



**BIO-ECONOMY**  
VANGUARD INITIATIVE

# The Bioeconomy Pilot of Vanguard Initiative

Interregional cooperation on innovative use of non-food biomass

Future of the Danube Region: Green transition and circular bioeconomy  
Zagreb, September 21st, 2023

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Regione  
Lombardia

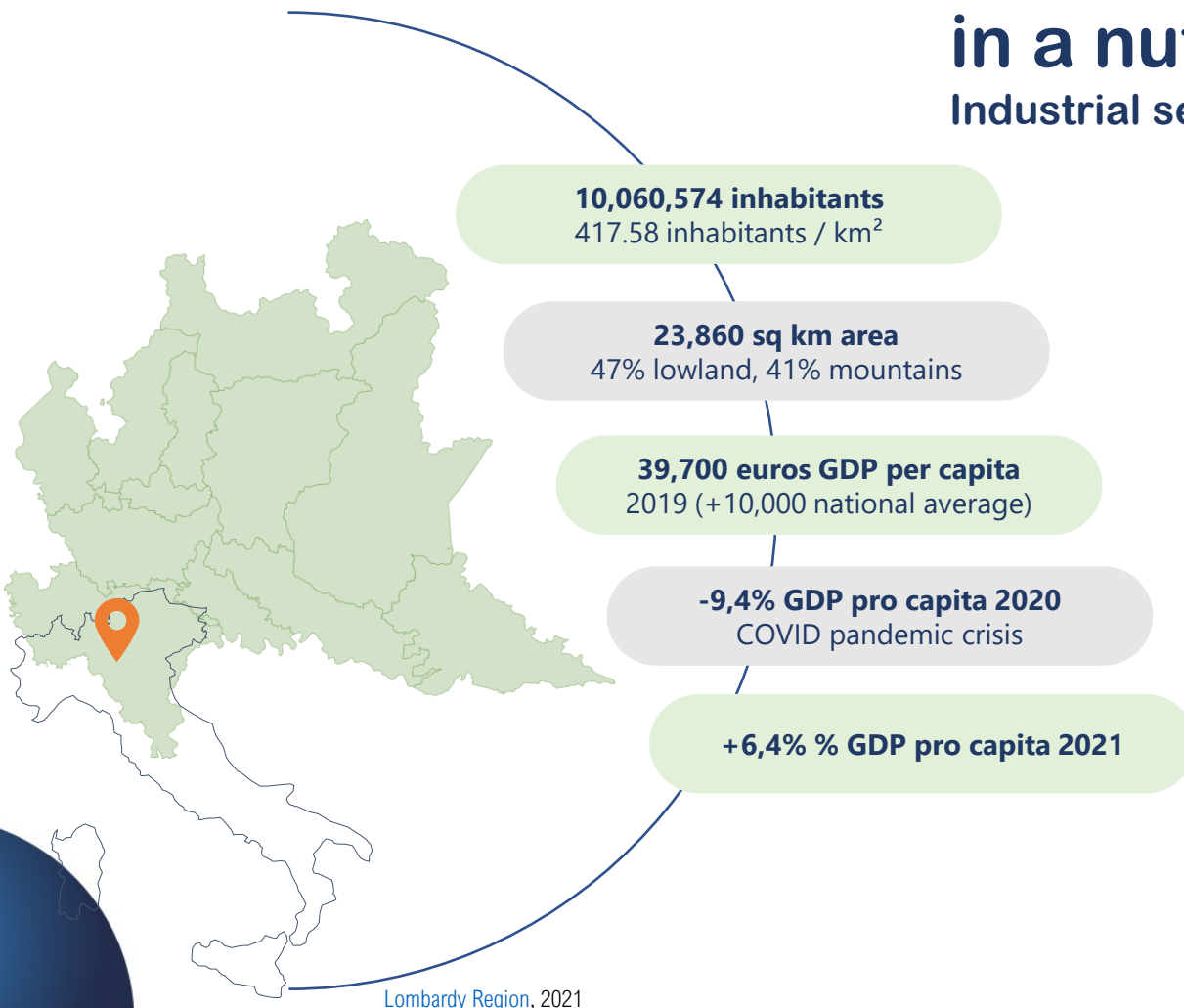
Cluster Tecnologici Lombardi

# Lombard's competitive ecosystem in a nutshell

1

# Lombard's **competitive ecosystem** in a nutshell

## Industrial sectors and technology clusters



- Metallurgical, textile, **chemical**, **pharmaceutical**, **food** sectors represented by **800,000 companies**
- Industrial ecosystem made up of **99% micro and small** companies
- **Milan** alone concentrates **more than 40% of businesses**
- **10 High Technology Clusters:**
  - Aerospace
  - Agribusiness
  - **Eco industry: Green Chemistry and Bioeconomy**
  - Creative and cultural industries
  - Health industry
  - Advanced manufacturing
  - Sustainable mobility
- **12 universities** with **200 technical-scientific departments**



# Lombard **green chemistry cluster**

Shaping the bio-based economy as the most powerful tools for sustainable development

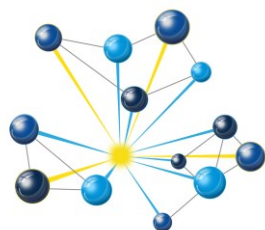


UNIVERSITÀ  
DEGLI STUDI  
DI MILANO



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VANGUARD INITIATIVE

New growth through smart specialisation

- Founded in **2013** by Consorzio Italtotec, the Italian leading no-profit organization on **biotechnology** sector together with other public and private R&D institutions
- Recognised in **2015** by the **Lombardy Region** as the regional Cluster of Bioeconomy and Green Chemistry
- Since **2016** technical coordinator of the **Bioeconomy Pilot** of the **Vanguard Initiative**
- **50 members** (50% SMEs, 15% firms, 35% RTOs)
- **4 value chains: AGROFOOD , GREEN CHEMISTRY, FOOD/PHARMA, WOOD**
- **50 million euros investments** in R&D activities



# Our contribution to the **green acceleration**

Promote the circular bioeconomy growth

Subscriber of the Protocol for Sustainable Development



**Technology transfer and business opportunities**

**Business development and market uptake**

**Policies development and governance action plan design**



## Sostenibilità in Lombardia



Towards the **Position Paper** for the Lombard circular **bioeconomy**



### CIRCULAR BIOECONOMY & BIOECONOMY MANAGEMENT

Promote the **bio-based products** market uptake, the implement **policies tools**, education and training



### GREEN CHEMISTRY

Products and processes for **replacing** and / or reducing the use of rare, toxic and **polluting substances** and reducing energy consumption



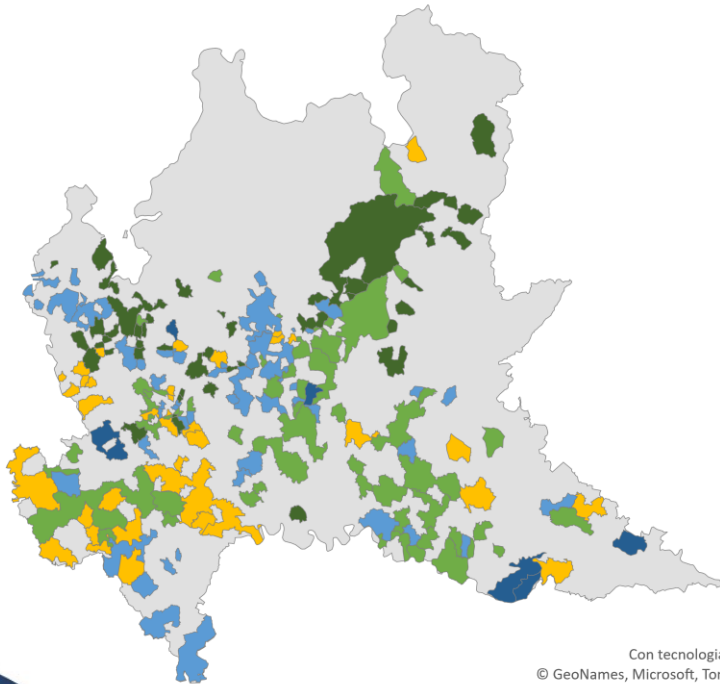
### BIOREFINERY & ADVANCED BIOFUELS

Creating **biorefineries** for the integrated production of value-added products from **no food crops** and waste biomass

# Bioeconomy as a driver for regional growth

The bio-based sector in Lombardy

Gatto F. et al., 2021, [Sustainability](#)

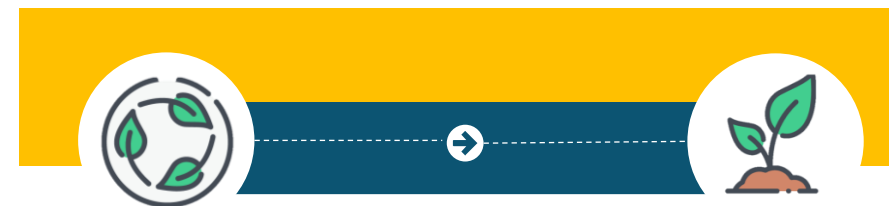


Con tecnologia Bing  
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- Agro and bio-based food and feed
- Bio-based chemicals and pharmaceuticals
- Biofuels and bio-based electricity
- Biopolymers and bioplastics (including bio-based textiles)
- Manufacturing of wood and paper



<p><b>50 billion euro of turnover</b></p> <p>Micro-SMEs <b>+42.18% in turnover</b> from 2015 to 2019</p>	<p><b>43,000 employees</b></p> <p>39 departments with higher-education offer</p>	<p><b>200 companies</b> enhancing second-generation <b>agri-food by-products to biobased products</b></p> <p><b>+400 R&amp;D international scientific cooperations</b></p>	<p><b>500 million euro industry's invested</b> in R&amp;D activities 2014-2020</p>
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<p><b>BIO-BASED CHEMICALS 2015–2019</b></p> <p><b>+12% turnover</b> (from 5.3 to 5.9 billion euros)</p> <p><b>+22% employment</b> (from 7,500 to 9,100)</p>	<p><b>AGRI-FOOD 2015–2019</b></p> <p><b>+17% turnover</b> (from 1.25 to 1.47 billion euros)</p> <p><b>+19% employment</b> (from 2,100 to 2,500 jobs)</p>
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# The Bioeconomy Pilot of the Vanguard Initiative

## 2



# Vanguard Initiative.

## Supported by Policy, driven by Industry

01

### REGIONAL COOPERATION

driven by a political commitment of  
40+ EU regions

02

### S3 SMART SPECIALIZATION

S3 to boost new growth through  
bottom-up entrepreneurial  
innovation .



03

### INDUSTRIAL INNOVATION

multi-level governance for encouraging  
emerging industries (beyond TRL 5) to  
reach the market

04

### INTERREGIONAL INNOVATION INVESTMENTS

Deliver investments on S3 related  
priorities and reinforce globally  
competitive EU value chains



# The Vanguard Initiative's methodology



## INDUSTRY INSPIRED

### 01 LEARN

- Mapping promising business models, facilities, projects
- Identify lead regions and actors

### 02 CONNECT

- Matching events for complementary partner
  - Identity funding instruments
  - Stimulate interregional dialogues



## INDUSTRY DRIVEN

### 03

#### DEMONSTRATE

- Support on definition of business plans
- Define win-win interregional business opportunities

### 04

#### COMMERCIALISE

- Launch of new ventures, partnerships, start-up
- Create new interregional value chains



## INDUSTRY OWNED

# The Bioeconomy partnership at a glance

Supported by Policy, driven by Industry

## Long term Goals



Support the creation of new integral bio-based value chains and connections between chemistry, agro-food, bioenergy, biofuels sectors



Promote new business opportunities through interregional cooperation and exchange of ideas\*



Encourage projects at the demonstration stage towards their upgrading and business exploitation (beyond TRL 5)

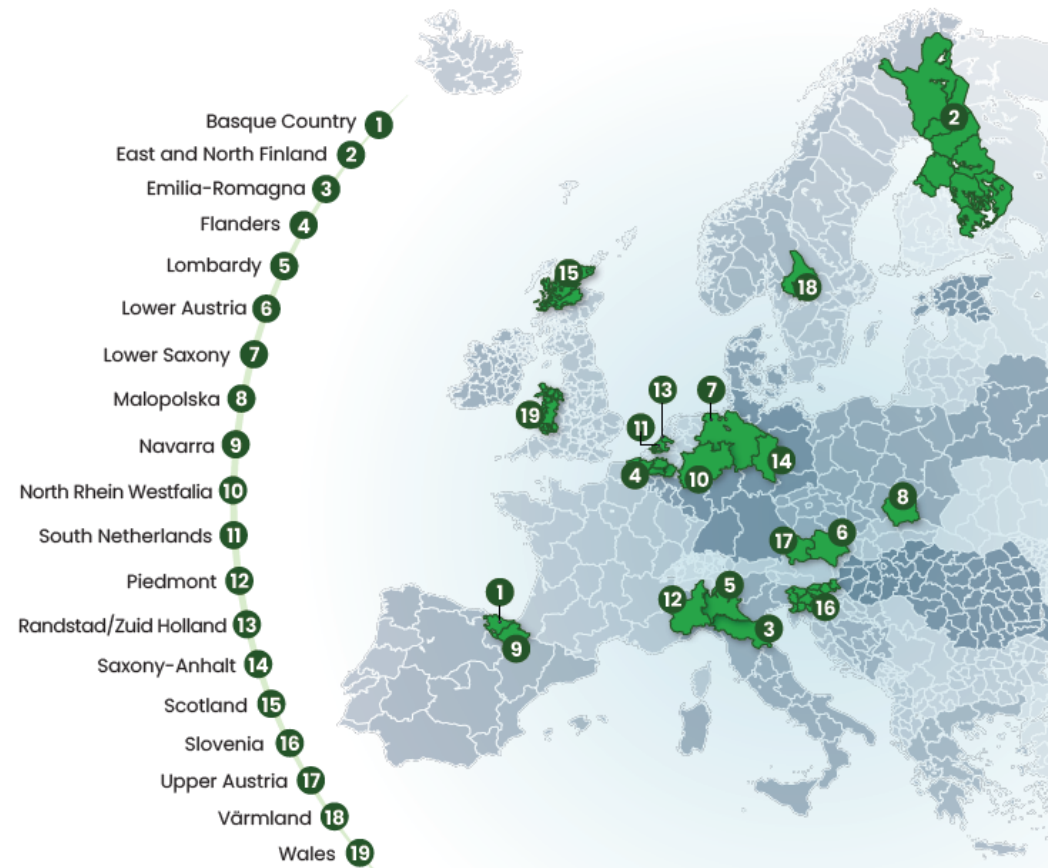


Support the establishment of investment pipelines based on industry-driven business cases coherent with the smart specialisation strategies of the participating regions



Promote the political engagement to position the Smart specialisation agenda at the centre of the EU's drive for a sustainable economy

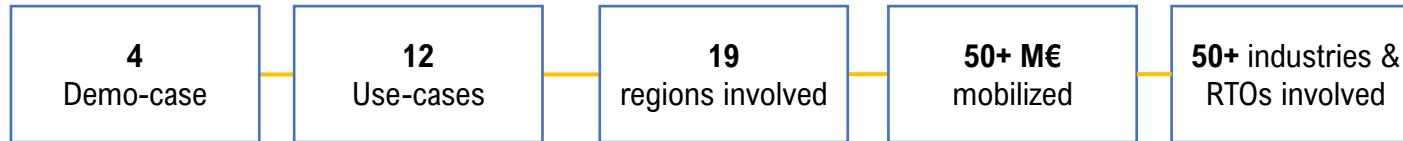
## The Vanguard initiative regions participating in the Bioeconomy Pilot



## OUR COMMITMENT

- Co-led by **Lombardy (IT)** and **Randstad (NL)** Regions
- Technical coordination led by the **Lombardy Green Chemistry Cluster (IT)**
- **19 VI regions** involved
- Works for getting **better engaged** VI regions and increasing the number of **new members**
- **monthly matchmaking and investing forums, 1to1 meetings and new partnerships.**

# The Bioeconomy Pilot demo-cases



Bioaromatics demo-case	Lignocellulosic biorefinery demo-case	Liquified Bio-methane demo-case	Biopolymers demo-case
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Creating interregional value chains to produce lignin-based aromatic molecules and innovative sustainable materials



Set-up of European value chains from lignocellulose biomass to intermediate and end-products of bulk and fine chemicals.



Enhance wide diffusion of bio liquified natural gas for sustainable transport across Europe, by advancing the state of the art of biogas upgrading



Creating interregional value chains by matching polymer market applications and new biobased technologies

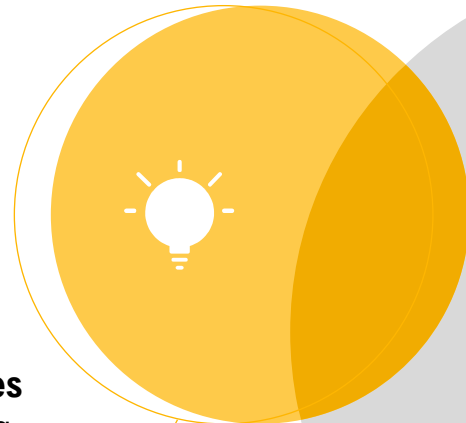
## RESULTS OBTAINED UNTIL NOW

- Mapping **over 50 PROMISING CIRCULAR BIOECONOMY BUSINESS MODELS** ACROSS EU
- Designing and implement **BUSINESS PLANS** Suitable for private and public funds
- **Open access** to EU companies to the best portfolio for biobased materials
- Commissioning of **10 pilot plants**
- Enhancing **12 USE-CASES** gathering over 50 public-private entities across EU
- Promoting over **20** matchmaking events annually involving **1.000+ people**

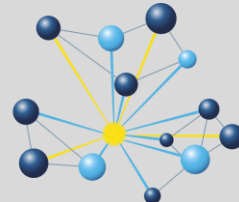
# Bioeconomy Pilot's added-value and benefits

## BENEFITS FOR REGIONS

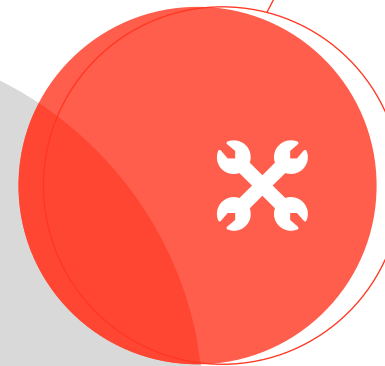
- Speed up innovative projects on an international scale
- Exchanging best practices for defining **joint funding schemes**
- Evaluate **trends** corresponding to local S3 priorities



## BIOECONOMY PILOT

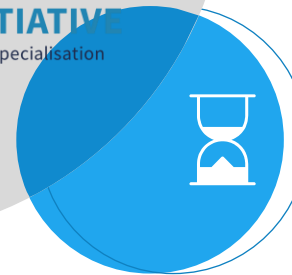


**VANGUARD INITIATIVE**  
New growth through smart specialisation



## BENEFITS FOR INDUSTRIES

- Identify regional opportunities that offer investment opportunities for bio-based and associated **financial incentives**
- Establish relationships to build **new demos** and **maximize the impact** of existing projects.
- Attract **private investors** on flagship projects.



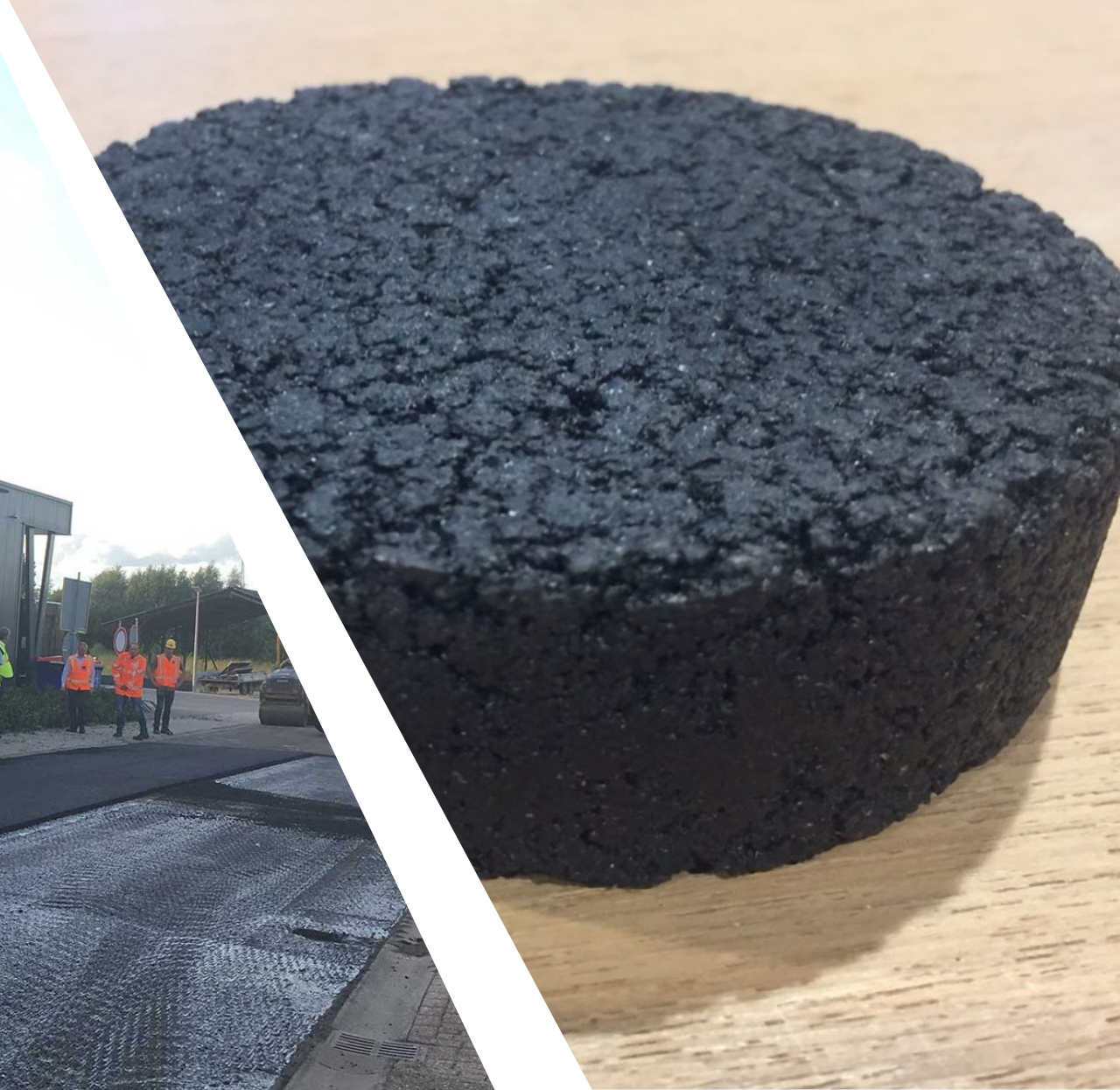
## BENEFITS FOR POLICYMAKERS

- Sharing tools and implementing **services to support SMEs** and large companies
- Support the regions in the construction of **inter-regional strategies and roadmaps**
- Support green transition by creating **synergies and cross-sector alliances**.



Source: Biorizon

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Source: Circular Bio based Delta

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GREEN TRANSITION HUB



Source: Lombardy Green Chemistry Association, Vegea Srl

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## International cooperations and funded projects

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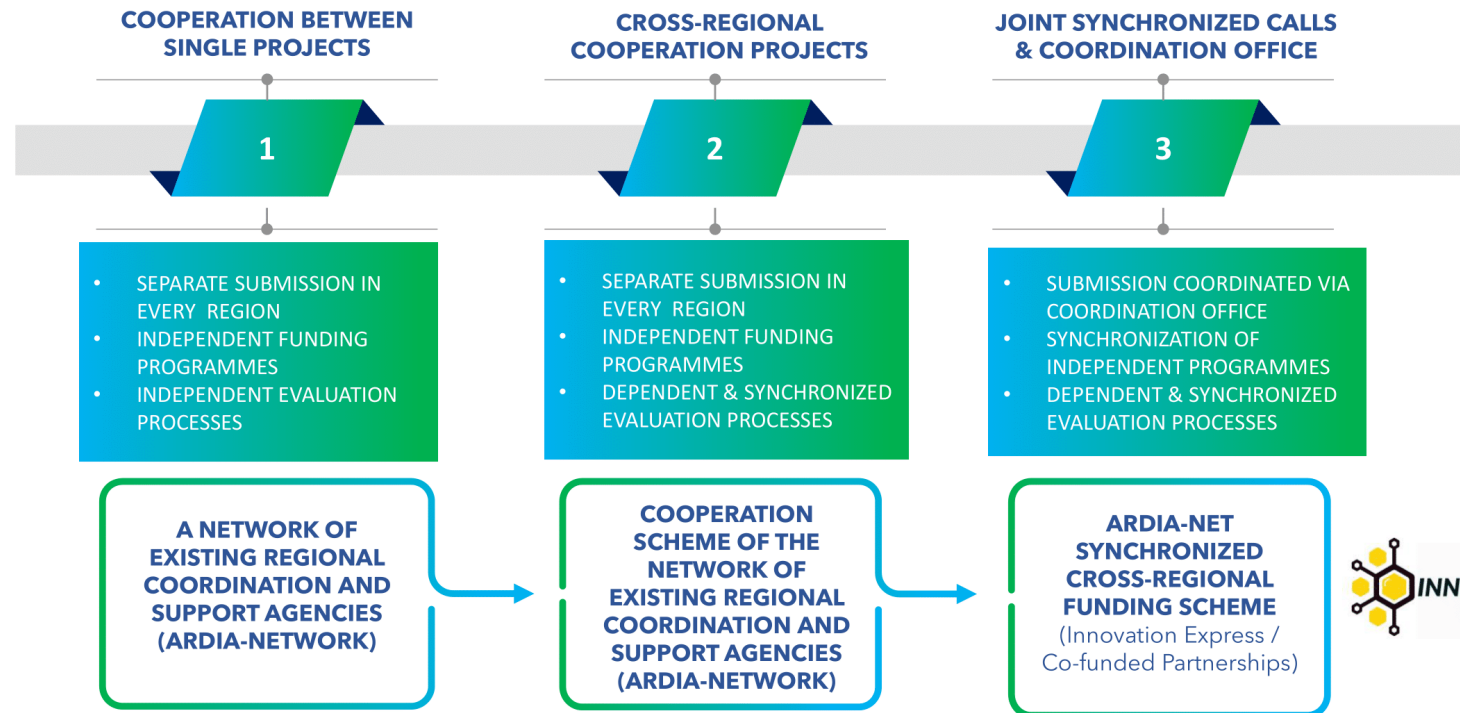
# AlpsConnect

## Cross-regional Cooperation Scheme



### 3 OPTIONS FOR CROSS-REGIONAL FUNDING SCHEMES BASED ON 2 DIFFERENT APPROACHES

3 OPTIONS FOR CROSS-REGIONAL FUNDING SCHEMES FROM THE COOPERATION BETWEEN SINGLE PROJECTS TO JOINT SYNCHRONIZED CALLS WITH A COORDINATION OFFICE



# Innovation Express 2021 approach



- A joint call for proposals **funded by existing regional funding programmes** and managed by participating funding agencies to initiate, develop or enhance transnational exchange activities among applicants
- Participating regions were **Salzburg (AT), Brandenburg (DE), Baden-Württemberg (DE), Canton of Fribourg (CH)**
- **Eligible applicants:** SMEs, research organisations, technology providers, large companies, universities, research centres, etc., from participating regions
- Two thematic fields: **Artificial Intelligence in healthcare applications** and **Digital solutions in the sustainable industry**
- The **call** was open 2 months from **17th May – 16th July 2021**
- The **ARDIA-Net project** partners organised **several virtual events** to introduce the call and facilitate matchmaking

# Innovation Express 2024

## INNOVATION EXPRESS FOR CIRCULAR BIOECONOMY VALUE CHAINS

Interreg  Co-funded by the European Union

Alpine Space

INNOBIOVC

### Supported activities:

- Research, development and innovation activities that lead to new products, processes or services
- Market research activities
- Technology/knowledge transfer
- Recruitment/training/education
- Workshops and study trips, networking activities
- Feasibility studies and piloting prior to RDI projects

### Activities of the Coordination Office / Secretariat:

- Coordination of the call text
- Drafting proposal application form
- Co-organization of the matchmaking event (b2match platform, website, registrations, technical support)
- Set up a dedicated e-mail (application@innovationexpress2021.net)
- Collecting the project proposals
- Administrative check of eligibility
- Distribution to the relevant funding agencies

# Rural BioUp

## Grow local, go global

RuralBioUp will strengthen the cooperation among regional key actors and knowledge holders by establishing 9 Regional Hubs in 6 EU countries.

- Italy
- Czechia
- France
- Latvia
- Ireland
- Romania

These multi-actor regional Hubs will bring together:



That will co-design and implement **9 Action Plans** on 18 value chains, to improve the bioeconomy and boost rural development at the regional and local levels.



Funded by the European Union



# HempCluB

## Competent and Connected Clusters Unfold the Hemp Industry Potential for the European Bioeconomy



- Improve the **management skills** of cluster managers.
- Strengthen cluster excellence capacity by improving the portfolio of **business support** services.
- Facilitate **B2B and C2C collaborative activities** to strengthen interregional strategies for the bioeconomy
- Enhance **collaboration and networking** activities between European organisations.
- Promote **internationalisation, technology** and **knowledge transfer** through the activation of new opportunities for growth and capacity of excellence for clusters and their members.



## Lgca projects/Initiatives

- coordinator of the technical secretariat of the **Pilot Bioeconomy of Vanguard Initiative**, [www.chimicaverdelombardia.it/en/vanguard](http://www.chimicaverdelombardia.it/en/vanguard)
- coordinator of **HempCluB** European project (COSME), [www.chimicaverdelombardia.it/en/hempclub-project](http://www.chimicaverdelombardia.it/en/hempclub-project)
- partner of **INNOBIOVC** European project (Interreg Alpine Space) <https://www.alpine-space.eu/project/innobiovc/>
- partner of **Forest EcoValue** European project (Interreg Alpine Space) <https://www.alpine-space.eu/project/forest-ecovalue/>
- partner of **ARDIA-Net** European project (Interreg Alpine Space), [www.chimicaverdelombardia.it/en/ardia-net-project](http://www.chimicaverdelombardia.it/en/ardia-net-project)
- partner of **RuralBioUP** European project (Horizon Europe) <https://www.ruralbioup.eu/>
- consultant for the communication of the **BIOMASS HUB** Lombardy project, [www.chimicaverdelombardia.it/progetto-biomass-hub](http://www.chimicaverdelombardia.it/progetto-biomass-hub)
- consultant for the **RICH** project (Cariplo Foundation), [www.chimicaverdelombardia.it/progetto-rich](http://www.chimicaverdelombardia.it/progetto-rich)
- COVID-19 impact assessment on chemistry industry, in collaboration with Lombardy Region, in the context of the **S3Chem** european project, [www.chimicaverdelombardia.it/progetto-s3chem](http://www.chimicaverdelombardia.it/progetto-s3chem)

# Conclusion

01

The effects of **climate change** are mobilizing new close-to-market research for producing sustainable energy and biomaterials.

02

Measuring and forecasting bioeconomy value support **regional investments** towards applications with greater economic, social and environmental impacts



03

**International** cooperation networks contribute substantially to increasing innovation readiness by **maximising the use of renewable resources**.

04

The LGCA cluster and the Bioeconomy Pilot of Vanguard Initiative can support **training** and **demo field visits** for students and international business opportunities.





**Many thanks for your attention.**

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