



Request for Industrial Partners to join the Industrial Advisory Board

Project title: Decision tool for biomass logistics optimisation

Acronym: BIOLOOP

Project ID	
Type	Strategic Basic Research for clusters (cSBO), intercluster project with the spearhead clusters Flanders' FOOD, Flux50 and VIL
Period	3 years
Starting date	January 1 st , 2023
Total project budget	TBD
Subsidy percentage	according to SBO regulations
Industrial partners (Advisory Board)	Current partners not disclosed at the moment
Applicants (Knowledge partners)	Ghent University, VITO, AMS
Catalisti contact	Aron Deneyer (adeneyer@catalisti.be)

Project description

Introduction

Flanders has put forward an ambitious plan to catalyse the transition towards a more biobased economy. Within the region, there is extensive know-how and expertise in biomass valorisation, catalysis, green chemistry and industrial biotechnology. There are also large amounts of undervalorised biomass, geographically spread over the region. To maximise the valorisation potential towards agro-food applications, chemicals, energy and/or materials, a cascading processing approach towards high-end applications is crucial. Some of the spearhead clusters linked to these sectors and the Flemish government have developed strategies, roadmaps and databases for the valorisation of biomass side streams into their industries, with a portfolio of projects running. However, one crucial aspect of biomass residue valorisation is organising its effective and efficient mobilisation. Given their dispersed and often lower-value nature, these side streams specifically require optimised supply chain configurations – to lower costs, increase scale and efficiency and reduce risks. In many cases, efficient supply chains are key to turning bioeconomy innovations into economically viable success stories. Thanks to its central location within Europe, Flanders is an international leader when it comes to logistics and transport infrastructure and knowhow. The BIOLOOP project, therefore, wants to build on this strong position and expertise and build a decision support tool to analyse and optimise supply chain flows of biomass with the goal to better connect supply and demand, resulting in more high-end biobased applications for various applications.

Goals

The BIOLOOP project aims to develop a decision support toolbox (DST) to optimise the valorisation and mobilisation of Flemish biomass side streams via optimised logistics.

More specifically, BIOLOOP will:

1. Define the biomass logistic framework, including the as-is of biomass valorisation in Flanders and the required parameters, decision rules and values to optimise the logistics, based on i) available quantitative and qualitative data on biomass side streams; ii) need for stabilisation and processing; iii) potential end-use applications; iv) possible transportation networks and modes; v) regulatory barriers; vi) value chain actors and relevant stakeholders; vii) market size and dynamics; viii) collaboration & cooperation models; ix) environmental impact; etc.
2. Research different collaboration & cooperation options, starting from the formulation of a user-centered business model approach and the parametrisation of rational, psychosocial and normative decision factors for adoption and collaboration. These factors serve as input into the



BIOLOOP model to model the potential mobilisation and gain sharing options between BIOLOOP stream owners, stakeholders and recipients.

3. Develop a generic BIOLOOP DST based on the Moov model that provides decision support to optimise logistics across value chains by linking available biomass streams to high-value end products that can be used in various industries, such as in agro-food, chemistry, energy, construction, etc.
4. Determine the optimal supply chain network of 3 representative biomass valorisation cases to study the logistic optimisation options in more detail, including potential collaboration models, to validate the BIOLOOP DST methodology and procedures.

Work program

The overall work of BIOLOOP is organized in five highly interactive work packages:

- **WP1: Value chain analysis, data mapping and processing**

This WP will gather the parameters, decision rules and data necessary to build the Biomass Mobi Database and to feed the BIOLOOP DST. This will be done by: i) mining literature and existing databases of biomass side streams; ii) analysis of literature and reports of the technologies to be implemented in the top-down and bottom-up approaches; iii) when critical parameters and other technical information are missing, this will first be obtained via surveys and interviews with technology providers and other relevant professionals and as a last resort via analysis. Additionally, based on the above the pretreatment and stabilisation requirements for each potential valorisation routes will be defined.

- **WP2: Generic BIOLOOP Logistic model**

This WP develops a generic biomass side stream logistic model based on the framework from WP1. The model captures the universal logics of supply chain and logistic optimisation with generic biomass parameters, constraints and decision rules incorporated (WP1) including logics on collaboration and gain sharing options (WP3). The generic model serves as the blueprint model for biomass mobilisation strategies which can be tweaked/customised to any specific case (WP4).

- **WP3: Bottom-up case validation on the valorisation of selected biomass streams**

Based on the generic model developed in WP1 and data and insights gathered in WP2, 3 representative cases that are relevant to the various Flemish Spearhead clusters and have ample industrial interest and support, will be developed. These cases will cover all logistic and technological elements (e.g. sourcing and transportation, pre-treatment options, extraction of added-value compounds, transformation of remaining fraction to added-value compounds and recovery, end-of-life of residue (including logistics), possibilities of cascading, product applications).

- **WP4: Collaboration & gain-sharing options: Mapping market demands and companies behavior's**

In this WP the non-economic, non-functional factors affecting stakeholders' decisions to collaborate and adopt innovative BIOLOOP solutions will be identified.

- **WP5: BIOLOOP model validation with specific cases and service protocol**

In this WP the cases of WP3 will be modelled in the generic BIOLOOP model (WP1). As such this WP validates that the BIOLOOP model is fit-for-purpose and possesses the flexibility to model and optimise a variety of biomass side streams and supply chain configurations (including post-project cases).

Request

To foster interaction with the industry, the project partners are looking for companies that wish to be involved in this cluster strategic basis research (cSBO) project as part of an advisory committee.

More specifically, the project partners are searching for industrial partners that are interested to optimise their supply chain with respect to biomass side stream mobilisation, including suppliers of biomass in agro-food, transport companies, logistics service providers, processors and targeting biomass-based applications in the food, feed, chemical, energy and material sectors.

The primary role of companies during the pre-project phase is to tailor the project proposal to the actual needs of the companies and thereby maximise the likelihood of future utilisation of the results. During the



project execution, a two-way dialogue between the researchers and the user field involved remains essential to achieve the targeted knowledge transfer from scientific research to concrete applications. The primary role of companies during the implementation phase is:

- to assist the research from an economic point of view;
 - to assist in designing and preparing the translation of the results into concrete economic applications.
- During the cSBO project execution, companies may contribute as member of the advisory committee. In addition, they may prefer to undertake parallel R&D activities that are related to the subject of the cSBO project at their own expense. In the latter option, the parallel R&D activities are not part of the cSBO project. Companies may explore the possibility to obtain funding from the Agency for Innovation and Entrepreneurship.

The Advisory Board is open to all interested companies, including companies established outside the Flemish region.

Important notice: In compliance to SBO regulations, the following requirements apply during the project implementation:

- All commercial members of the advisory committee are required to make a monetary contribution of minimum € 250/year in the case of an SME or minimum € 1,000/year in the case of a large enterprise or another organisation.
- A commitment to a substantive contribution and a time investment to participate in bilateral consultations with the project executors and/or meetings of the advisory committee.

How to reply to this request

Please send an **email before 16 July 2022** to Aron Deneyer (adeneyer@catalisti.be) with Linsey Garcia-Gonzalez (lgarciagonzalez@catalisti.be) in CC, and **briefly describe your interest and potential contribution** to the project. After submission of your offer, you will be contacted for more information on the project contents, and a [Letter of Intent](#) and [Questionnaire](#) will be provided to join the Advisory Board of the project. Feel free to contact Aron Deneyer (adeneyer@catalisti.be; +32 468 32 25 57) or Linsey Garcia-Gonzalez (lgarciagonzalez@catalisti.be; +32 479 45 04 26) or for any further questions you might have related to this request.

Important notice: Partners that wish to participate in spearhead cluster-supported projects are required to be member of one of the spearhead clusters. For more information on membership and membership fees, please visit our [website](#) or contact Aron Deneyer (adeneyer@catalisti.be).

Contact

Please contact Aron Deneyer (adeneyer@catalisti.be; +32 468 32 25 57) if you have questions concerning this RfP.

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