

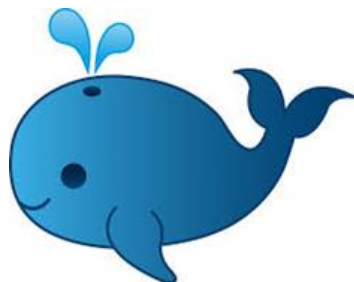
Smart-up BSR Regional SWOT analysis, Latvia

University of Latvia

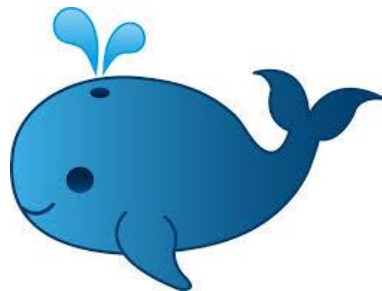
28.11.2018.

- ✓ Transformation to higher added value, productivity and more efficient use of energy
- ✓ Linked to current development level of national economy;
- ✓ Driven by innovations based on 3 whales

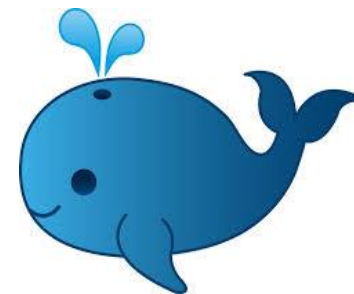
Entrepreneurship



Science

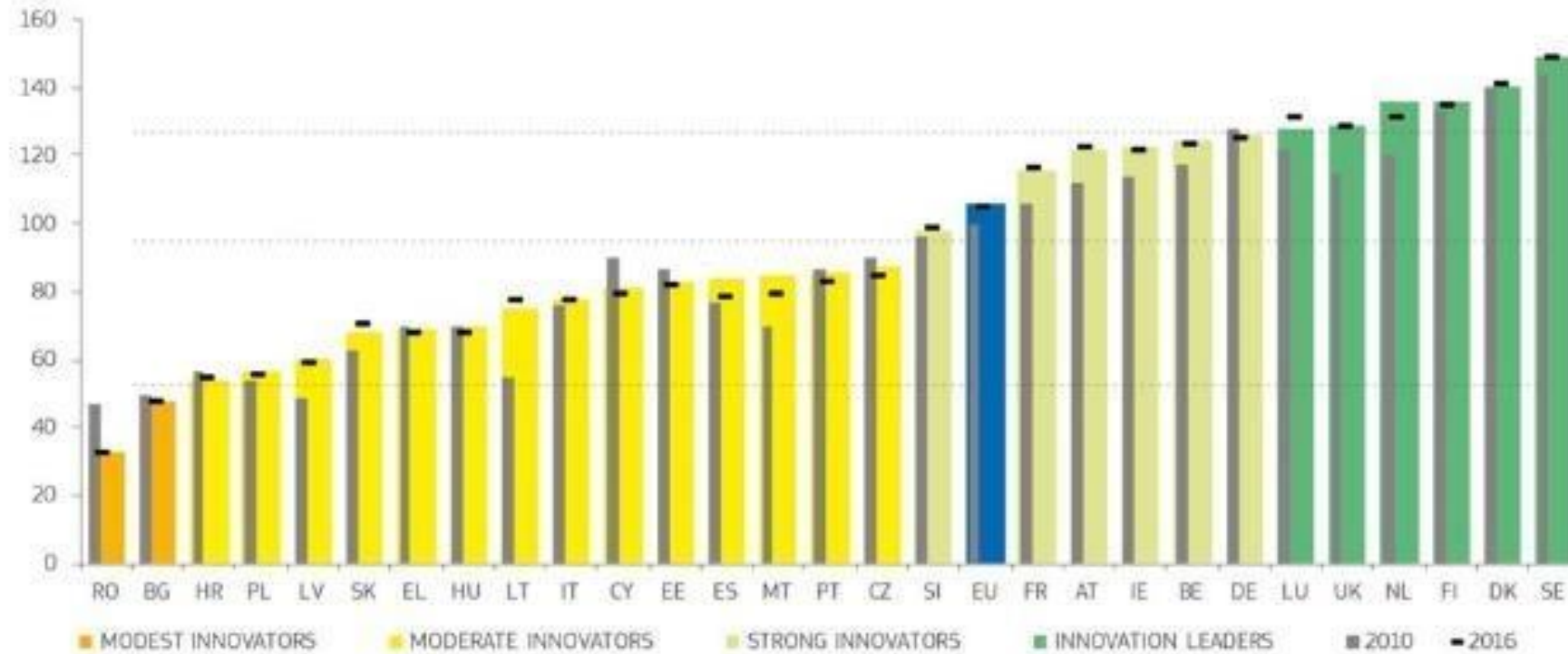


Education



Linking the areas of RIS3 to the sectors of national economy

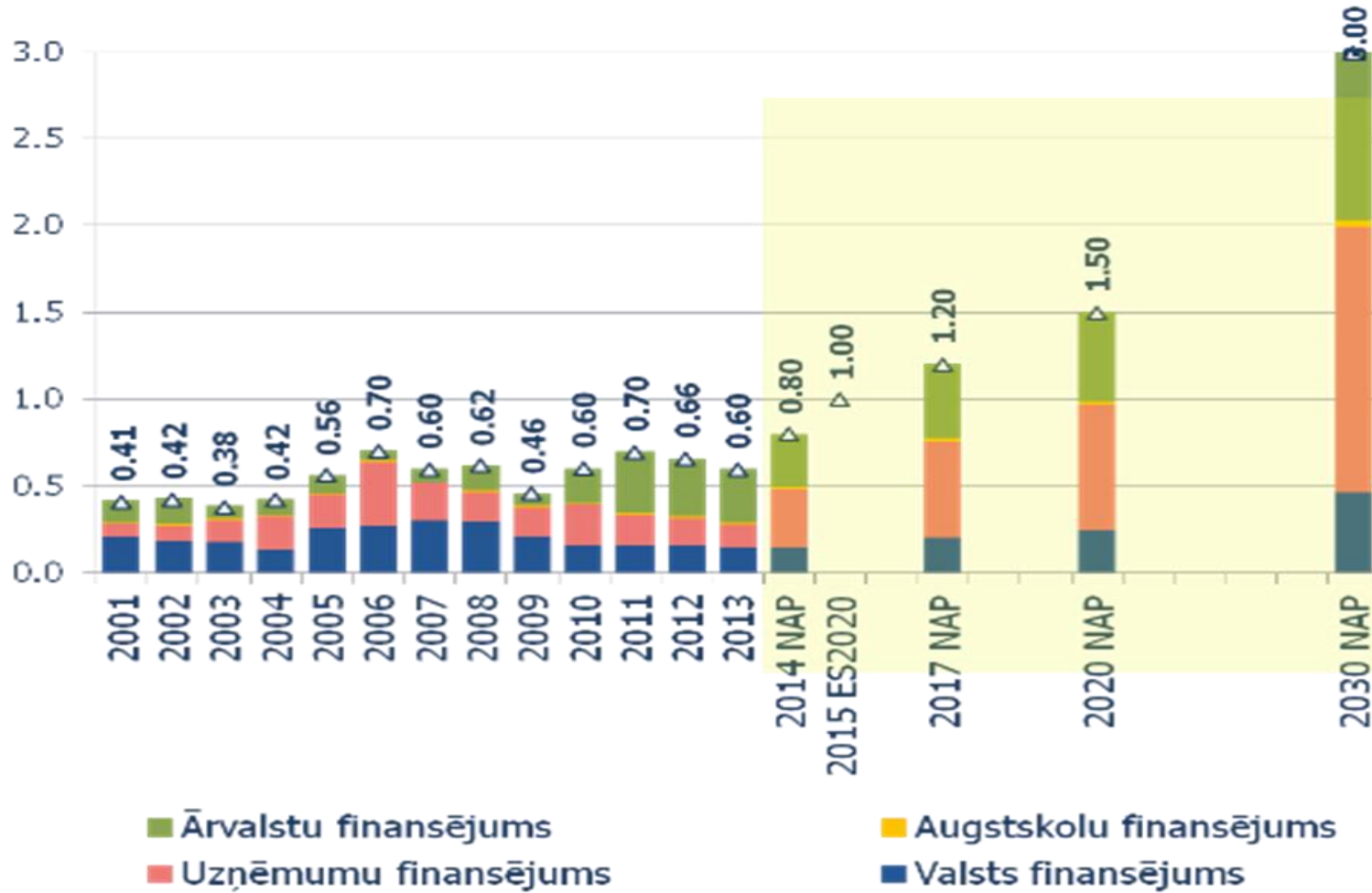
Sectors of economy		Knowledge-based bioeconomy	Biomedicine, med. technol., biofarm. and biotechnology	Smart materials, engineering systems	Smart energy	Computer technologies
A	Agriculture, forestry					
BDE	Other industry					
C	Food production					
C	Light industry					
C	Wood processing					
C	Paper production and printing					
C	Chemical industry					
C	Manufacturing of non-metallic minerals					
C	Metal processing					
C	Production of electrical and optical equipment					
C	Production of machines and equipment					
C	Production of transport means					
F	Construction					
G, I	Trade, accomodation					
H	Transport and warehouses					
J-S	Other commercial services					
OPQ	Public services					

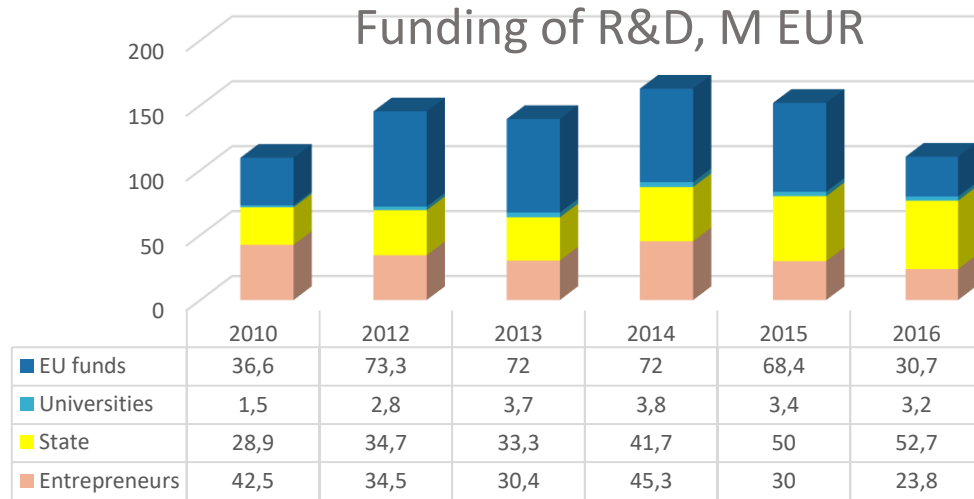


Source – European Innovation Scoreboard, 2018



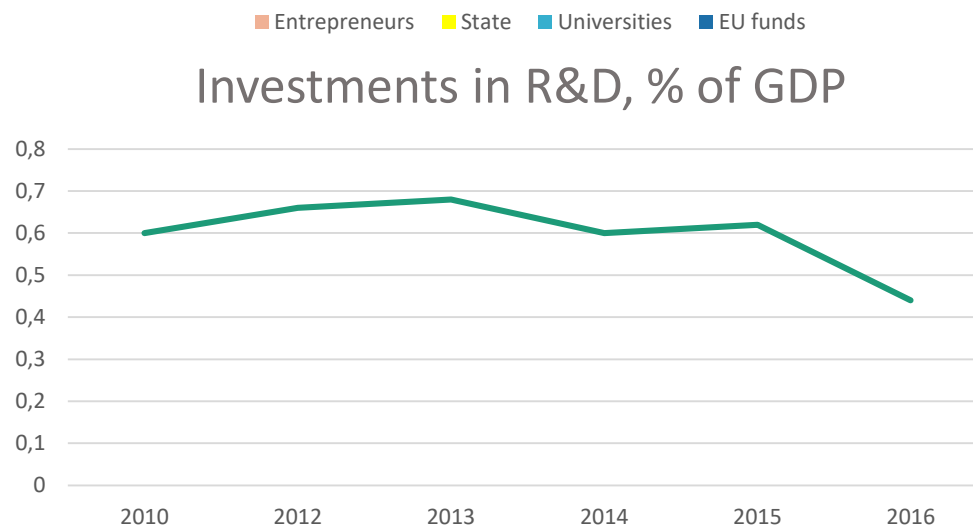
	Human resources in research	Research systems	Innovation friendly environment	Accessibility of funding and support	Investments of business entities	Number of innovators	References	Value of intellectual property
	<u>2016</u>	<u>2016</u>	<u>2016</u>	<u>2016</u>	<u>2016</u>	<u>2016</u>	<u>2016</u>	<u>2016</u>
EU average	121.0	111.8	114.3	83.7	113.6	85.8	95.3	100.4
Latvia	93.2	37.6	160.1	75.9	44.0	11.9	41.4	49.8
Latvija among the EU-36	25	31	8	17	35	33	29	27





✓ Real situation - the highest peak of investments - 0.69% of GDP was reached in 2014.

✓ In 2016 investments of entrepreneurs in R&D - 0.16% of GDP, state budget - 0.19% of GDP).



✓ Latvia is funding R&D mainly from EU funds (44.4% in 2015).

✓ Entrepreneurs contribute only 24.7% of total investments in R&D (2015) comparing with average 64% in Europe.

✓ Source: CBS

SWOT of Latvia innovations ecosystem

Strengths	Weaknesses
<ul style="list-style-type: none"> ✓ Democratic society; ✓ Flexible and accessible public administration; ✓ Geographical location; ✓ Accessibility of higher education ✓ Availability of broad range of programmes and high competition in the field of supply of higher education; ✓ Understanding importance of growth of R&D sector on state level Strong and recognized individual experts; ✓ Developed micro-entrepreneurship; ✓ Active participation of people in digitalized services; ✓ Availability of research infrastructure 	<ul style="list-style-type: none"> ✓ Decreasing amount of inhabitants due to negative demography trends and emigration ✓ Limited budget capability; ✓ Specialisation in low added value production; ✓ Low export income ✓ Weak innovation system ✓ Weak cooperation between entrepreneurs and scientists, low commercialization level of research results ✓ Weak private sector, limited funding capacity of innovations ✓ High share of academic research, only small portion practice based ✓ Small internal market
Opportunities	Threats
<ul style="list-style-type: none"> ✓ Open data access, technology transformation of the services provided by the state and state institutions ✓ International Competitive academic environment, cooperation among higher education establishments ✓ Support to cross-sectoral projects ✓ Facilitation of dialogue between scientists and entrepreneurs; ✓ Regional Specialisation and connectivity 	<ul style="list-style-type: none"> ✓ Lack of local patriotism - driver for ongoing emigration ✓ Ageing population ✓ Health indicators lagging behind EU; ✓ Failure to accumulate financial resources for funding growth ✓ Rapid increase of labor costs that exceeds increase of efficiency. ✓ Stagnation in the main trade partner states. ✓ Small and specialised economy, subject to global shocks.

Linking the areas of RIS3 specialization to the economic sectors and branches of science

State scientific institutions including universities:	University of Agriculture, University of Latvia, Riga Technical University, Daugavpils University, Liepaja University, scientific institutions,	University of Latvia, Riga Stradins University, Riga Technical University, scientific institutions,	University of Latvia, Riga Technical University, scientific institutions,	University of Latvia, Riga Technical University, scientific institutions,	University of Latvia, Riga Technical University, scientific institutions,
RIS3 specialisation fields Sub-branches of science	Agriculture, Forestry, Fisheries, Animals, Veterinary, Agricultural Biotechnology, Physics, Chemistry, Biology, Economics, Industrial Biotechnology, Environmental Biotechnology, Chemistry Engineering, Material Engineering, Civil Engineering, Mechanical Engineering, Mathematics	Medicine, Clinical Medicine, Health Science, Medical Biotechnology, Physics, Chemistry, Chemistry Engineering, Biology, Mathematics, Materials Engineering	Civil Engineering, Electrical Engineering, Mechanical Engineering, Chemical Engineering, Material Engineering, Medical Engineering, Environmental Engineering, Environmental Biotechnology, Industrial Biotechnology, Nanotechnology, Physics, Chemistry, Mathematic	Electrical Engineering, Earth and Environmental Research, Environmental Engineering, Mechanical Engineering, Industrial Biotechnology, Mathematics, Chemistry, Chemical Engineering, Materials Engineering	Computer Science and Informatics, Mathematics, Electrical Engineering, Mechanical Engineering, Civil Engineering



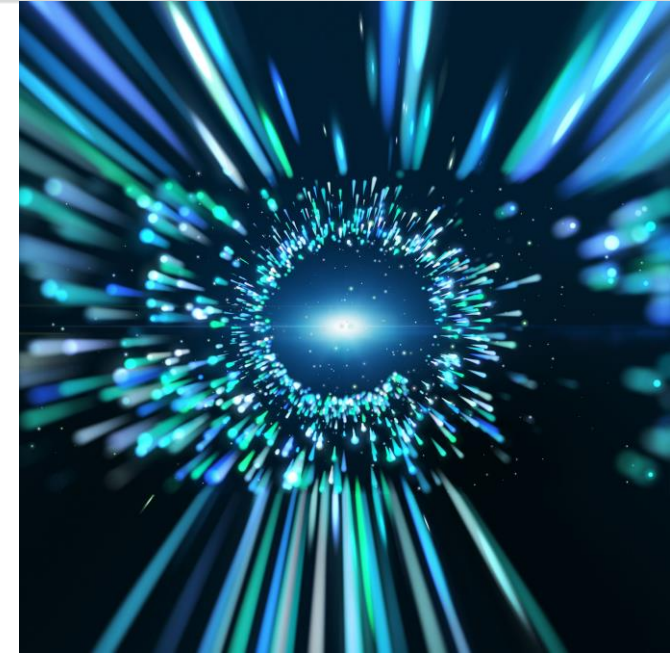
- ✓ Holds the share of 16% of Bachelor's degree, 30% of Master's, 45% of Doctoral degrees in Latvia;
- ✓ ~ 33% of publications;
- ✓ 55% of higher range publications;
- ✓ Hirsch's index in 5 year period - 32 (2 times exceeds other research institutions of Latvia)



Strengths	Weaknesses
World level research, high qualification of scientific personnel	Progressing aging of personnel
The research staff includes researchers involved in sector policy making at the national level	Unsufficient experience and capacity in commercialisation and IPR protection
Stable international partner network	Requirements for some doctoral study programs do not encourage doctoral students to achieve a level of excellence in scholarly publications.
Relevant and developed infrastructure	Scientific staff is significantly subjected to work not directly linked to the research, thus reducing the scientific capacity Low internal cooperation and networking
Opportunities	Threats
The Academic centre will open possibilities to increase multidisciplinary research and innovations.	Unsustainable funding leads to increased dependence on EU Structural Funds.
An increase in research capacity in connection with an increasing number of doctoral students and received degrees.	Health sector policies are subject to uncertainty, inconsistency and limited opportunities to anticipate it.
Geographical location of Latvia opens possibilities for establishing international contacts and networking in science.	The emigration of scientists contributes to the progress of aging of the staff.
The interest of foreign researchers about announced vacancies for post-doctoral and researcher positions is also observed.	Latvia does not have a clear tradition of inter-sectoral co-operation

1. Technology transfer centre (House of Technologies):

- ✓ Development of innovations from TRL 3-4 to 6-7
- ✓ 3 main specialisation fields according UL smart specialisation directions (HEPC - radiation chemistry and physics, life sciences + 3D printing of biomaterials and material mechanics)
- ✓ Synergies of different sciences (each supporting and developing another)
- ✓ United IT and pilot development
- ✓ Common dissemination and commercialisation.



2. Medicine centre

- ✓ In cooperation of Riga City Council - development of existing
- ✓ medical infrastructure for providing primary and secondary
- ✓ health care to inhabitants of Riga city, UL students and staff;

- ✓ Specialisation – physiotherapy, rehabilitation;

- ✓ Common research & education programmes;

- ✓ Accessibility of health care to students and employees of University

- ✓ Internships for medical students and residents.



3. University campus (Academic centre) - a pilot micromodel of a smart city

- ✓ robust IT connectivity and digitalization;
- ✓ good governance, especially e-Governance and participation of students, employees of UL as well as citizens;
- ✓ assured energy supply and heating, implementing novel and efficient solutions, use of renewable resources;
- ✓ an efficient waste management system
- ✓ affordable housing for students, guest lecturers and researchers and staff of the UL.
- ✓ After the test stage the most successful and efficient applications and approaches is planned to upscale to the Riga City level (strong co-operation between UL and Riga City Council)