



## Bio-Based Industries - JOINT UNDERTAKING



Bio-Based Industries (BBI) JU is a public-private partnership between the European Union and the [Bio-based Industries Consortium](#) (BIC); its main objective 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**.

A call for proposals with an indicative budget of **EUR 115 M** will be indicatively launched on April 11<sup>th</sup> 2018, addressing key challenges as identified by the stakeholders in the Joint Undertaking. These challenges encompass different areas of research and innovation: a total of 21 topics are part of this call for proposals, and are grouped into 4 Strategic Orientations:

**Foster supply of sustainable biomass feedstock to feed both existing and new value chains**

**Optimise efficient processing for integrated biorefineries through research, development and innovation**

**Develop innovative bio-based products for identified market applications**

**Create and accelerate the market-uptake of bio-based products and applications**

**The provisional deadline for applications is September 6th 2018.**

## Foster supply of sustainable biomass feedstock to feed both existing and new value chains

The main objective of this strategic orientation is to **expand and diversify the biomass feedstock portfolio through improving utilisation of existing sources and tapping into new sources**. This objective will be pursued by:

- Improving the utilisation of existing feedstock sources from the agro-, forest-, marine, chemical and waste industry sectors, also in geographical areas with currently low bio-based activities. This includes feedstock from the paper and pulp and the food production and processing industries.
- Expanding the utilisation of the organic fraction of municipal solid waste (MSW), sludge from the urban wastewater treatment, industrial organic waste and residues from perennial crops as feedstock source for the bio-based industry.
- Exploiting the opportunities of aquatic biomass as feedstock for the bio-based industry.
- Valorise co-products and residues from bio-based operations, including (existing) biorefineries.

Action	Topic
IA	Improve the logistical and pre-processing steps of locally sourced biomass to serve as feedstock for the bio-based industry
RIA	Resolve logistical, infrastructural and technological challenges to valorise residual and side streams from aquaculture, fisheries and the aquatic biomass processing industries
IA	Find solutions to dilution, pollution and content diversity challenges to turn mixed urban bio-waste into sustainable feedstock for the bio-based industry

## Optimise efficient processing for integrated biorefineries through research, development and innovation

The main objective of this strategic orientation is to **improve efficiency and sustainability of 'biorefining biomass into compounds for chemicals (including food and feed ingredients) and materials' and develop new, breakthrough processes**. This objective will be pursued by:

- Improving the effectiveness of pre-treatment steps.
- Further increasing the efficiency of chemo- and bio-catalysis targeting better product quality, higher selectivity, higher output, lower cost and/or lower energy consumption.

Action	Topic
RIA	Develop techniques and systems to improve the performance of biocatalysts
RIA	Introduce new technologies to make pulping operations more resource-efficient
RIA	Apply advanced biotechnologies to convert biomass that contains inhibitors into high value-added chemicals and materials
RIA	Develop innovative single-step processes for conversion of a biomass feedstock into multiple readily usable intermediate streams
RIA	Apply emerging breakthrough technologies to improve existing value chains
RIA	Electrochemical processes for bio-based monomers and polymers
IA	Valorise sugars from the cellulosic and/or hemicellulosic fractions of lignocellulosic biomass
RIA	Develop adequate computational systems for modelling the design, start-up, scaling-up and continuous improvement of bioprocesses involving microorganisms

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## Develop innovative bio-based products for identified market applications

The main objective of this strategic orientation is to **increase the applicability of high value-added bio-based products and avoid price competition with fossil-based products by pursuing advanced functionalities and unmatched performance**. This objective will be pursued by:

- Bio-based materials that outperform fossil-based materials in comparable applications in the packaging, construction, agriculture, transportation, personal care and hygiene sectors.
- Breakthrough bio-based chemicals that have no fossil-based counterpart or industrial scale production.
- New bio-based chemicals and materials for high value applications meeting all safety and regulatory requirements.
- Proteins and bio-based additives from plants, residual streams in the food production and other (waste) streams that are rich on protein and high value molecules
- Bio-based plastics that are biodegradable/compostable or suitable for recycling.

Action	Topic
RIA	Develop functional molecules for bio-based coatings outperforming existing products and meeting market requirements
RIA	Develop bio-based packaging products that are biodegradable/ compostable and/or recyclable
RIA	Develop technologies and systems to produce bio-based aromatics that outperform fossil-based counterparts
IA	Produce biopesticides or bio-based fertilisers as components of sustainable agricultural management plans
IA	Produce on a large scale competitive bio-based building blocks, polymers and materials that outperform existing alternatives in identified market applications
IA	Produce sustainable and cost-efficient high-performance functional ingredients from alternative sources
IA	Large-scale production of proteins for food and feed applications from alternative, sustainable sources

## Create and accelerate the market-uptake of bio-based products and applications

The main objective of this strategic orientation is to **Respond to the concerns of society about bio-based products by engaging in dialogue with societal and consumer groups on benefits and how potential risks are addressed and managed**. This objective will be pursued by:

- Identifying and proposing solutions to remove (potential) hurdles to the increased use of the organic fraction of waste (specific co-products, side streams and residues from industrial and urban sources) for the bio-based industry.
- Increasing and improving communication and dialogue with all stakeholders on the benefits and possible risks of new bio-based products.
- Establishing cooperation and partnership with brand owners and consumer representatives to improve market access of sustainable bio-based products

Action	Topic
CSA	Benefit from previous and current work to create a coherent and stimulating 'environment' for a sustainable bio-based industry in Europe
CSA	Expand the bio-based industry across Europe
CSA	Identify opportunities to promote careers, education and research activities in the European bio-based industry

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RIA: Research and Innovation Action  
IA: Innovation Action  
CSA: Coordination and Support Action