an important driver in developing emerging industries and attracting investment. Similarly, a proactive approach to standardisation can help harmonise supply chains and create an environment that stimulates investment by reducing risks and offering a better potential return on investment. The STAR4BBI project will help establish a coherent, well-coordinated and favourable regulatory framework that helps develop a cutting-edge bio-based economy for Europe.

What can BIC and its members do to support the project?

BIC members can help evaluate the (interim) results of the project to check the accurateness of the identified hurdles and proposed solutions.

STAR4BBI - ADDITIONAL INFORMATION

Similar or complementary R&I projects? Collaboration with other projects?

At the kick-off meeting we organized a get together with one of the other BBI-JU projects that was just about to start: BioCannDo. We exchanged some information but concluded that the objectives are too far apart to collaborate.

What will be done to ensure that outputs will serve the bio-based R&I community?

As mentioned before, the STAR4BBI project will help establish a coherent, well-coordinated and favourable regulatory framework that helps develop a cutting-edge bio-based economy for Europe. This proposed regulatory framework will support the development of the bio-based community.





 <http://biconsortium.eu>

 **biconsortium**

Bio-based Industries Consortium

European Forestry House | Rue du Luxembourg 66 | B-1000 Brussels | Belgium
info@biconsortium.eu