



Developing knowledge and cooperation based circular bioeconomies in the Central and Eastern European countries – BIOEAST Initiative and BIOEASTsUP project

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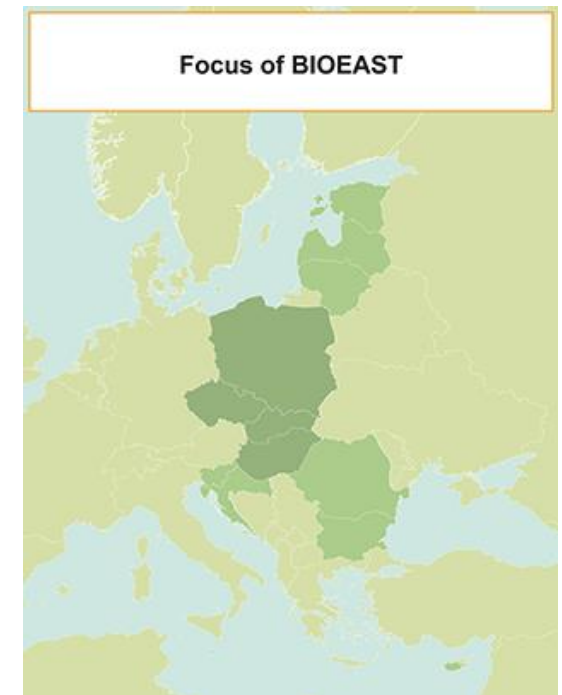


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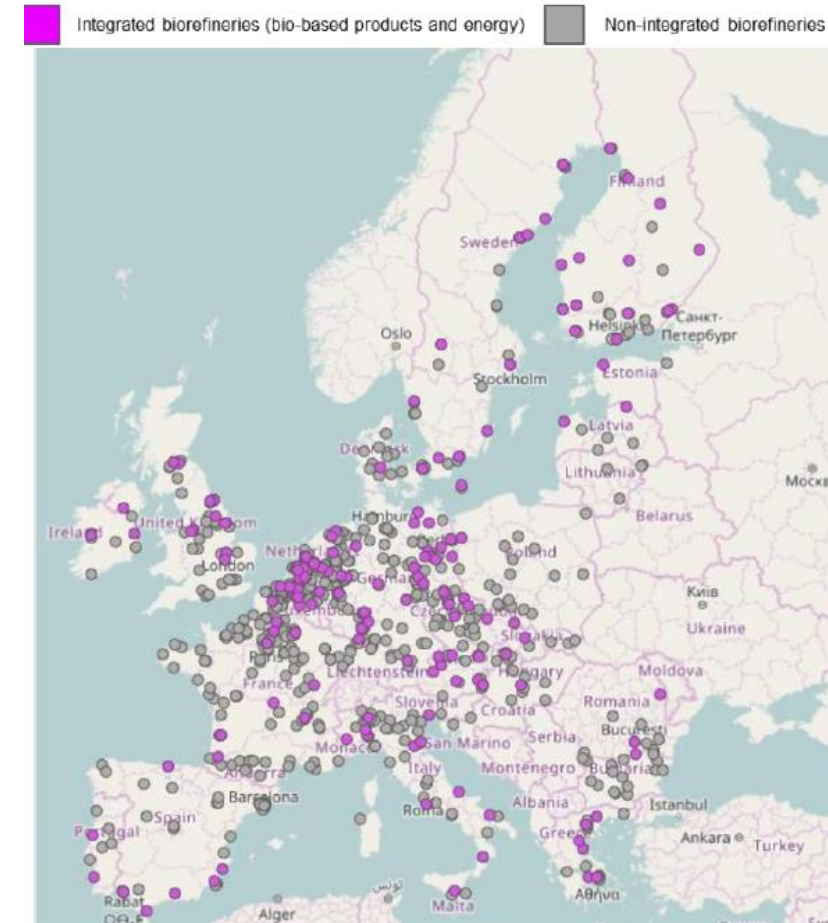
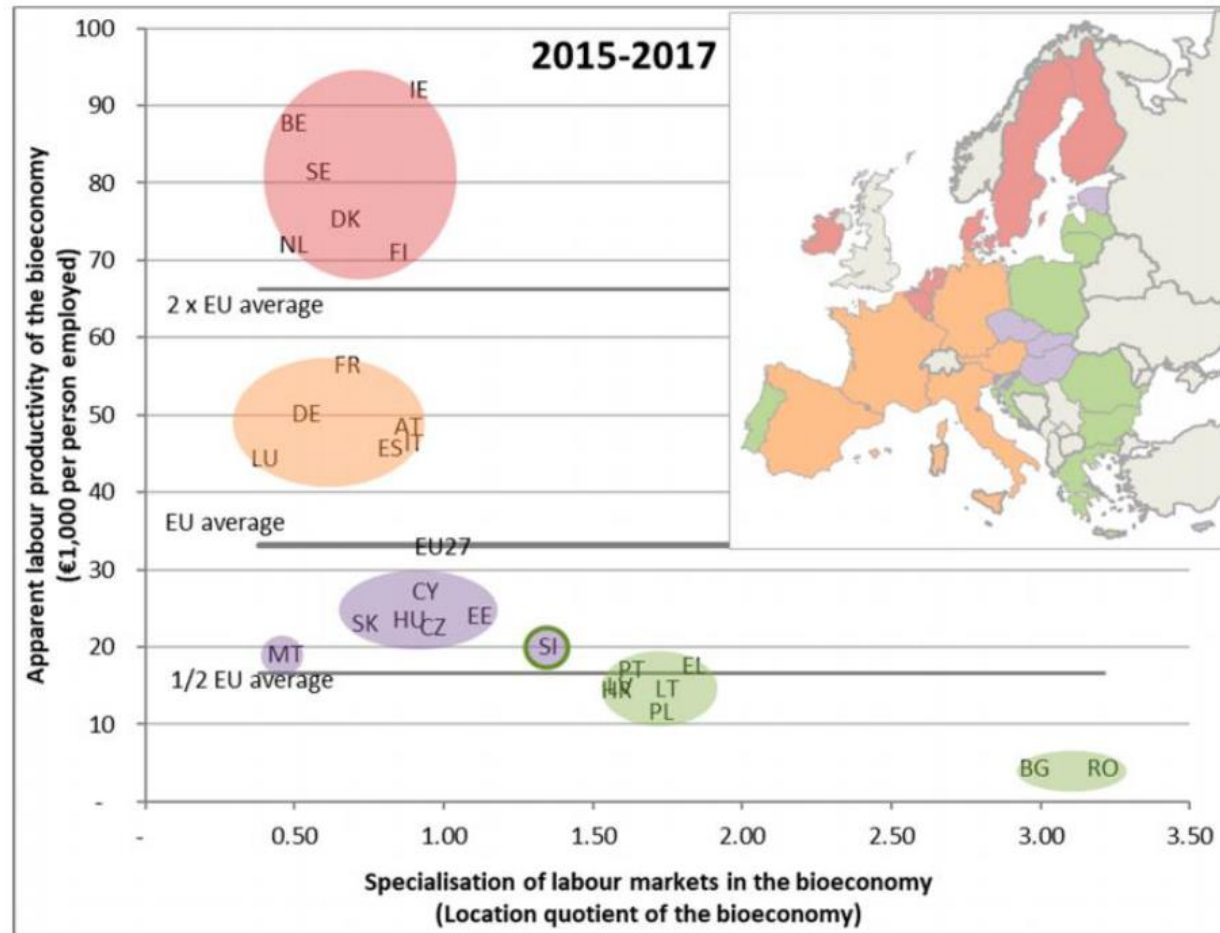
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BIOEAST Initiative (1)

- The Central-Eastern European Initiative for Knowledge-based Agriculture, Aquaculture and Forestry in the Bioeconomy.
- BIOEAST offers a common political commitment and shared strategic research and innovation framework for working towards sustainable bioeconomies in the Central and Eastern European countries (CEECs).
- Vision for 2030: develop knowledge and cooperation based circular bioeconomies, which helps to enhance their inclusive growth and to create new value-added jobs, especially in rural areas, maintaining or even strengthening environmental sustainability.

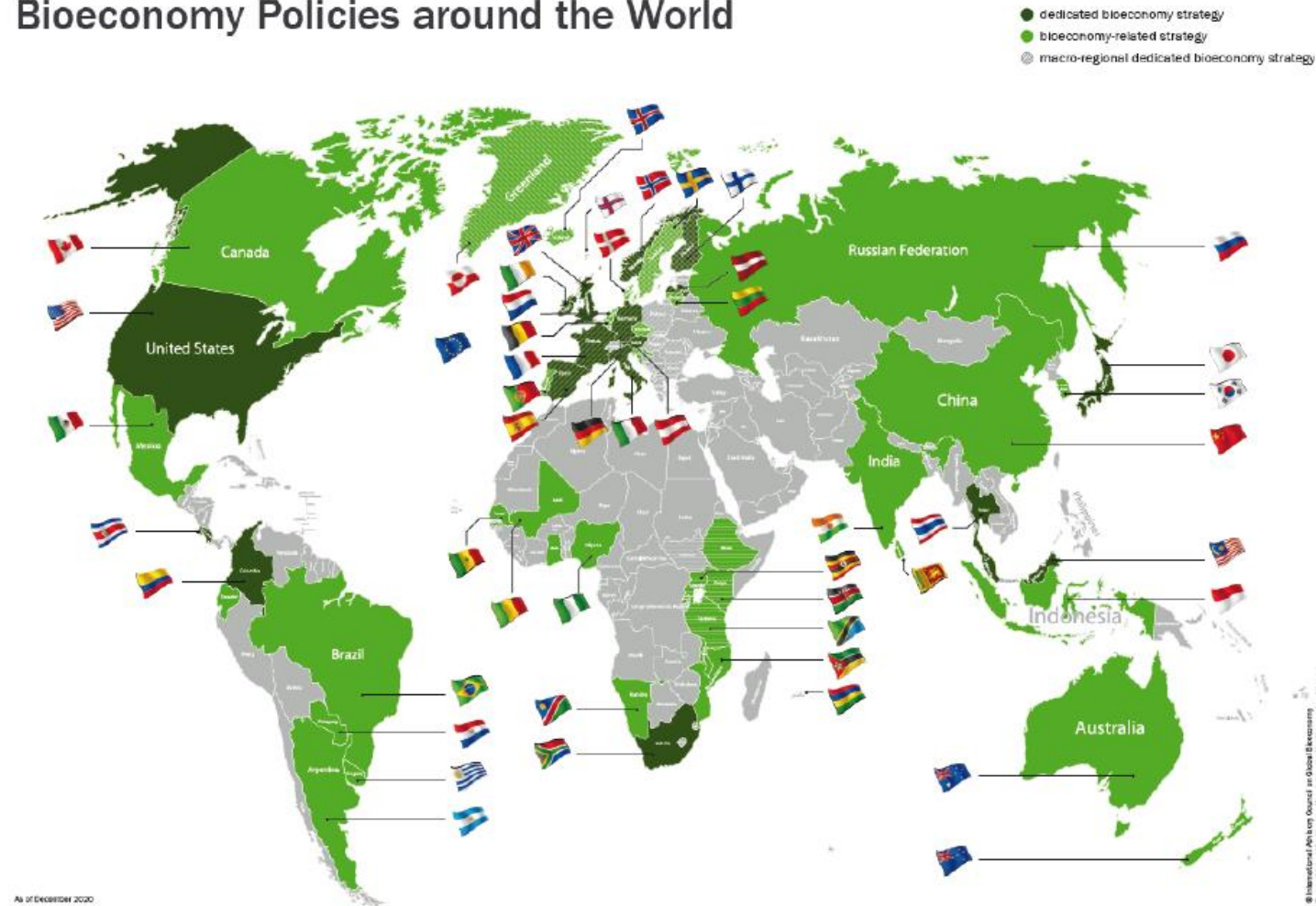


Bioeconomy in the BIOEAST macro-region



Bioeconomy policy

Bioeconomy Policies around the World



Source: BIOEASTsUP Project

Figure 21: Bioeconomy policies around the world as of December 2020 (IACBG, 2020b)

BIOEAST Initiative (2)

- The BIOEAST Initiative's mission is to assist CEECs to operationalise their vision for 2030 drawing on their potential and offering opportunities for:
 - A sustainable increase of biomass production, to become competitive and leading, high quality, food and feed producers;
 - A circular (“zero waste”) processing of the available biomass, to become key players in the development of new bio-based value chains;
 - Viable rural areas: to develop an innovative, inclusive, climate-ready growth model.
- Challenges
 - Research and Innovation deadlock
 - Stalemate in the bio-based value chains
 - Governance impasse
 - Societal indifference
 - Financial barriers

BIOEAST Initiative (3)

- Objectives
 - To develop strategies
 - To cooperate and develop evidence-based policies
 - To identify common challenges and validate common research areas
 - To provide the evidence base
 - To improve skills
 - To develop synergies
 - To increase visibility
- The structures
 - secretary general
 - board
 - advisory council
 - thematic working groups – agroecology, food, forestry, energy, water
 - foresight exercise

BIOEASTsUP project

- Coordination and Support Action financed from H2020 (22 partners)
- Aims
 - To trigger strategic thinking at governmental level and transnational peer-to-peer development of national circular bioeconomy strategies in BIOEAST countries.
 - To emphasize and encourage the role of multi-stakeholder and multi-actor approaches as well as co-creation of innovation in developing new value chains to advance bioeconomies to enhance the engagement of stakeholders from academia, business and also non profit sector in bioeconomy
 - To develop a bottom-up stakeholder driven approach for a consolidated bioeconomy Strategic Research and Innovation Agenda (SRIA) for the BIOEAST countries.
 - To set-up and maintain a macro-regional framework to set-up and develop the BIOEAST SRIA and action plan.
 - To facilitate evidence-based policy making.
 - To increase the visibility of the bioeconomy within the quintuple helix in the BIOEAST region.

BIOEAST national bioeconomies (1)

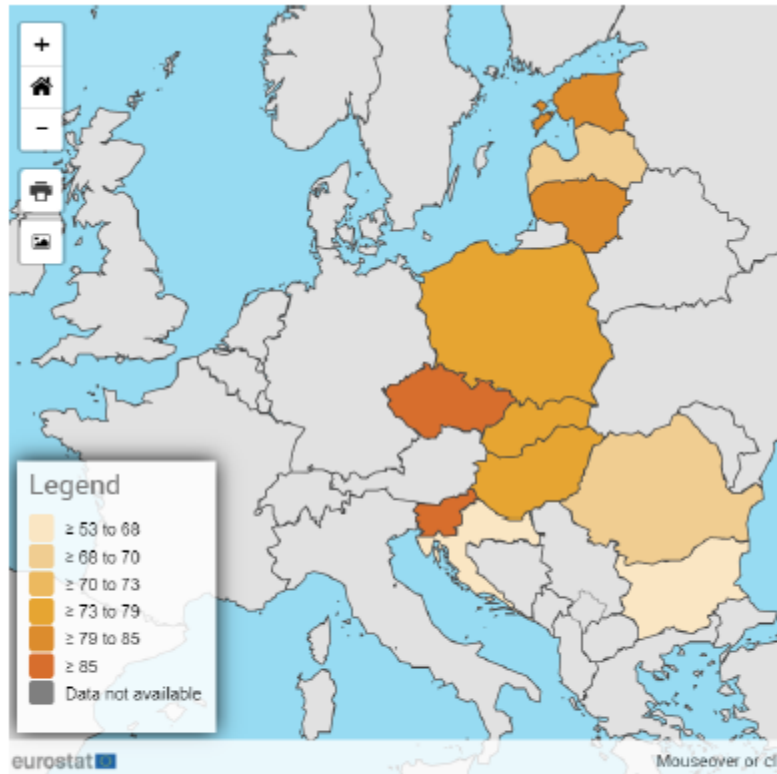


Figure 7 BIOEAST macro-region countries by PPS,

Source: BIOEASTsUP Project

BLOCK 1: Positioning a country with the global economy map, EU and BioEast macro-region

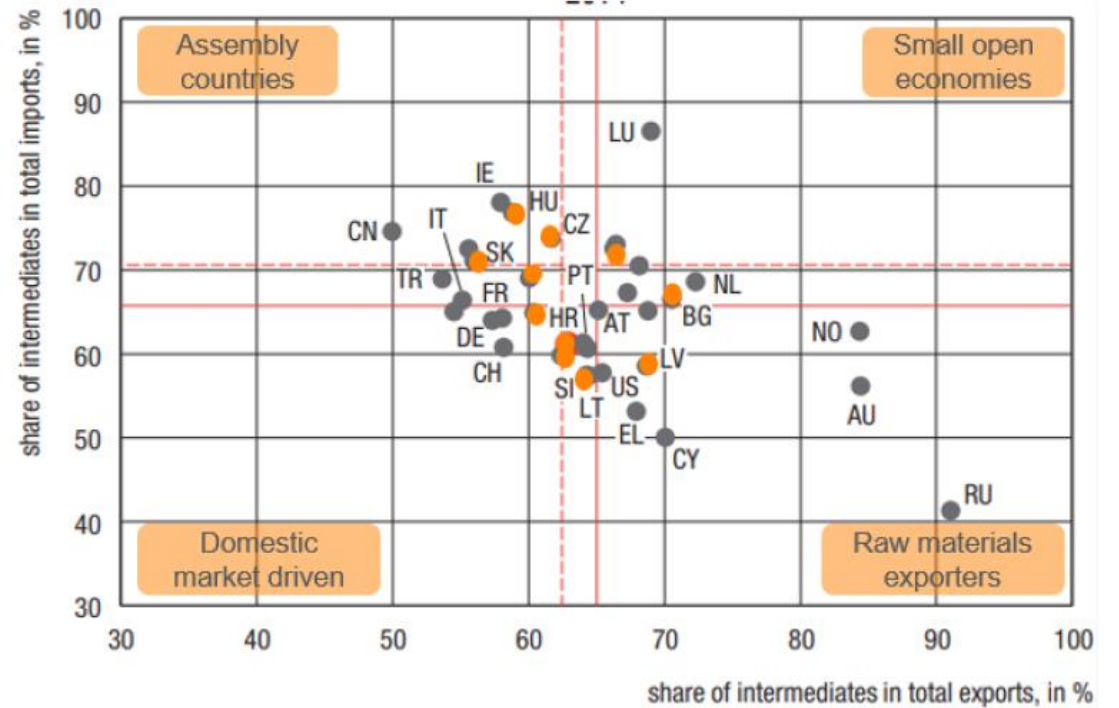
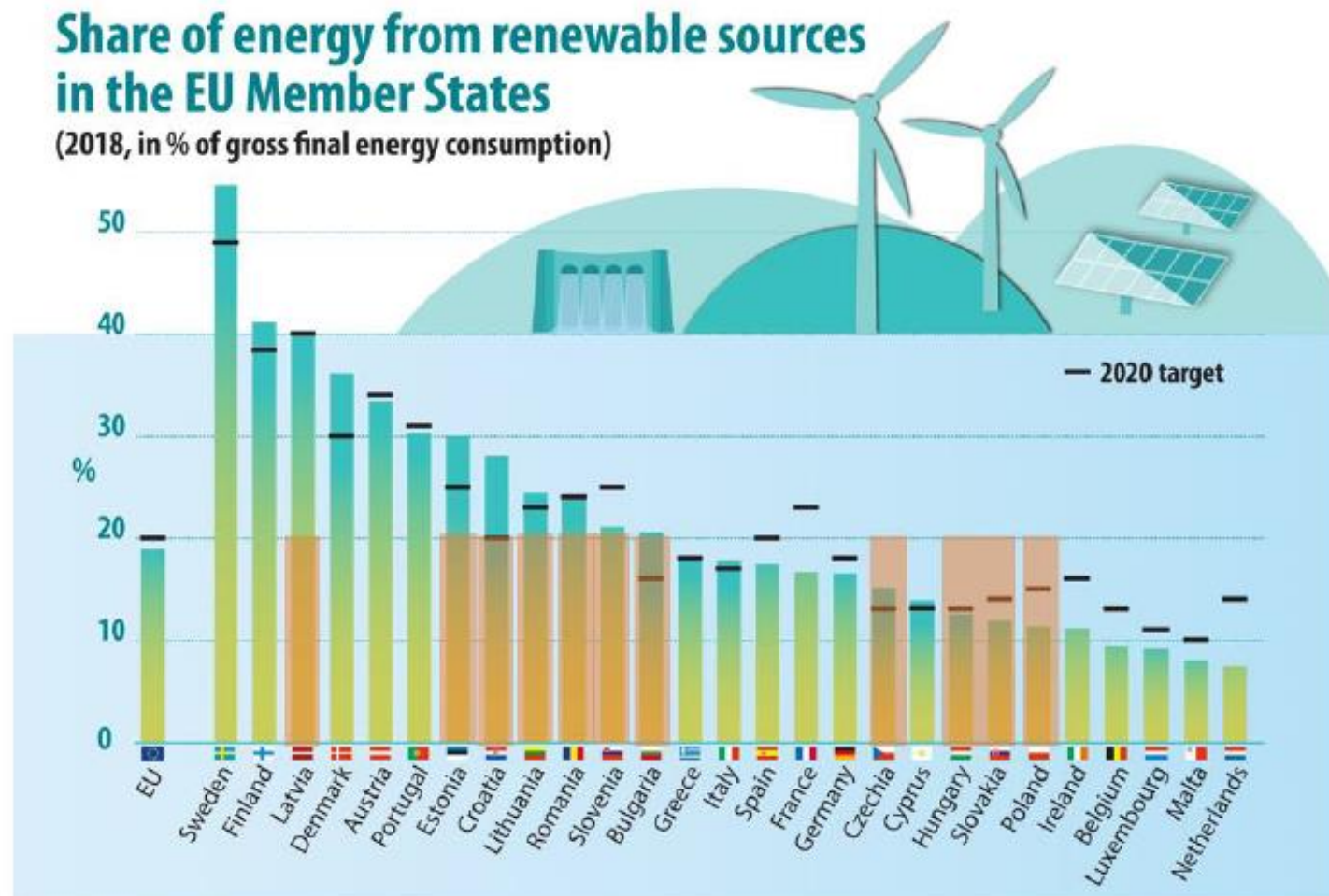


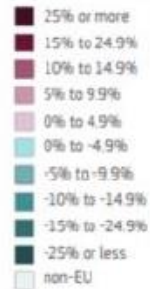
Figure 6 Position of BIOEAST countries within the GVC (17)

BIOEAST national bioeconomies (2)

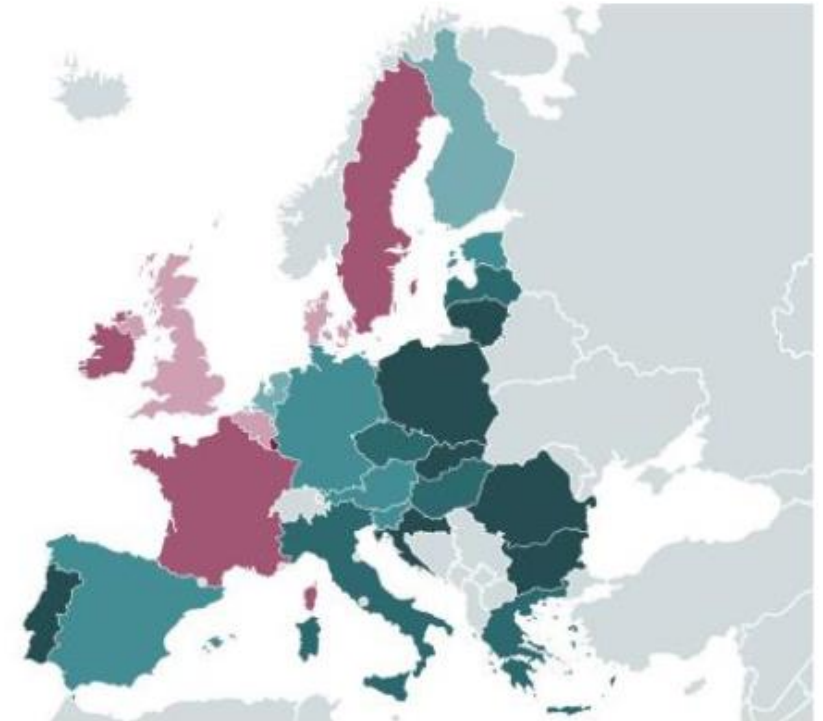


BIOEAST national bioeconomies (3)

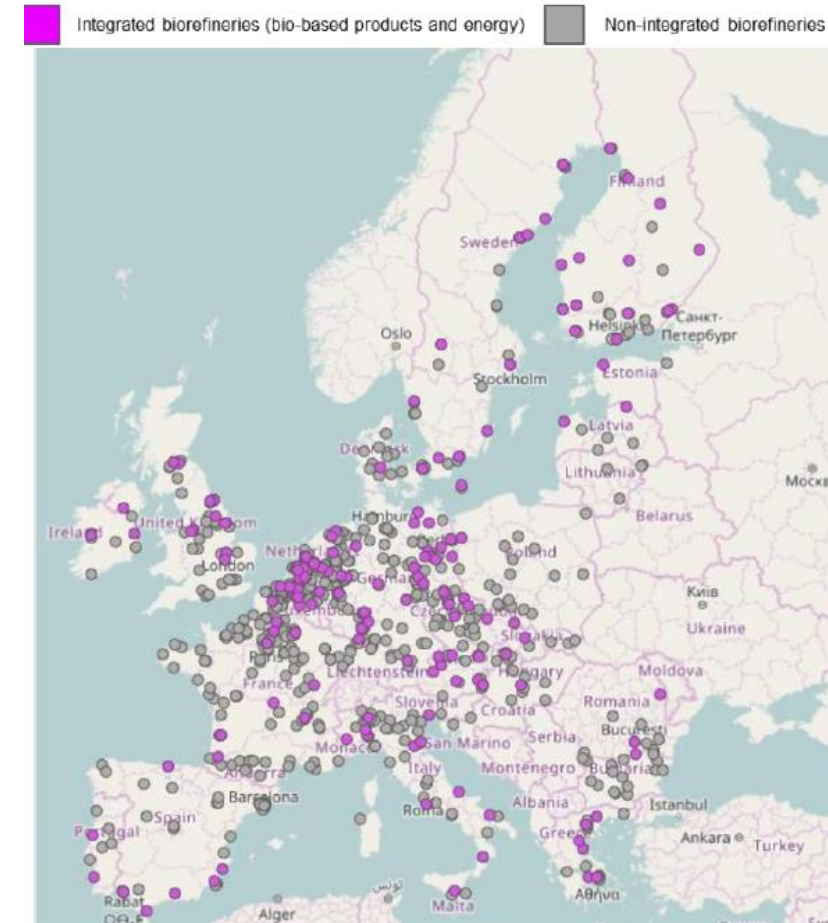
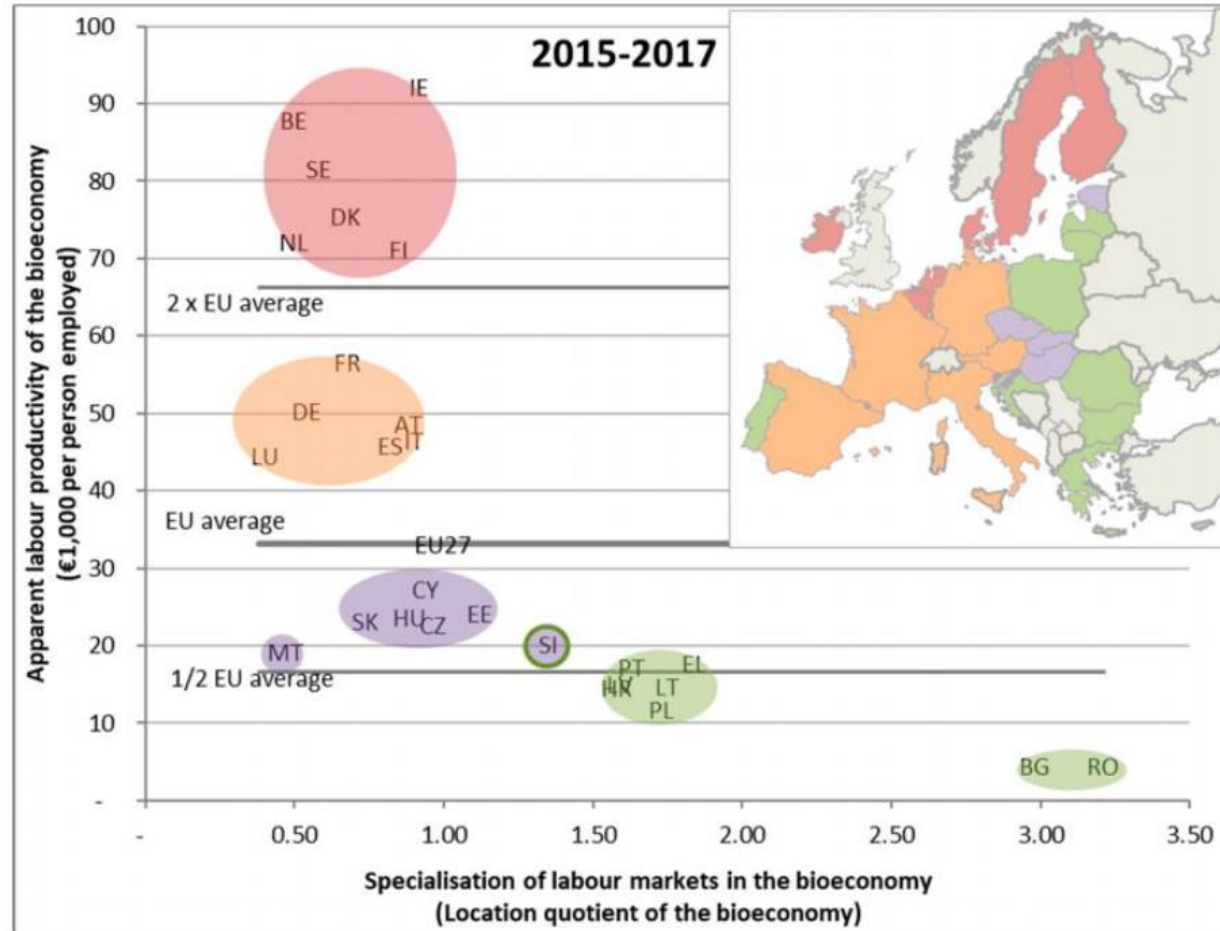
Population change 1991-2015



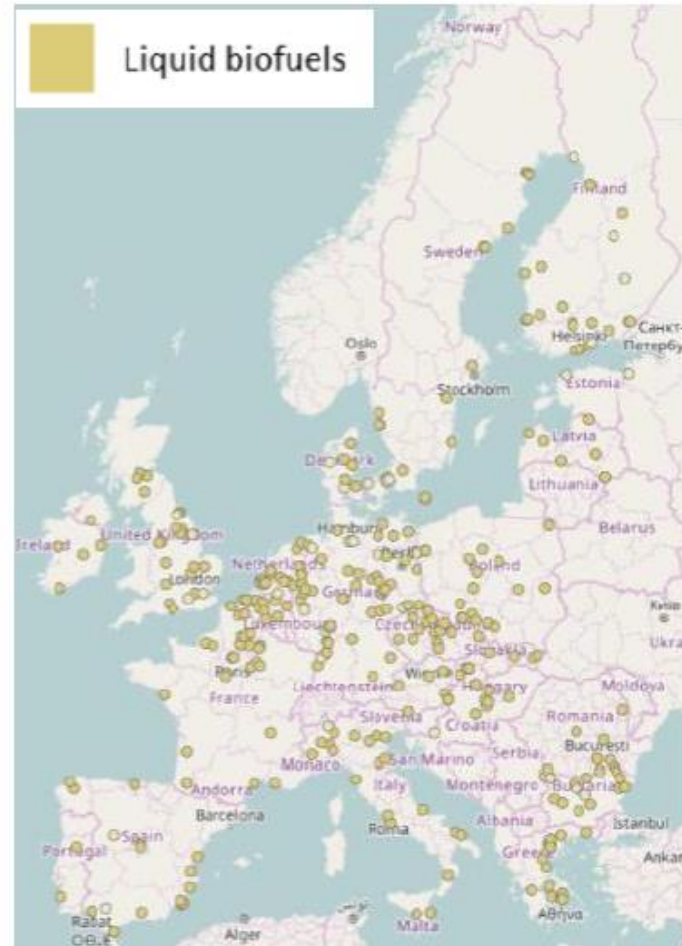
2015-2060 Active Population Growth Rate, Constant scenario



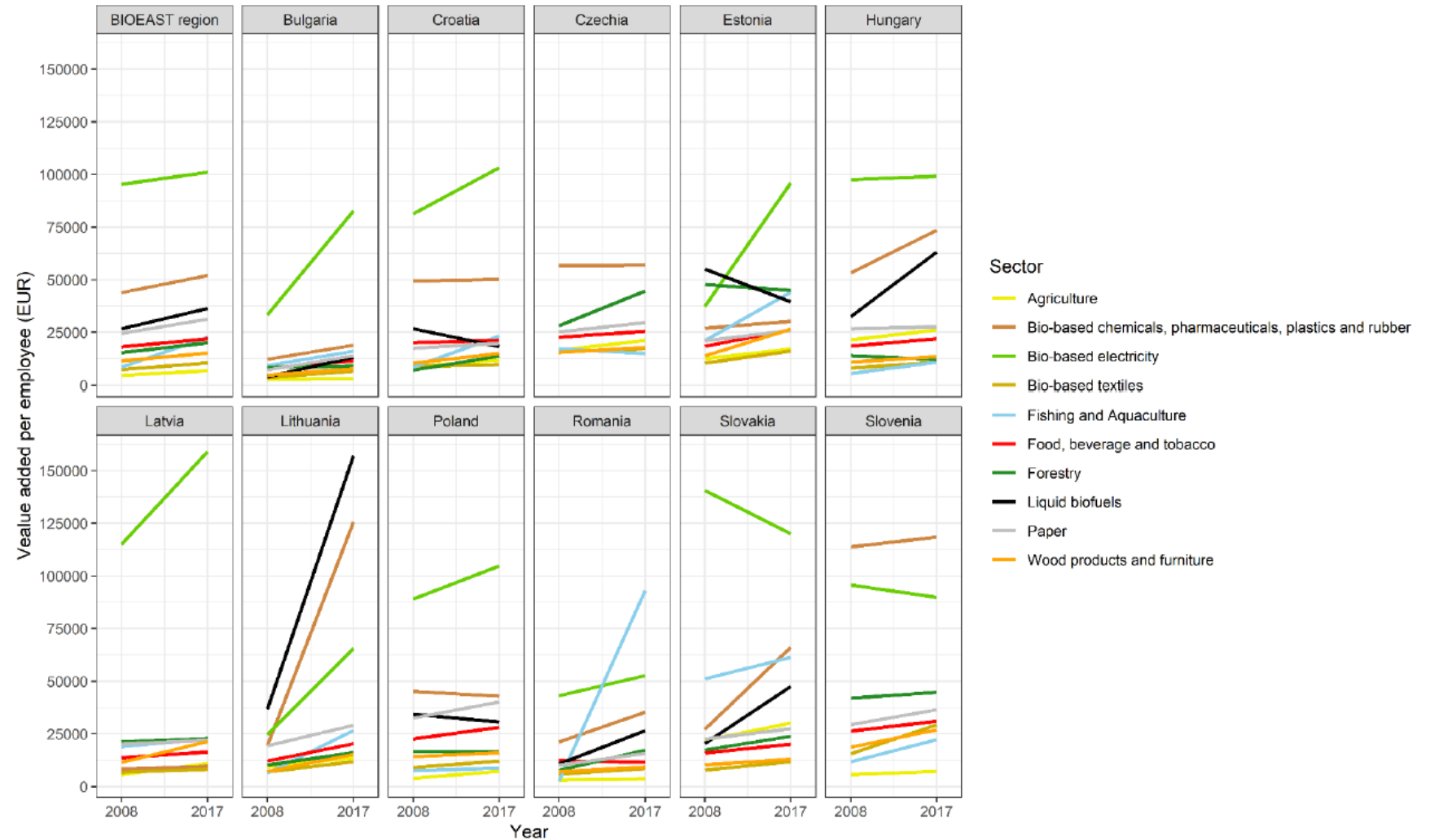
BIOEAST national bioeconomies (4)



BIOEAST national bioeconomies (5)



BIOEAST national bioeconomies (6)



Source: BIOEASTsUP Project

Figure 14: Value added per employee in million € per bioeconomy sector in the BIOEAST countries for years 2008 in 2017 (data source: Gurria Albusac et al.,2017).

Transition to bioeconomy –assets

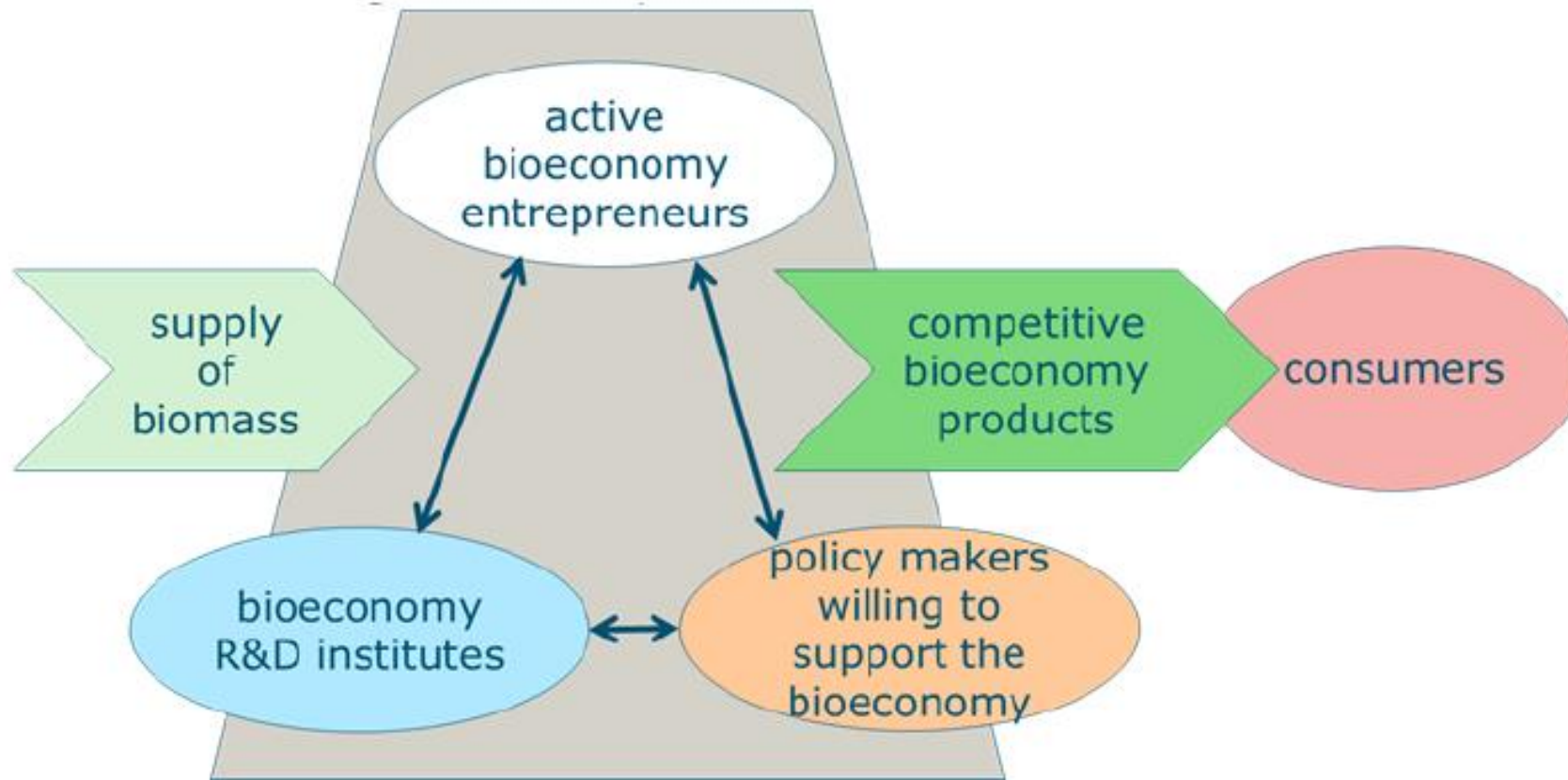


Figure 19: Key assets in bioeconomy (adapted from BERST, 2016)

Structure of current economy

Table 21: Share of bio-based and potentially bio-based products among PRODCOM products that generate 50 % of total value and share of those aggregated to bioeconomy sectors – elaboration on data from Deliverable 1.2

	Bulgaria	Croatia	Czechia	Estonia	Hungary	Latvia	Lithuania	Poland	Romania	Slovakia*	Slovenia
Share of (potentially) bio-based products among PRODCOM products that generate 50 % of total value	34	31	5	25	5	38	28	27	27	0	10
Farm2Fork sectors (%)	77.7	78.1	43.9	36.5	44.1	24.6	43.9	60.8	58.0	48.5	29.2
Wood-based sectors (%)	6.6	18.5	6.7	56.2	7.5	71.2	36.7	11.0	10.2	13.2	11.4
New (potential) bioeconomy sectors (%)	10.4		49.4	7.4	48.3		15.4	25.2	31.8	38.3	59.5
Other bioeconomy sectors (%)	5.3	3.4				4.3	4.1	3.1			

* In Slovakia, 50% of total value produced is attributed to non-biobased products; for this reason, the structure of the largest bio-based and potentially bio-based products in the PRODCOM structure

Bioeconomy governance

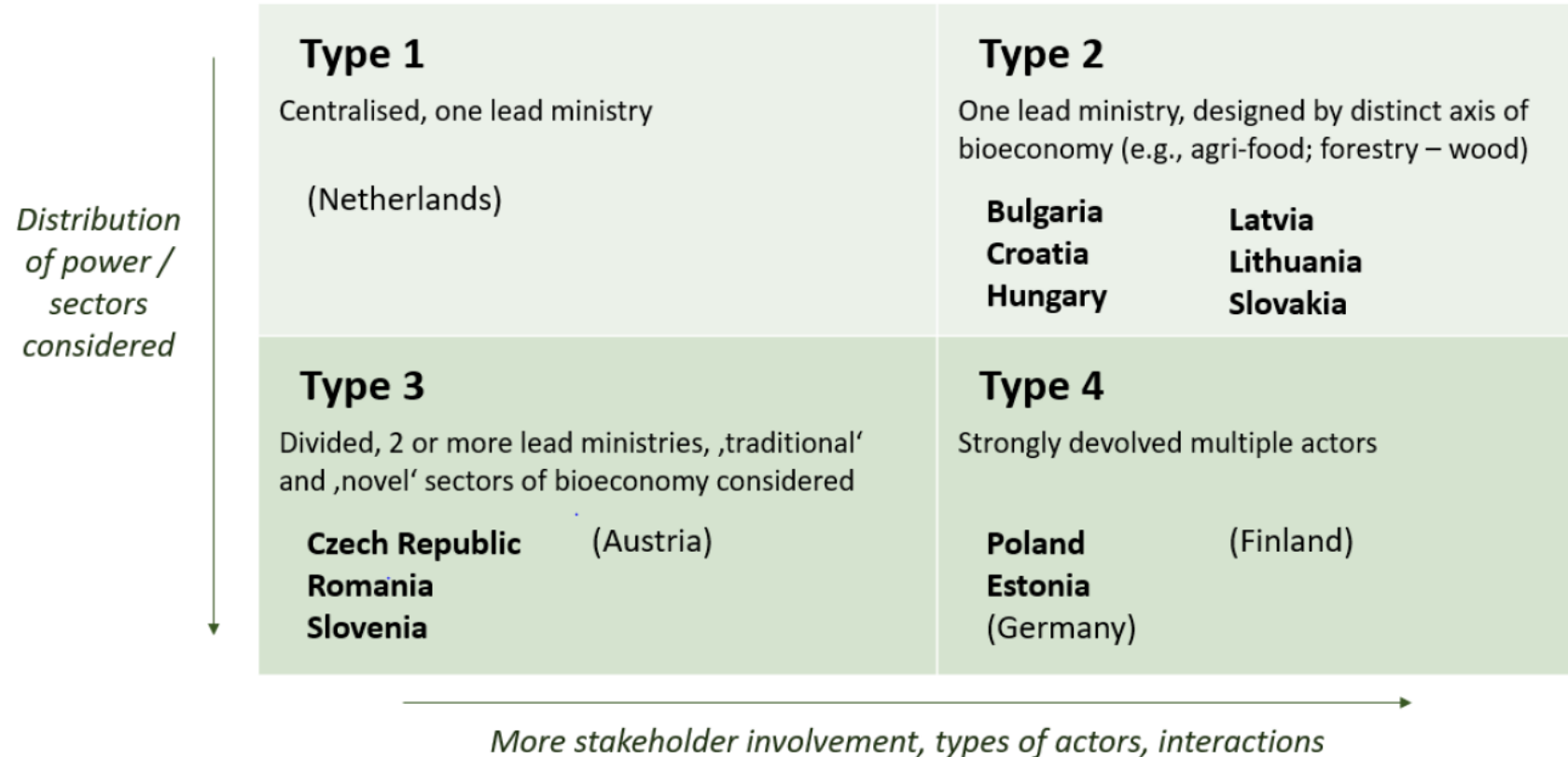


Figure 42: Types of governance/ministerial arrangements – elaborated on data from PSF data gathering process, EC-JRC database and its

Innovation models

Table 2: STI and DUI innovation modes

	STI	DUI
Inputs	R&D, high skill and capital intensive	Practical skills, capabilities, market supply and demand, demonstrations, clusters, networks
Interactions	Business - Research centres, Universities	Within firms, within the branch and across the value chain
Knowledge	Analytical, formal, patents, publications	Synthetic, practices, routines, market products
Sectors	Biotechnology, biopharmaceuticals, advanced biomaterials	Agriculture, wood, paper, energy

Source: own elaboration based on Parrilli and Heras (2016)

Transition to bioeconomy (1)

- Complex and contested process with several sub-transitions that takes decades to reach a new dynamically stable equilibrium
- Same goal, two innovation approaches: STI model typical for biotechnology, biopharmaceuticals, biomaterials sectors; DUI model exploited by agriculture, wood, paper, energy and other bioeconomy sectors. While public policies focus mainly on STI, DUI seems often more appropriate in the BIOEAST macroregion.
- Assets
 - **Stable supply of biomass and efficient logistics** – highly relevant for agriculture, forestry, their downstream sectors, and bioenergy. In the BIOEAST macro-region ownership and production structure often scattered. Difficult to establish efficient logistic flows at industrial scale. Smaller scale intermediate processing facilities could be a valid option.
 - **Presence of strong ‘conventional’ bioeconomy sectors** – the presence and activity of large industrial actors important when developing innovative products, and apply cascading use of biomass.

Transition to bioeconomy (2)

- **Assets**
 - **Level of business consolidation** – sectors with strong, consolidated firms find it easier to provide leverage for the development of bioeconomy clusters. The overall level of business consolidation in the BIOEAST macro-region is rather low. Industrial initiatives and integration of industries from the BIOEAST macro-region to international value chains may serve as engine of growth for biobased industrial applications.
 - **Emerging industrial initiatives for bio-based transformations** – S3 priorities of the BIOEAST countries resonate quite well with their resources for bioeconomy and with the associated economic sectors. However, the commitment to technological and social solutions to close material, energy and economic loops is weak.
 - **Policy commitment, availability of public funding** – considered very relevant in currently public support dependent sectors (agriculture, energy, organic waste management).
 - **Presence and engagement of national research and higher education institutions** – high number of small businesses unable to invest in RDI, insufficient level of private sector investment, low number of employees in RDI, low number of researchers focusing on applied research, lack of cooperation and coordination between academia, public administration and industry.

Transition to bioeconomy (3)

- Assets
 - **Actors engaged in innovation transfer and business growth** – the presence of actors involved in innovation transfer, digitalization, and commercialization (business angels, business incubators, accelerators) is important.
 - **Availability of private funding** – considered slightly less relevant than public funding. Public funding is sometimes complementing risk financing. More favourable environment for risk financing is in countries with larger scale and/or maturity of the venture capital market (CZ, EE, HU, PL).
- The course and effect of bioeconomy transformation processes build from the existing mix and technological level of bioeconomy sectors, efficient provision of biomass, development level and favourable institutional environment.

Next steps in the BIOEASTsUP project

- Mapping of state of the art of bioeconomy related RDI
- BIOEAST foresight report
- Training and workshops of stakeholders
- National bioeconomy strategy concept papers
- BIOEAST Strategic Research and Innovation Agenda

Thank you!

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