

Funding opportunities for bio-based industries in Europe

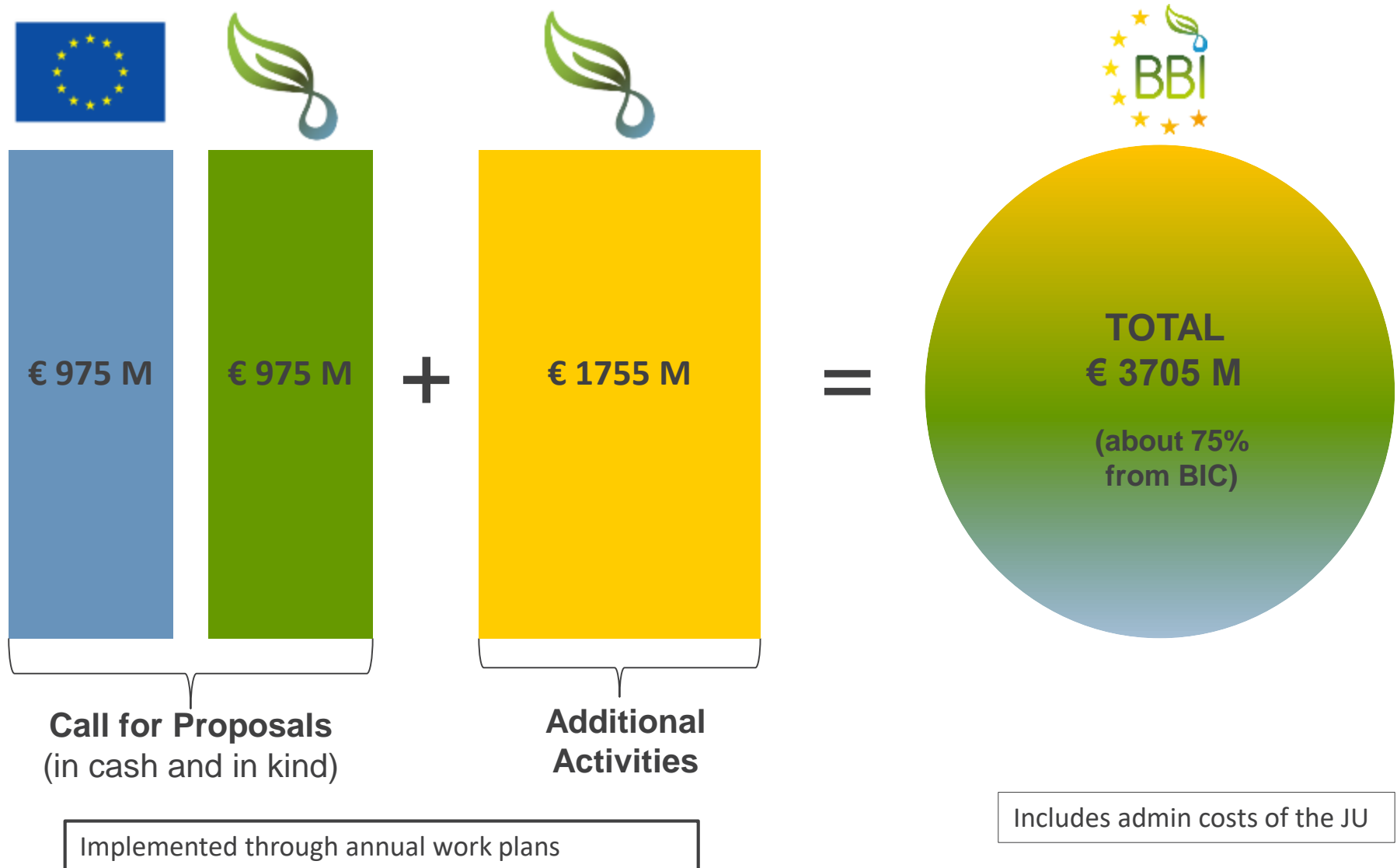


Nelo Emerencia
Programming
Brussels, 230517

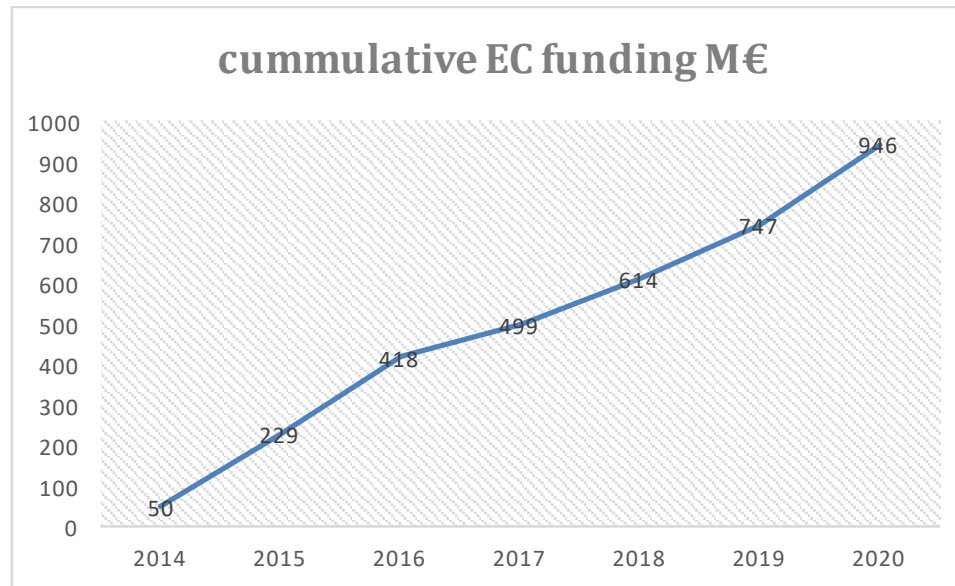
 Bio-based Industries
Consortium



A € 3,7 billion public-private partnership



Public funding of operational costs



Through 2017 actual; 2018-2020 projection is preliminary

Funding rates per action

Participant	RIA	IA	CSA
Large Industries	/	70%	/
SMEs	100%	70%	100%
Non profit, legal entities (Universities, RTOs, NGOs etc.)	100%	100%	100%

Financial Regime in BBI JU Calls

Industry-driven programme



the commitment of the industry is crucial

- RIA and CSA: no funding for large companies
→ specific for BBI JU
- Innovation Actions: 70% reimbursement rate
→ common for H2020

Consortium own contribution

- requesting less than funding rate
- « Additional investments »
→ specific for BBI JU

**Is positive
in evaluation**

Consortium own contribution

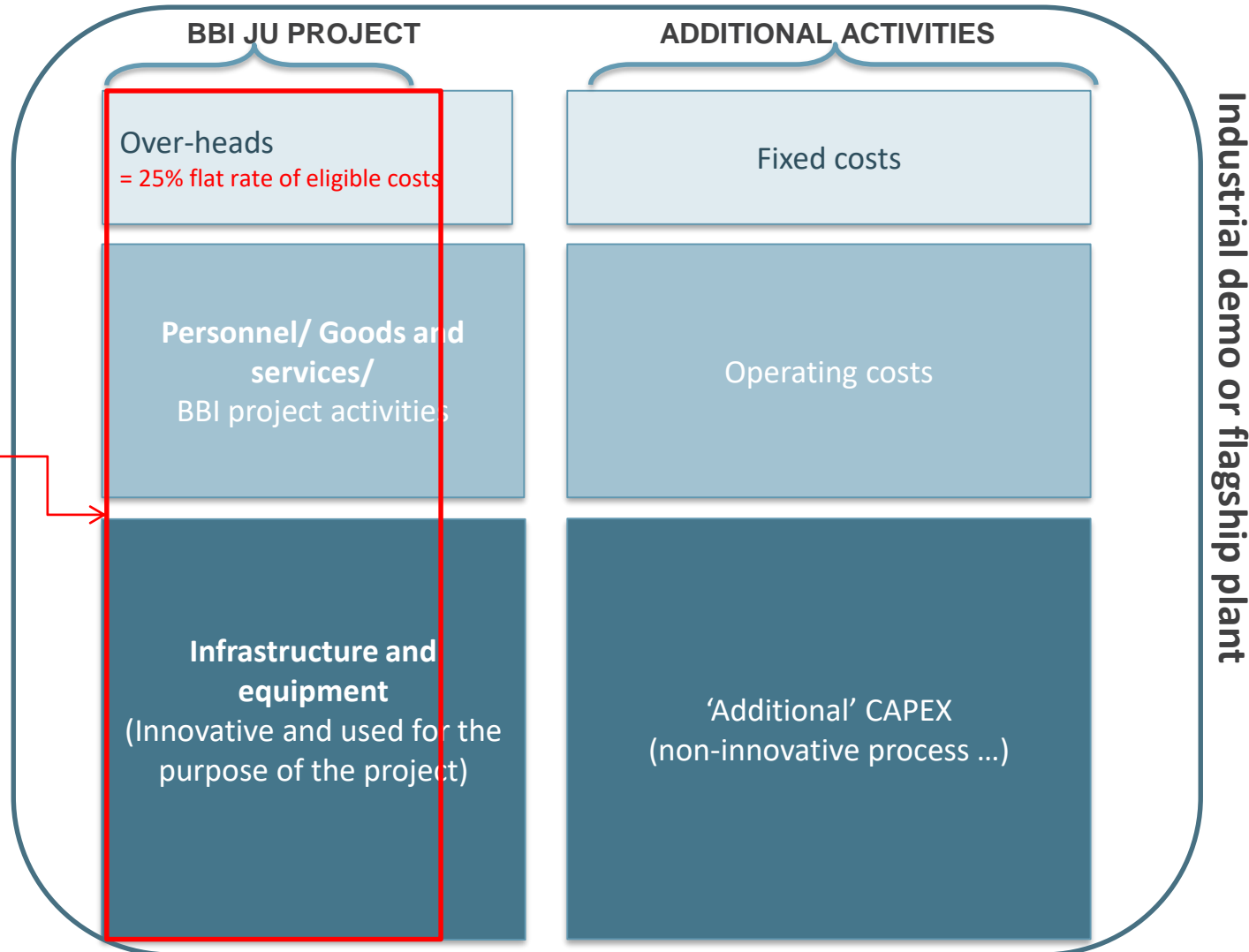
Industrial Contribution is crucial

BBI JU policy is to use public funds as **leverage for private investments**

3 types of own contribution

- **In kind:**
 - LE, in RIA and CSA: 100% of their eligible costs is own contribution – industry commitment
 - IA: up to 70% is funded, but the request can be less → visible in Part A (budget)
- **In cash:** cash contribution given to one or more partners
- **Additional investments :** Activities outside the annual work plan of the BBI JU, but contributing to the objectives of the BBI Initiative

BBI project in an industrial context



FEEDSTOCK SUPPLY

- specialty crops forest 'waste' / 'new algae' / CO₂ / recycled bio-based materials

PROCESSING

- New technologies e.g. metagenomics, metabolic engineering and synthetic biology

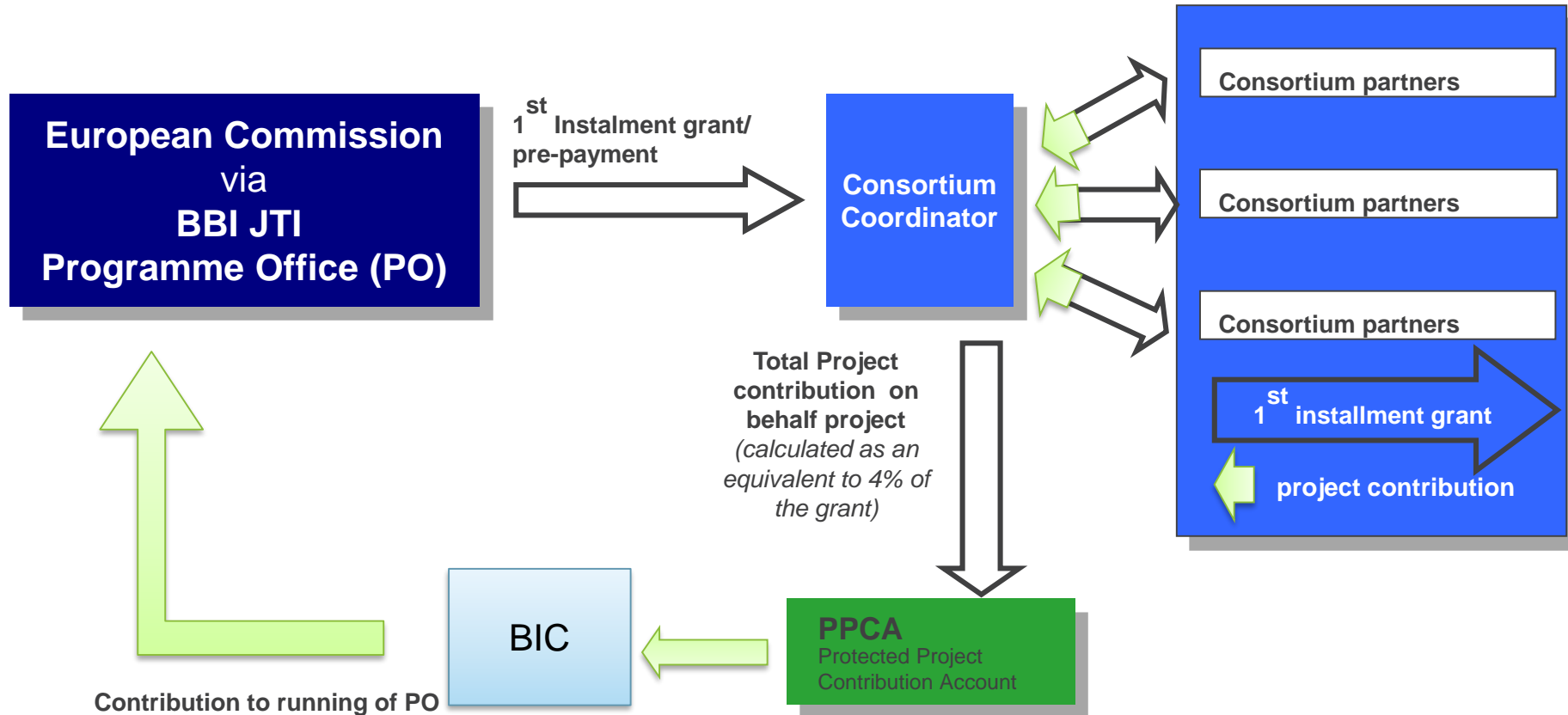
PRODUCTS

- Bio-based aromatics (*either specific aromatic building blocks or 'functionalised' molecules.*)
- Breakthrough bio-based chemicals without significant fossil-based counterparts for application in high-value market segments.

Would otherwise be 100% financed by (large) companies

- Within BBI: get co-funded 50-60%
- Need to resolve IPR issues

4% project contribution collection process



Improve access to finance

- **Combining EU funds to maximise impact**
 - **Guidelines on BBI-ESIF synergies** developed by BIC
 - WHAT can be co-funded in a given project
 - HOW to approach these synergies
- **European Structural and Investment Funds (ESIF)**
 - > € 250 billion in several financial instruments
- **The Investment Plan for Europe (Juncker Plan)**
 - €315 billion over 2015-2017 in several financial instruments
 - Incl. European Fund for Strategic Investments (EFSI)
- **InnovFin – EU finance for innovators**
 - European Investment Bank + European Investment Fund
 - Several financial instruments
- **Identifying bottlenecks and hurdles for investment in EU**
 - Awaiting report



A photograph of a misty forest with tall, thin trees. Sunlight is filtering through the canopy, creating a hazy, golden atmosphere. The ground is covered in fallen leaves and low-lying vegetation.

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Investments & examples

BIOSKOH – NOVEL SECOND GENERATION BIOREFINERY



PROJECT DETAILS

Type of project:	BBI-Flagship
Start date:	June 2016
Duration:	4 years
Total cost:	€30 million
Industry investment:	€9 million
Headquarters:	Tortona, Italy
Website:	www.bioskoh.eu

ABOUT THE PROJECT

A circular bioeconomy project, BIOSKOH will transform a brownfield industrial site in eastern Slovakia into a 55 kton cellulosic ethanol production facility.

PROJECT AIMS

A flagship research project, BIOSKOH will demonstrate a first-of-its kind commercial-scale second-generation biorefinery.

Boosting the sustainable conversion of renewable biomass into bio-based products, chemicals and energy is central to Europe's transition towards a sustainable bioeconomy. Currently, there are no full-scale producers of second generation (2G) bioethanol in Europe. BIOSKOH aims to change this by using 'Innovation Stepping Stones' to produce cellulosic ethanol for EU biofuel mandates.

The project will also explore emerging bio-based materials, such as lignin and bioethylene.

BIOSKOH – NOVEL SECOND GENERATION BIOREFINERY

EXPECTED RESULTS

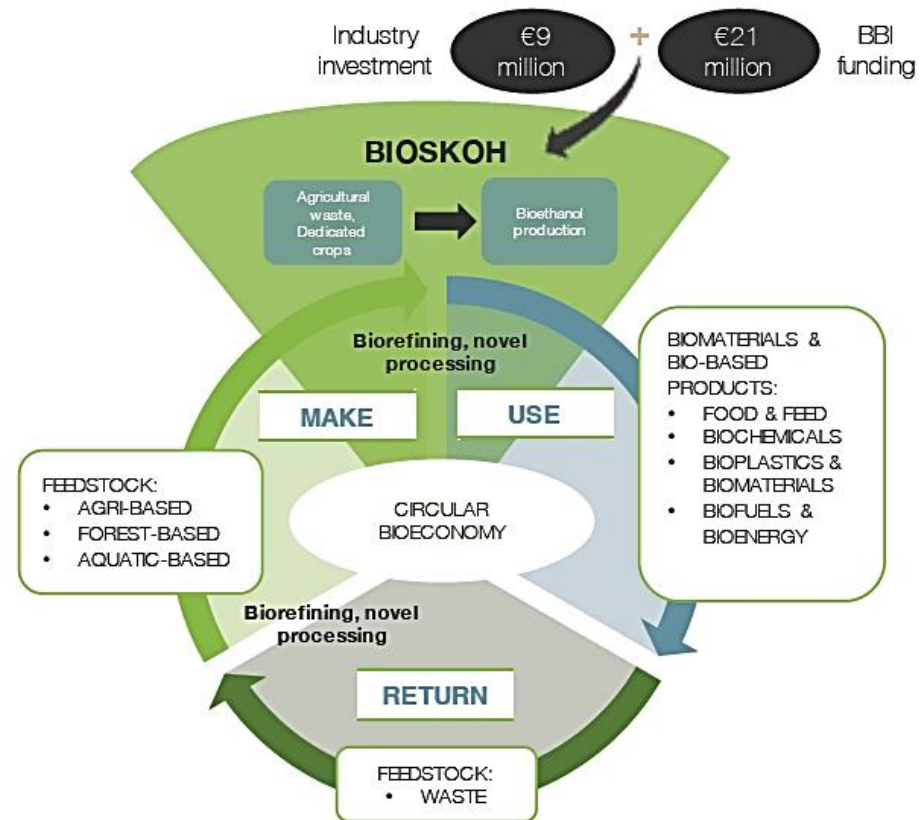
Establish cross-industry collaboration between the agro-industry, bio-based, chemical and energy industries to build a first-of-its-kind second generation (2G) bioethanol refinery.

Develop a novel bio-based value chain and improve regional infrastructure. Make new storage and shipment facilities for agricultural products available to local farmers and businesses.

Introduce farmers to new biomass uses, which will help them to diversify, seize new business opportunities and exploit currently under-used resources.

Verify, optimise and upscale design and process solutions already proven at pilot/demo scale. Pave the way for a second-stage investment to scale-up the biorefinery to 110 kton.

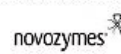
Create an estimated 160 direct and 500 indirect jobs (in both energy and biotechnology) across the value chain.



PROJECT PARTNERS



AGRICONSULTING



FIRST2RUN – INTEGRATED BIOREFINERY FOR DRY CROPS



PROJECT DETAILS

Type of project:	BBI-Flagship
Start date:	July 2015
Duration:	4 years
Total cost:	€25 million
Industry investment:	€8 million
Headquarters:	Novara, Italy
Website:	www.first2run.eu

“We believe that the Bio-Based Industries Joint Undertaking, through this first flagship project, can produce a decisive acceleration towards a circular bioeconomy, creating not only new knowledge but also opportunities for economic growth and employment in Europe,” Novamont CEO Catia Bastioli.

ABOUT THE PROJECT

A flagship demonstration of an integrated biorefinery for the sustainable transformation of dry crops into bio-based materials.

PROJECT AIMS

By setting up a value chain which integrates the regional agricultural sector with a new biorefinery, First2Run will demonstrate how low-input and underutilised oil crops like cardoon, grown in arid and/or marginal lands, can be used in biomaterials. A 50/50 joint venture (JV), this project will see the reconversion of the Porto Torres petrochemical site into a biorefinery with an integrated production chain for chemical intermediates.

The biorefinery will make use of every fraction (cascading use of biomass) to produce chemicals and animal feed. An agreement between Novamont and Coldiretti (the Italian Farmer's Federation) will ensure the biorefinery is the centrepiece of a circular economy model.

FIRST2RUN – INTEGRATED BIOREFINERY FOR DRY CROPS

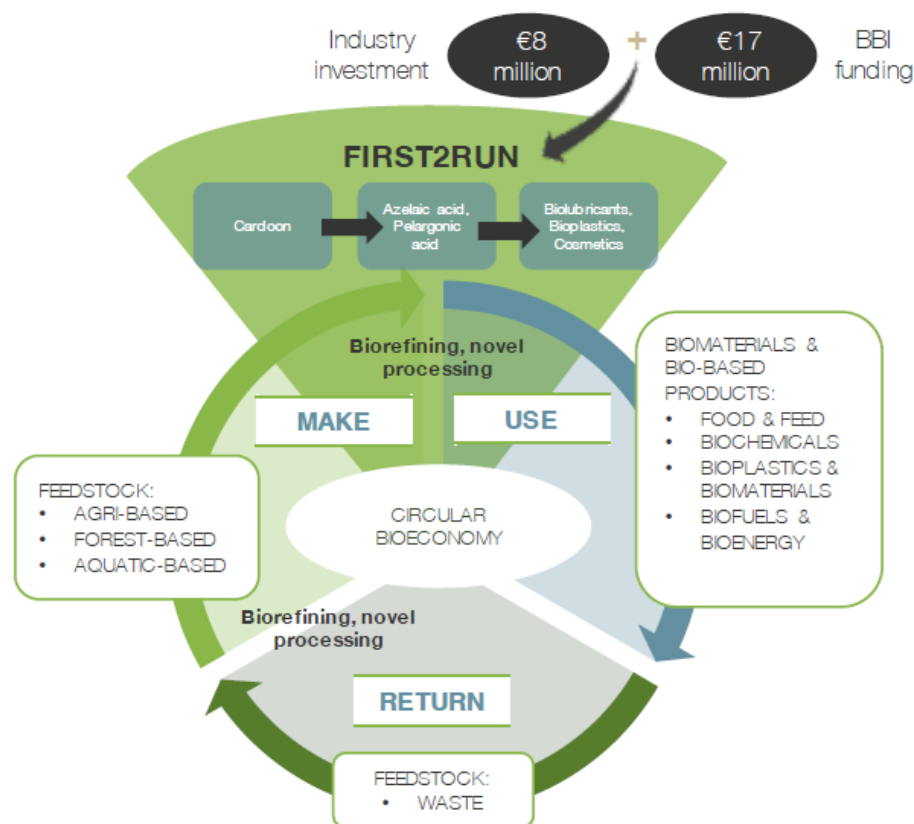
EXPECTED RESULTS

Cultivate cardoon on a large-scale (up to 3.5 kha) with the support of local farmers and using low-input, optimised agricultural tools.

Reduce consumption of thermal and electric energy for chemical processes by up to 50% and 20% respectively. Apply sustainable, cost-effective and innovative catalytic and biocatalytic processes for the production of bio-based building blocks (such as azelaic acid, pelargonic acid and glycerol).

Manufacture bio-based azelaic and pelargonic acid in a plant with a production capacity of up to 10,000 tons/year for each acid. Demonstrate batch production of biodegradable esters of up to 20,000 tons/year.

Reduction in greenhouse gas (GHG) emissions by 35%.



PROJECT PARTNERS



FUNGUSCHAIN – MUSHROOM RESIDUE TRANSFORMATION



PROJECT DETAILS

Type of project:	BBI-Demo
Start date:	November 2016
Duration:	4 years
Total cost:	€8 million
Industry investment:	€2.3 million
Headquarters:	Amsterdam, the Netherlands
Website:	www.funguschain.eu

"Funguschain is a highly integrated project with a unique consortium specialising in various elements across a range of value chains. It brings together leading scientists and companies, who from the project outset have worked closely together to make this challenging project a success. Funguschain will provide an important example of a new way of working in the bio-based economy," Dr Bart van der Burg, Director of Innovation at BDS.

ABOUT THE PROJECT

Funguschain will use novel cascading processes to extract high-value molecules from fungal residue to meet end-user needs in the food, cleaning and plastics sectors.

PROJECT AIMS

The European mushroom farming industry generates over 60,000 tons of agri-residues each week. Funguschain aims to transform this waste into bio-based additives, bioplasticisers and biopolymers using innovative new procedures.

The project will demonstrate the industrial viability of building a new biorefinery which uses cost-effective extraction technologies and transforms more than 65% of the mushroom waste into valuable additives.

FUNGUSCHAIN – MUSHROOM RESIDUE TRANSFORMATION

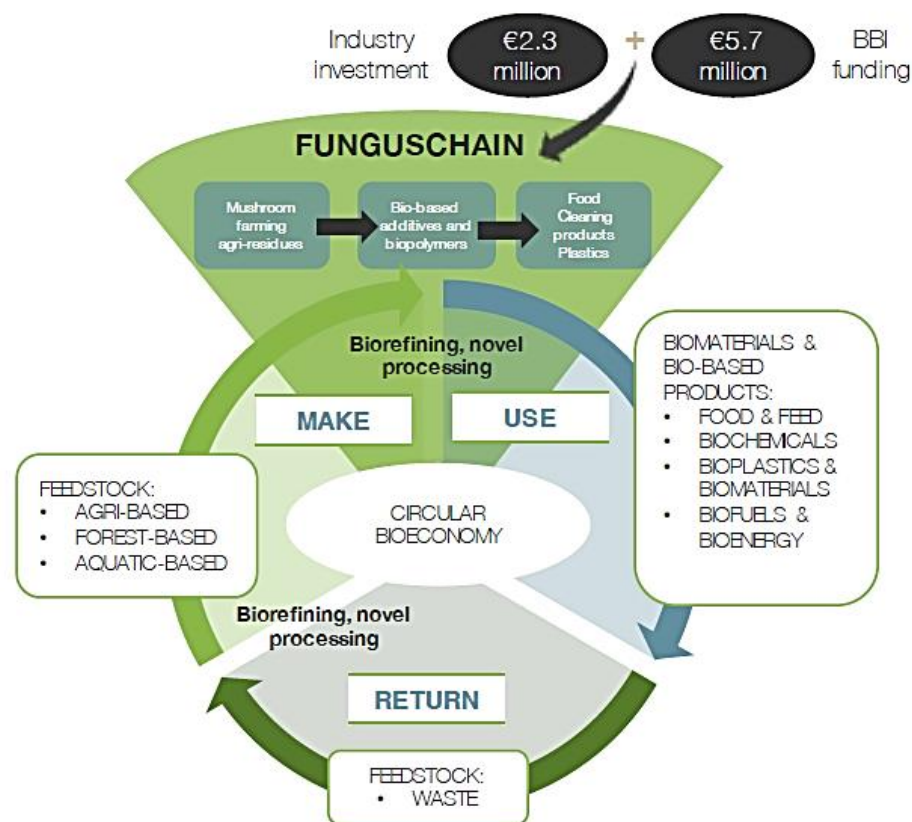
EXPECTED RESULTS

Make use of new cascading processes in a new biorefinery to extract high-value molecules from fungal residues. Use any remaining residues for composting or biogas synthesis.

Define, demonstrate and validate five new product types including food supplements, cleaning products, thermoplastic masterbatches, plasticisers and industrial films.

Improve the environmental performance and cost efficiency of resulting products.

Boost innovation in agricultural waste management and establish circular economy business models.



PROJECT PARTNERS



BIOFOREVER – CONVERSION OF WOODY BIOMASS



PROJECT DETAILS

Type of project:	BBI-Demo
Start date:	September 2016
Duration:	3 years
Total cost:	€16 million
Industry investment:	€6 million
Headquarters:	Heerlen, the Netherlands
Website:	www.bioforever.org

"MetGen has always been enthusiastic about building new industrial value chains through collaboration. Bioforever brings together technologies with great potential for Europe and unifies professionals behind them to tackle the ambitious goal of enabling the next generation of biorefining industry," Matti Heikkilä, Chief Technical Officer, MetGen Oy.

ABOUT THE PROJECT

Bioforever will demonstrate the conversion of woody biomass to value-added chemical building blocks like butanol, ethanol and 2,5-furandicarboxylic acid (FDCA) on an industrial scale.

PROJECT AIMS

Woody biomass, including waste wood will be converted to lignin, (nano-) cellulose and (hemi-) cellulosic sugars and further converted to lignin derivatives and chemicals. Feedstocks will be benchmarked with crop residues and energy crops.

A number of pre-treatment and conversion technologies will be demonstrated, as well as routes for commercialising the most promising value chains. The project will establish optimal feedstock, biorefinery technology, end-product and market combinations to offer competitive value-added products for the European bioeconomy.

BIOFOREVER – CONVERSION OF WOODY BIOMASS

EXPECTED RESULTS

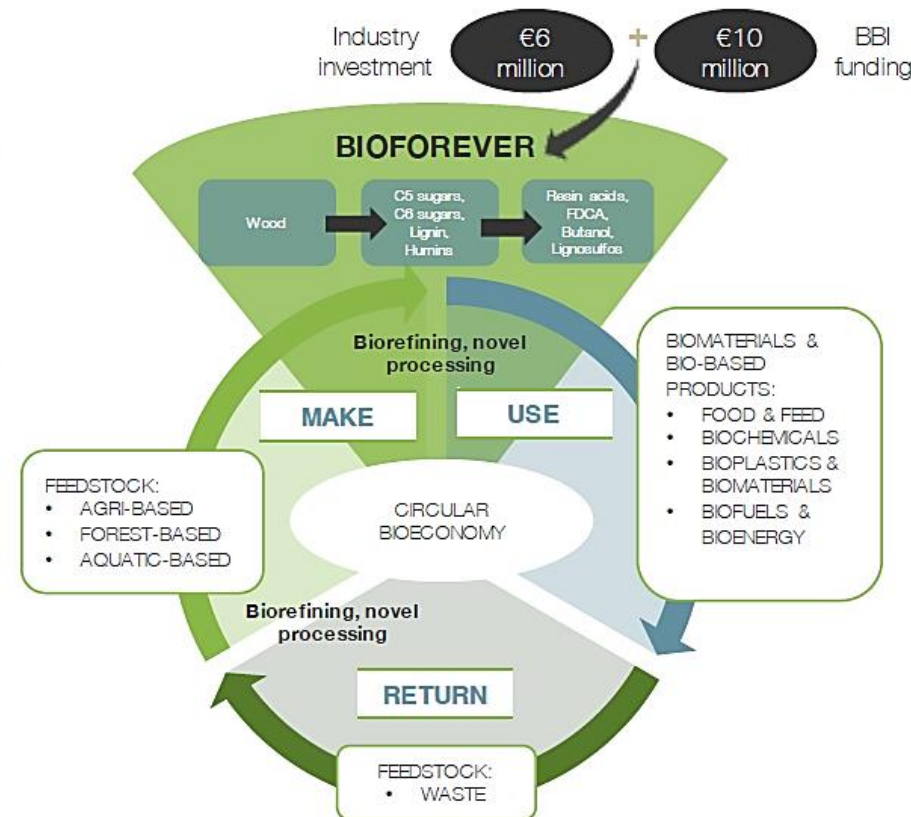
Establish conversion routes to transform woody biomass into intermediates (such as cellulose, C5/C6 sugars, lignin and humins) and further transform these intermediates into six bio-based building blocks (such as carbon binders, butanol, resin acid, enzymes and FDCA).

Demonstrate five lignocellulosic (LC) value chains at pre-industrial scale for the selected final products. Develop three pathways to exploit industrial side-streams using four different cascading biorefinery concepts.

Generate competitive bio-based products which match or outperform existing fossil-based products in terms of cost and product performance.

Achieve up to 85% reductions in CO2 emissions compared to fossil-based value chains.

Create 1,200 direct jobs and 6,000-7,500 indirect jobs in the agricultural /forestry sector by sourcing European biomass.



PROJECT PARTNERS

