



**Circular
Bio-based
Europe**
Joint Undertaking

CBE JU training on flagships: guidance to prepare high- quality flagship proposals

 **Bio-based Industries
Consortium**



Co-funded by
the European Union



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Virginia Puzzolo, CBE JU Head of Programme
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Pilar Llorente, CBE JU Programme Officer
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José María Pinilla (Natac), Ed de Jong (Avantium) and Craig Johnston (Enough)
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Samuele Ambrosetti (BIC)

CBE JU flagships



Circular Bio-based Europe Joint Undertaking

€2 billion

public-private initiative
advancing a competitive
bioeconomy for a
sustainable future

Launched in
2021,
operates until
2031

Part of Horizon
Europe
programme

Supporting
European
bioeconomy

Building on
the success of
its predecessor
BBI JU



European Union
Represented by the
European Commission



Bio-based Industries
Consortium

CBE JU general objectives



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

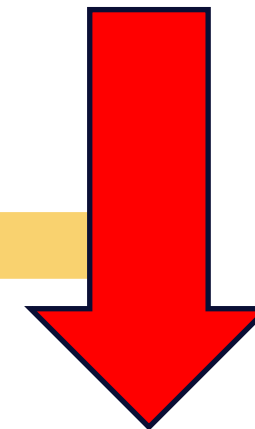


Accelerate **market deployment** of the existing mature and innovative biobased solutions



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

Types of supported actions



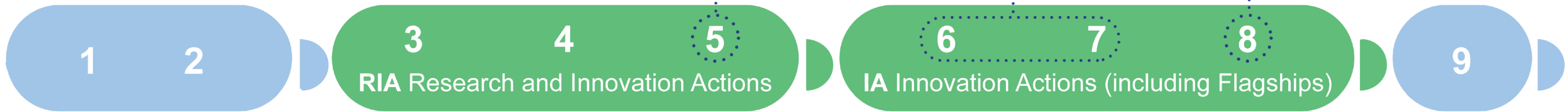
Development and validation of technologies



Scale up and demonstration of technologies



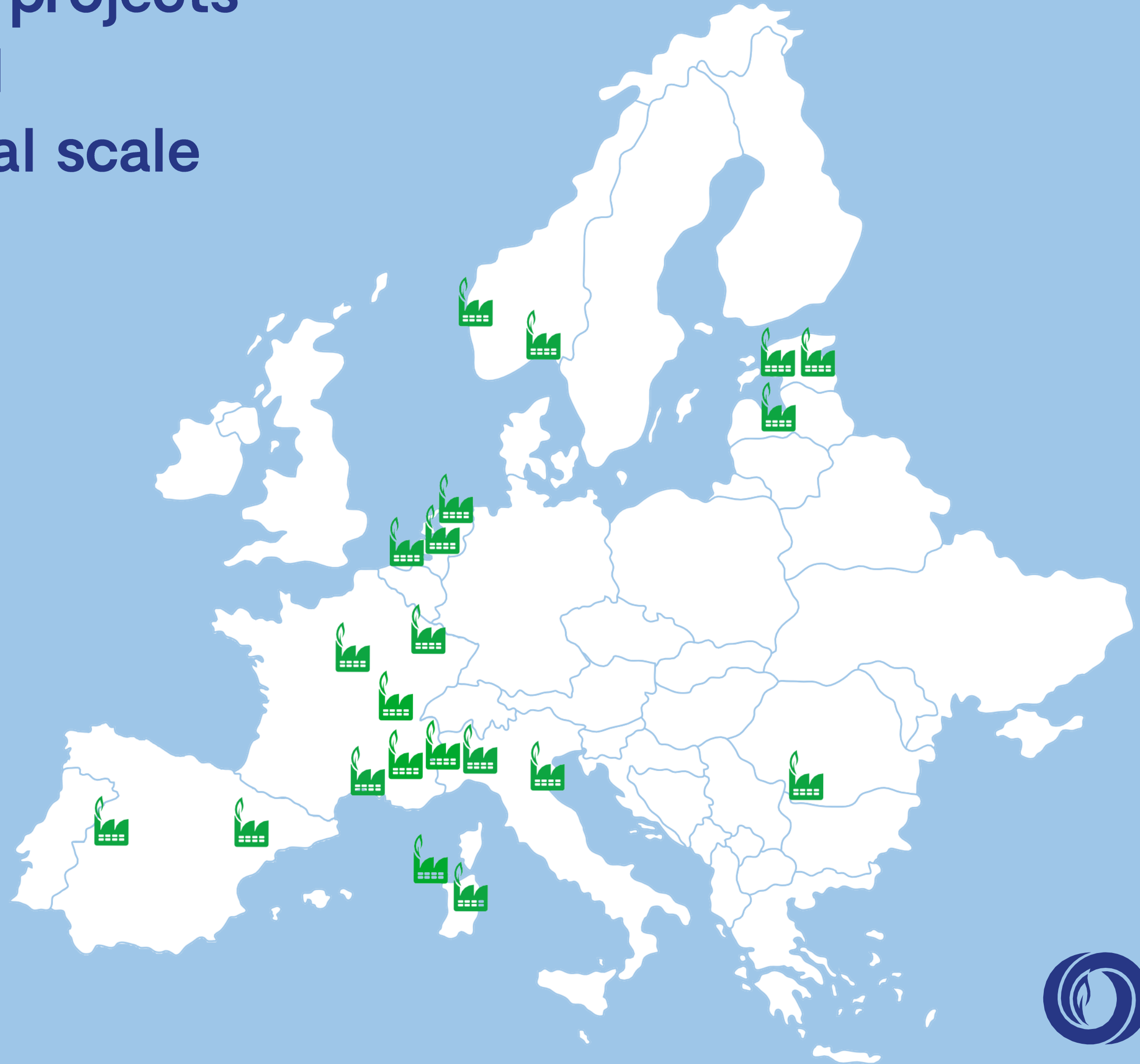
Large-scale first-of-its-kind product facility in Europe



Technology Readiness Level (TRL)

CSA: Coordination and Support Actions (no link with TRLs)

CBE JU-funded flagship projects build first-of-their-kind biorefineries at industrial scale



Flagship
biorefinery



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Key aspects for the preparation of successful flagship proposals

What is a Flagship in CBE JU?

- **First-of-a kind biorefinery**, incorporating use of (novel) feedstocks and development of processes & technologies for the production of innovative bio-based products
- **Pre-commercial scale, target TRL 8** = technology already demonstrated at lower scales at TRL7
- **Proven business opportunities & high readiness to invest**
- **Fulfilling high environmental standards**, incl. circularity of processes and products, ambition of zero waste and zero pollution, efficient use of resources, use of sustainably sourced feedstock
- **Active involvement of all key actors across the value chain**, incl. primary producers, technology developers and end-users
- **Strong socio-economic impact**: creation of jobs, fair distribution of benefits across value chains, contribution to strategic autonomy and resilience

General key aspects for proposal preparation

- ✓ **Choose a topic that fits your concept:** pay attention to the feedstocks, technologies and applications which are in scope (and out of scope)
- ✓ **Target end TRL 8 for the project as a whole:** your processes, technologies and products must be already demonstrated at lower TRLs. Explain convincingly how you are going to advance TRL during the project.
- ✓ **Demonstrate that your concept is innovative** and goes beyond the state of the art
- ✓ **Incorporate all topic requirements** in your proposal
- ✓ **Build a strong consortium**, which significant industrial participation and committed partners with secured access to industrial facilities
- ✓ **Assess carefully implementation risks**, and propose effective mitigation measures
- ✓ **Make sure you address all call specific requirements** (next slides)

Environmental sustainability aspects

- ✓ **Use sustainably sourced feedstock, in line with the SRIA**
 - Describe geographical origin and how it is produced, respecting ecological limits
 - If agricultural biomass is used, clarify the amounts needed and assess any potential interference with food supply chain

- ✓ **Demonstrate improved environmental performance and circularity**
 - Include ex-ante assessment of critical risks and environmental performance and circularity, choosing appropriate benchmarks for comparison
 - Plan a full Life Cycle Sustainability Assessment (LCSA) during project implementation

Business aspects

- ✓ Include a **complete and robust business plan**, as an annex to the proposal
- ✓ Present a summary of the business plan, incl. underlying business model and business case in the proposal
- ✓ Secure additional investments required to complement the funding
- ✓ Ensure you include 20% IKOP from BIC members
- All definitions and elements required under the business plan, business model and business case are detailed in the AWP2026 section 2.2.31!

Involvement of all actors and other aspects

- ✓ **Engage meaningfully all relevant actors across the value chain**, from project design throughout implementation and exploitation of results (Multi-actor approach). They main be partners of the project or collaborate under different agreements.
- ✓ Explain how you will contribute to **creating and/or distributing socio-economic value** along the whole value chain
- ✓ Include **digital technologies** (e.g. for process monitoring or optimization) when instrumental for the project
- ✓ Foster **cross-disciplinarity** and include as appropriate, the social, economic, behavioural, institutional, historical and/or cultural dimensions



Learning from experience: some recurrent challenges during project implementation

Recurrent challenges in flagship projects (1/3)

Delays in plant construction caused by

- **Delay in obtaining permits from local authorities:** delayed in land acquisition, environmental or regulatory aspects (e.g. connection to wastewater infrastructure)
- **Difficulties in securing additional investments** needed to build the facilities and buy equipment
- **Disruptions in the supply chains**, which impacts the purchase of equipment or commodities
- **Increased prices from energy and raw materials**

Recommendations

- ✓ Research and plan ahead to meet permit requirements timely
- ✓ Secure investments and build a strong business plan and business model
- ✓ Assess risks carefully and define effective mitigation measures

Recurrent challenges in flagship projects (2/3)

Delays in the commissioning phase / plant operation due to

- **Technical issues**, which may involve redesigning or changing approach
- **Challenges related to upscaling or integration of processes**, which delay plant start of operation
- **Logistical issues**, including transport and/or pre-treatment or storage of biomass
- **Key partners leaving the consortium** due to change in strategic priorities, investment needs, or other reasons

Recommendations

- ✓ Define a timeline that allows for accommodating issues with upscaling identified as probable
- ✓ Remember to include consideration of logistics for biomass and products
- ✓ Ensure full commitment from key partners, ensuring clarity on IPR matters

Recurrent challenges in flagship projects (3/3)

Issues related to commercialization and market uptake

- **Longer approval times of new bio-based products**, such as novel food, feed and fertilisers
- **Regulatory aspects that are not adapted to the bio-based economy and implicitly benefit fossil-based alternatives** (e.g. issues related to “waste” transportation or the use of bio-based residues for some applications)
- **Complexity of the new bio-based value chains**, which often involved “newcomer” actors
- **Change in market conditions**, incl. fluctuations in oil prices

Recommendations

- ✓ Do not underestimate approval times, assess them realistically
- ✓ Provide recommendations on policy and regulations
- ✓ Build a collaboration and business model that fits well all actors involved

First hand-on experiences from 3 successful flagships coordinators

- SustainNext: José María Pinilla (NATAC)
- PEFerence: Ed de Jong (Avantium)
- PLENITUDE: Craig Johnston (Enough)