



# Open-access research infrastructure for EU

Pilots4U final event, Brussels, 25 June '19

Nelo Emerencia, Director Programming

A photograph of hop cones (hops) on a vine, used as a background for the slide. The hops are green and yellow, and the vine is green. A large, light green circle is overlaid on the image, containing the text "BIC?".

BIC?

# BIC: Members, Mission, Milestones

As private partner in BBI JU

## Our members

- > 240 industry members (from 45+ in 2013): across the value chain and sectors
  - of which over 80 % are SME's
- Over 160 Associate members e.g. universities, think tanks, R&D clusters

## Our Mission

- Build new **bio-based value chains**
- Create favorable business and policy climate to **accelerate market uptake**

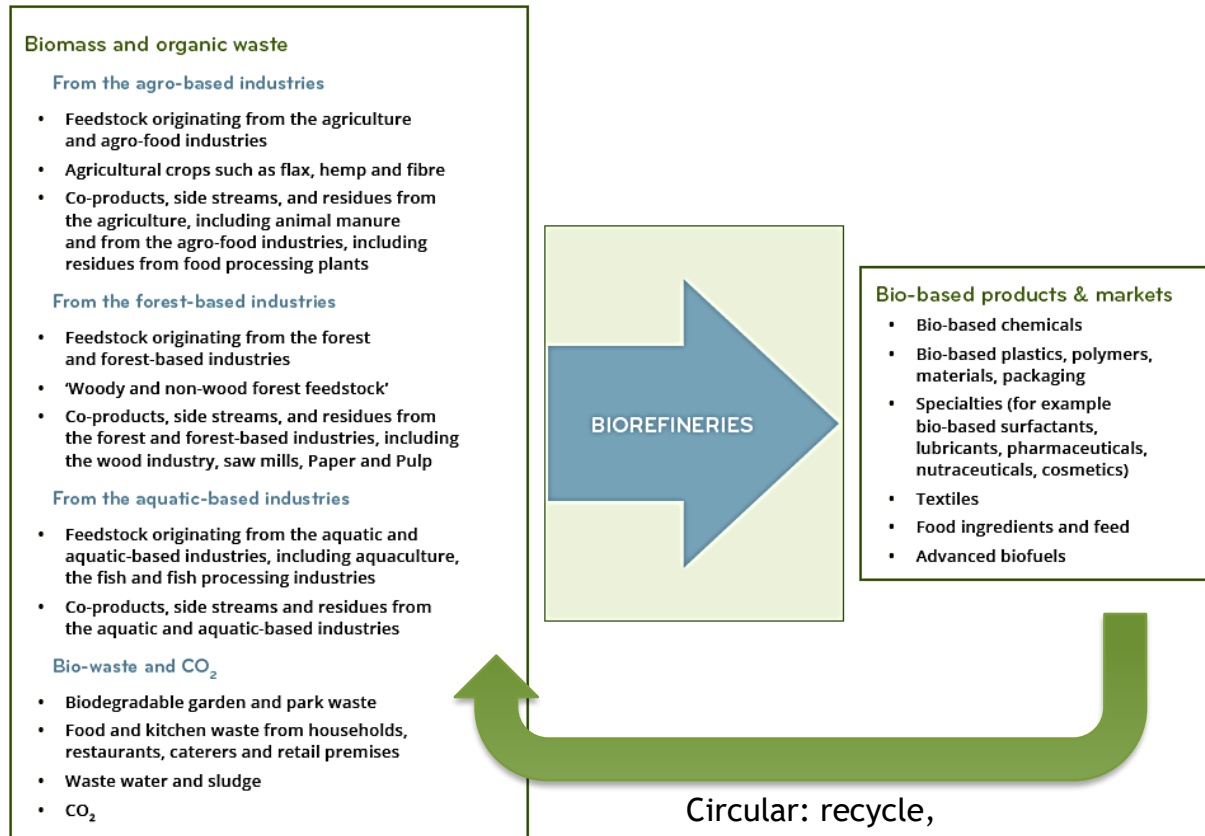
## Milestones

- Excellence in R&D&I
- ‘**Structuring effect**’ and ‘**mobilising effect**’
- Environmental, economy and social impact; **preserve biodiversity**
- Coherence with EU, national and regional policy goals



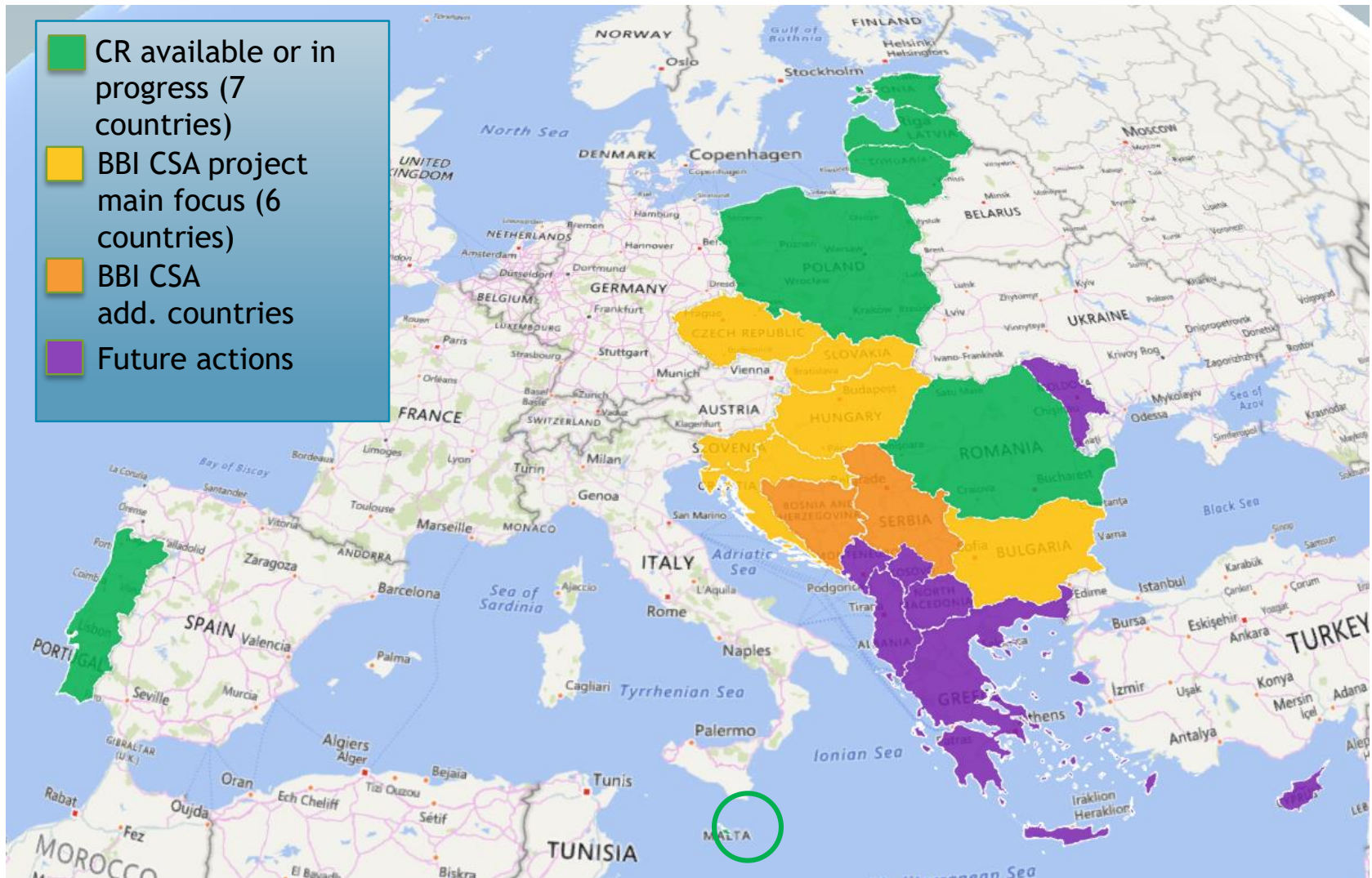
# Sustainable, circular bio-based value chains

Crossing boundaries



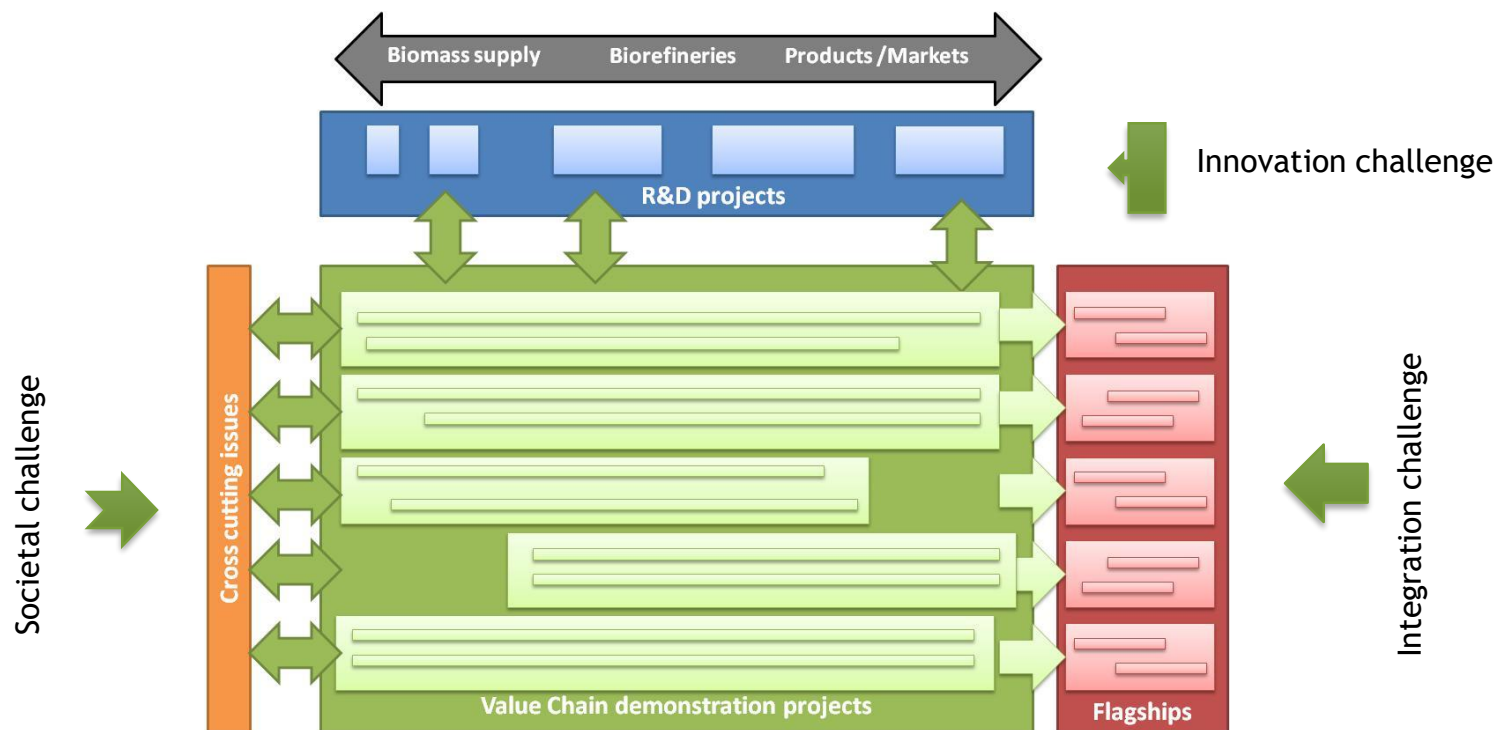
# Expanding bio-based industry across Europe

BIC strategic outreach programme



# 'Actions' in annual work plans

Core: innovation actions



Research and Innovation Actions: TRL 4-5;	30.5% of budget
Innovation Actions - Demonstration: TRL 6-7;	30.5% of budget
Innovation Actions - Flagship: TRL 8;	35.5% of budget
Coordination & Support Actions;	3.5% of budget

# Europe-wide infrastructures: a necessity

For bio-based industry

BBI 2016.S2 - Bioeconomy related open access research infrastructure and assessing its capabilities for industry driven development projects

2015:

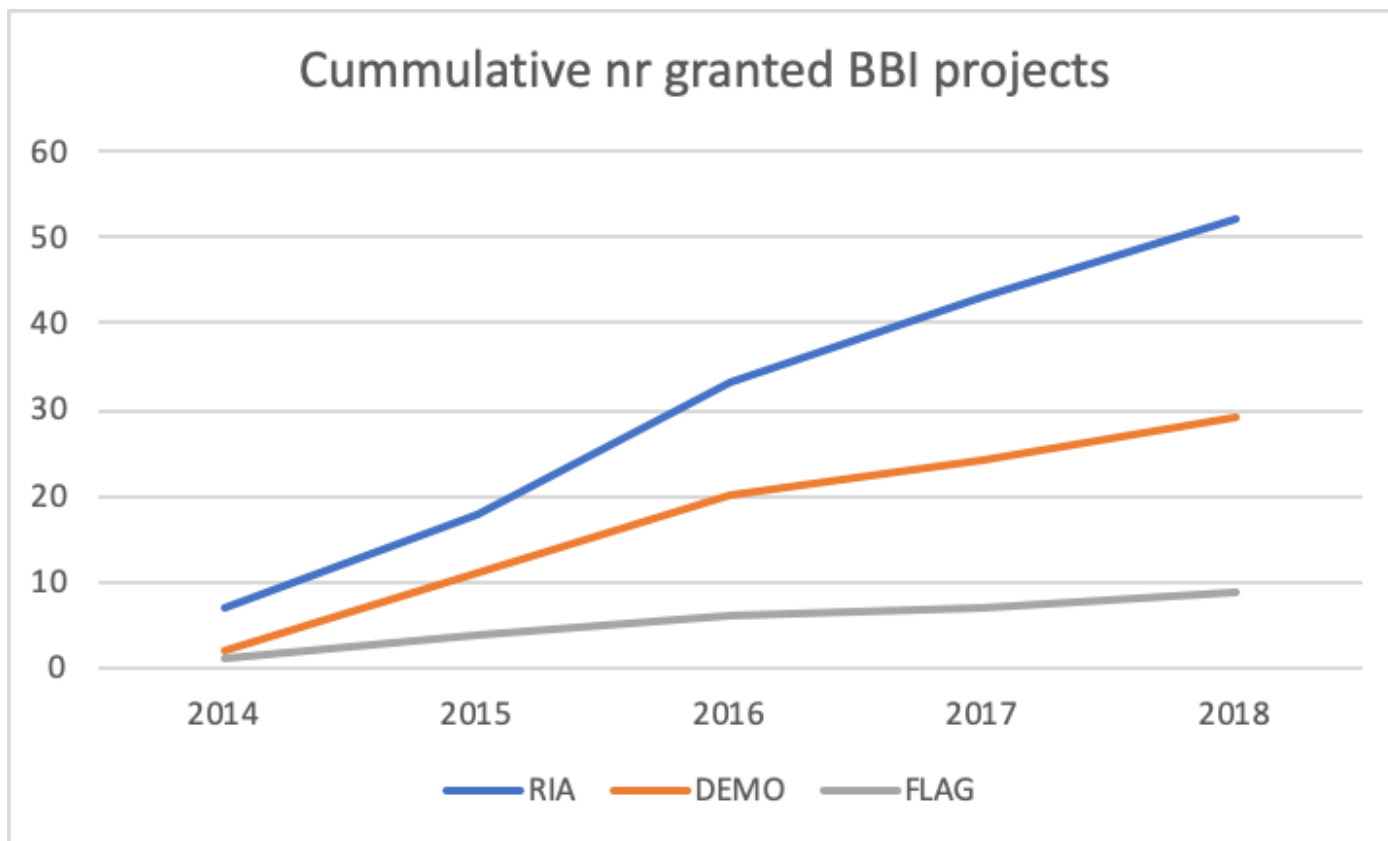
- Isolated open-access research infrastructures: ‘shop’ for facilities and support
- Small number of open-access multipurpose demonstration facilities: crucial for invention to market
- Specifics of these infrastructures/facilities: not well known in R&D&I communities across Europe
  - Affecting SMEs and those who do not have upscaling facilities
- Existing facilities meet the needs of the emerging bio-based industry?

Challenge [to be met by Pilots4U]

1. Improve access; ‘interconnect’ to create Europe-wide open access infrastructure
2. ‘Catalyse’ expansion of capabilities to meet (future) needs of bio-based industry

# Granted BBI projects 2014 - 2018

Need upscaling facilities



Upscaling facilities needed:

- From < TRL 3 to TRL 4-5 (RIA)
- From RIA to TRL 6-7 (DEMO)



# Prepare for the future

For a sustainable industry

Accelerate restructuring:

- More, diverse sectors joining BIC; better alignment with sectors' associations

Accelerate mobilisation:

- Higher participation level of all in setting content and in responding to calls

Accelerate 'commercialisation':

- Higher TRL value chains & market acceptance

Provide for 'exit strategy' at HEU's conclusion:

- Have the basis and infrastructure to sustain the above; in particular for SMEs
  - Testing & upscaling facilities; access to technologies, information, expertise, across EU
- Have the networks for interaction, exchange and innovation

Thank you.





# The Pilots4U network: aim, mission and tools

Final Event, 25.06.2019

Katrien Molders, Bio Base Europe Pilot Plant



This project has received funding from the Bio Based Industries Joint Undertaking under the European Union's Horizon 2020 research and innovation programme under grant agreement No. 745667 | Topic: *BBI-2016-S02*



A Europe-wide network of existing open access pilot and multipurpose demo infrastructures for the bio-economy

<https://vimeo.com/276393479>

## WHAT IS PILOTS4U?

Pilots4U has set up an easily accessible database of open access pilot and multipurpose demonstration infrastructures for the European bio-economy.

CLICK HERE TO WATCH OUR VIDEO →



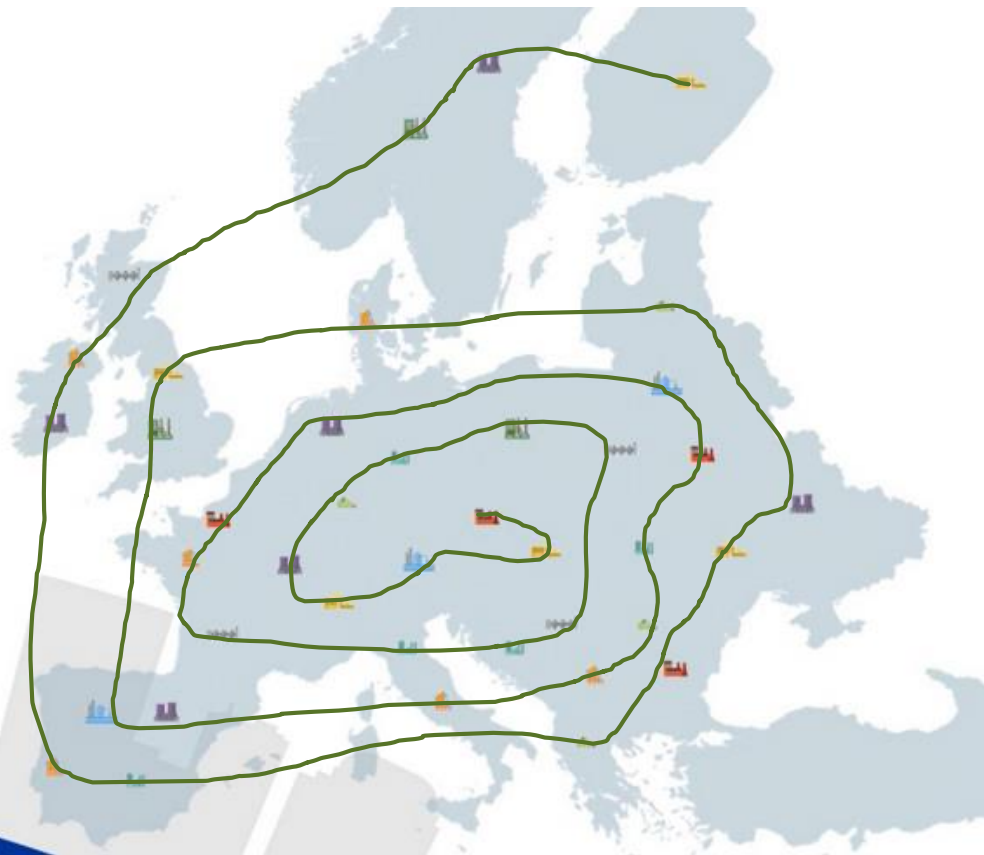


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## Driven by existing bio-economy networks



**SmartPilots**  
Interreg Europe



European Union  
European Regional  
Development Fund



**ERIFORE**  
European Research Infrastructure  
for Circular Forest Bioeconomy

**BRISK**   
BIOFUEL RESEARCH INFR.

**EnAlgae**   
collaborate innovate communicate

**BIOREFINE**  
CLUSTER EUROPE

 **BioPilotsUK**

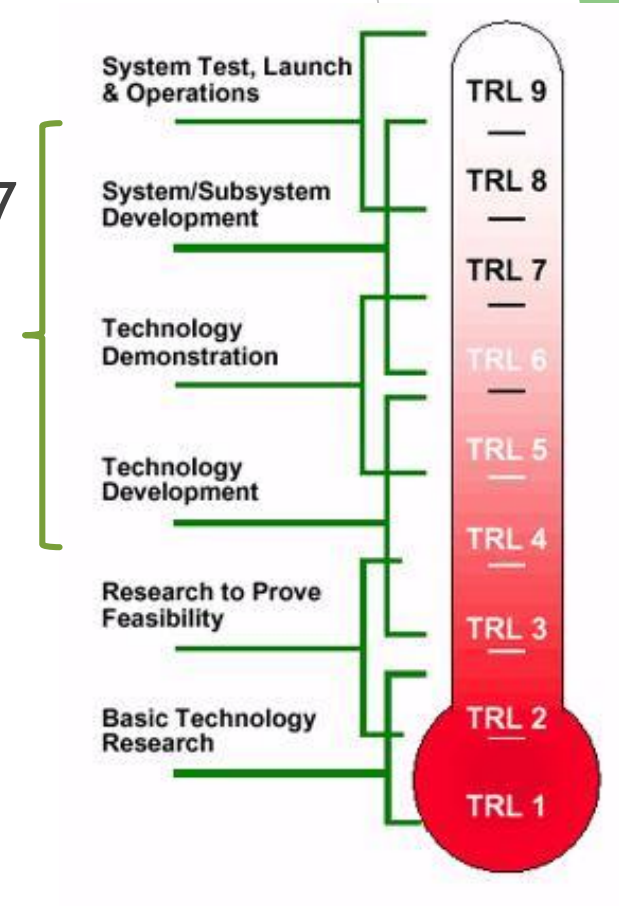
- Industrial Biotechnology pilots and multipurpose demonstration plants
- Forest economy network
- Thermochemical network
- Algae network
- Anaerobic digestion and Nutrient recovery network
- BioPilotsUK: a UK pilot infrastructure network

- In the context of infrastructure, open access involves physical infrastructure (*in this case pilot equipment*) being made available to clients other than the owners, for a fee (Source: Wikipedia)
- Joint investment in pilot infrastructure that can be used, for a fee, by any entrepreneur in need of scale-up



Entity	Stereotype mission
Technology center	Bring new technology to the market Innovation - service oriented
University	Generate new knowledge Research - upcoming technologies
Project	Knowledge sharing Exchange of data
Equipment manufacturer	Answer customer equipment needs Customised equipment, diversify application field of equipment
Technology developer	Technological solutions for a problem Customised technology - license
Private company	Toll-manufacturing (Use idle equipment) Production

- Pilot scale: TRL4 - TRL5
- Demonstration scale: TRL6 - TRL7
- Public and private
- Open access
- In EU28



A Europe-wide network of existing open access pilot and multipurpose demo infrastructures for the bio-economy

	Biomass supply	Primary conversion	2ndary conversion	Products and markets
VC1: Lignocellulosic		SmartPilots BRISK Biorefine cluster EU BioPilotsUK	SmartPilots BioPilotsUK	
VC2: Forest based	Erifore	Erifore SmartPilots BRISK BioPilotsUK	Erifore SmartPilots BioPilotsUK	Erifore
VC3: Agro-based		SmartPilots BRISK Biorefine cluster EU BioPilotsUK	SmartPilots BioPilotsUK	
VC4: New e.g. Algae, waste	Enalgae Biorefine cluster EU BioPilotsUK	SmartPilots BRISK BioPilotsUK	SmartPilots BioPilotsUK	
VC5: Integrated E, pulp, chemicals	Erifore	Erifore SmartPilots Biorefine cluster EU BioPilotsUK	Erifore SmartPilots BioPilotsUK	Erifore

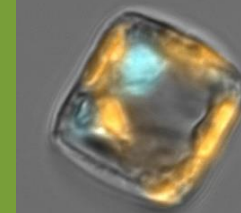
VCs defined by Biobased Industries Consortium (BIC) Strategic Innovation and Research Agenda (SIRA)



Industrial Biotechnology



Thermal conversion



Algal cultivation



Chemical conversion



Pulping



Anaerobic digestion



Fractionation Purification



Material technologies



Nutrient recovery



## Equipping Europe to support bio-based innovation

- *Setup - Maintain - Further Develop* a very visible, easily accessible network of open access pilot and multipurpose demo-infrastructures for the European/worldwide bio-economy with Europe-wide/worldwide coverage

1. Actively used database to broker pilot equipment and expertise offer and demand

NEW Website from TODAY on:

from **Project website** to **Database website**

*[www.BioPilots4U.eu](http://www.BioPilots4U.eu)*

*See presentation Pauliina*

## 1. Actively used database to broker pilot equipment and expertise offer and demand



**Pilots4U** @BioPilots4U

1d

No job is too big or small for the facilities in the Pilots4U database! Search the database and find the perfect partner to scale up your [#bioeconomy](#) [#innovation](#) [bit.ly/2HtWXhq](https://bit.ly/2HtWXhq)

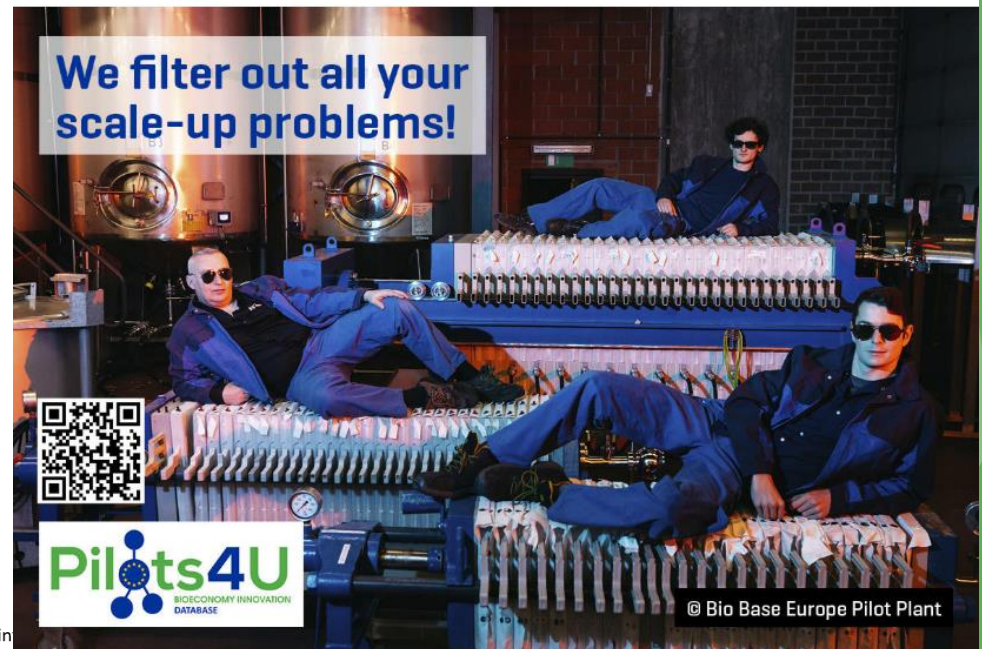


**Bio Base Europe Pilot Plant**

2.262 volgers  
6 d

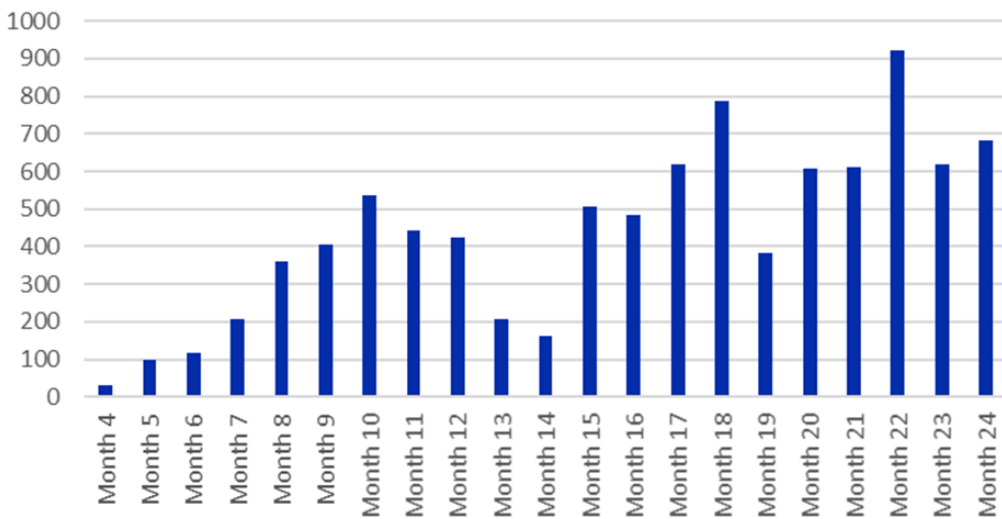


Don't miss out on our two last Pilots4U events this month in [#Brussels](#) BE Join us to discuss the financing of gaps in [#bioeconomy](#) infrastructure and to take part of our project outcomes [bit.ly/2kV8f1f](https://bit.ly/2kV8f1f)



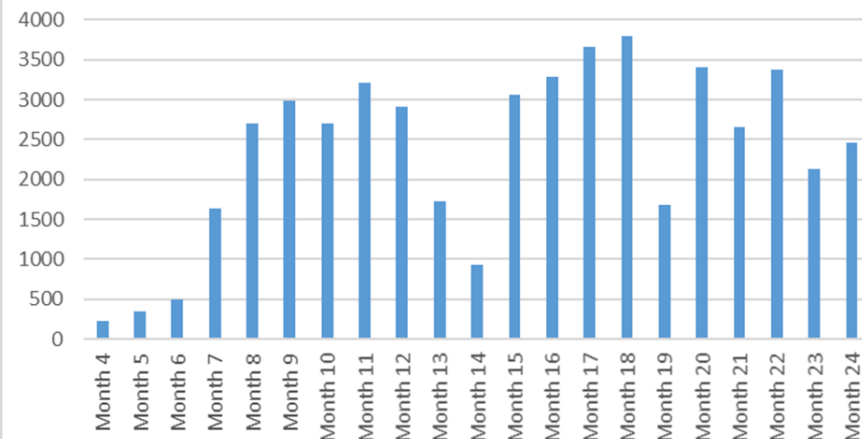
## 1. Actively used database to broker pilot equipment and expertise offer and demand

**Website Users**



*June 2019: 900+ users*

**Website Page Views**



*June 2019: 3895+ page views*



## 2. Is there more? → YES!

How will we continue the network  
after the project end?

➤ *See presentation Wim Soetaert*





# Gap analysis and policy recommendations

**Andrea Muñoz Garcia - NNFCC**

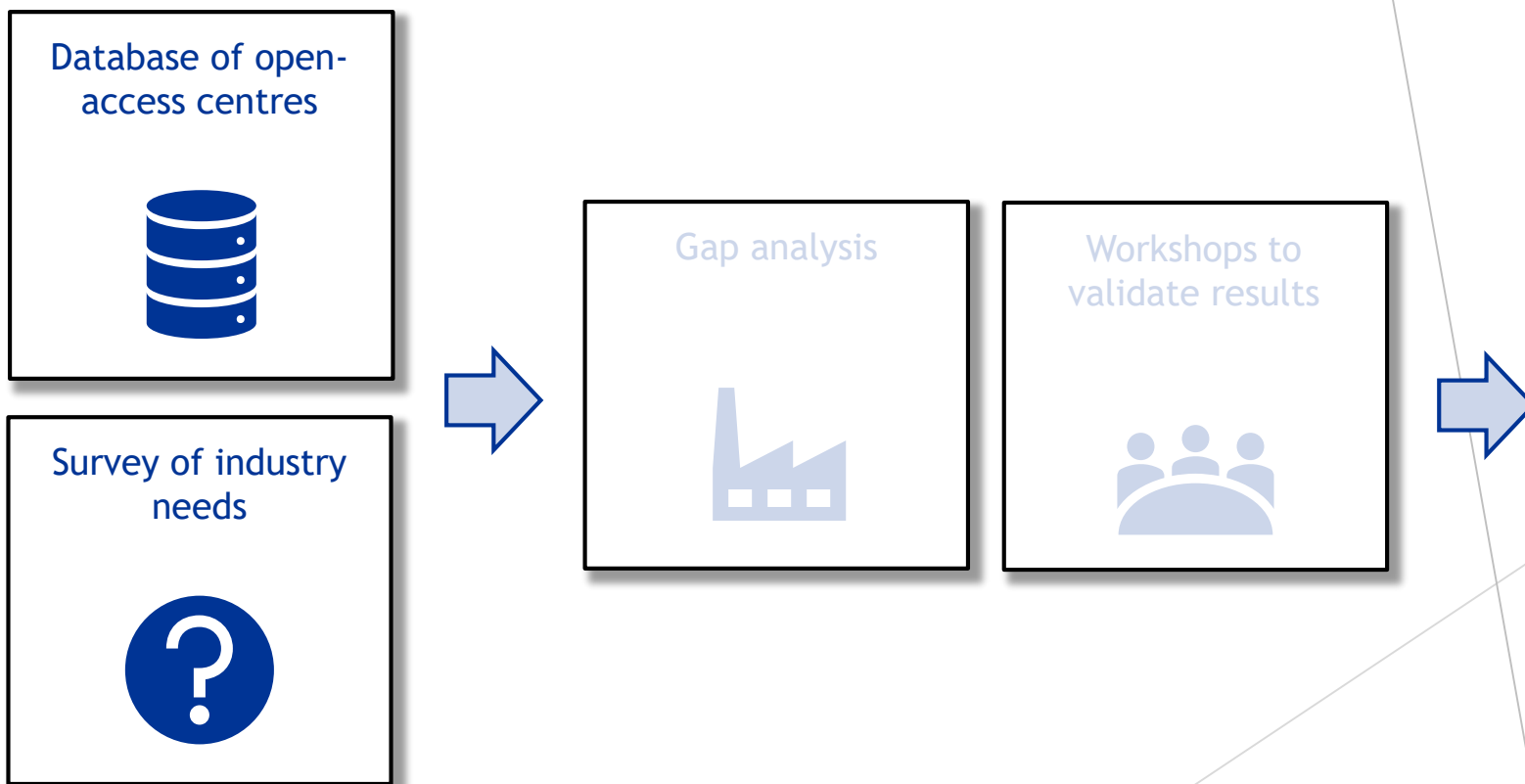
Pilots4U Final Event: Fast Forward the European Bioeconomy

25.06.19



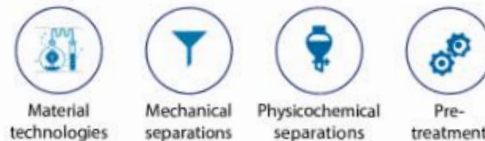
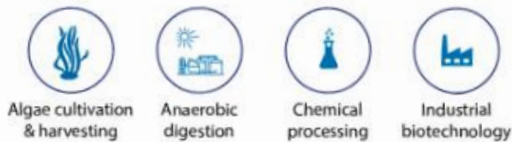
This project has received funding from the Bio Based Industries Joint Undertaking under the European Union's Horizon 2020 research and innovation programme under grant agreement No. 745667 | Topic: *BBI-2016-S02*

# Background - database & survey

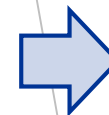
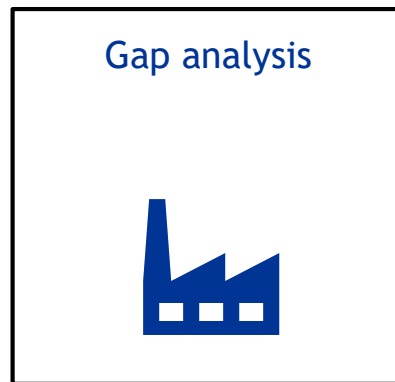




## Background - gap analysis

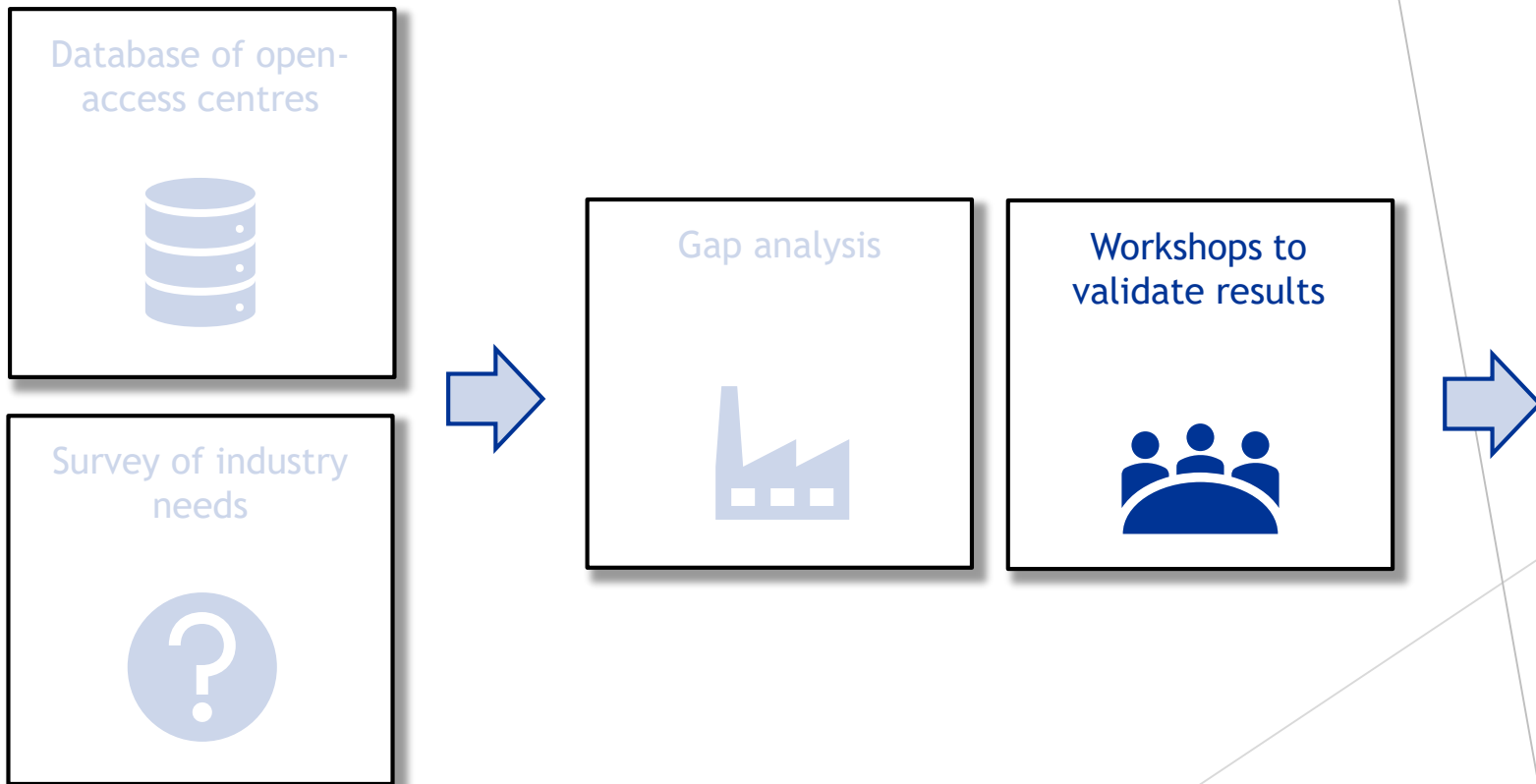


► 37 gaps identified



► Across many technology areas within the bioeconomy

# Background - validation of gaps



# Background - validation of gaps

- ▶ Validation of results with a broad range of experts
- ▶ Scoring identified gaps
- ▶ Several workshops and webinars hosted across Europe
- ▶ Around 90 participants in total



# Background - assessment of gaps





# Background - assessment of gaps

- ▶ All gaps were considered important
- ▶ Scoring and ranking required to be able to build some business cases
- ▶ The ranking was based on the opinion expressed by participants to workshops and webinars
- ▶ Some 4 types of gaps were identified

GROUPS	DESCRIPTION
Group A	<b>Priority gaps</b> - top half of ranking table, and good agreement among respondents.
Group B	<b>Possible priority gaps</b> - top half of ranking table, but disagreement among respondents.
Group C	<b>Non-priority gaps</b> - bottom half of ranking table, and good agreement among respondents.
Group D	<b>Possible non-priority gaps</b> - bottom half of ranking table, but disagreement among respondents.

- ▶ Opportunities to address gaps in provision could be classified into three generic types:
  - ▶ Investment in equipment
  - ▶ Investment in coordinating actions
  - ▶ Investment in skills/expertise and knowledge generation
- ▶ Most gaps described can be addressed in a similar.



# Background - business cases

- ▶ We built 3 generic business cases focused on:
  - ▶ Investment in equipment
  - ▶ Investment in coordinating actions
  - ▶ Investment in skills/expertise and knowledge generation



- ▶ Each case features specific examples of the top priority gaps

## GAP

- ▶ Need for new or larger equipment for most technology sectors under study.

## PROPOSED INTERVENTION

- ▶ The proposed intervention suggests: strengthening EU landscape of open-access infrastructure by investment in equipment in existing open-access centres.
- ▶ The investment required to add a new equipment asset to an existing facility has been estimated in 0.5-10 mill €.
- ▶ It will depend on type of asset, capacity and operational characteristics.
  - ▶ Between 0.3-1 mill € if semi-pilot or small pilot.
  - ▶ Between 1-2 mill € if large pilot assets and/or special working conditions required.
  - ▶ Significantly higher if flooring space is not available.

## GAP

- ▶ Disconnection between some equipment assets.



## PROPOSED INTERVENTION

- ▶ Creation of a collaborative network of open-access centres with complementary infrastructure within a specific value chain.

- ▶ The investment required to implement a network of open-access centres with complementary assets is 0.5-0.6 mill €.
  - ▶ Network to run as a 4-year consortium project.
  - ▶ Investment to cover 4 years of activity.



## GAP

- ▶ Lack of knowledge about certain technologies which affects the development of those.
  - ▶ Due to novelty or technologies or specific technical challenges
  - ▶ It refers to both early stage of development or issues at scale up stage

## PROPOSED INTERVENTION

- ▶ To address knowledge gaps hindering the development of bio-based technologies.
  - ▶ Funding research project targeting one of the identified knowledge gaps.
  - ▶ With particular attention to the scale-up aspects.
  - ▶ Establish a collaborative interaction between universities and open-access centres.
- ▶ The investment required to establish research collaboration between open-access centres and universities is 0.5-1 mill €.
  - ▶ To address one specific research issue within a particular sector.
  - ▶ 3-year time framework (funding of PhDs)
  - ▶ Financial requirements will vary from country to country.

# Background - validation of business cases




- ▶ Finance Strategy Roundtable
- ▶ 24<sup>th</sup> June, Brussels



- ▶ Key outcomes:
  - ▶ Possible funding sources to convert business cases into a reality
  - ▶ Bottlenecks of key funding sources

# Pilots4U Policy Recommendations

- ▶ The three business cases built by Pilots4U intend to highlight some of the key policy recommendations of the project:
  - ▶ Investment in equipment
  - ▶ Investment in coordination actions
  - ▶ Investment in knowledge generation and training
- ▶ In line with the results of other projects, Pilots4U recommends:
  - ▶ Encouraging regions to cooperate to help the access to existing facilities
  - ▶ Focus further investment in keeping these existing facilities up to date.
- ▶ Support to the database is key keep it alive which will contribute to maximise the impact of the above-mentioned recommendations.

-  Save time & money
-  Shorter time to market
-  Lower financial risk

# The Pilots4U network: How will the network continue?

Final Event, Brussels, June 25<sup>th</sup> 2019

Wim Soetaert, CEO, Bio Base Europe Pilot Plant

- **TASKS and cost structure**
- Governance model / Membership
- Support



## Tasks and costs: input from previous workshops

Service package  (46 answers)	Minimum = database maintenance	17%
	Medium = minimum + communication + yearly event/meeting	59%
	Maximum = Medium + bus dev + Q check	24%

## Tasks and costs: input from previous workshops

Finance model (45 answers)	Fee per organisation	47%
	Fee per entry	13%
	Fee to search	9%
	Advertisement related to the database	29%
	Advertisement not related to the database	2%

## Conclusion from previous workshops

- **Medium package:** Database maintenance, communication, yearly event/meeting
- Database consultation should be **free for all users**
- **Fee per organisation** and extra income through sponsoring

- Tasks and COST STRUCTURE
- Governance model / Membership
- Support

## Cost structure - Revenue streams

- Database maintenance
- Administration
- Yearly matchmaking and stakeholder event
- Communication
- Subscription fees
- Sponsoring
- Yearly event
- Other (subvention, sector-organisations or cluster)



## Cost structure

- Database maintenance ➤ €3000/Y (hosting, security updates, ad hoc upgrade)
- Communication & yearly event/meeting ➤ €7000/Y (Quality checks, search support)
- Administration ➤ €44000 (event, meeting, promo-campaigns)
- Administration ➤ €7000/Y (invoicing and reminders)
- **Total: €61000/Y**

## Revenue streams

- Subscription/membership fees    ▶ 50 \* € 1000 = €50 000
- Sponsoring (on database website)    ▶ 5 \* € 3000 = € 15 000
- yearly event    ▶ Booth fee & sponsorship  
(e.g. Free for sponsors and Pilots4U members, €1500 for non- members)
- Other (subvention, sector-organisations or cluster)    ▶ Attending conferences in kind
- ▶ **€65 000**

- Tasks and cost structure
- Governance model / Membership
- Support

# Post project governance model

- **Subscription model**
  - 1. Memorandum of Understanding between the interested Pilots4U project partners
  - 2. Letter of Interest from asset owners

## Subscription model

- Pilots4U consortium administrates the database and organises the network meeting/event

Memorandum of Understanding

Executive and Decision level

- Asset owners subscribe for a fee

Letter of Interest

Consulting role

- ▶ Memorandum of Understanding between Pilots4U consortium
- ▶ Circulate Letter of Interest for subscribers
  - ▶ Go ahead when sufficient Lol's are received
  - ▶ What with the data from non-subscribers? to be discussed.  
*Options: does not appear in searches, inactivated 'contact me' button, attend yearly event for a fee (incl. automatic subscription)*



- ▶ What is in it for the asset owners that subscribe?
  - ▶ Be included in the largest free online database for pilot and demo infra for bio-economy in Europe → = **The official BIC/BBI-JU database for finding scale-up partners???**
  - ▶ Link to database via website (embedded!) from relevant organisations: **BIC, BBI-JU, Forestry Technology Platform, Suschem Technology platform, EU Bioeconomy Network ...**
  - ▶ Free participation to yearly stakeholder and matchmaking event
  - ▶ Communication
  - ▶ ...

- ▶ What is in it for the asset owners that subscribe?
  - ▶ To be further discussed and developed:
    - ▶ Advertising options (for a fee)
    - ▶ Lobbying via this ‘Special Interest Group’
    - ▶ Access to website search analytics + contact details (to be checked)
    - ▶ ...

- Tasks and cost structure
- Governance model / Membership
- Support

- ▶ Positive: many asset entries so far!
- ▶ High interest in our database and events!
- ▶ Asset owners joined database as it was:
  - ▶ Easy
  - ▶ for free
  - ▶ fear ‘to miss out’
- ▶ How strong is their engagement to the network?
  - ▶ Letter of Interest / subscription model will clarify

- ▶ We believe that this database can be a powerful tool, but it needs **COMMITMENT** from high-level organisations, e.g.:
  - ▶ BBI-JU: official database to look for scale-up partners?
  - ▶ Other ... EU / Regios / ... ???
- ▶ **RESOURCES** to keep alive and up-to-date: can the European Commission or the Regions play a role in this?



ERRIN European Research and Innovation Network

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