



#6 panel
**Scaling-Up: pilot and demo
infrastructures for the bioeconomy,
a strategic asset for competitiveness**



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TECHNOLOGY INFRASTRUCTURES

A STRATEGIC ASSET FOR COMPETITIVENESS

A satellite event of the **EU R&I Days 2025**

Conference

Organised by the European Commission and the Polish Presidency Council of the EU, together with Łukasiewicz Research Network

6-7 May 2025, Warsaw, Poland

Towards a European Policy for Technology Infrastructures

Building Bridges to Competitiveness

European Commission
Directorate-General for Research and Innovation
Directorate E - Prosperity
Unit E1 – Industrial Research, Innovation & Investment Agendas

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Towards a European Policy for Technology Infrastructures

Building Bridges to Competitiveness

Independent
Expert
Report



Expert Group Recommendations

Juliette Forneris, Member of the Commission expert group on Technology Infrastructures

Context

- EU in competitiveness crisis
- Technology Infrastructures as critical enablers
- Current system fragmented
- Strategic opportunity identified



Expert Group – Background

- Mission: Strengthen provision of Technology Infrastructures (TIs) to European industry, including SMEs and start-ups. Part of ERA Policy Agenda Action 12 on accelerating green/digital transition of key industrial ecosystems
- Period: February 2024 - January 2025
- Key Tasks:
 - Landscape analysis
 - Propose EU-Level coordination mechanism
 - Analyze access conditions to TIs
- 22 members from Research & Technology Organizations, Universities, Business associations, Member State authorities & EU bodies.

Deficiencies identified and 5 strategic recommendations

Deficiencies that undermine the development of TIs in the EU and the effectiveness of the support they can provide to companies across the EU:

- Lack of a coherent policy approach at EU level and among the Member States, lack of policy coordination and effective priority setting mechanism;
- Fragmentation of TI capacities and services across the EU, insufficient cooperation and coordination among TI operators;
- Insufficient visibility of TI services and limited access opportunities, especially for SMEs and startups, and especially across regions and national borders;
- Insufficient funding opportunities for investments in TIs and for their broader uptake by industry.

To address these shortcomings, the Expert Group issued 5 key recommendations:

- Recommendation 1: Formalise the definition of Technology Infrastructures
- Recommendation 2: Improve access to Technology Infrastructures
- Recommendation 3: Develop an effective investment prioritisation mechanism for European Technology Infrastructures
- Recommendation 4: Establish at EU level a robust governance framework for Technology Infrastructures
- Recommendation 5: Establish funding programmes dedicated to Technology Infrastructures at European and national levels

Recommendation 1: Formalise the definition of TIs

A new definition proposed to ensure clarity, common understanding and recognition in policy frameworks:

- ✓ The Council (May 2024) asked the Commission to propose a definition of TIs.
- ✓ The former definition which served as a basis for the European Research Agenda Policy Agenda 2022-2024 was provided in 2019 in a Commission Staff Working Document but it lacked a broader recognition in R&I policy agendas.
- ✓ In the Innovation landscape, TIs play a central role, different from that of RIs or industrial infrastructures:
 - Serve various industrial sectors, enabling cross-sectoral collaboration.
 - Support the transition from prototype to market-ready solutions.
 - Allow companies to derisk their R&D&I investments before market introduction and to have ideas and concepts tested and validated for faster uptake at commercial scale

The EGTI recommends:

- That an **updated definition of TIs**, once agreed with the Member States, should be systematically used and included in all relevant European and national legal acts and policy documents.

Recommendation 1: Formalise the definition of TIs

Technology Infrastructures are facilities, equipment, capabilities and resources required to develop, test, upscale and validate technology. They enable and accelerate technological innovations towards societal/market adoption, fostering industrial competitiveness. They provide a wide range of capacities and services from pre-competitive applied research services, through demonstration and validation of technology, up to small-scale production. They include, amongst others, test beds, demonstration and testing facilities, pilot lines or living labs, usually embedded within non-profit research and technology organisations, universities active in technology fields or technology centres, which are open to private and public users. They can be public, semi-public or privately owned, physical or digital.

Recommendation 2:

Improve access to Technology Infrastructures

- Key challenges:
 - Limited financial and human resources to engage with TIs
 - Lack of visibility and information about available TIs
 - Access conditions to TIs can be discouraging due to legal, financial, and administrative frameworks, complex collaboration models, etc.
 - Limited awareness of facilities beyond regional/national borders and/or barriers to cross-regional and transnational access.
 - Some companies are hesitant to engage with TIs until tangible benefits are demonstrated.
- The EGTI recommends:
 - ✓ The development of a **European Charter for Access to TIs**
 - ✓ To develop **support measures to improve the visibility of TIs** and their services
 - ✓ To **increase the opportunities and support for companies to access the infrastructures**
- The report includes several proposals for measures and actions at EU, national and TI level.

Recommendation 3: Develop an effective investment prioritisation mechanism for European TIs

- Key challenges:
 - There is no investment prioritisation mechanism at EU level and it is also rare at national levels.
 - Insufficient collaboration among users, TI operators and funders, and between Research Infrastructures (RIs) and TIs on building up infrastructure capacities.
- The EGTI recommends:
 - ✓ Establishing an **EU level investment prioritization mechanism**
 - ✓ Priorities should be guided by a **robust set of criteria**
 - ✓ **Building interconnected networks of RIs and TIs**
 - ✓ Implementing **a limited set of pilot actions designed to test a European approach to TIs.**

Recommendation 3: Develop an effective investment prioritisation mechanism for European TIs

Investment prioritisation mechanisms implemented at EU, national and regional levels should consider all available funding sources:

- ✓ relevant EU funding programmes and instruments
- ✓ public-private partnerships that allow for a combination of public and private funding sources.
- ✓ national and regional funding programmes, including government grants,
- ✓ funding mechanisms available through the European Investment Bank,
- ✓ private funding sources, including grants from charitable foundations, venture capital and private equity as well as user fees.

Recommendation 4: Establish at EU level a robust governance framework for Technology Infrastructures

- Key challenges:
 - At EU level: Limited, fragmented and uncoordinated actions, lack of common vision and priorities, high risk of duplication and lack of EU large-scale infrastructure
 - At Member States level: lack of national TI strategies and funding programmes in many countries.
 - Lack of a dedicated 'discussion space' on TIs at EU level, incl. exchange of views and experiences, identifying priorities, challenges, etc.
- The EGTI recommends establishing **a multi-actor governance framework** consisting of two layers:
 - ✓ **Horizontal coordination:** Strategic planning, investment prioritisation, and mutual learning.
 - ✓ **Thematic coordination:** Networks of TIs focused on key technology areas and coordination of funding for agreed TI investments.
 - ✓ To be **implemented first as a light advisory structure.**

Recommendation 5: Establish funding programmes dedicated to Technology Infrastructures at European and national levels

Key challenges:

- Funding opportunities for TIs are currently fragmented and uncoordinated, undermining the development of state-of-the-art facilities and their accessibility across the EU.

The EGTI recommends establishing dedicated funding for TIs:

- ✓ **At EU level** through programmes supporting R&I and competitiveness **and at national/regional levels** (including allocating funding from the European Structural and Investment Funds).
- ✓ With a **pooling of public and private funding** resources to support large-scale investments in TIs agreed at the EU level.
- ✓ To **facilitate access to TIs** for users where funding is an important barrier, such as **SMEs, start-ups and scale-ups**.
- ✓ To **develop TI services and support upskilling of staff**, to strengthen service delivery and uptake.
- ✓ To foster **collaboration and networking among TIs, and between TIs and RIs**.

Recommendation 5: Establish funding programmes dedicated to Technology Infrastructures at European and national levels

Support should be provided for TIs in areas of **strategic interest for the EU and where gaps have been assessed by TI road-mapping exercises**. The funding mechanisms should cover two key dimensions:

- ✓ **A Top-Up (or co-funding) investment component** (e.g. EUROSTARS, ERA-NET+ and Chips pilot lines) – incentivise the mobilisation of national and regional funds
- ✓ **A European dimension component** – funding activities that enhance European networking and (inter-national and inter-regional) collaboration

Expert Group on Technology Infrastructures: Summary of recommendations

- **Recommendation 1:** Formalise the definition of Technology Infrastructures
- **Recommendation 2:** Improve access to Technology Infrastructures
- **Recommendation 3:** Develop an effective investment prioritisation mechanism for European Technology Infrastructures
- **Recommendation 4:** Establish at EU level a robust governance framework for Technology Infrastructures
- **Recommendation 5:** Establish funding programmes dedicated to Technology Infrastructures at European and national levels
- Link to [full report](#) and [User needs report](#).



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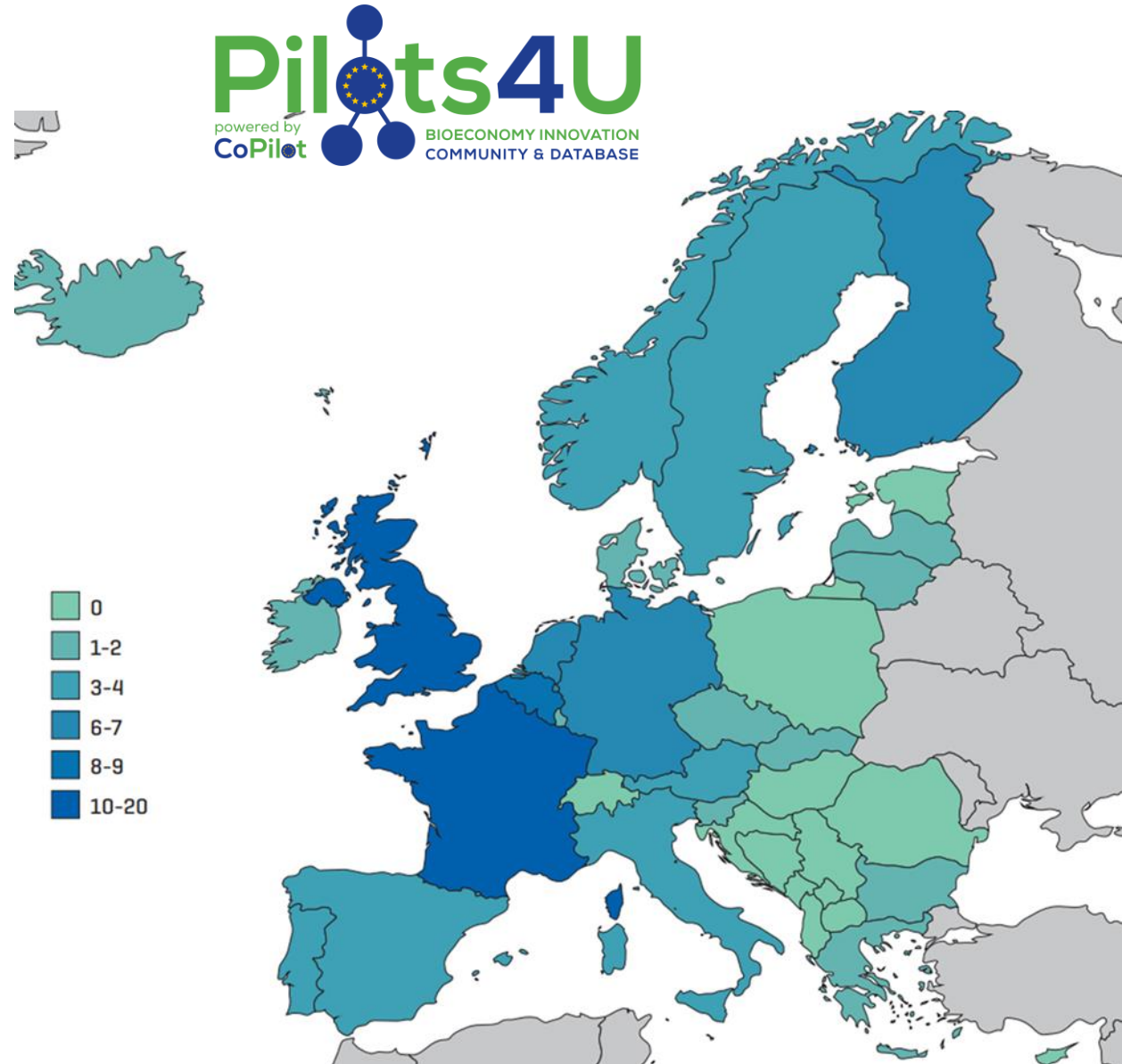
Stef Denayer
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Pilots4U

Pilots4U

120+ pilot and demo facilities
for the European bioeconomy

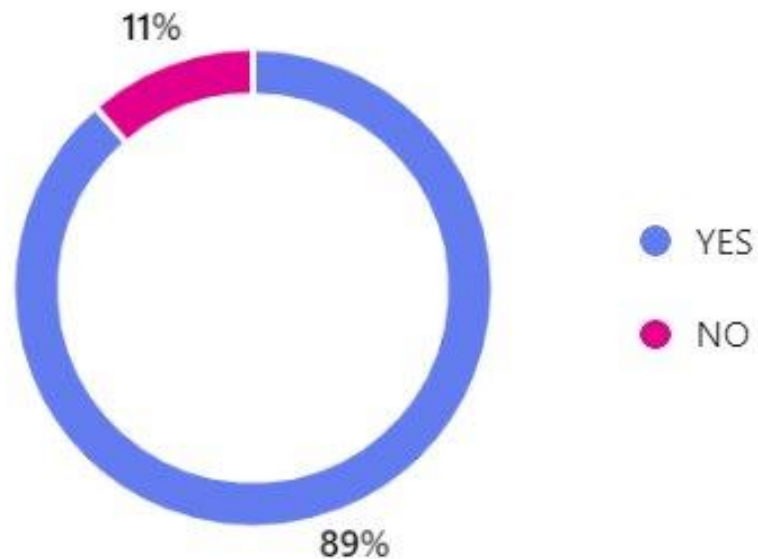
- open access
- state-of-the-art
- multipurpose

**Pilots4U is the operational tool
for biotech companies to identify
support to scale-up**

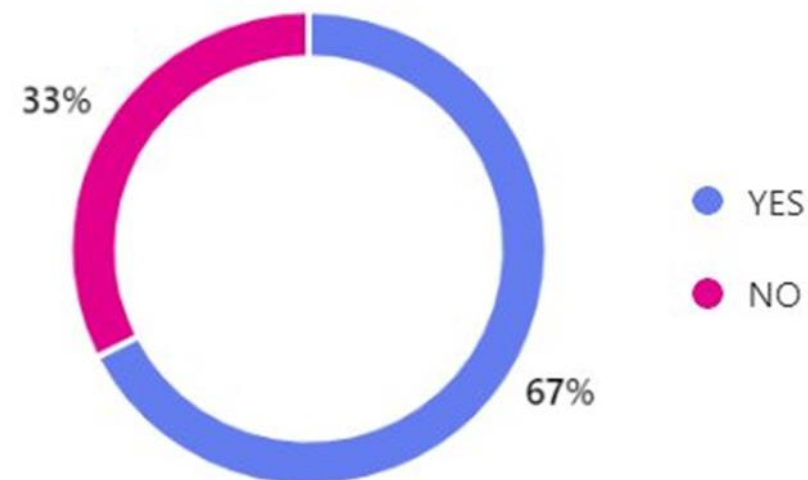


Status equipment and expansion plans (in 2024) of existing technology infrastructures for the bioeconomy

Is your equipment state-of-the-art?



Do you have short-term expansion plans?



Pilots4U covering a broad scope of technology areas



Size reduction and Homogenisation

Chipping
Extrusion
Grinding
Milling
Densification



Thermal and Pressure techniques

Steam explosion
Microwave
Cold plasma
Ultrasonication
Torrefaction
Hydrothermal



Pulping

Chemical: sulphate/sulphite, organosolv, soda
Mechanical
Hybrid: Chemi-thermo-mechanical pulping,
neutral sulphite semi-chemical pulping



Thermochemical conversions

Gasification
Pyrolysis



Algae technologies

Algae cultivation in open ponds,
photobioreactors and fermenters



Separation technologies

Mechanical separation
Centrifugation
Membrane filtration
Particle filtering
Particle classification and sieving
Physicochemical separation
Chromatography
Crystallization
Distillation
Drying
Evaporation
Crystallization and precipitation
Field-Flow Fractionation
Flocculation
Extraction
Liquid-Liquid extraction
Solid-Liquid extraction



Fermentation and Digestion

Anaerobic digestion
Biomass fermentation and
precision fermentation
Solid-state fermentation
Gas fermentation
Composting



Enzymatic catalysis

Enzymatic hydrolysis and
enzyme immobilization
Remediation



Chemical conversions

Acid and alkaline hydrolysis
Carbon capture utilisation
Polymerisation
Heterogeneous catalysis
Reduction



Material technologies

Coating or lamination
Textile fibre spinning
Fibre web production
Nano/micro fibre production
Biocomposite processin



Sterilisation technologies

UHT
Pasteurisation
UV



Cell cultivation

Mammalian/Insect Cells
Plant Cells



Improve access to pilot and demo infrastructures for the bioeconomy

Easily accessible overview www.biopilots4u.eu

[Database](#)[Add a facility](#)[Events](#)[Programs](#)[About us](#)[Contact](#)[Login](#)

Discover the new PILOTS4U database

A powerful and intuitive tool designed to bridge the gap between Bioinnovators and Europe's leading Pilot and Demonstration Infrastructures. This platform streamlines access to cutting-edge facilities and fosters seamless collaboration, empowering innovators to accelerate the development and commercialization of biobased technologies. By reducing barriers and connecting key players, it plays a vital role in bringing innovative solutions to market faster, driving sustainable growth and advancing.

[Find a facility →](#)[Make an account →](#)

NIZO food research BV

Are you optimizing existing processes, designing new production processes or looking for alternative applications for product waste streams? We can...

[Read more →](#)[Onsite event](#)[Connect & exchange](#)

Pitch Perfect and Boost the European Bioeconomy 2025

24.11.2025 - 26.11.2025

Brussels, Belgium

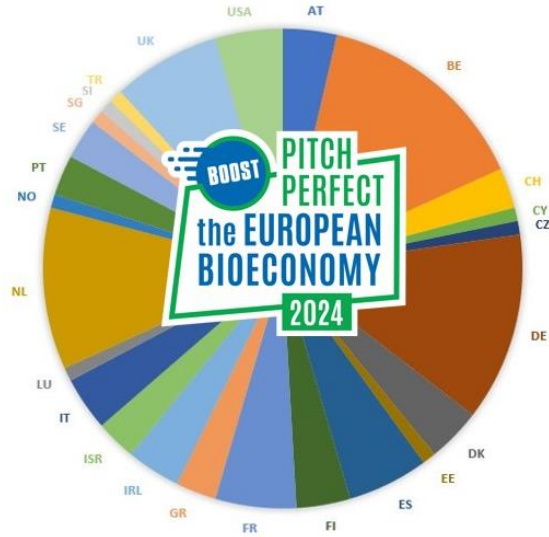
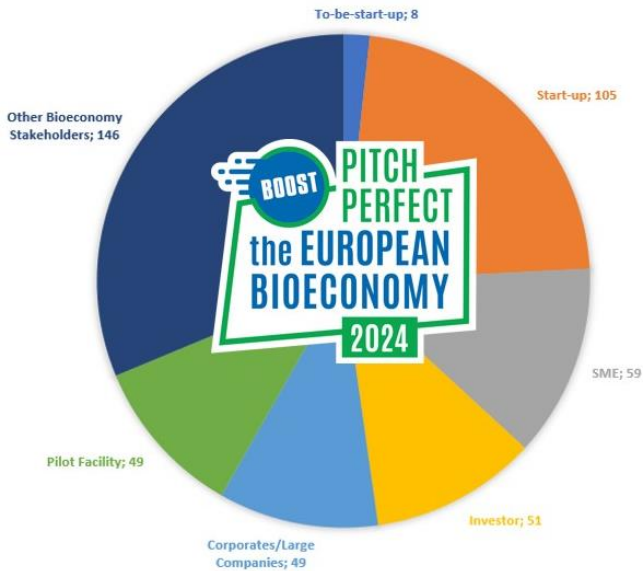
"Pilots4U powered by COPILOT" co-organises the Pitch Perfect and Boost the...

[Read more →](#)



PITCH PERFECT AND BOOST THE EU BIOECONOMY 2024
 467 PARTICIPANTS FROM 30 COUNTRIES

PITCH PERFECT AND BOOST THE EU BIOECONOMY 2024
 PITCHES (110) PER COUNTRY



Present

The European Pilot and Demonstration Infrastructure Fair

Organised back-to-back with

CBE JU Info Day 2025

4 April 2025 from 9.00am – 2pm @ CBE-JU, Brussels



**WIN
a TRAVEL
VOUCHER
worth €500**

**to visit the pilot or
demo infrastructure
that might scale-up
your bioeconomy innovation**

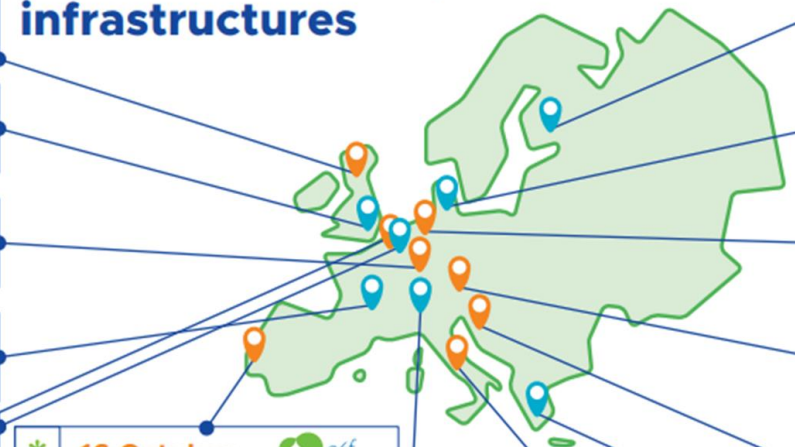
15 European Pilot and Demonstration
Infrastructures for the bioeconomy open
their doors in **2025** and **2026**, offering
a study visit and a thematic workshop
related to scale-up for the bioeconomy.

CoPilot launches two OPEN CALLS to
distribute **100 travel vouchers**
to attend.

powered by
CoPilot

	2025	2026	
Application Deadline (A.D.):	8 May 2025	13 November 2025	* Vouchers available Ø No vouchers available

Visit one of these pilot or demo infrastructures



* 5 November IBiolC, UK	14 April VTT Bioruukki, FI
* 21 April CPI, UK	* 19 March DTI, DK
* 14 October LIST, LU	* 6 June NIZO, NL
* March ARD, FR	* 16 September BEST, AT
Ø 26 November BBEPP, BE*	* 2 September Acies Bio, SL
Ø Apr/May Food Pilot, BE	* Feb/Mar BIO2CHP, GR
* 16 October A4F-Algafuel, PT	Ø 20 May Biosphere, IT
Ø 4 February FHNW, CH	

* Linked to →
Brussels 2025
(24-25 Nov)



Co-funded by
the European Union



Circular
Bio-based
Europe
Joint Undertaking



Bio-based Industries
Consortium



**More info on the application procedure or the study visits,
scan the QR-code and go to the “Open Calls” or “Events” tab.**



Circular
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Europe
Joint Undertaking



Bio-based Industries
Consortium

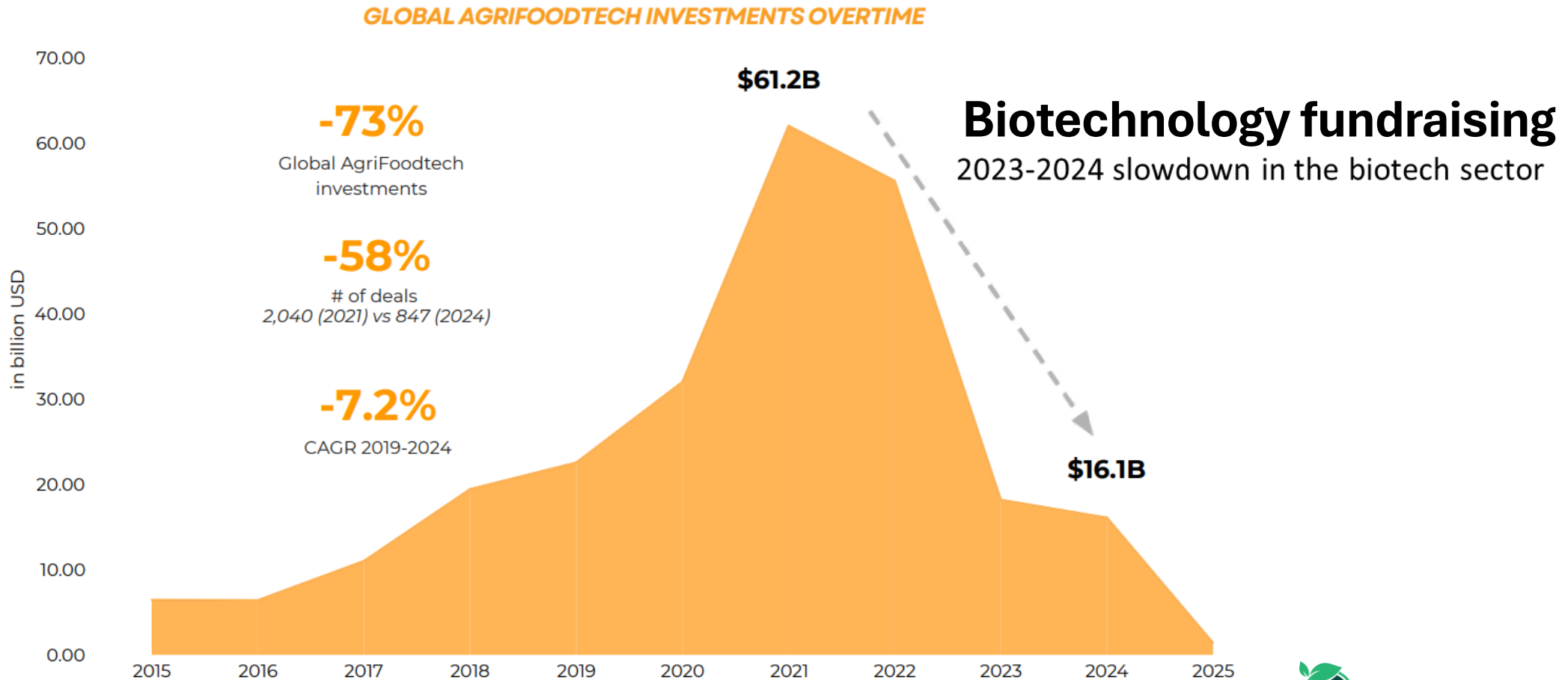


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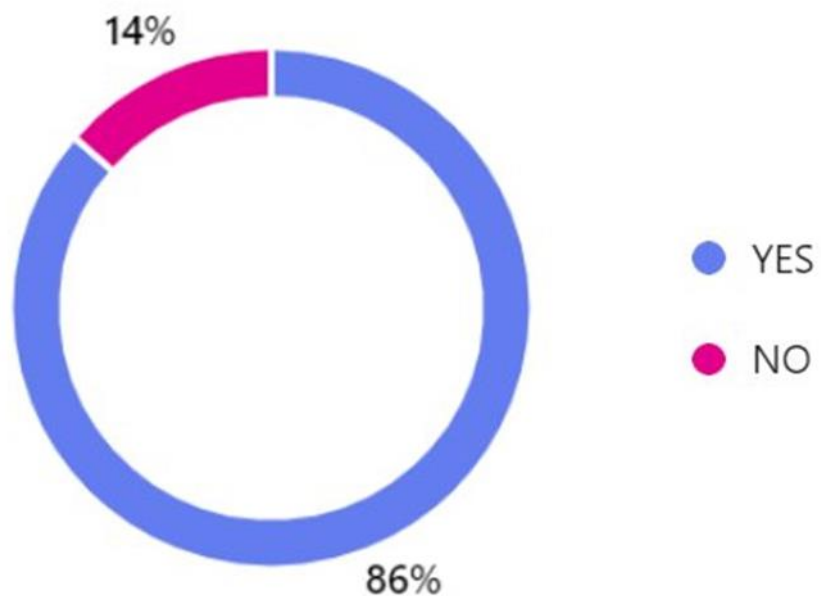
**Cross-border collaboration
combined with demand driven
state-of-the-art driven investments**

Changing investment climate

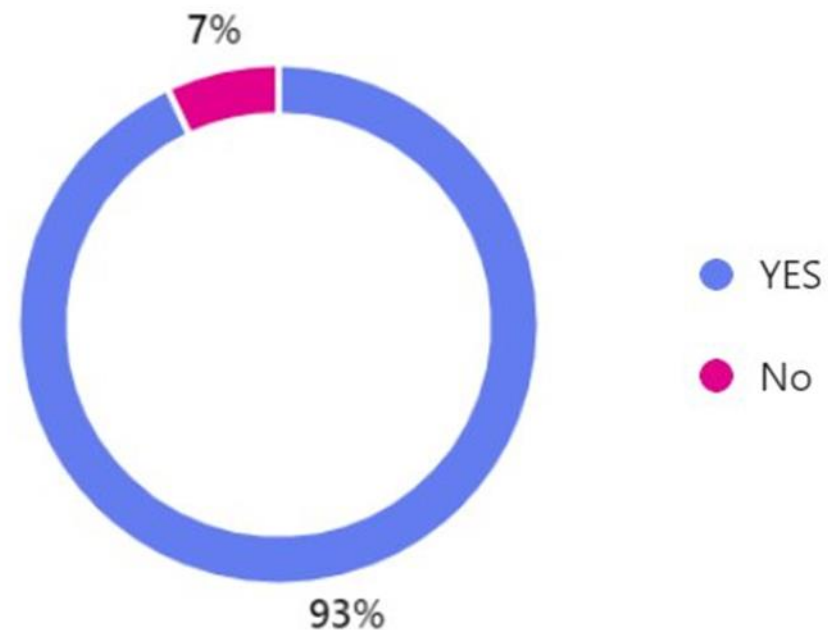


Capacity and availability of existing pilot and demo infrastructures for the bioeconomy

Do you have sufficient capacity?



Do you have sufficient availability to cope demand?





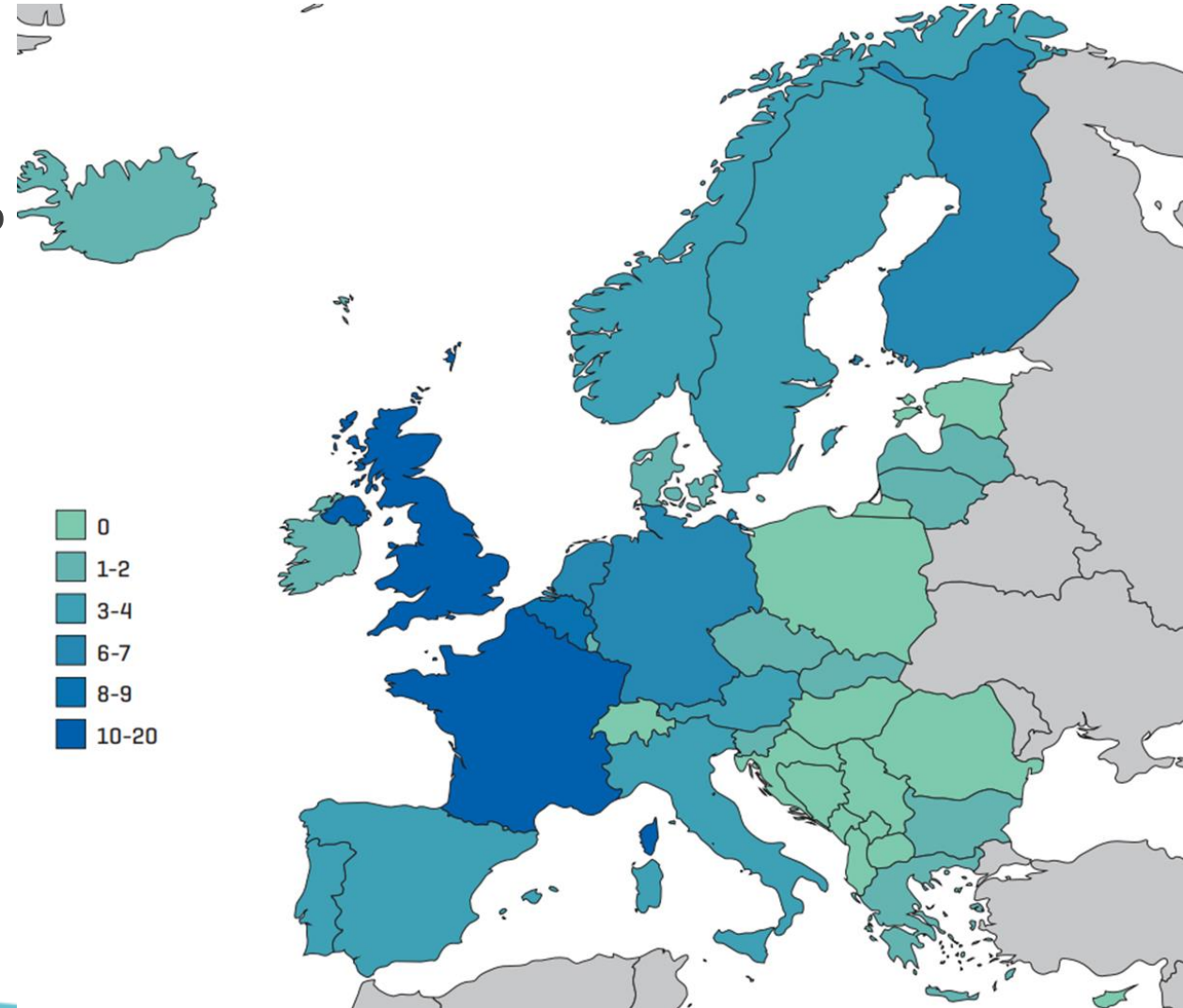


**Amplify derisking the scale-up phase
of bio innovators by providing public
co-funding support**

DERISK THE UPSCALING OF BIOECONOMY INNOVATORS

Provide co-funding support and remove constraints to efficiently use open access pilot and demo facilities, hereby lowering the technological risk of bioeconomy innovations

- Amplify derisking the scale-up phase of innovators, by providing co-funding support and removing constraints to efficiently use open access pilot and demo facilities, hereby lowering the technological risk of bioeconomy innovations and increasing private investor's appetite.
- Create an easily accessible and “fast application” voucher system for scale-up (e.g. 50% co-funded, 100 -250 k€ for scale-up of biobased processes. Regional funding should allow spending in other regions with a state-of-the-art pilot or demo facility, creating cross-border collaboration
- Increase budgets for higher TRL or later stage innovation support, adapted to the higher capital requirements involved.





Backup slides

Scale-Up : piloting and demonstration

- Europe boasts a well-established network of 120+ open access Pilot & Demo Infrastructures (PDIs), capable of supporting a broad scope of bioeconomy technologies. They offer to innovators a faster, more cost-effective and efficient way to scale-up.
- PDIs have undergone significant expansion in recent years (2022- 2024), driven by increased demand (2021) from startups and SMEs. This expansion ensures ample capacity to handle current and future scale-up needs.

HOW TO SUPPORT

- By putting this asset larger on the European bioeconomy innovation map (e.g. CBE JU, Biotech Hub,..) support-promote-communicate-involve-connect-share knowledge (*EC, Member States and Regions*)
- By keeping them state-of-the-art, investing in new equipment rather than in further duplication within Europe (*European Bioeconomy Scale-up Platform, Member States and Regions*)
- Special focus on biomanufacturing for Central and Eastern Europe (CEE) based on cross-border collaboration to bring countries to a similar level of innovation (*Member States and Regions*)

Optimizing our EU COMPETITIVENESS in bioeconomy upscaling

Open access pilot and demo infrastructures (PDIs) ensure a faster, cheaper and better upscaling of bioeconomy innovations.

OPTIMIZE ACCESS FOR BIOECONOMY INNOVATORS

- provide structural support for the Pilots4U platform as the European reference for technology infrastructures for the bioeconomy (EC)
- involve the Pilots4U network in EU/member state/regional activities, promotion, communication, knowledge sharing (EC, Member States and Regions)
- support the 120+ existing infrastructures in keeping them state-of-the-art, investing in new equipment rather than in further duplication within Europe (*European Bioeconomy Scale-up Platform, Member States and Regions*)

>>> *gap analysis, demand driven investments*

- special focus on biomanufacturing for Central and Eastern Europe (CEE) based on cross-border collaboration with existing PDIs to bring countries to a similar level of innovation (*Member States and Regions*)

Voucher schemes

Analyses of the leverage effect of voucher schemes that facilitate access for SMEs to pilot facilities in the bio-economy

Author: Katrien Molders, Communication Manager, Bio Base Europe Pilot Plant

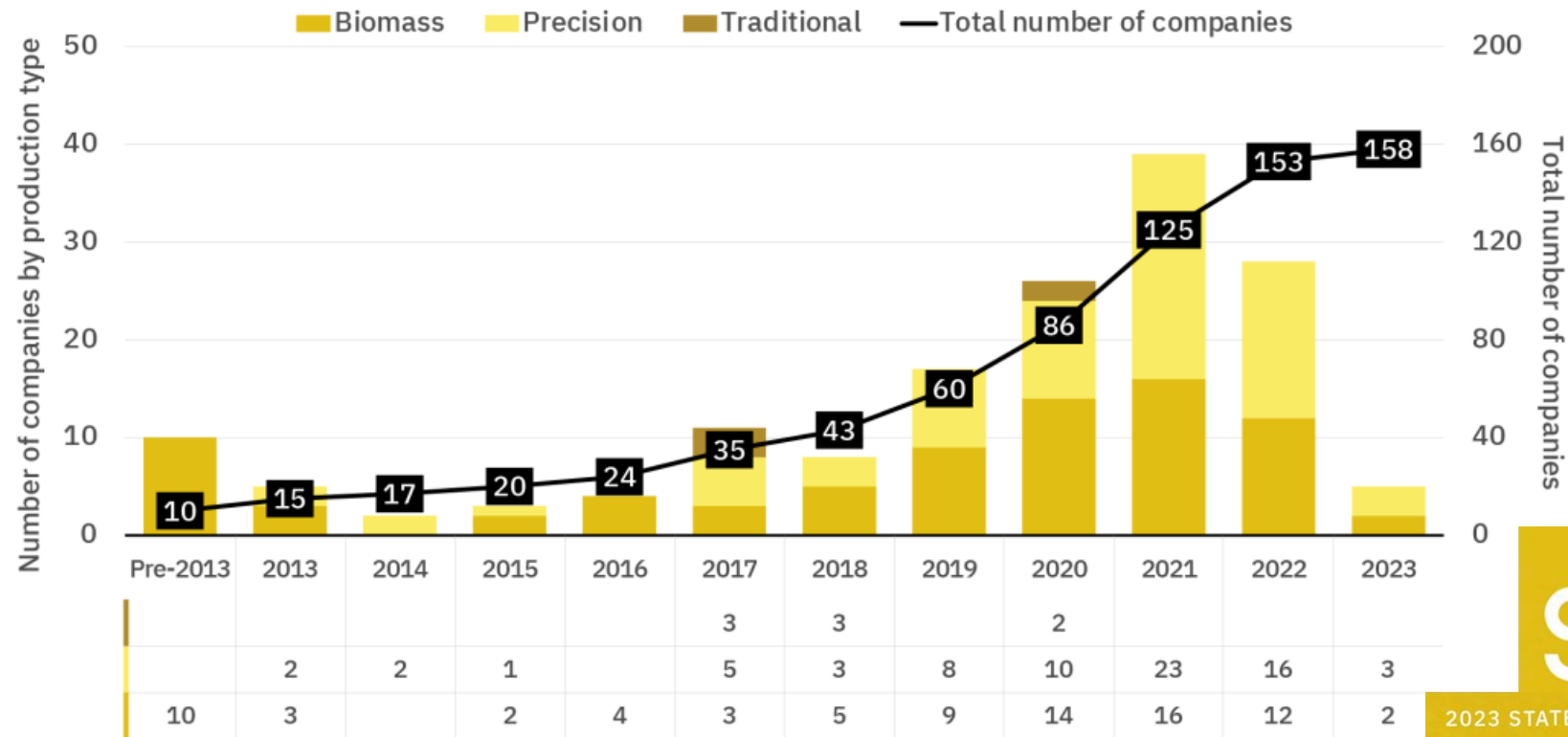
July 2020

Final Version



Risk averse investment climate

Figure 5: New and total publicly announced companies by year founded



Source: GFI company database.

gfi / Good Food
Institute.

2023 STATE OF THE INDUSTRY REPORT

Fermentation

2023–2024 slowdown in the biotech sector

