



Digitisation of biology for circular bioeconomy applications
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European Bioeconomy Strategy: Stocktaking and future developments

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The Bioeconomy in the EU

EU's understanding of the Bioeconomy:

All sectors and associated services and investments that produce, use, process, distribute or consume biological resources, including ecosystem services.

- Ecosystem **services** on land and sea
- Primary **production** systems - agriculture, forestry, aquaculture / fisheries – incl. **waste/side streams**
- Food, feed, fibre, **bio-based industry**, fuels and bioenergy






EU BIOECONOMY

European Commission's Knowledge Centre for Bioeconomy

EMPLOYMENT
(MILLION JOBS)
17.5

VALUE ADDED
(BILLION EUR)
614

EMPLOYMENT
(MILLION JOBS) VALUE ADDED
(BILLION EUR) VALUE ADDED
(SHARE TOT)

	AGRICULTURE	9.3	189	31%
	FORESTRY	0.5	25	4%
	FISHING AND AQUACULTURE	0.2	7	1%
	FOOD, BEVERAGES AND OTHER AGRO-MANUFACTURING	4.4	215	35%
	BIO-BASED TEXTILES	0.7	21	3%
	WOOD PRODUCTS AND FURNITURE	1.4	47	8%
	PAPER	0.6	42	7%
	BIO-BASED CHEMICALS AND PHARMACEUTICALS, PLASTICS AND RUBBER	0.4	60	10%
	LIQUID BIOFUELS	0.02	3	1%
	BIOELECTRICITY	0.02	4	1%

A key sector of the EU's economy

- ~8.9% of the EU's workforce
- ~75% employed in agriculture, food and drink industry
- 4.7% of GDP
- High job creation potential, in rural, coastal and urban areas, through the growing participation of primary producers and deployment of bio-based solutions

The Policy Context for the Bioeconomy



”

*“The European Green Deal is
Europe’s Man on the Moon
Moment”* December 2020

*“The fossil fuel economy has
reached its limits!”* July 2021

#EUGreenDeal



European
Commission

The EU Green Deal

It is a new growth strategy that aims to transform the EU into a **fair and prosperous society**, with a modern, **resource-efficient and competitive** economy, where there are no **net emissions of greenhouse gases in 2050** and where **economic growth is decoupled from resource use**.



Food Security Communication (23rd March 2022)

Safeguarding Food Security and Reinforcing the Resilience of Food Systems

Direct and indirect food security impact of the war in Ukraine

RePower EU (8th March 2022)

Joint European action for more affordable, secure and sustainable energy

European Commission proposed an outline of a **plan to make Europe independent from Russian fossil fuels well before 2030**, starting with gas, in light of Russia's invasion of Ukraine. E.g. through larger volumes of **biomethane**

EU Bioeconomy Strategy

European bioeconomy policy development

2012



Communication on Bioeconomy

2017



Review of Bioeconomy Strategy

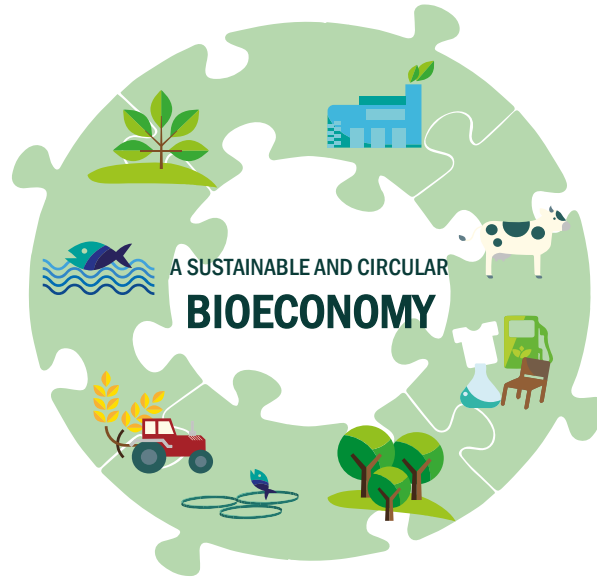
2018



Updated Bioeconomy Strategy

A circular and sustainable Bioeconomy

A model for green growth and a catalyst for the European Green Deal



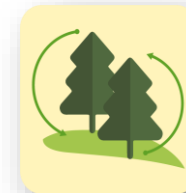
Mitigating and adapting to climate change



Reducing dependence on non-renewable, unsustainable resources



Ensuring Food and Nutrition security



Managing natural resources sustainably



Strengthening European competitiveness and creating jobs

The EU Bioeconomy Strategy and Action Plan



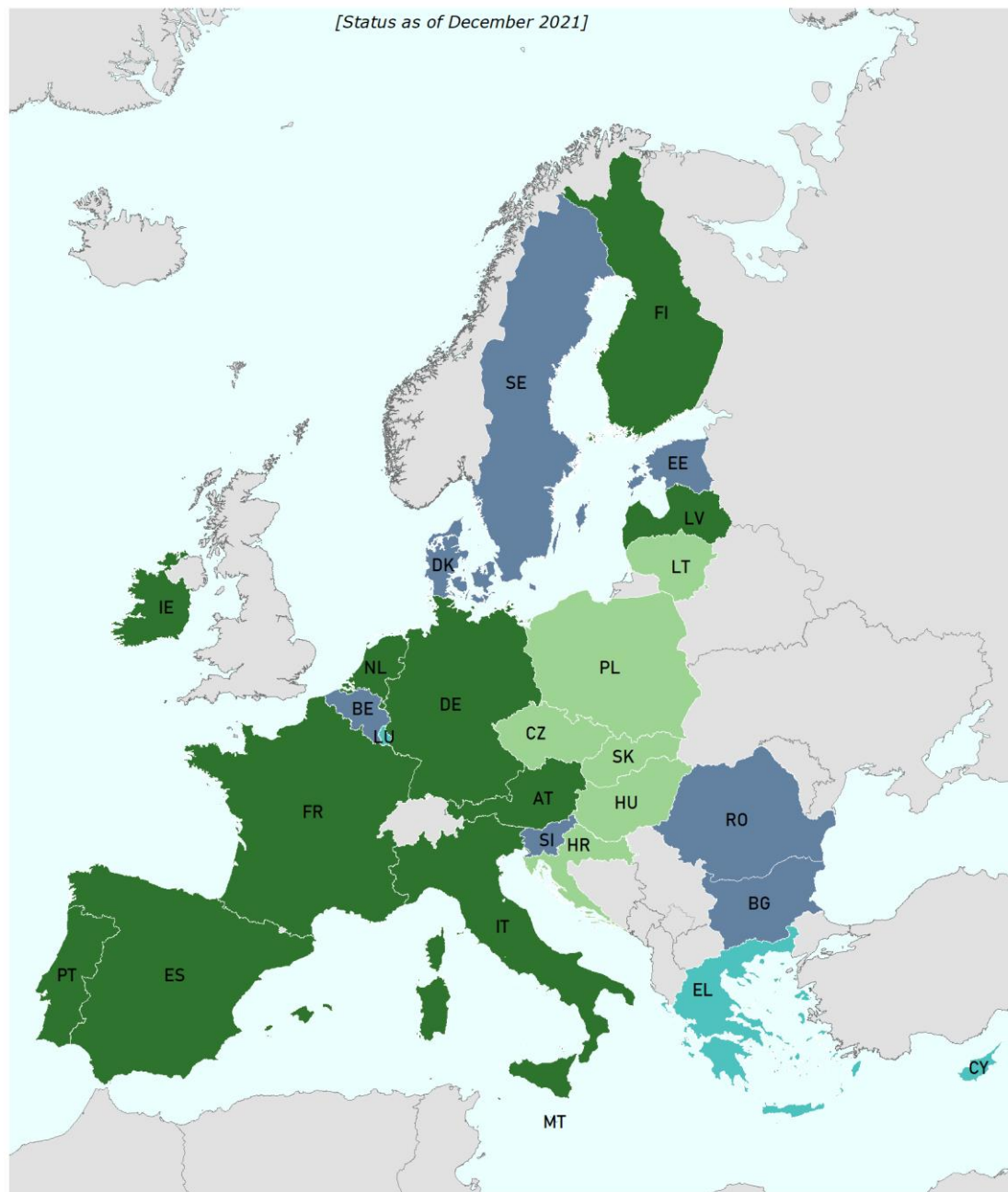
- **SUSTAINABILITY and CIRCULARITY** at its core
- **SYSTEM-wide** approach
- Policies across sectors, addressing trade-offs, co-benefits
- More than research & innovation
- Delivering for the citizens, in particular in rural areas
- A set of 14 well-defined actions including a monitoring system with clear indicators

National and regional bioeconomy initiatives

Status of the national bioeconomy policies in the EU-27

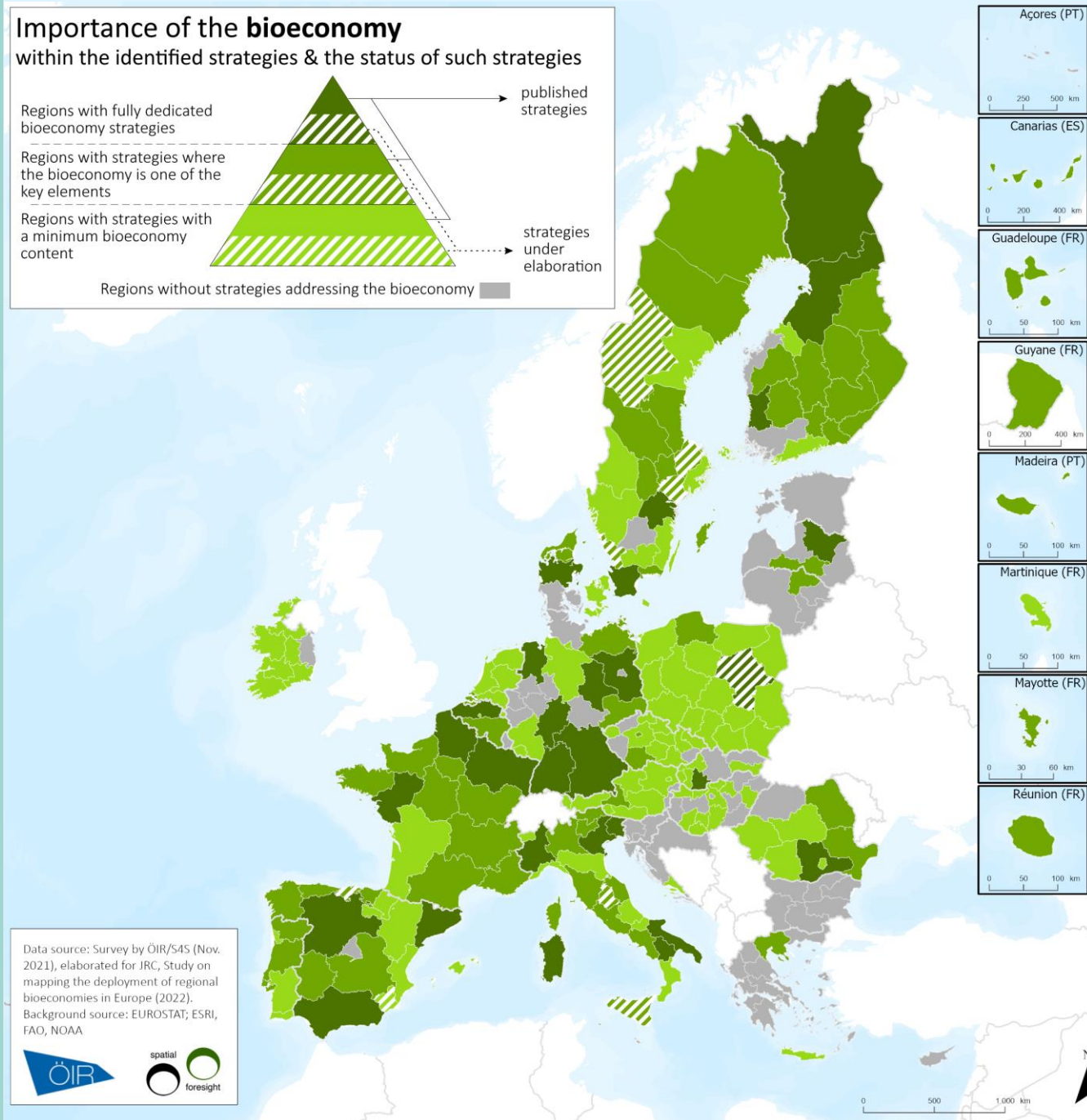
(as of Dec 2021)

- 10 Member states with dedicated bioeconomy strategies at national level (AT, DE, ES, FI, FR, IE, IT, LV, NL, PT)
- 6 MS in the process of developing their respective dedicated national strategies (CZ, HR, HU, LT, PL, SK)
- 7 MS are involved in other macro-regional (BG, DK, EE, RO, SI, SE) or sub-national (BE) policy initiatives dedicated to the bioeconomy.
- 4 MS have bioeconomy related strategies (CY, EL, LU, MT)



Status of national bioeconomy strategies:

- Dedicated bioeconomy strategy at national level
- Dedicated bioeconomy strategy at national level under development
- Other policy initiatives dedicated to the bioeconomy
- Other related strategies at national level



Status of the regional bioeconomy policies in the EU-27 (as of Nov 2021)*

- 28 EU regions have dedicated strategies developed and 1 region under development.
- 68 EU regions have adopted policies where bioeconomy is a key element while in 7 additional regions such strategy is under development.
- 94 EU regions have released strategies with a minimum bioeconomy content and in 2 regions are still under development.

*Based on the “Study on mapping the deployment of regional bioeconomies in Europe” commissioned by Knowledge Centre Bioeconomy (KCB)

Bioeconomy – Youth engagement and education



Bioeconomy Youth Ambassador!

The European Commission is looking for Bioeconomy Youth Ambassadors!

- Are you between 18 and 35 years old and have experience or strong interest in [bioeconomy](#)
- Do you want to contribute to the sustainable & circular transition of EU?
- Apply to become a Bioeconomy Youth Ambassador & inspire others about importance of bioeconomy in our life
- More information and application details: [Become a Bioeconomy Youth Ambassador! | European Commission \(europa.eu\)](#)



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#EUBioeconomy



Bioeconomy – promoting education, training and skills

Study focus & specific objectives

Study focus



Higher education

Vocational education & training (VET)

Entrepreneurship training

Specific objectives of the study



1. Provide overview of **current training and education availabilities** at different levels concerned by the study.
2. Provide overview of **current and future (2030+2050) needs** for professional profiles and skills, setting out unmet training and educational needs.
3. Support the relevant **upgrade, adaptation and development of bioeconomy-related training and education** to meet future workforce needs for the deployment of a sustainable and circular bioeconomy by developing and considering relevant elements (e.g. modules, curricula, methods and tools but also by looking at the relevant context and structures).
4. Improve **collaboration** between educational institutions and industry, and improve **transfer of science, technology and innovation knowledge** and skills in the bioeconomy.

Bioeconomy – Digitisation

Bioeconomy and Digitisation

- **Green and digital transition** must go hand in hand
- Huge potential in **primary sectors**
 - Precision food production
 - Monitoring of crop or forestry growth
 - Use of DLTs for transparency in the food systems value chain
- Use of **3-D printed meat substitutes or houses** and **personalised nutrition applications** to be further explored
- Industries willing to move towards sustainability, yet unresolved issues in use of available biomass
- **More research is needed** to scale up digital applications (plus knowledge transfer to other parts of the world)

Conclusions – “Nous sommes en route!”

- The EU Bioeconomy:
- A **thriving sector in the EU with growing number of national and regional strategies with** many opportunities for **green growth** and innovation
- **The bioeconomy is a problem solver** to provide solutions to meet the ambition of the European Green Deal and the challenges associated with new geopolitics
- Is a **holistic / systemic framework** to assess and solve **trade-offs** e.g. between different forms of land use
- **Support from Horizon Europe** e.g. through **Circular Biobased Europe (CBE)** but also to foster and accelerate market deployment of biobased solutions



Last but not least...

Bioeconomy Conference

- High-level **Bioeconomy Conference** in Brussels to present the Progress Report on the EU Bioeconomy Strategy
- **6-7th October 2022**
- **Please save the date!**

Thank you

The EU's Bioeconomy Strategy:

https://ec.europa.eu/info/research-and-innovation/research-area/environment/bioeconomy/bioeconomy-strategy_en

The Knowledge Centre for Bioeconomy:

https://knowledge4policy.ec.europa.eu/bioeconomy_en

Horizon Europe portal:

<https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/programmes/horizon>

CBE JU:

<https://www.cbe.europa.eu>

#HorizonEU #EUScience&Innovation #EU_ScienceHub



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