



Ministry of
Education and Science
Republic of Latvia

Research Policy in Latvia and impact on Bioeconomy in National and International Research programs

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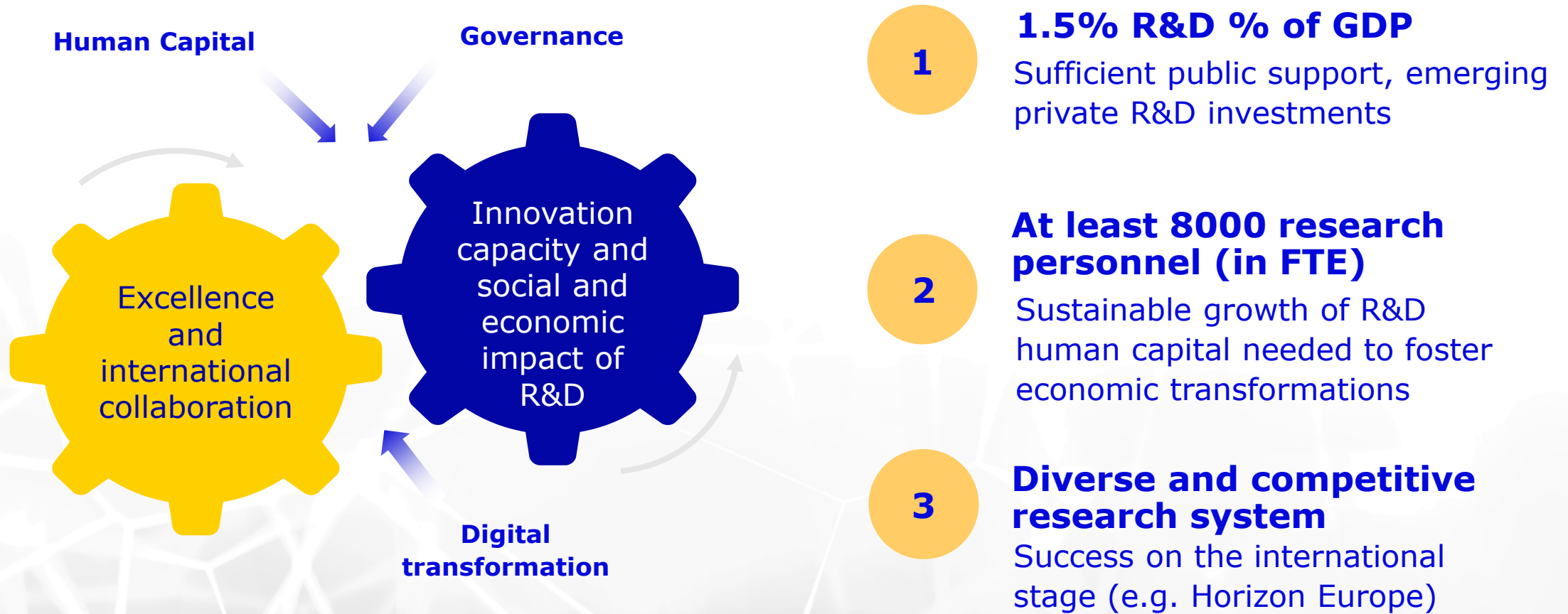
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Ministry of Education and Science
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researchLatvia*
Value Through Knowledge



Main policy priorities in R&D for 2021-2027



Supporting the **mobility of researchers** has a direct impact on increasing of international collaboration & scientific excellence

Structural changes for smart growth

SUPPORT FROM RRF FUNDS

New HEI's internal governance model

POLICY MIX BETWEEN HIGHER EDUCATION AND R&D ACTIVITIES

New academic career model (cooperation with EC&WB, 2020-2022)

New doctoral training framework

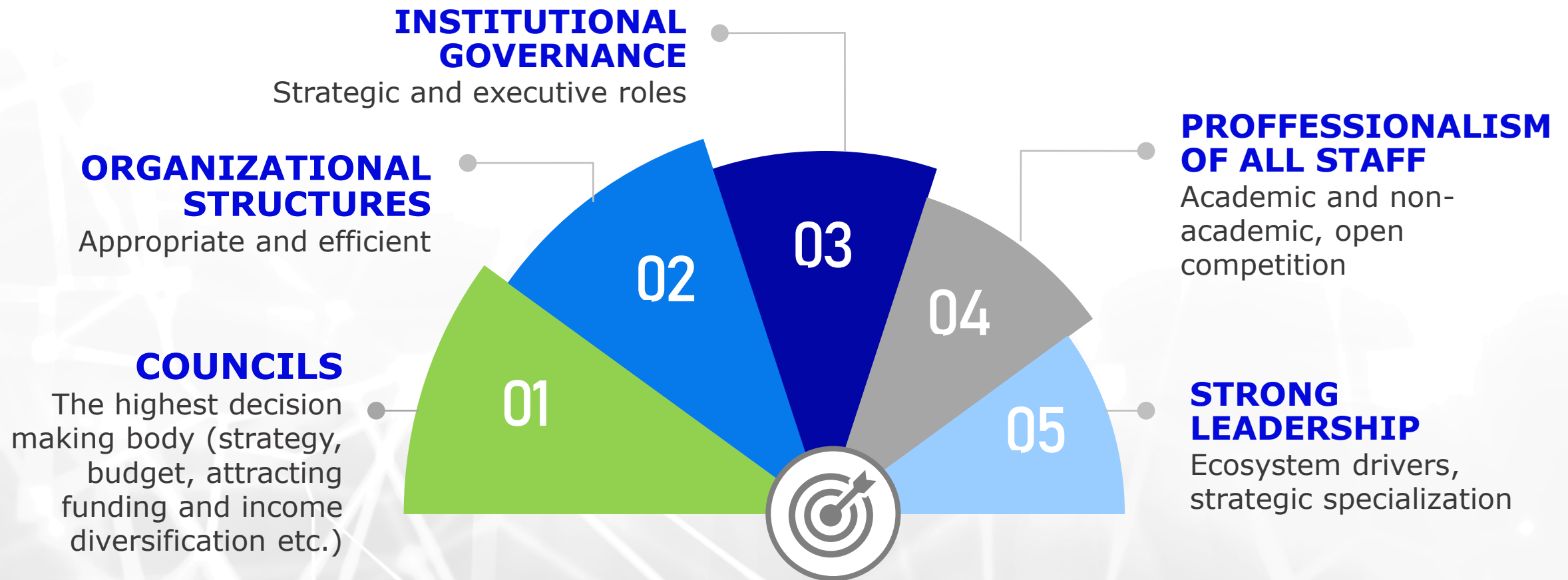
Upgraded funding model

Cyclical institutional assessment of HEIs and RI's

Consolidation and mergers

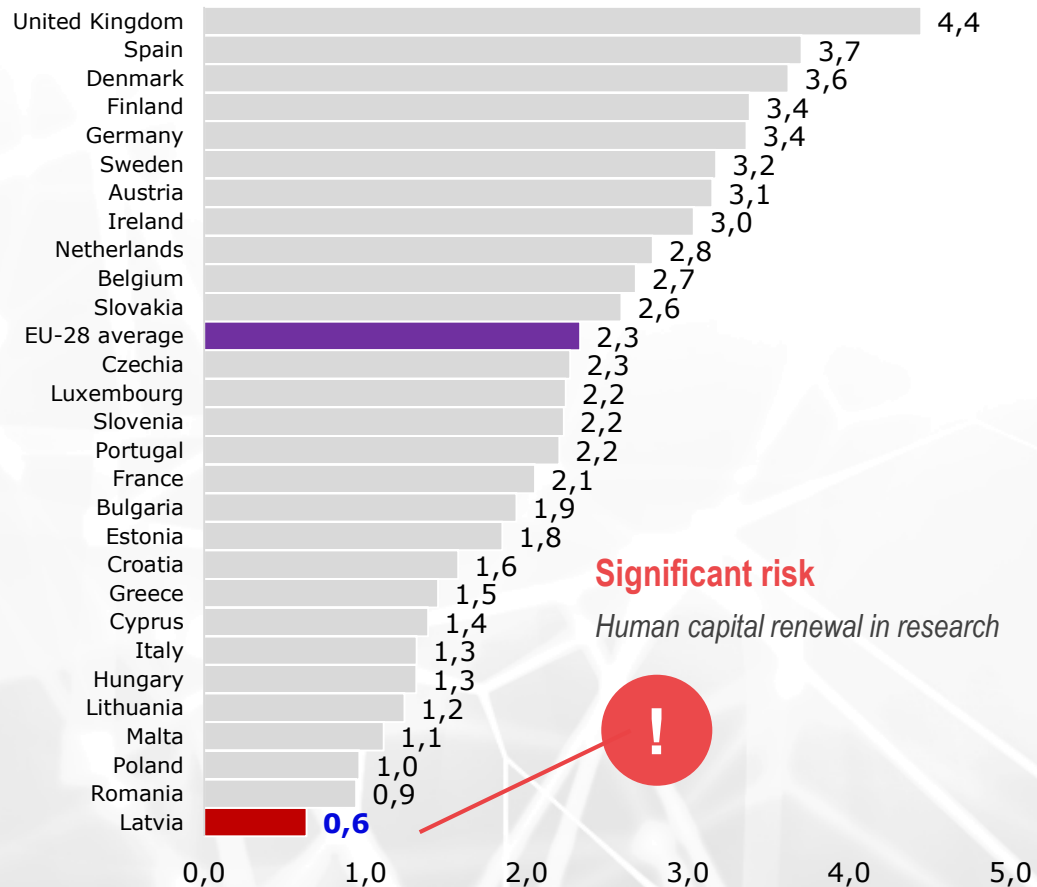
New HEI's internal governance model:

Empowering external stakeholders in strategic decision making

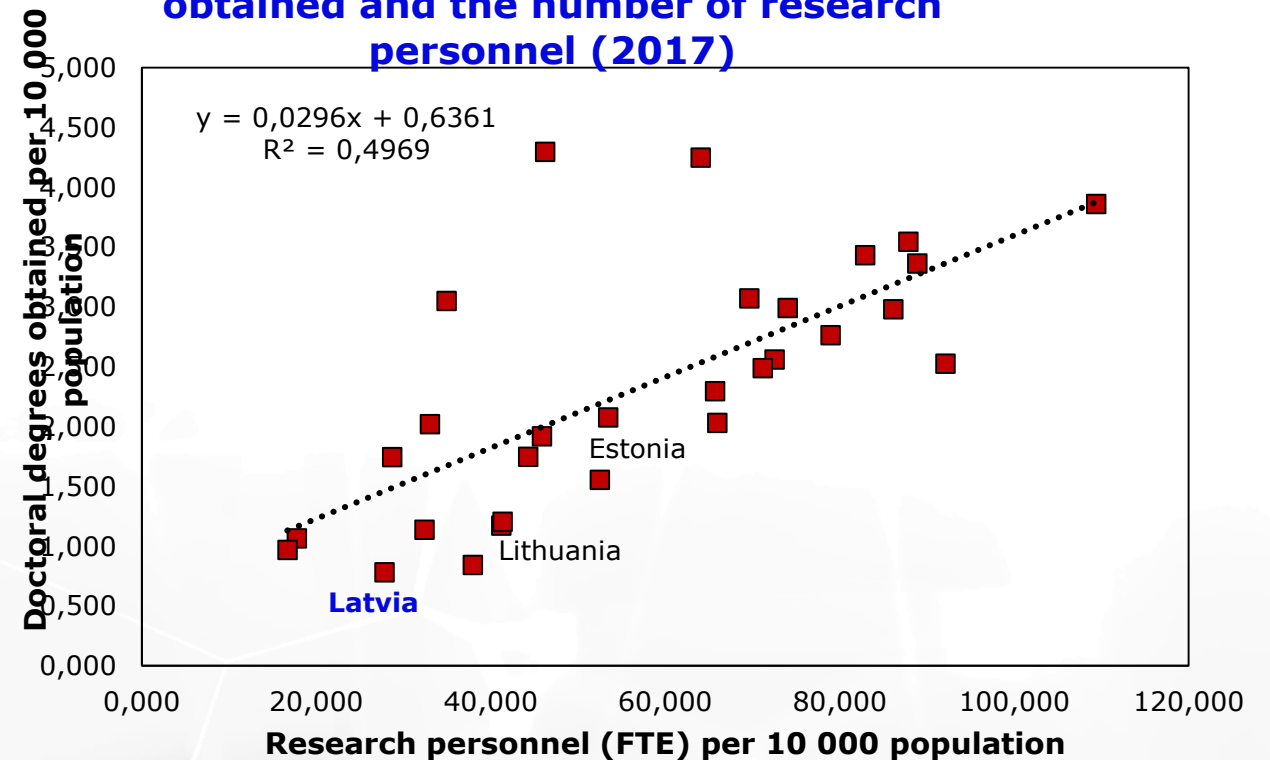


R&D Human Capital: Renewal is critical for further development

Doctoral degrees obtained per 10 000 population (2018)



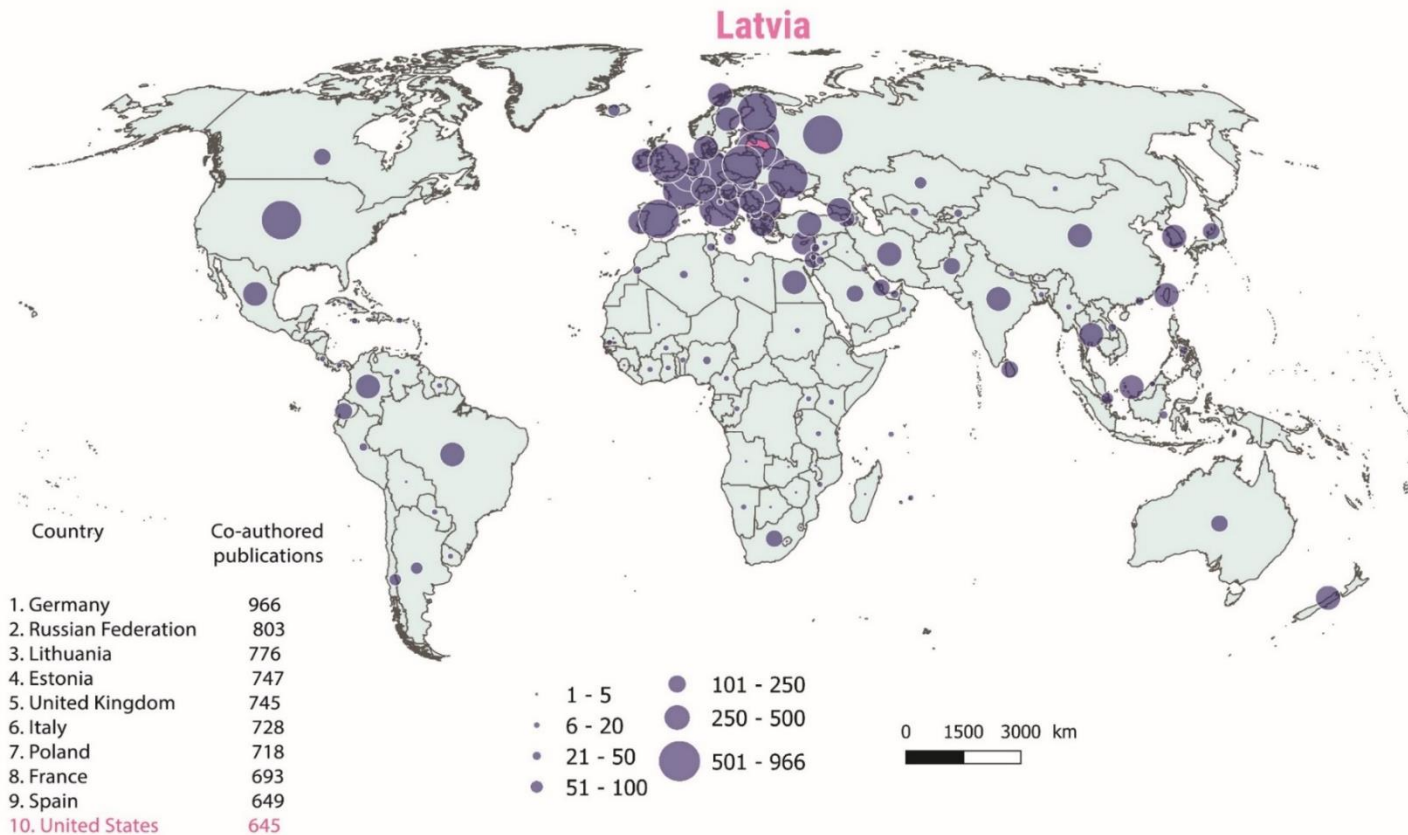
Correlation between doctoral degrees obtained and the number of research personnel (2017)



Currently - high drop-out rate in doctoral studies and an insufficient number of doctoral degree holders to ensure the renewal of scientists

Changing patterns of international collaboration

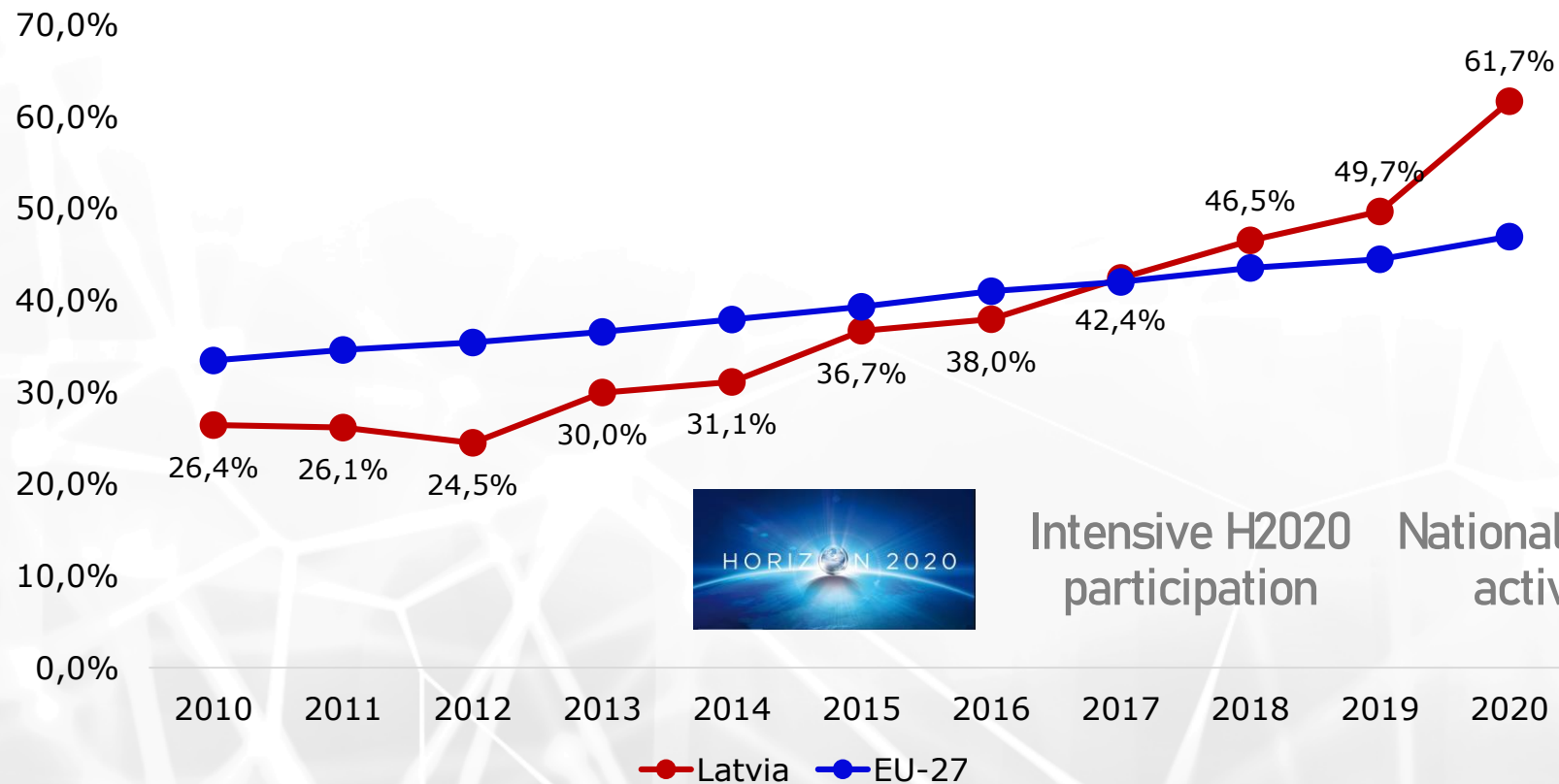
Latvian co-publications with foreign partners in the SCOPUS database during the period from 2015-2018



- Overall research output growth corresponds to a larger global collaboration network.
- H2020 accelerated spatial collaboration shift away towards Western Europe
- Role of Latvian Diaspora researchers (more than 600) in international collaboration

Increased integration and collaboration with international partners

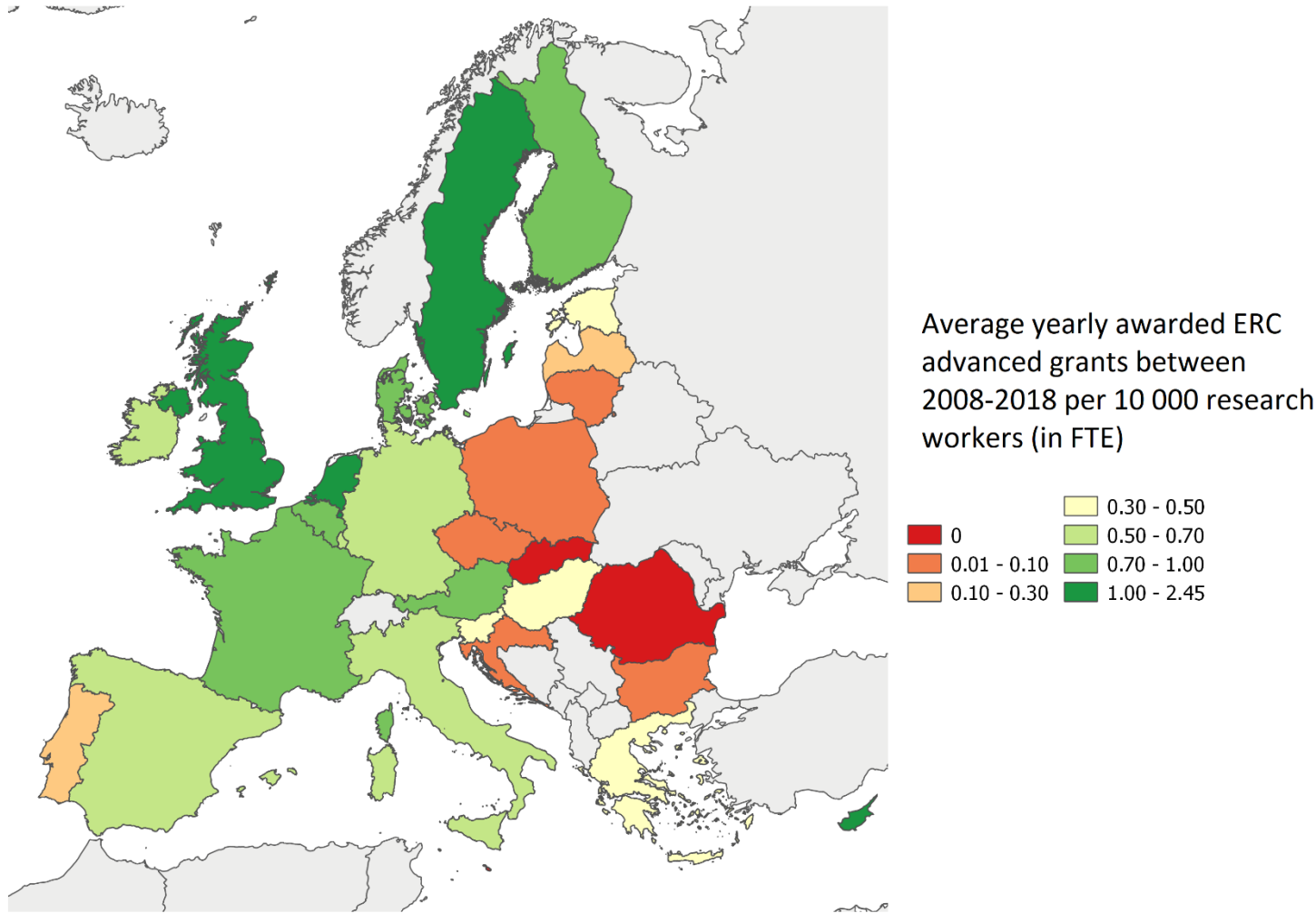
Research international collaboration intensity (% of total publications) (Web of Science)



In Last 3 years – Increased participation in international consortiums, projects and other activities

Intensive H2020 participation National support activities

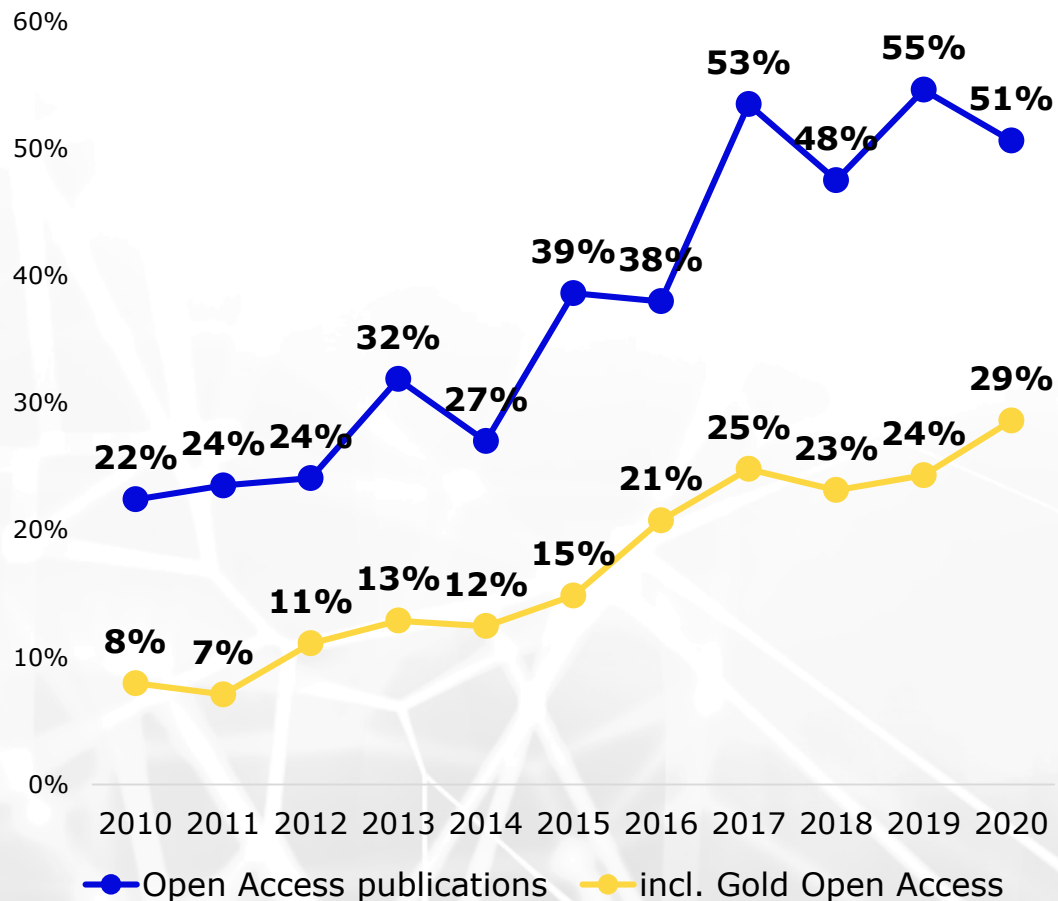
Research excellence – challenge for Latvia together with EU-13



- Latvia has excellence islands, but still lags behind in excellence-based R&D activities (e.g. in H2020 ERC grants).
- Target – research excellence in all 5 RIS3 priority areas
- Research excellence is one of our main policy priorities and our R&D investment programs will foster the necessary capacity development.
- This gap can be reduced by a significant policy shift towards increasing our R&D excellence.

Progress in Open Science

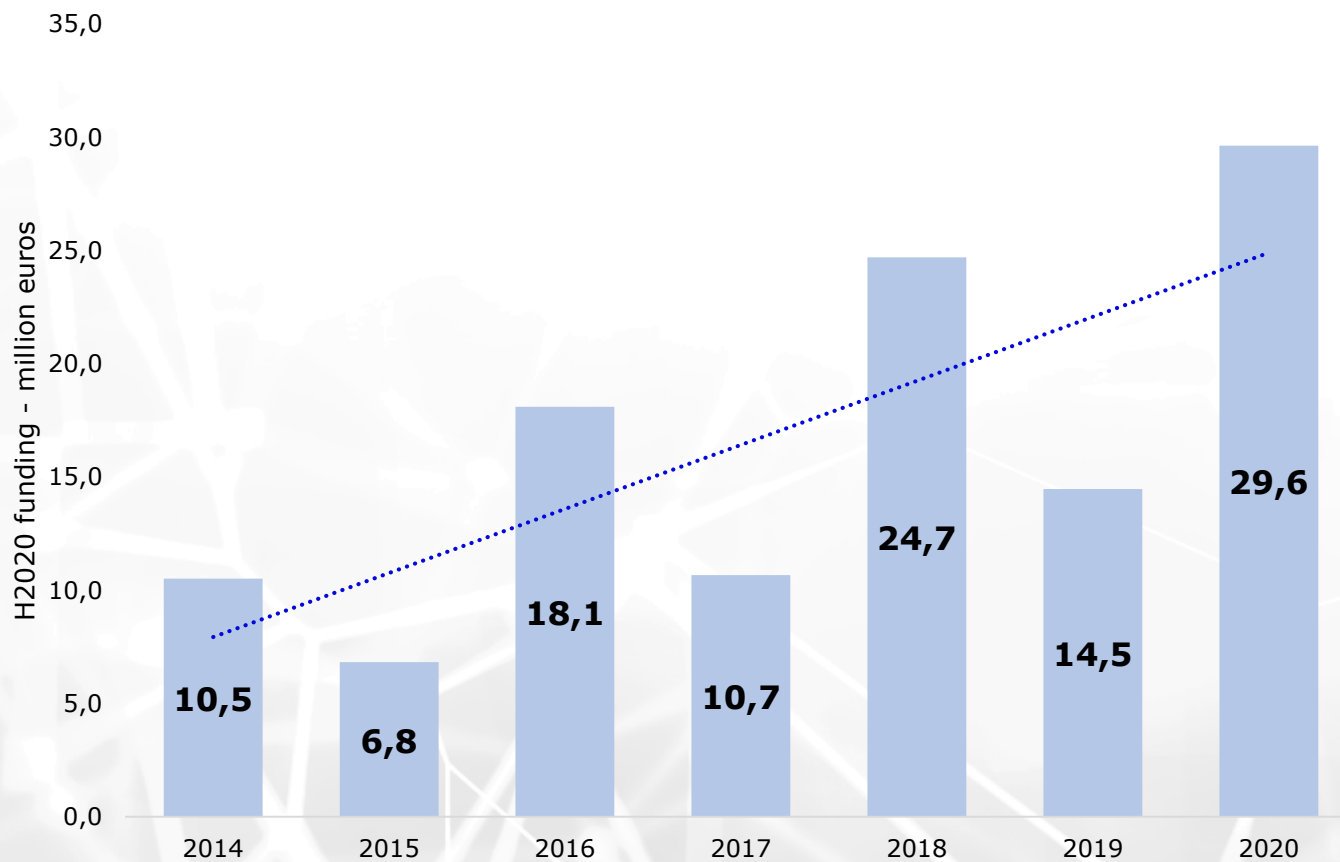
Open access publications as % of total research output (SCOPUS)



- **Open Access publications has increased in recent years** (half of total research output)
- Open Science strategy for 2021-2027 is currently being developed with emphasis on **FAIR research data** and successful participation in European Open Science Cloud activities

H2020 impact on Latvian R&I system

Latvian H2020 funding by year - % of total budget



H2020 results had progress between 2014 - 2020

H2020 is ~ 10 % of total Latvian R&D funding.

H2020 role in Latvian R&D system is 2nd highest within EU countries (only behind Cyprus)

Noticable fluctuation by year – because of large projects (e.g. Teaming)

* eCORDA data – June 2021

H2020 impact on Latvian R&I system



	FP 5 (1999- 2002)	FP 6 (2002- 2006)	FP 7 (2007-2013)	Horizon 2020 (2014- 2020)*
Total project proposals	667	1027	1127	2809
Total project participation proposals	776	1206	1424	3427
Supported projects	178	217	240	411
Participations in supported projects	204	258	337	511
Coordinated projects	2	11	30	49
Success rate	26.7 %	21.1 %	21.3 %	14.5%
Total EC funding (million EUR)	14.6	21.6	49.04	114.2



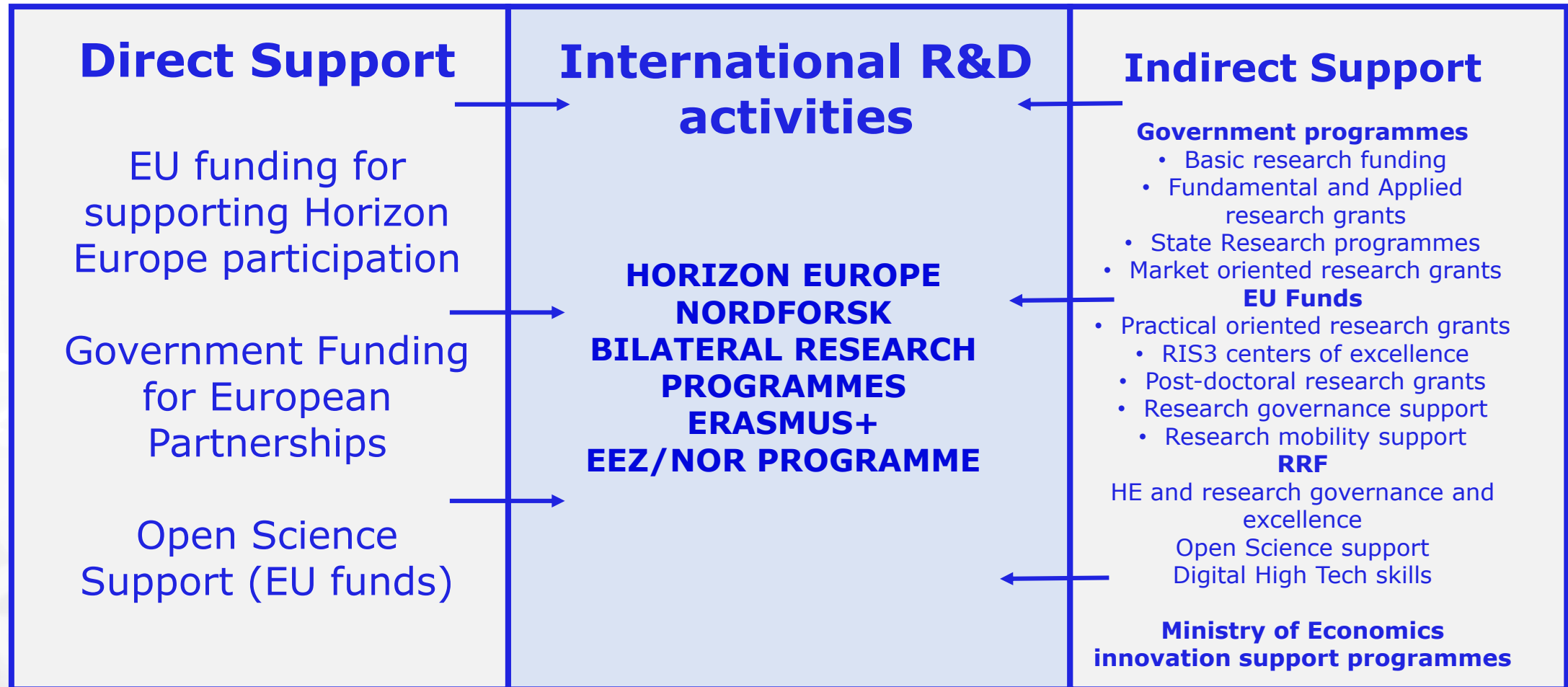
Bioeconomy cluster:

Latvia has 60 H2020 projects related to this cluster with 8 mln EUR funding. Participation intensity is great (0,32 % of all funding).

Majority of current H2020 activities in this cluster are RIA projects (53 % of all funding)

* eCORDA data - May 2021

National R&D programmes and their links with international programmes



R&D funding role in the development of bioeconomy



Research institutions related to bioeconomy



UNIVERSITY
OF LATVIA



LATVIJAS
HIDROEKOĻOĢIJAS
INSTITŪTS



Agroresursu un
ekonomikas
institūts



SILAVA



Latvia University
of Life Sciences
and Technologies



INSTITUTE OF
HORTI
CULTURE



BIOR

INSTITUTE OF FOOD SAFETY, ANIMAL HEALTH
AND ENVIRONMENT

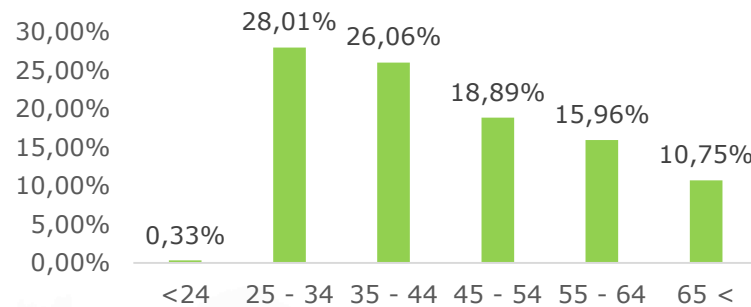


Daugavpils
University

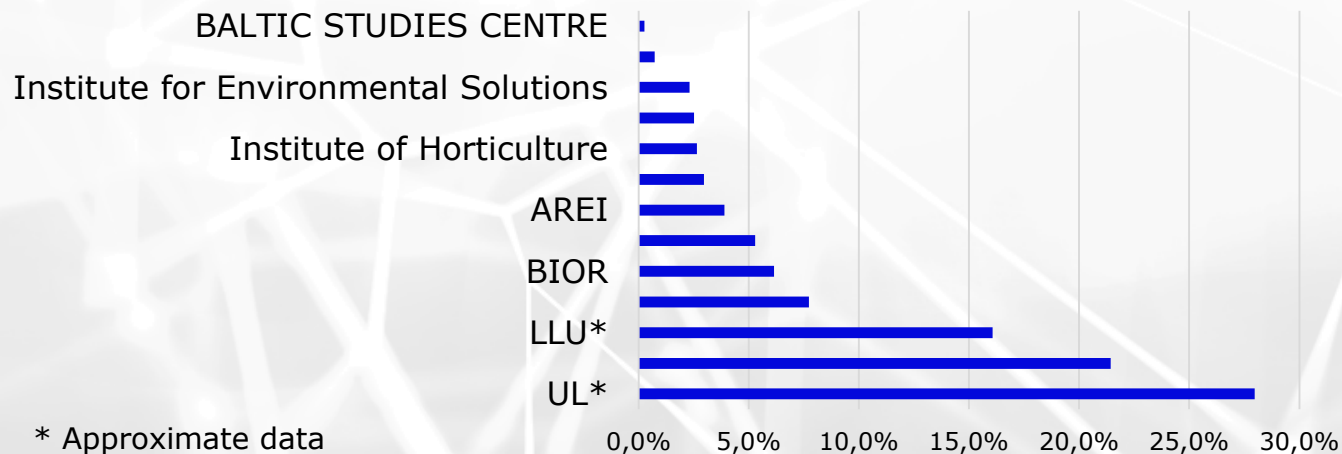


R&D Human Capital in bioeconomy

Age structure of scientific personnel in Latvia, 2019
(FOS): Agricultural sciences



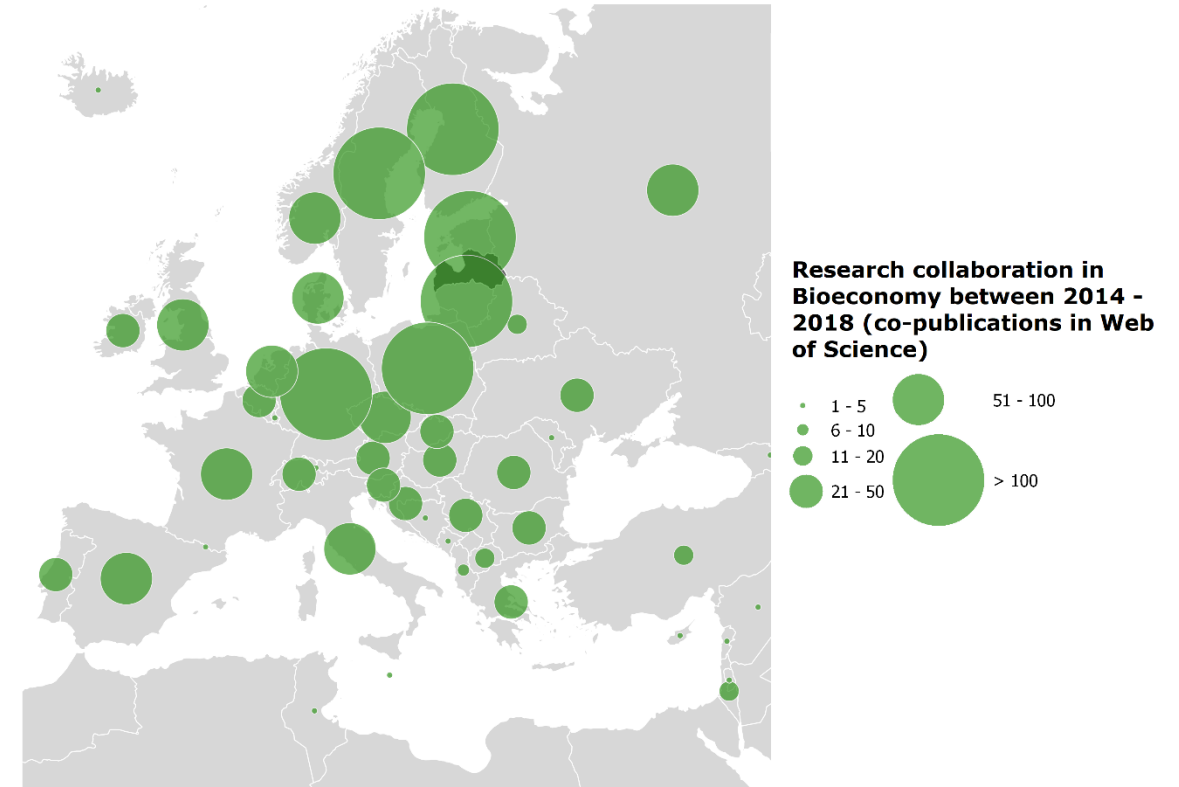
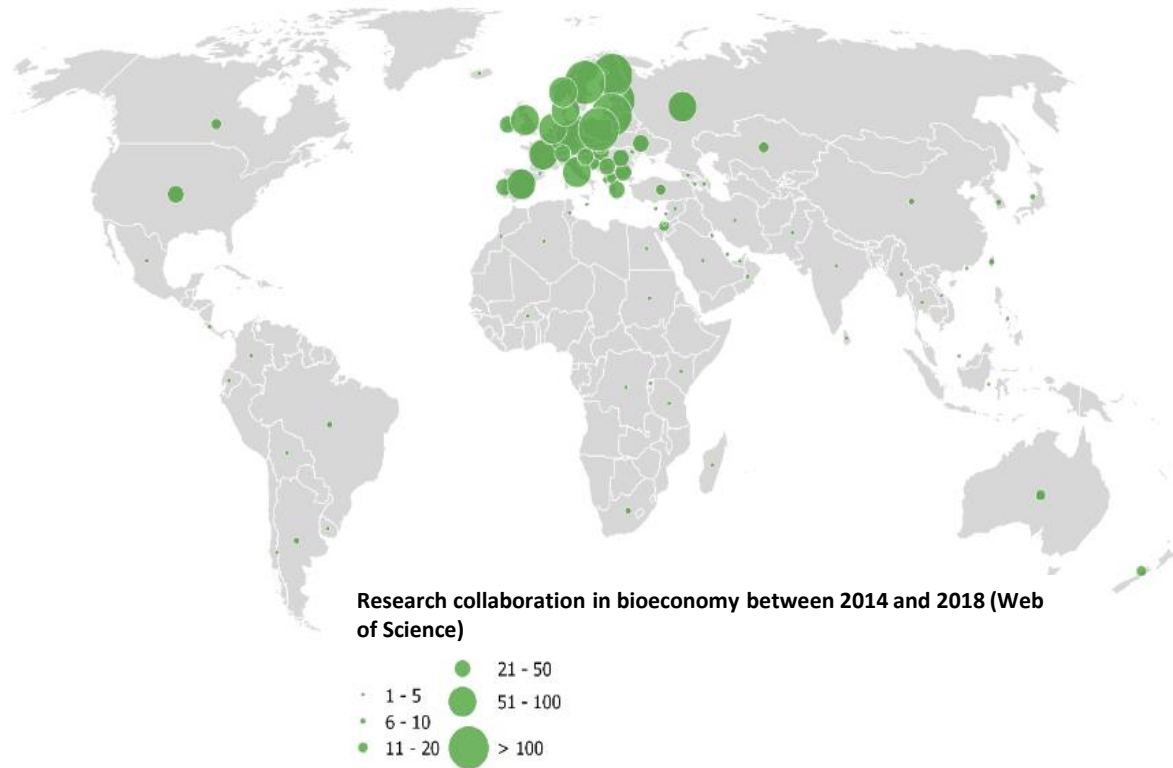
Scientific personnel associated with bioeconomy by research institution (NZIDIS, 2019) (%)



* Approximate data

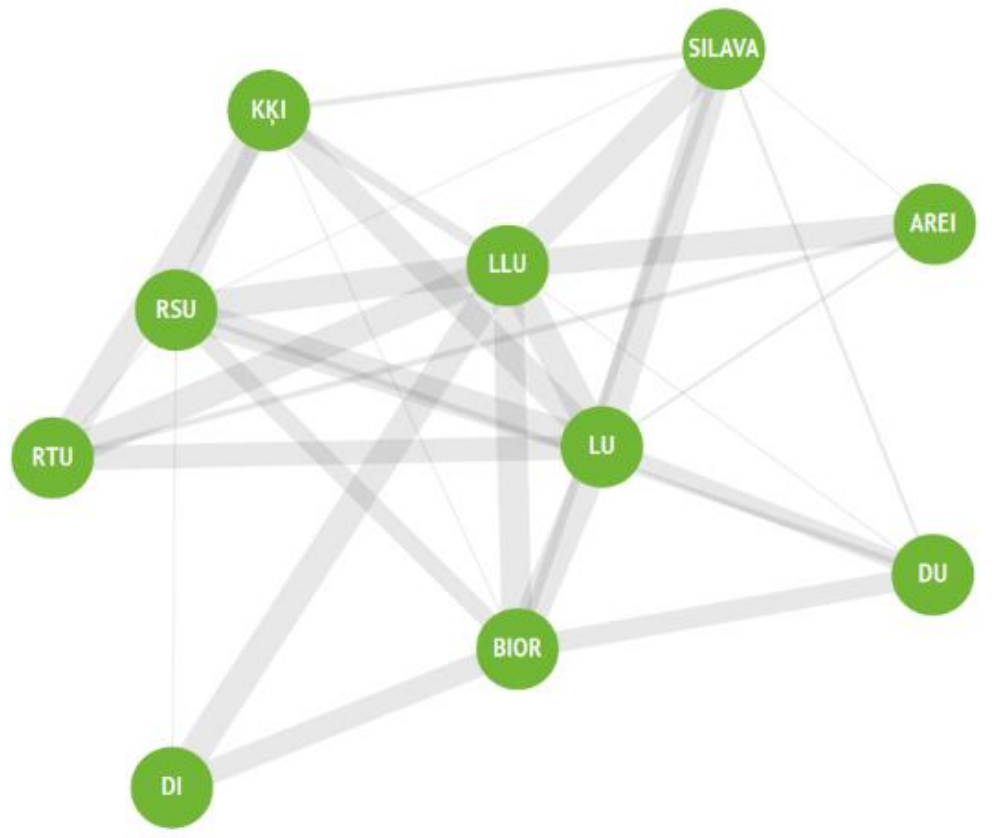
- Age structure of the scientific personnel shows capacity and creates potential for future development
- Most of the scientific personnel are employed by major universities: LLU, LU, RTU

International collaboration in bioeconomy



- The main partners for bioeconomy related topics are found in Europe especially in Baltic sea region.

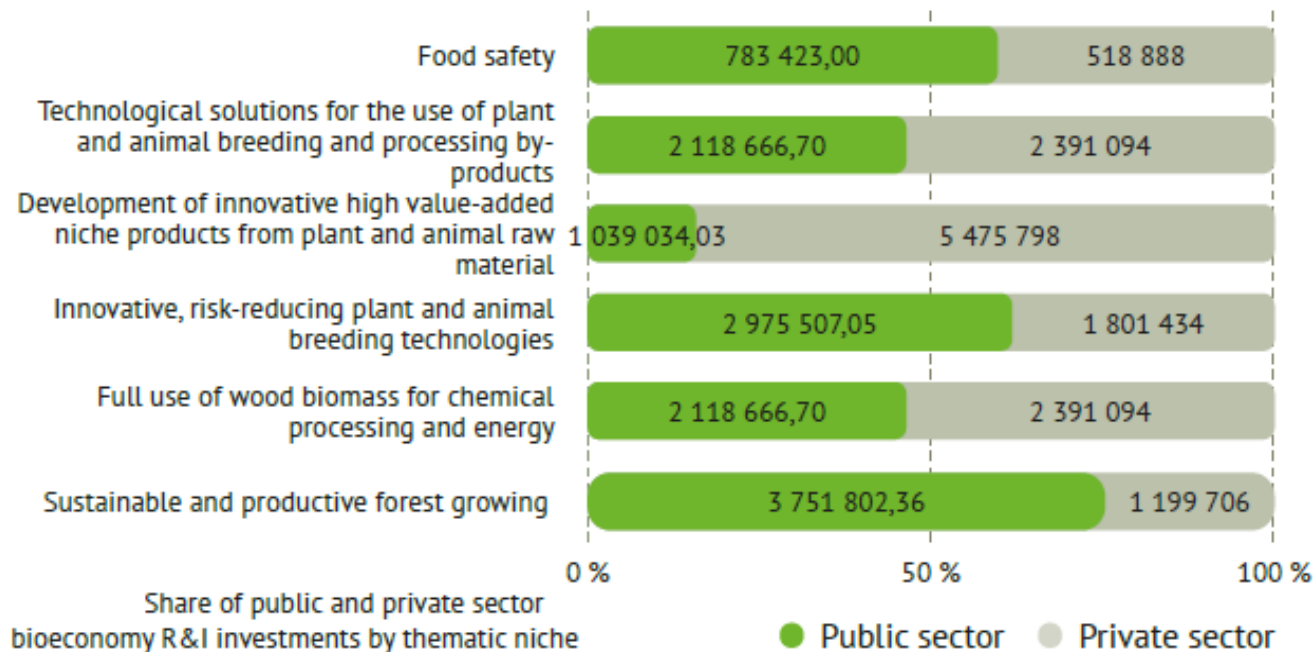
Collaboration on the national level



Joint scientific publications by Latvian research institutions (Web of Science, 2014–2018)

- Strong collaboration between RI on national level where joint R&I projects results in joint publications
- Research networks have been established around major universities (LLU, LU, RTU and RSU) but not limited to

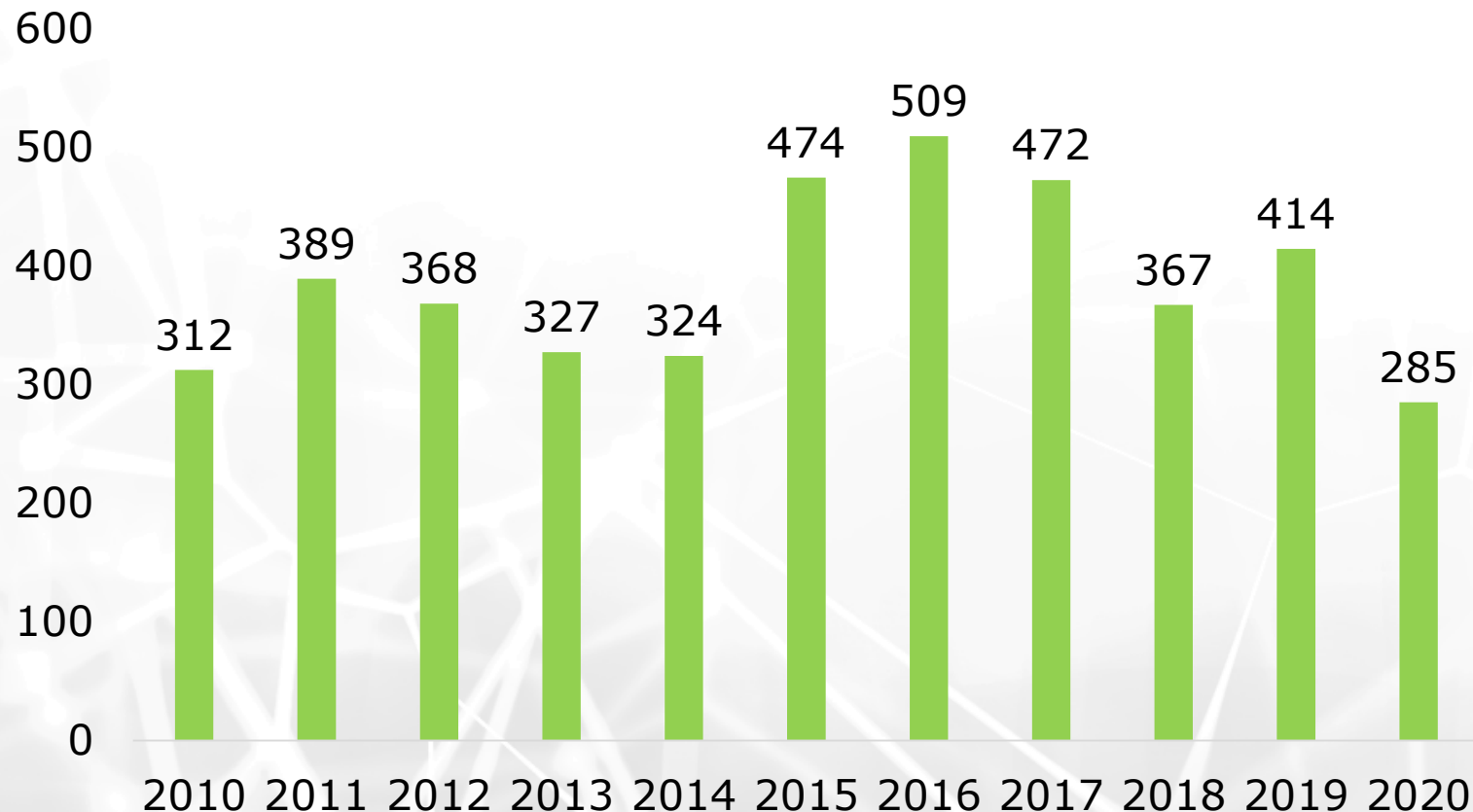
R&D investments in the bioeconomy 2014-2018



- Largest number of R&D projects are related to agriculture, food processing, forestry and bio-based industry
- Competence centres for Food and forestry industry have played a particularly important role in attraction of private sector investments in bioeconomy
- Multiple topics related to bioeconomy such as horticulture and biotechnology and biomass processing are well developed throughout the entire range of financial instruments from fundamental and applied sciences to the commercialisation of research

R&D results in bioeconomy 2010-2020 – research output

Latvian research publications in Bioeconomy related research areas (Web of Science) 2010 - 2020

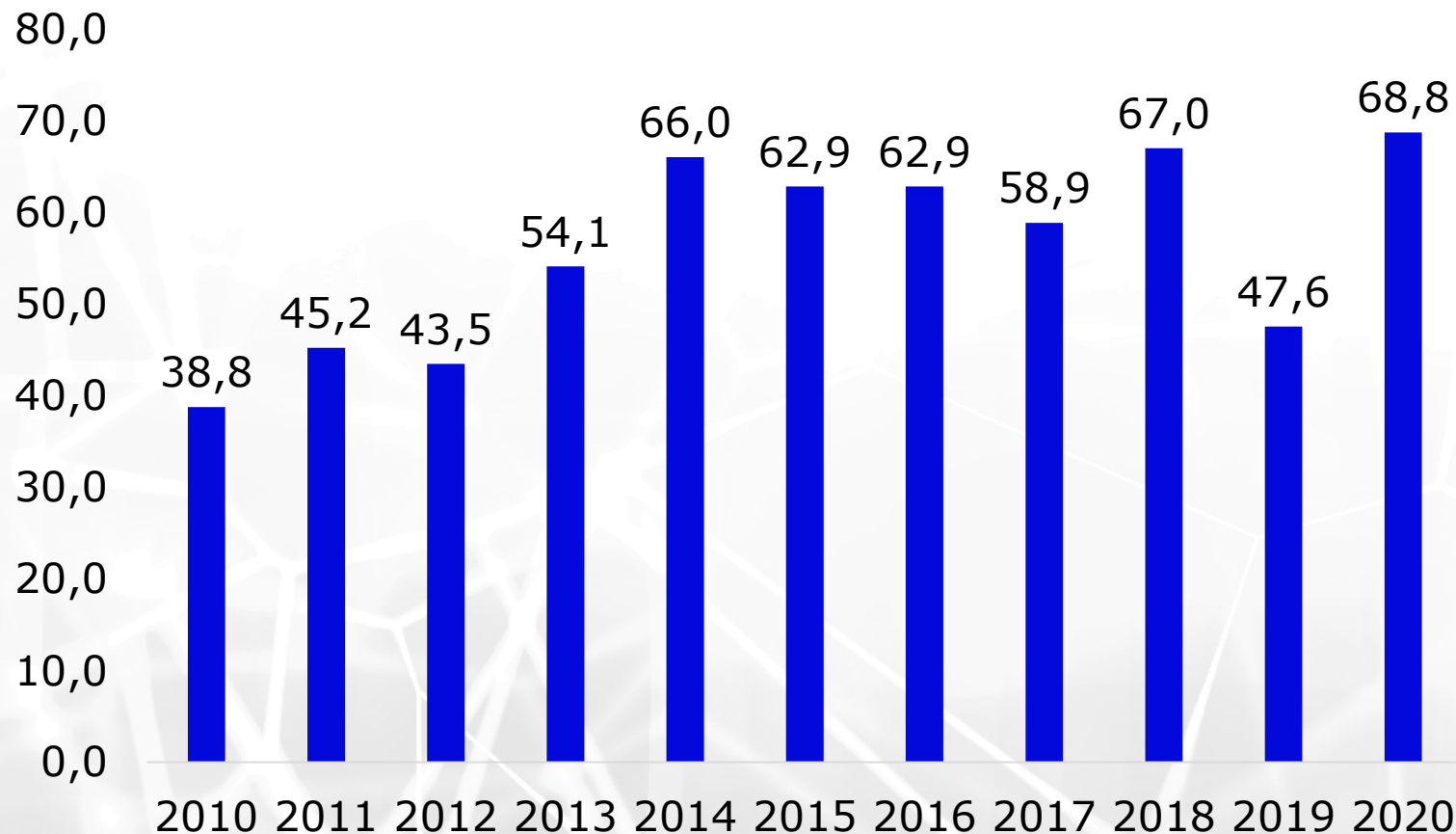


- In research fields related to Bioeconomy Latvian research output is around 300 publications per year (with variation due to conference paper publication distribution)
- 3rd largest research output from 5 RIS3 priority areas



R&D results in bioeconomy 2010-2020 – output citation

Cited Latvian research publications (% of total) in Bioeconomy related research areas (Web of Science) 2010 - 2020

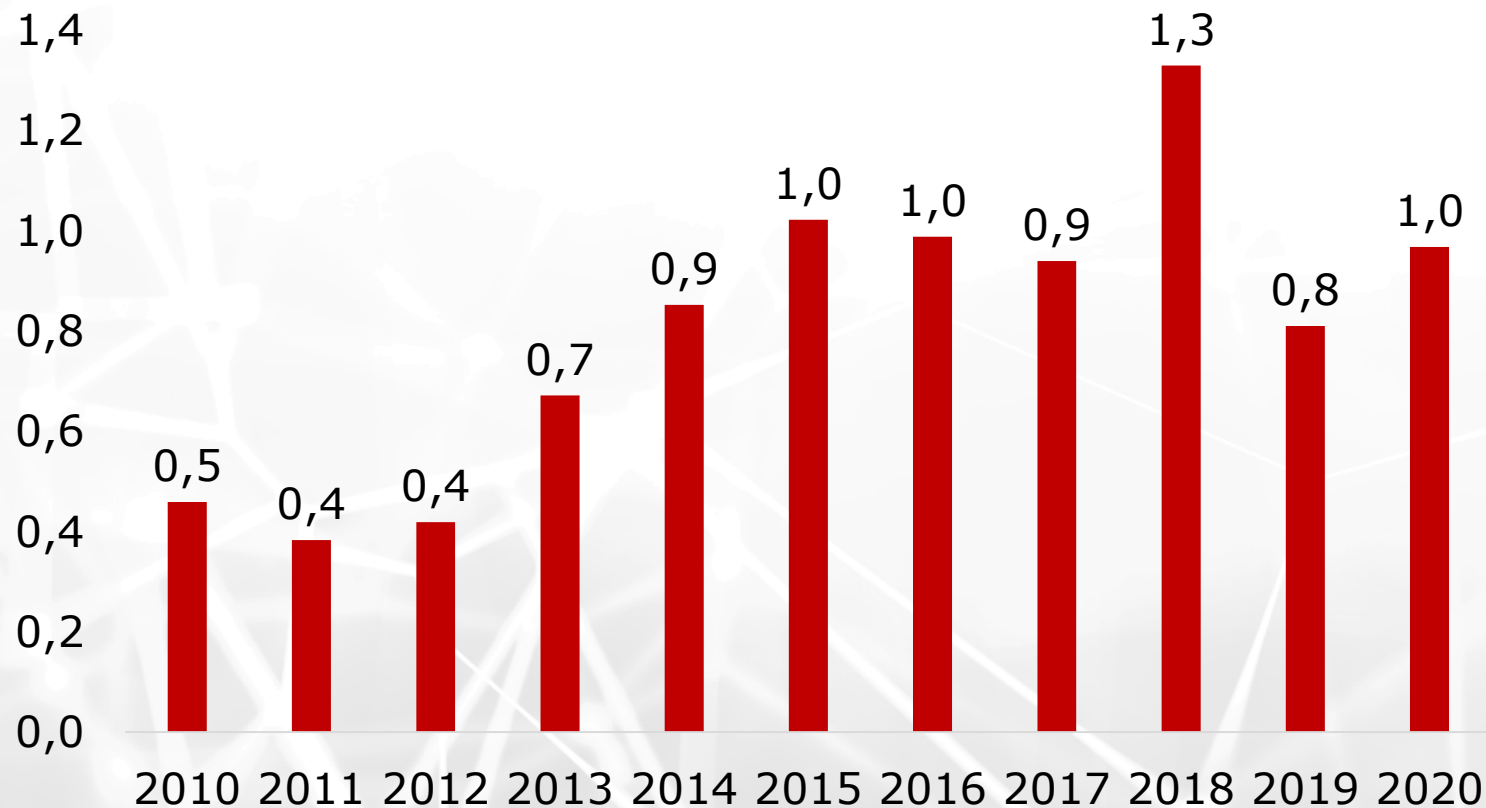


- Overall tendency for bioeconomy research publications is that frequency of citations (e.g. cited research publications % of total) increases in recent years
- This potentially indicates an overall increase in research quality



R&D results in bioeconomy 2010-2020 – research quality

Category Normalized Citation Impact for Latvian research publications in Bioeconomy related research areas (Web of Science) 2010 - 2020

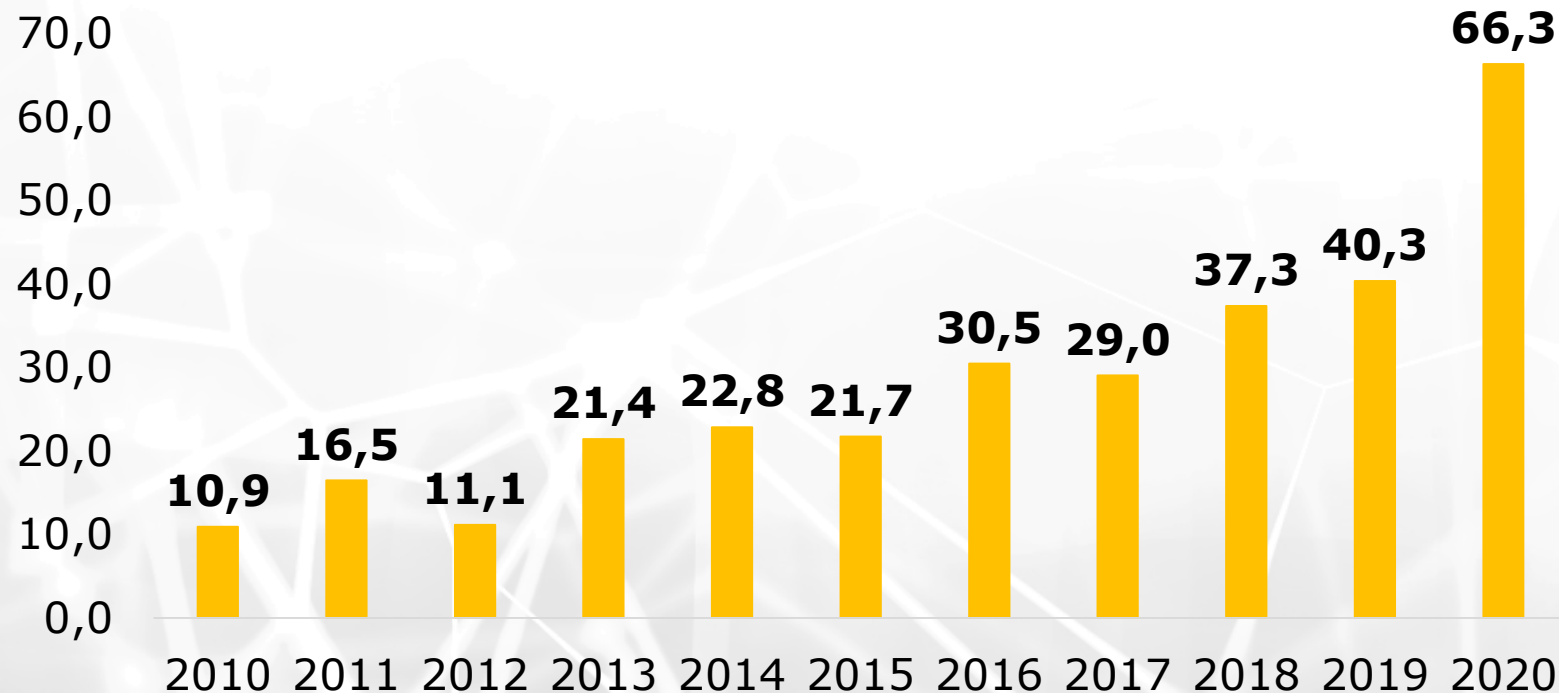


- Average quality of Bioeconomy research publications has overall increased in the last 10 years.
- Since 2014 Latvian average quality is close to global average in Bioeconomy related research areas



R&D results in bioeconomy 2010-2020 – international collaboration

**International Collaboration % for Latvian
research publications in Bioeconomy
related research areas (Web of Science)
2010 - 2020**



- International collaboration intensity in Bioeconomy has considerably increased in recent years
- Noticable impact of increased participation in H2020 programme

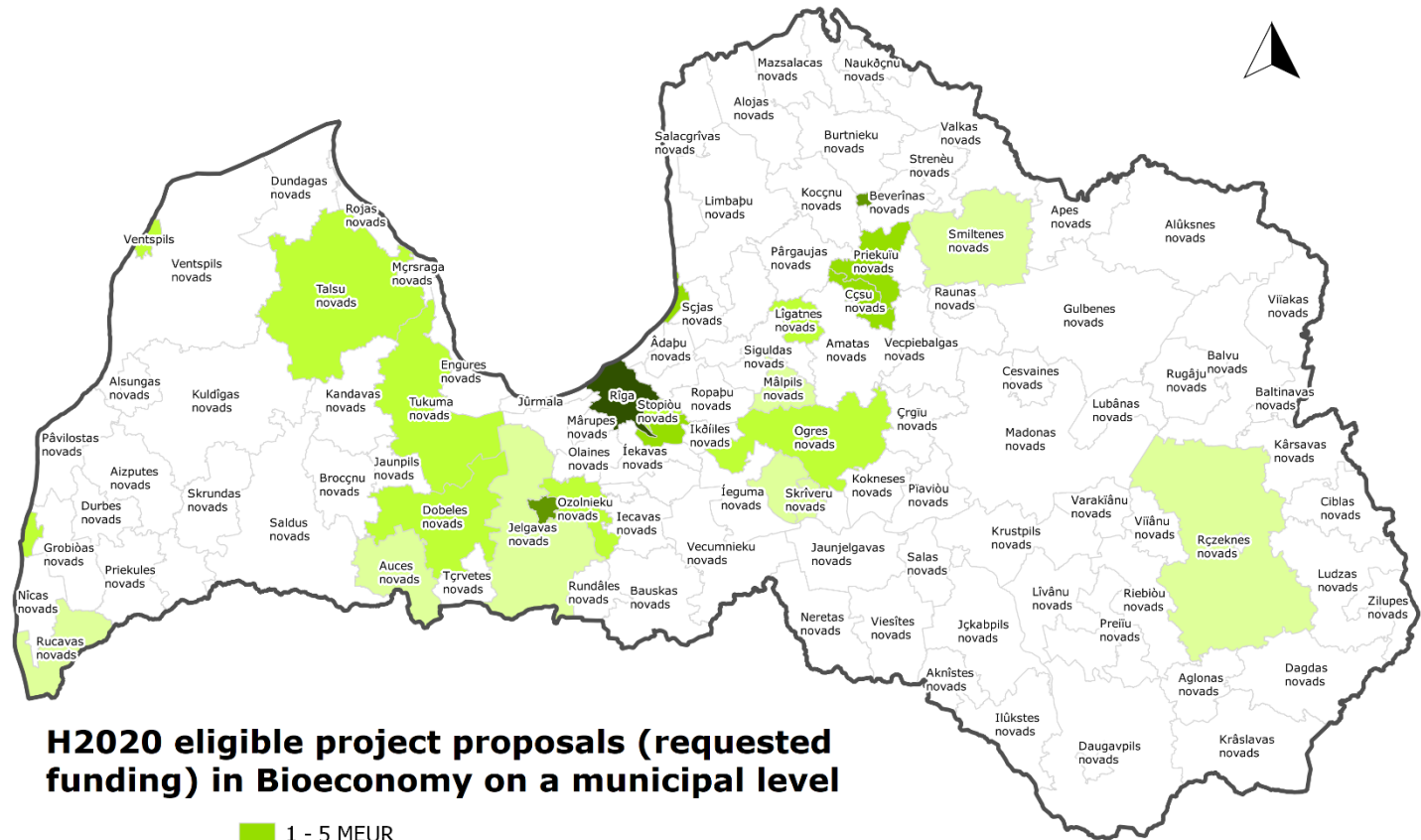
H2020 and regional dimension in Bioeconomy



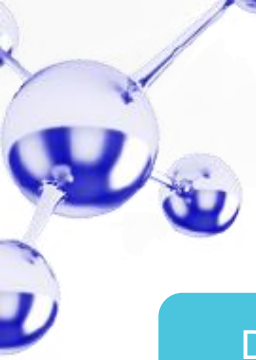
The research institutions in bioeconomy are spread all over the country

Institutions from 24 municipalities have H2020 project proposals -

12 of them have had a successfully funded H2020 project in Bioeconomy



0 25 50 km



Horizon Europe Cluster 6 «Food, Bioeconomy, Natural Resources, Agriculture» 21/22 Intervention Areas

Destination 1: Biodiversity and Ecosystem Services

• **Environmental Observation; Biodiversity and Natural Resources; Agriculture, Forestry and Rural Areas; Seas, Oceans and Inland Waters; Food Systems; Bio-based Innovation Systems in the EU Bio-economy; Circular Systems**

Destination 2 – Fair, healthy and environmentally-friendly food systems from primary production to consumption

• **Environmental Observation; Biodiversity and Natural Resources; Agriculture, Forestry and Rural Areas; Seas, Oceans and Inland Waters; Food Systems; Bio-based Innovation Systems in the EU Bio-economy; Circular Systems**

Destination 3 – Circular economy and bioeconomy sectors

• **Environmental Observation; Biodiversity and Natural Resources; Agriculture, Forestry and Rural Areas; Seas, Oceans and Inland Waters; Food Systems; Bio-based Innovation Systems in the EU Bio-economy; Circular Systems**

Destination 4 – Clean environment and zero pollution

• **Environmental Observation; Biodiversity and Natural Resources; Agriculture, Forestry and Rural Areas; Seas, Oceans and Inland Waters; Food Systems; Bio-based Innovation Systems in the EU Bio-economy; Circular Systems**

Destination 5 – Land, oceans and water for climate action

• **Environmental Observation; Biodiversity and Natural Resources; Agriculture, Forestry and Rural Areas; Seas, Oceans and Inland Waters; Food Systems; Bio-based Innovation Systems in the EU Bio-economy; Circular Systems**

Destination 6 – Resilient, inclusive, healthy and green rural, coastal and urban communities

• **Environmental Observation; Biodiversity and Natural Resources; Agriculture, Forestry and Rural Areas; Seas, Oceans and Inland Waters; Food Systems; Bio-based Innovation Systems in the EU Bio-economy; Circular Systems**

Destination 7 – Innovative governance, environmental observations and digital solutions in support of the Green Deal

• **Environmental Observation; Biodiversity and Natural Resources; Agriculture, Forestry and Rural Areas; Seas, Oceans and Inland Waters; Food Systems; Bio-based Innovation Systems in the EU Bio-economy; Circular Systems**

Horizon Europe Cluster 6 «Food, Bioeconomy, Natural Resources, Agriculture» partnerships (thematic platforms):

Launch: 2021 / 2022

- 30. Rescuing biodiversity to safeguard life on Earth
- 31. A climate neutral, sustainable and productive Blue Economy
- 33. Circular bio-based Europe
- 34. Water4All: Water security for the planet

Launch: 2023/2024

- 27. Accelerating farming systems transition
- 28. Animal health
- 29. Environmental Observations for a sustainable EU agriculture
- 32. Safe and Sustainable Food System for People, Planet & Climate

**All partnerships directly linked with Latvian
RIS3**



The development of Knowledge intensive bioeconomy R&D ecosystem: future challenges

Shift from high relative research activity towards research excellence

- Further internationalization of the scientific community
- Development of thematic excellence island similar to CAMART, BBCE to become leaders in the international scientific community
- The participation in large scale international research projects and leading role in consortiums (Horizon Europe, partnerships)

Development of R&D Human Capital

- Emphasis on international collaboration and interaction – both invitation of international PhD students, researchers and local researchers and PhDs are encouraged to go abroad for longer periods of time
- Progress in doctoral studies with increased number of PhD graduates

Cooperation with the private sector

- Intensification of knowledge and technology transfer
- Attraction of R&D investments



Thank You!

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