Circular Bio-based Europe Joint Undertaking

Circular Bio-based Europe Joint Undertaking: driving innovations for SMEs

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Bio-based Industries Consortium

Co-funded by the European Union

Advancing a competitive bioeconomy for a sustainable future

CBE JU is funding projects that deliver bio-based solutions – materials and products made from waste and biomass – in an innovative, sustainable and circular way

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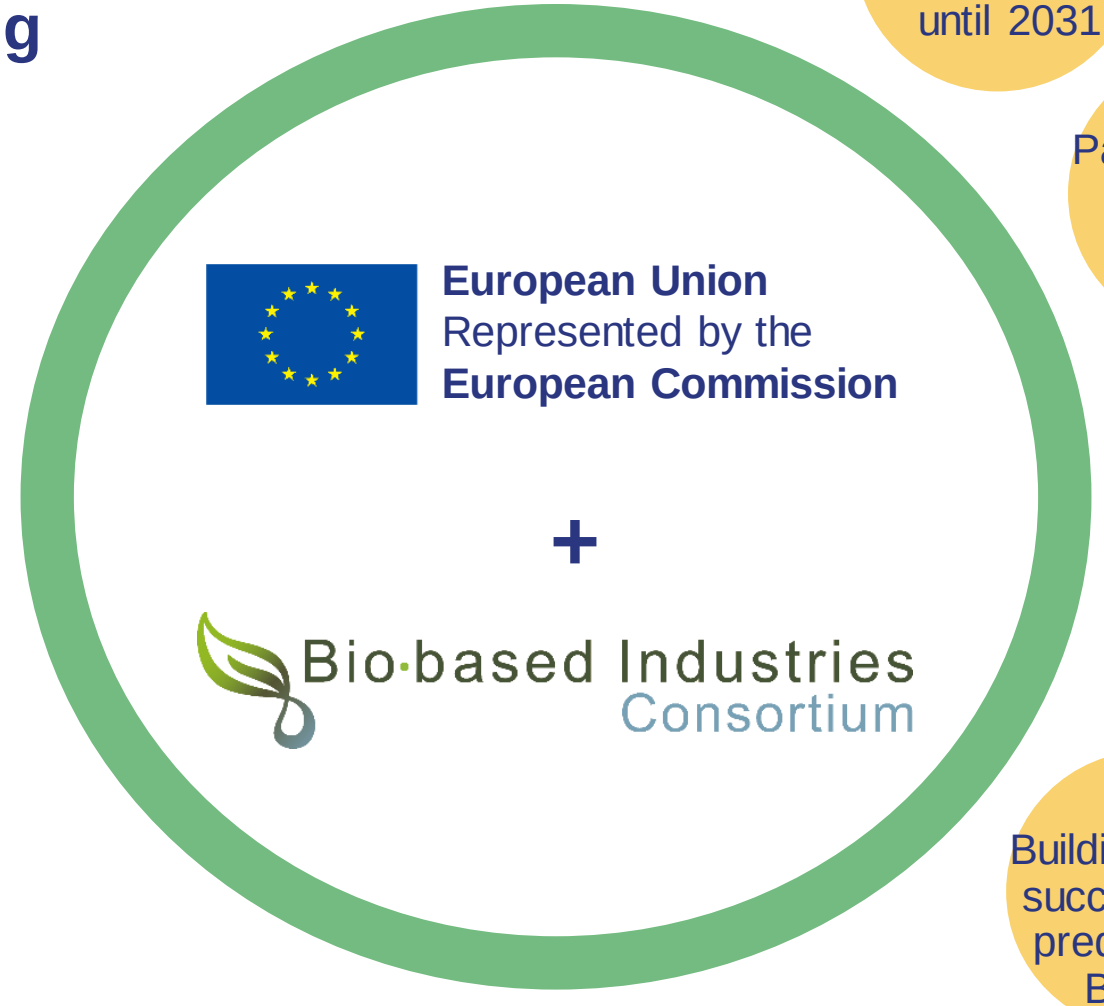
€2 billion public-private initiative



Launched in 2021, operates until 2031

Part of Horizon Europe programme

Contributing to the European Green Deal

Building on the success of its predecessor BBI JU

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Established by the Council regulation (EU) 2021/2085 of 19 November 2021

Along with 8 other institutionalised partnerships

CLEAN AVIATION

5G PPP The 5G Infrastructure Public Private Partnership

EDCTP

sesar JOINT UNDERTAKING

Clean Hydrogen Partnership

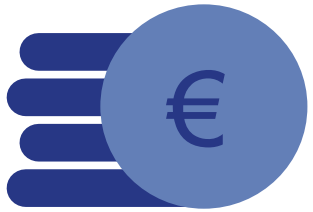
innovative health initiative

Europe's Rail

KDT JU KEY DIGITAL TECHNOLOGIES JOINT UNDERTAKING

CBE JU general objectives

Accelerate the **innovation** process and development of bio-based innovative solutions



Accelerate **market deployment** of the existing mature bio-based innovative solutions

Ensure a high level of **environmental performance** of bio-based industrial systems

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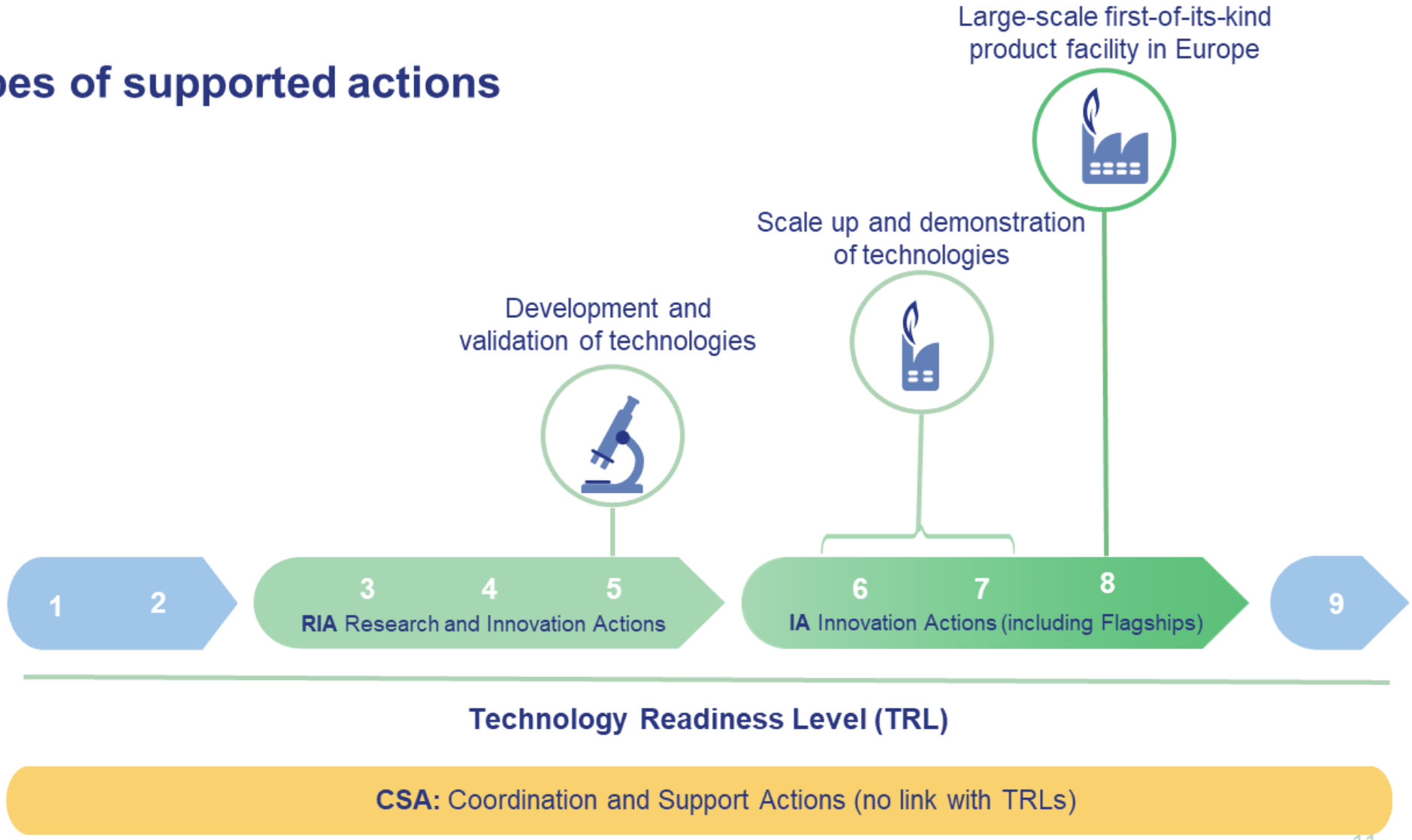
From strategy to implementation

Types of supported actions



2014-2024

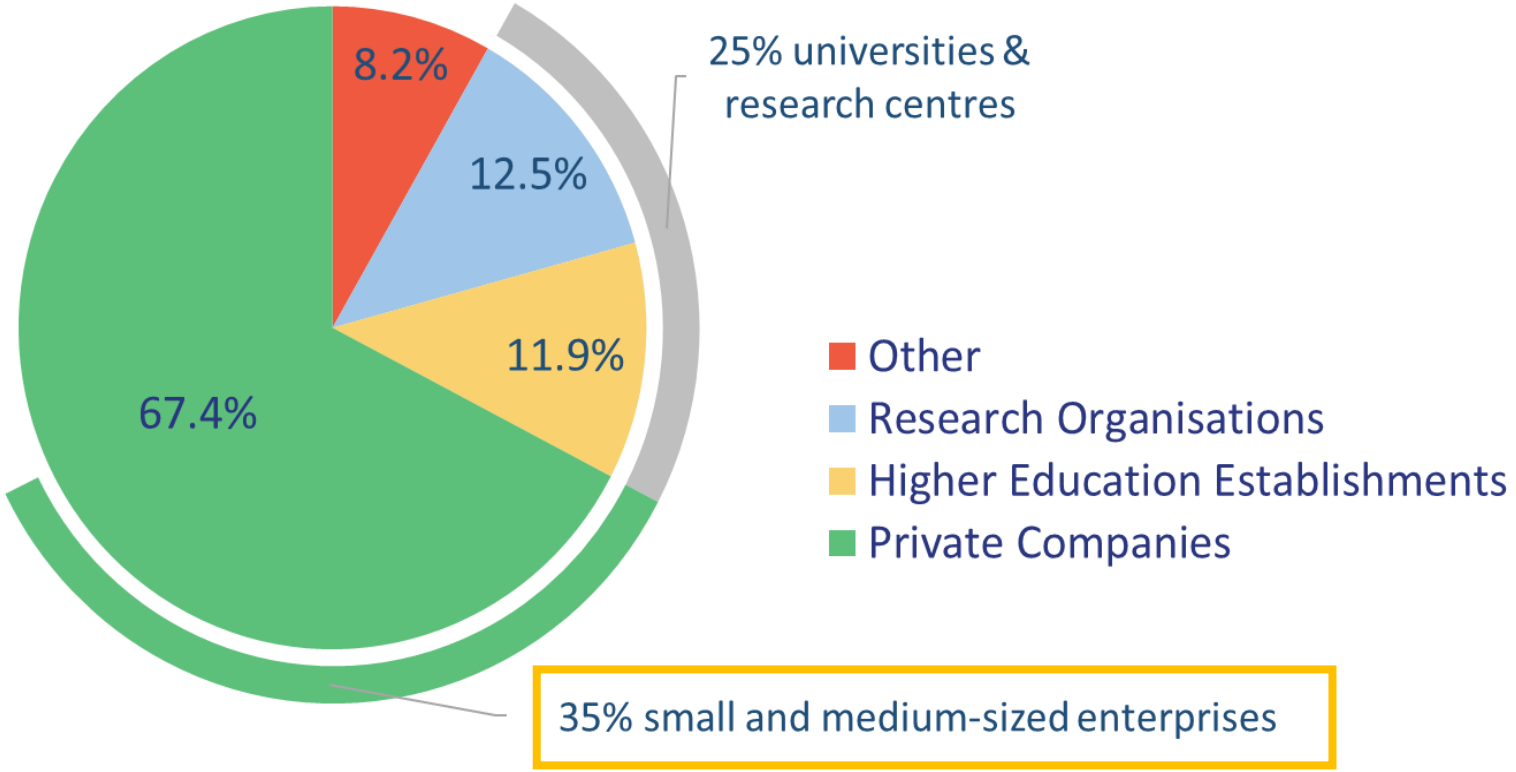
CBE JU beneficiaries
(unique)

192 projects

1,552 beneficiaries

€1,117 million CBE JU funding

43 countries

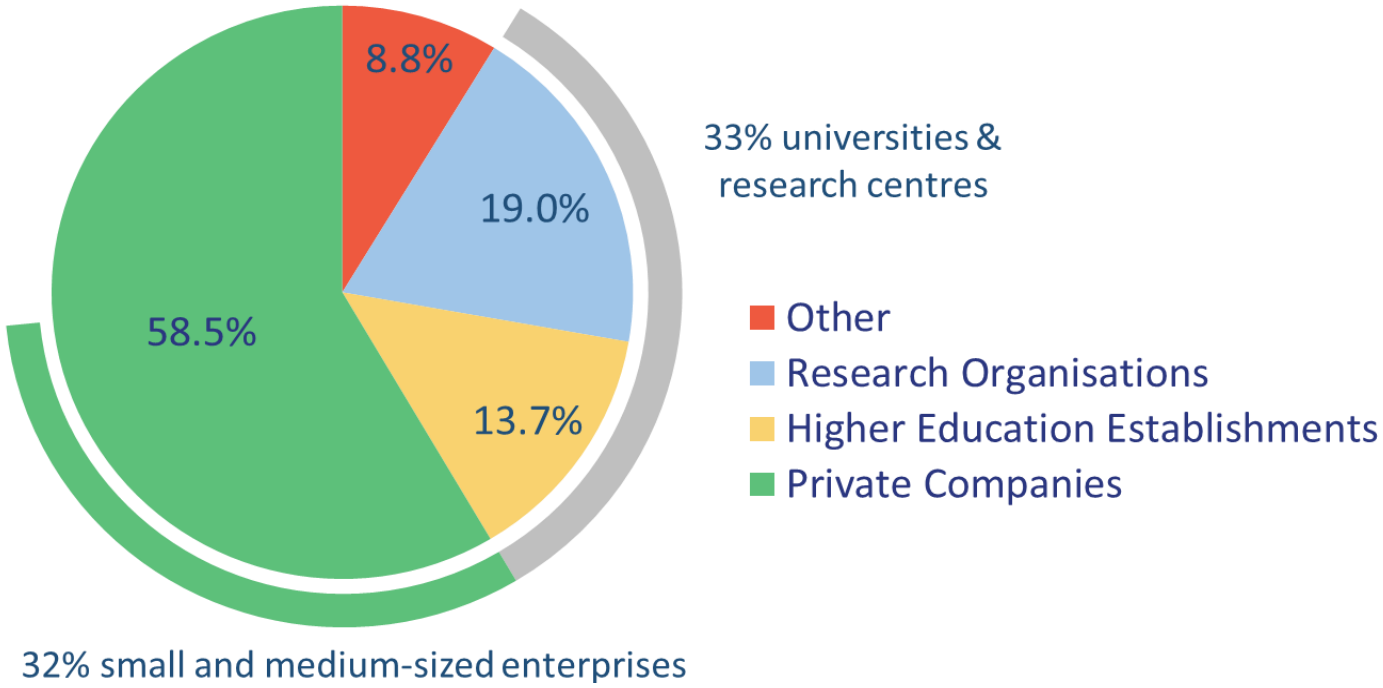


Data: CORDA, May 2024

Strong interest from SMEs in the CBE JU:
About 1 out of 3 beneficiaries are SMEs. SMEs represent a major share of private sector applicants.

2014-2024

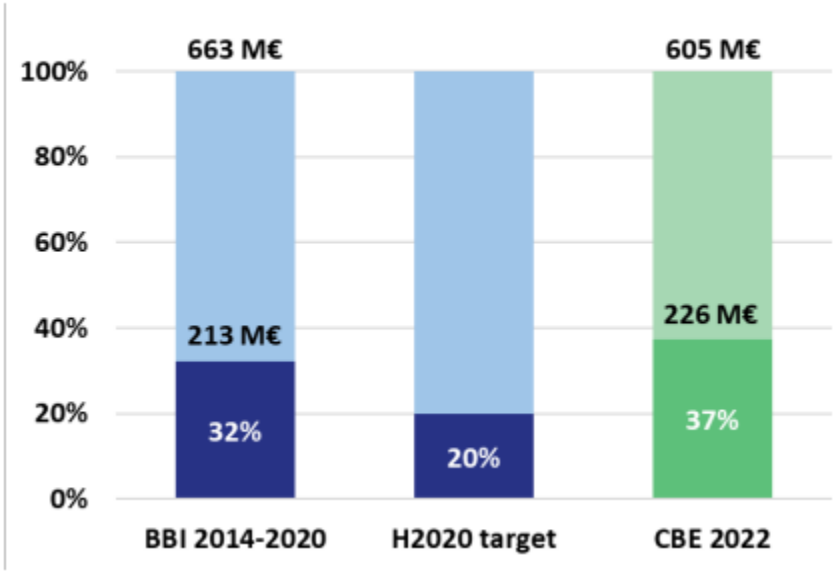
CBE JU beneficiaries
(incl. multiple participations)



Data: CORDA, May 2024

Highlights of SME participation (info from Annual Activity Report 2022)

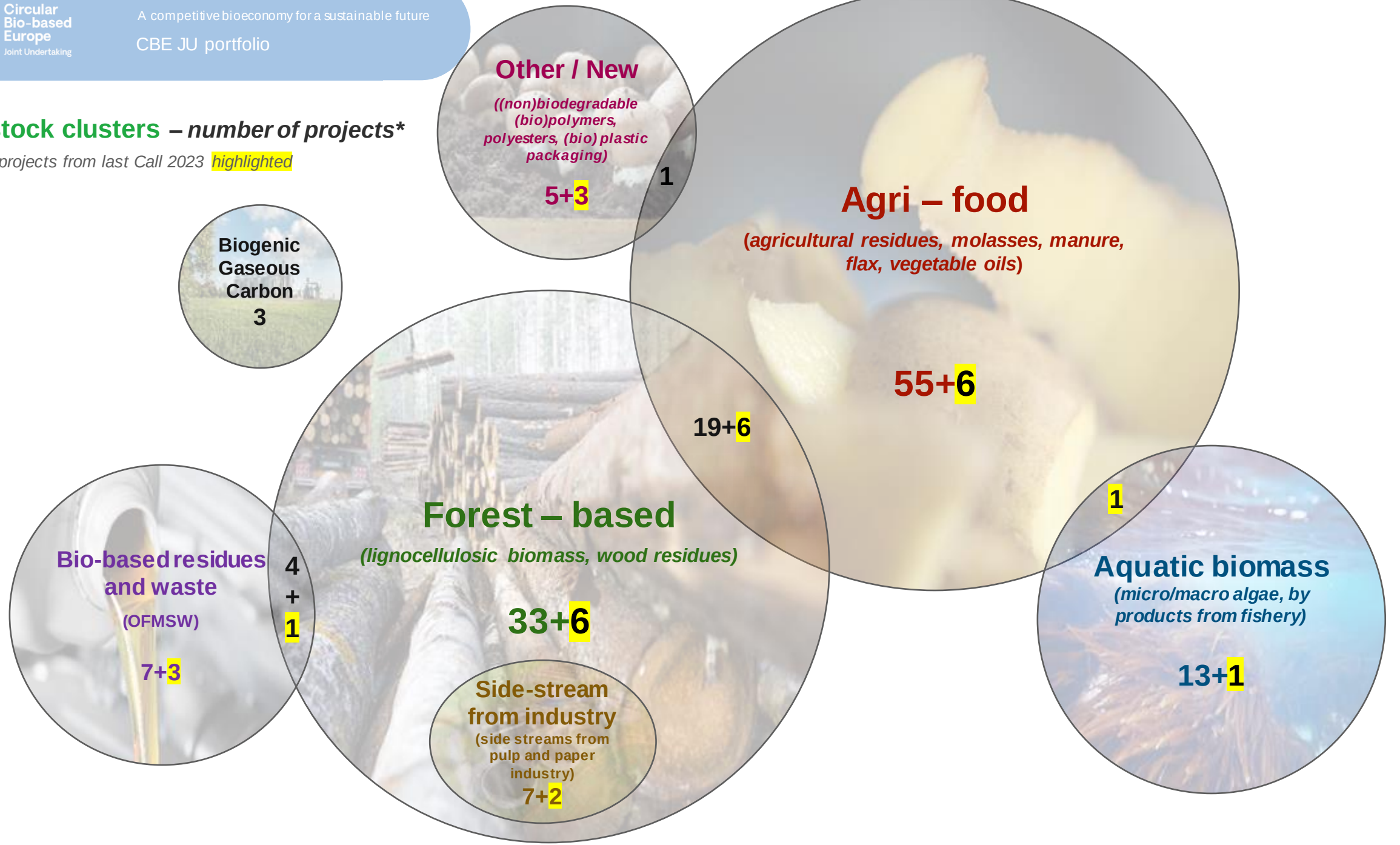
- Programme extremely attractive for SMEs
- Funding to SMEs nearly double the overall target set for SME funding under Horizon Europe.
- In CBE first call 2022: 77% of SME applicants participated in the frame of Research and Innovation Actions (RIA) proposals, proof that SMEs are important contributors to high-risk, collaborative R&D projects within the European biobased industries.



EU contribution requested by SMEs

Feedstock clusters – *number of projects**

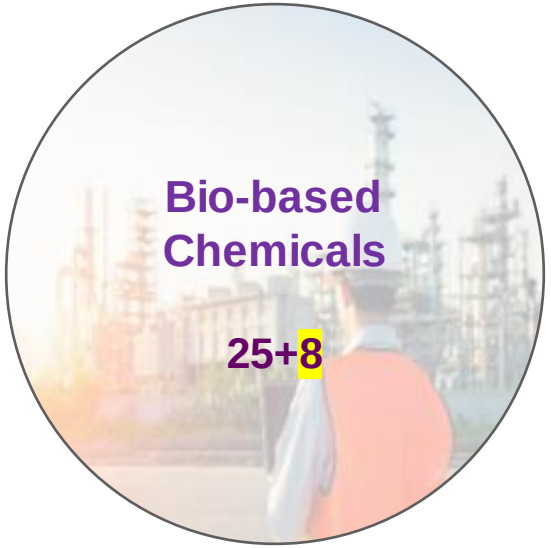
**CBE JU projects from last Call 2023 highlighted*

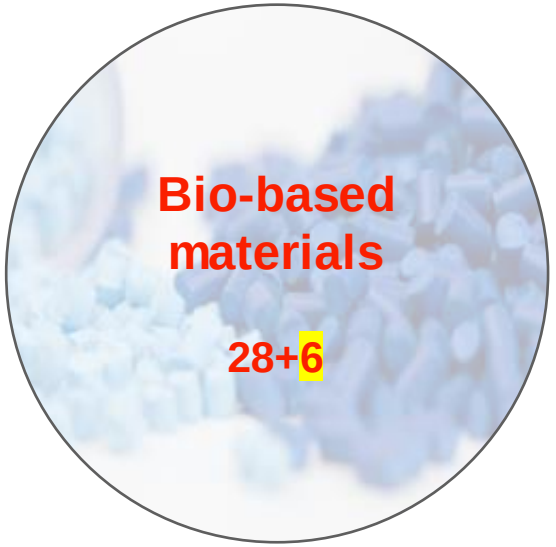


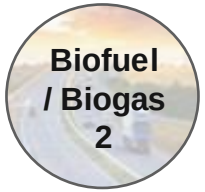
Areas of applications

- number of projects per cluster*

**CBE JU projects from last call highlighted*







CBE JU flagship projects

Flagship biorefinery

1 **Avaldsnes** Norway

2 **Sarpsborg** Norway

3 **Imavere** Estonia

4 **Imavere** Estonia

5 **Riga** Latvia

6 **Co. Tipperary** Ireland

7 **Sas van Gent** The Netherlands

8 **Amsterdam** The Netherlands

9 **Delfzijl** The Netherlands

10 **Amiens** France

11 **Saint-Avold** France

12 **Saint-Avold** France

13 **Hervás** Spain

14 **Zaragoza & Sesto San Giovanni** Spain & Italy

15 **Baillargues** France

16 **Le Péage-de-Roussillon** France

17 **Porto Torres** Italy

18 **Bottrighe** Italy

19 **Podari** Romania

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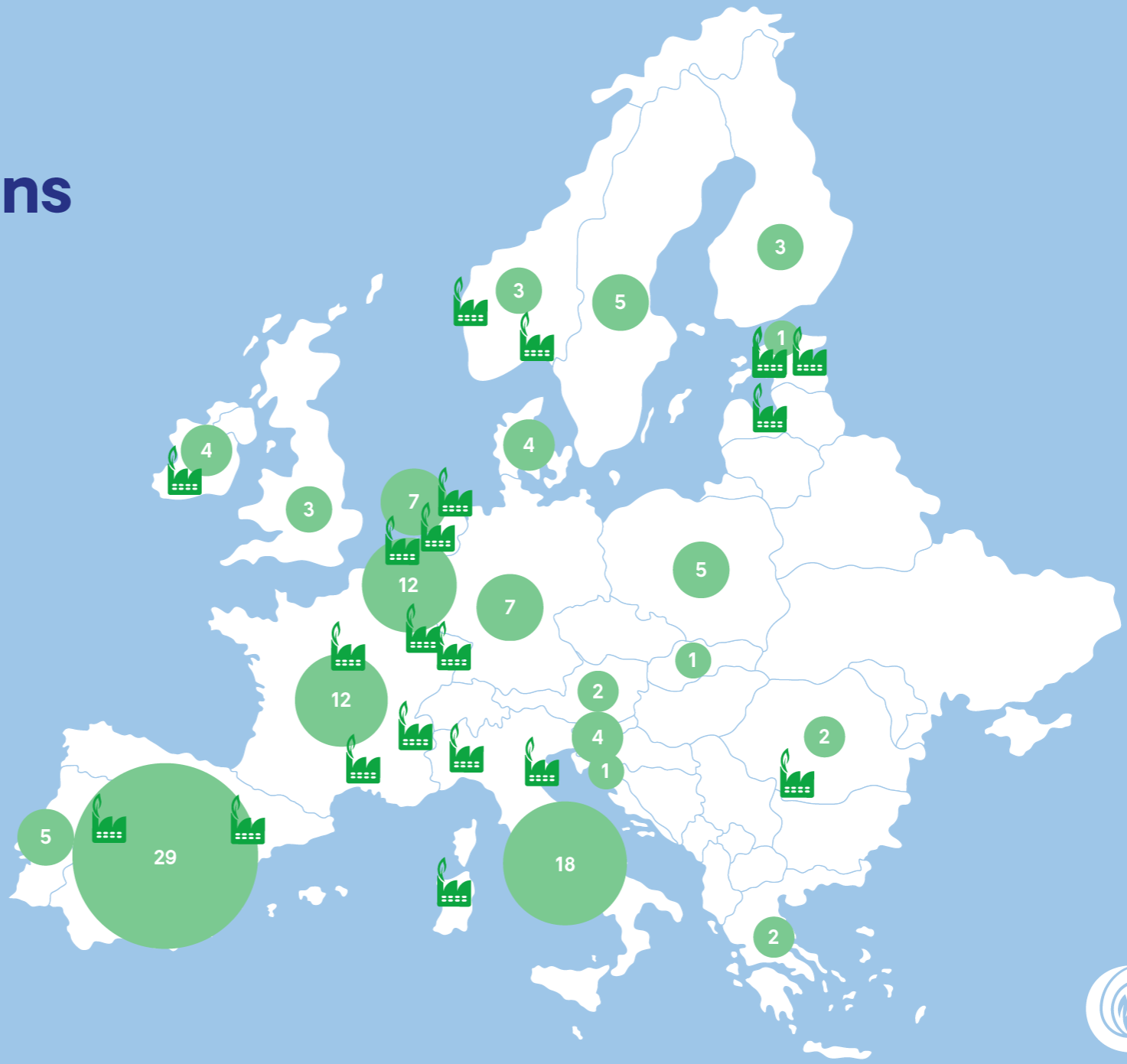
CBE JU-funded Innovation Actions

Flagship biorefinery

Demonstration plants



Number of plants per country

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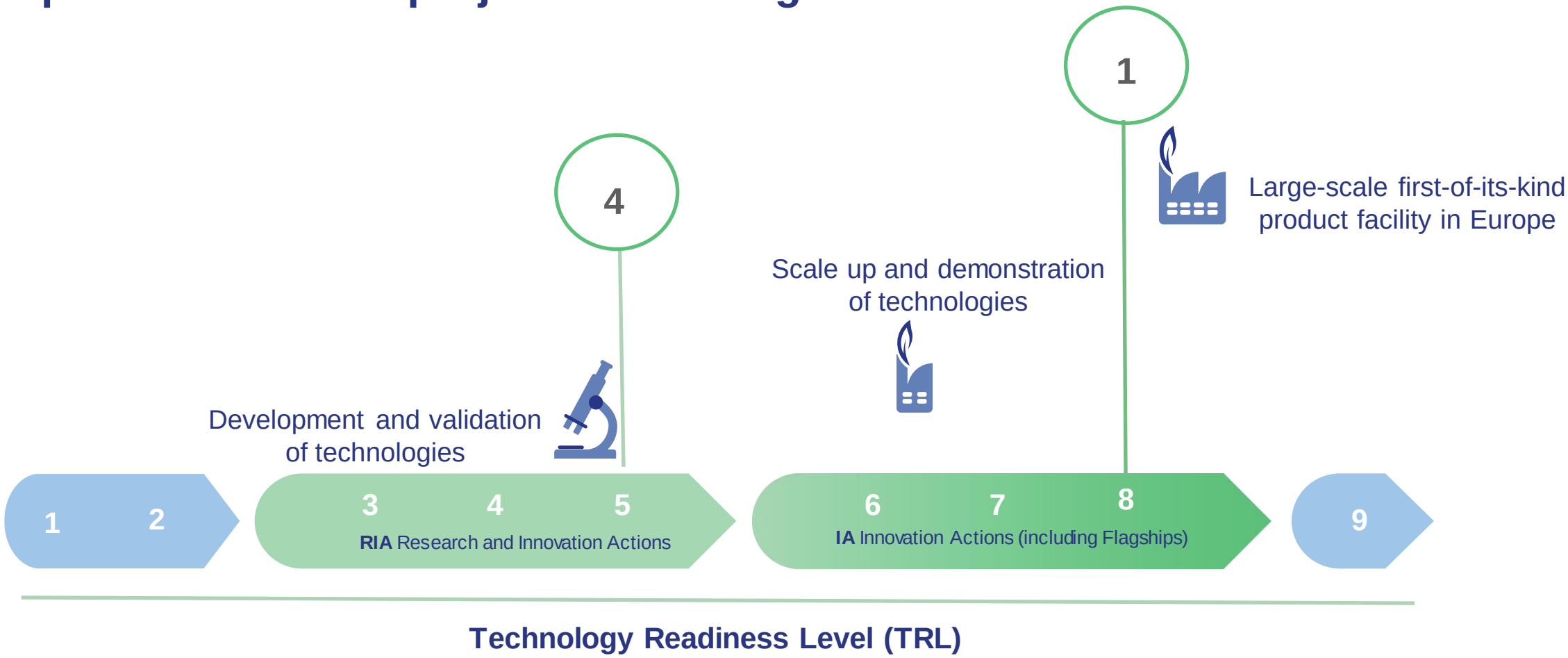
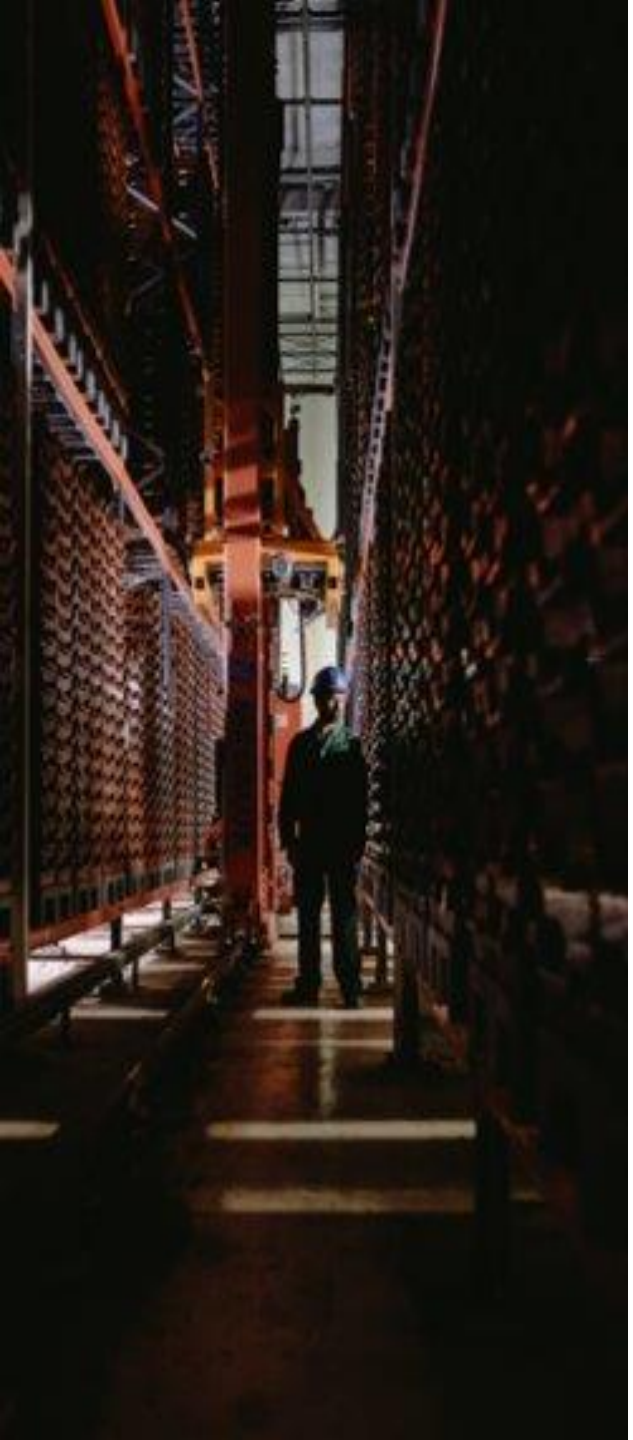
Case stories involving insect sector

Examples of BBI- CBE projects delivering insect-based innovations:



Insect-base proteins



FlAgship demonstration of industrial scale production of nutrient Resources from Mealworms to develop a bioeconomY New Generation

CBE JU contribution: €19.6 million

Duration: June 2019 – June 2025

SMEs: Coordinator (YNSECT) including 8/20 (*)

- Addresses the sustainable food chain challenges of today in a world in which the population will reach 9 billion by 2050
- Strategically located: next to an existing agro-industrial site, and on several logistic pathways, in order to reduce the sensibility to insect feed price volatility.
- Able to produce more than **5500 tons of live insects** per month processed into **1500 tons** of proteins and **400 tons** of oil per month, reaching a productions rate never demonstrated before for insect's proteins production plant in the world
- **Upscaling 50 times Ÿnsite Demo plant** currently up and running : **Already biggest mealworm farm** in the world
- Relying on a strong and unique value chain with **20 partners**

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2024 -FARMYNG

First-of-its-kind automated industrial plant for premium proteins from farmed insects

Full completion of the building

Located in Poulainville, near ***Amiens,*** Northern France.

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InnoProtein: New sustainable proteins for food, feed and non-food bio-based applications

CBE JU contribution: € 4,59 million

Duration: June 2023 – May 2027

Feedstock: Single Cell Proteins (microalgae, bacteria and fungi)

+ insect-based protein

SMEs: 10/14 (*)

- The project tackles the urgent need for new and sustainable protein sources with high nutritional quality, healthy, and functional properties. The EU is particularly vulnerable as it imports 70% of its protein-rich crops.
- InnoProtein addresses this challenge by **tapping into unexploited sustainable protein sources** to accelerate Europe's moves towards protein self-sufficiency.
- The project **aims to obtain single-cell proteins** from sources including microalgae, bacteria and fungi and **proteins from insects**.
- They will be used in **food, animal feed and non-food bio-based products** such as stimulants and plastics within a circular and zero-waste perspective.

(*) SME data based on a self-declaration of entities data extracted from CORDA

Projects that use insects (biotech) to transform biomass in intermediates or/and deliver other of bio-based products

Development of innovative biotic symbiosis for plastic biodegradation and synthesis to solve their end-of-life challenges in the agriculture and food industries

BBI JU contribution: € 4,4 million

Duration: June 2020 – May 2024

Feedstock: Plastics Waste (Food packaging and Agriculture)

SMEs: 7/18 (*)

- RECOVER develops biotechnology-based processes, involving the combined action of new enzymes, microbial communities, **insects, and earthworms**, for sustainable management of plastic waste from food packaging and agricultural applications (Agri-food waste plastics-AWP).
- The new bio-recycling route results in **biofertilizers and bioplastic formulations** for application in agriculture (mulching films, sticks, pots), food packaging (trays, rigid containers, films) and coatings based on chitin/chitosan extracted from insects using innovative process.
- RECOVER solutions are suitable for adding value to the **plastics entering waste management systems** that are currently landfilled or incinerated, and for reducing the amount of non-biodegradable plastics reaching the environment.

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InDIRECT

InDIRECT: Direct and indirect biorefinery technologies for conversion of organic side streams

BBI JU contribution: € 1,35 million

Duration: November 2016 – October 2019

Feedstock: agri-food side-streams, insects

SMEs: 4/9 (*)

- Three-step bio-refinery model used to convert the varying plant-based side stream feedstocks into a homogenous biomass. In a unique and innovative approach, **insects (Back soldier fly & Lesser mealworm) are used for the conversion**
- The resulting insect biomass is processed (fractionalised) into crude extracts, which will then be purified and converted into **new products and compounds** (e.g., proteins and oligopeptides, Lipids, chitin, chitosan and derivatives, N-light compost and minor compounds).

(*) SME data based on a self-declaration of entities data extracted from CORDA

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ZELCOR Zero Waste Ligno-Cellulosic Bio-Refineries

Zero Waste Ligno-Cellulosic Biorefineries by Integrated Lignin Valorisation (Zelcor)

BBI JU contribution: € 5.3 million

Duration: October 2016 – February 2021

Feedstock: biorefinery lignocellulosic side streams

SMEs: 8/17 (*)

- The objective was to demonstrate the **feasibility of transforming lignocellulose biorefinery recalcitrant side-streams into high added-value products**
- The originality was to **combine chemical and enzymatic catalysis with insect-based conversion,** in order to produce bioactive phenolic extracts, aromatic chemical intermediates, and functional biopolymers (colloidal lignin, chitin and chitosans)
- The main achievements were the production of **new biocatalysts** by exploring **microbial diversity**, the design of **new routes for lignin conversion**, the elucidation of **structure-properties relationships,** and the **assessment of five new value chains** in terms of carbon footprint, economics and safety

Thank you so much for your attention!

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