

# Horizon 2020 Policy Support Facility



**Specific Support on the Development of the Human Capital for Research and Innovation in Latvia**

Draft background report

Kick-off meeting  
Brussels,  
14.06.2019.

# Outline

- Socio-economic context and key RDI indicators
- Research performers
- Science and technology human resources statistics
- Key challenges for R&I system
- Governance and policy
- Recent reforms
- Measures for human capital development

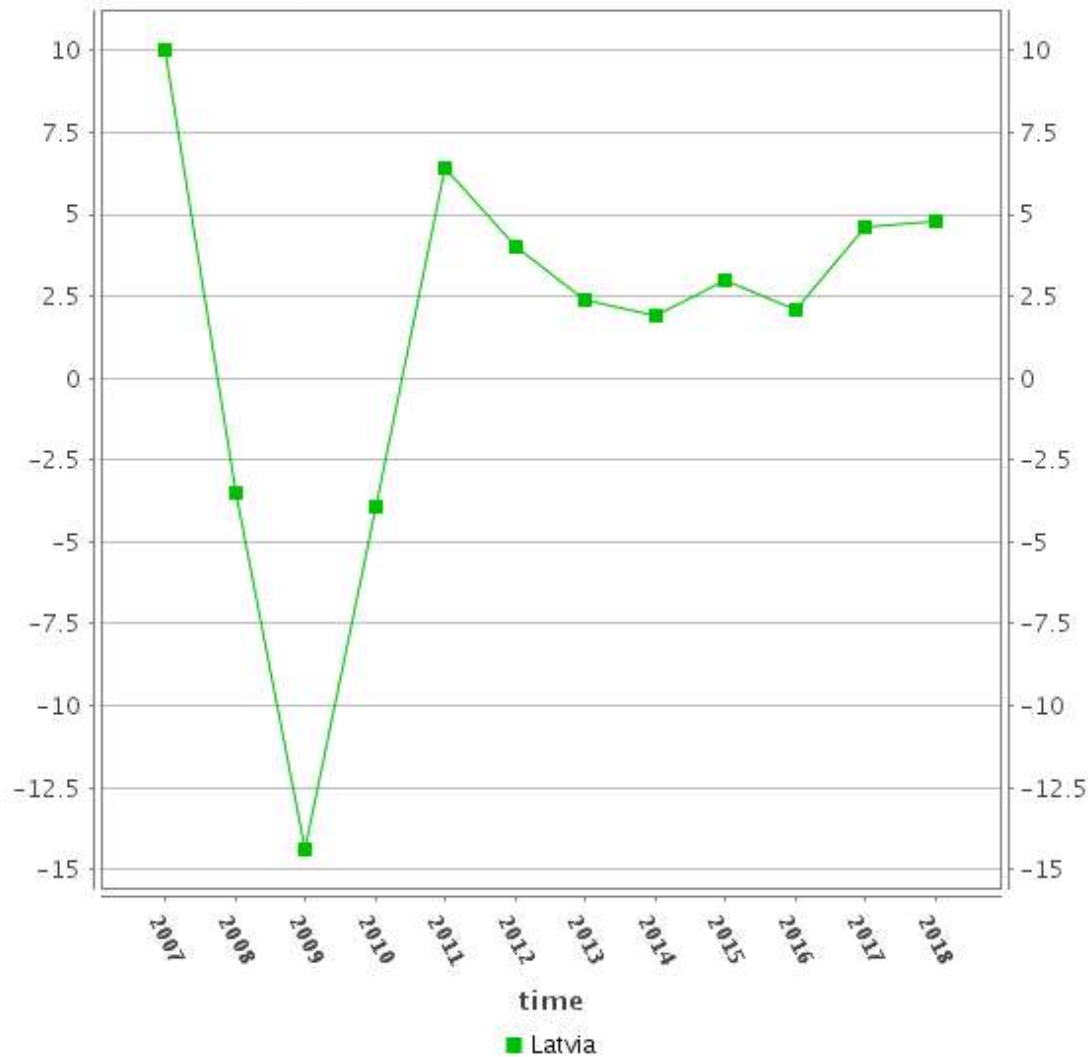


# Socio-economic context and key RDI indicators

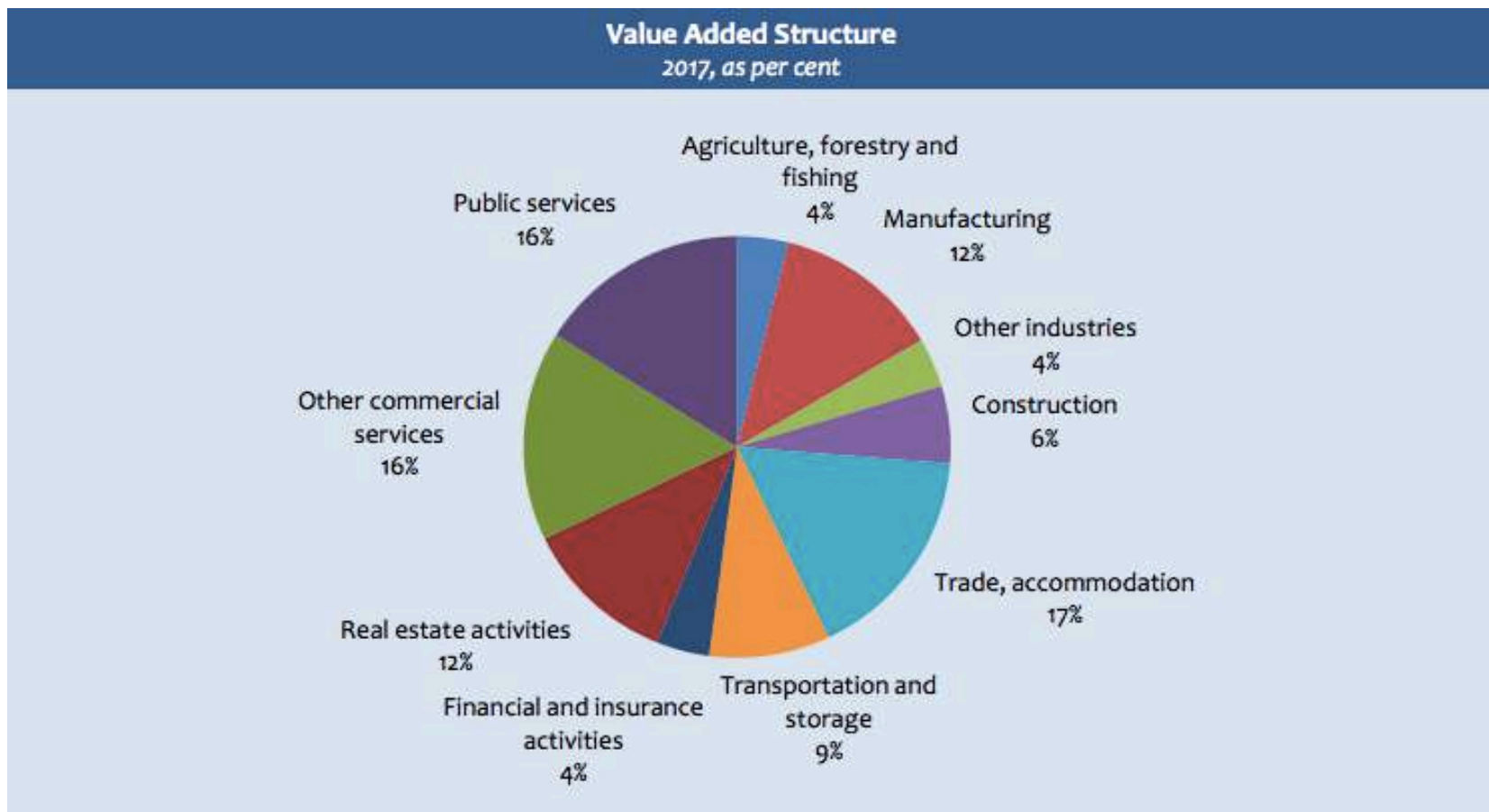


# Socio-economic context of Latvia (GDP growth)

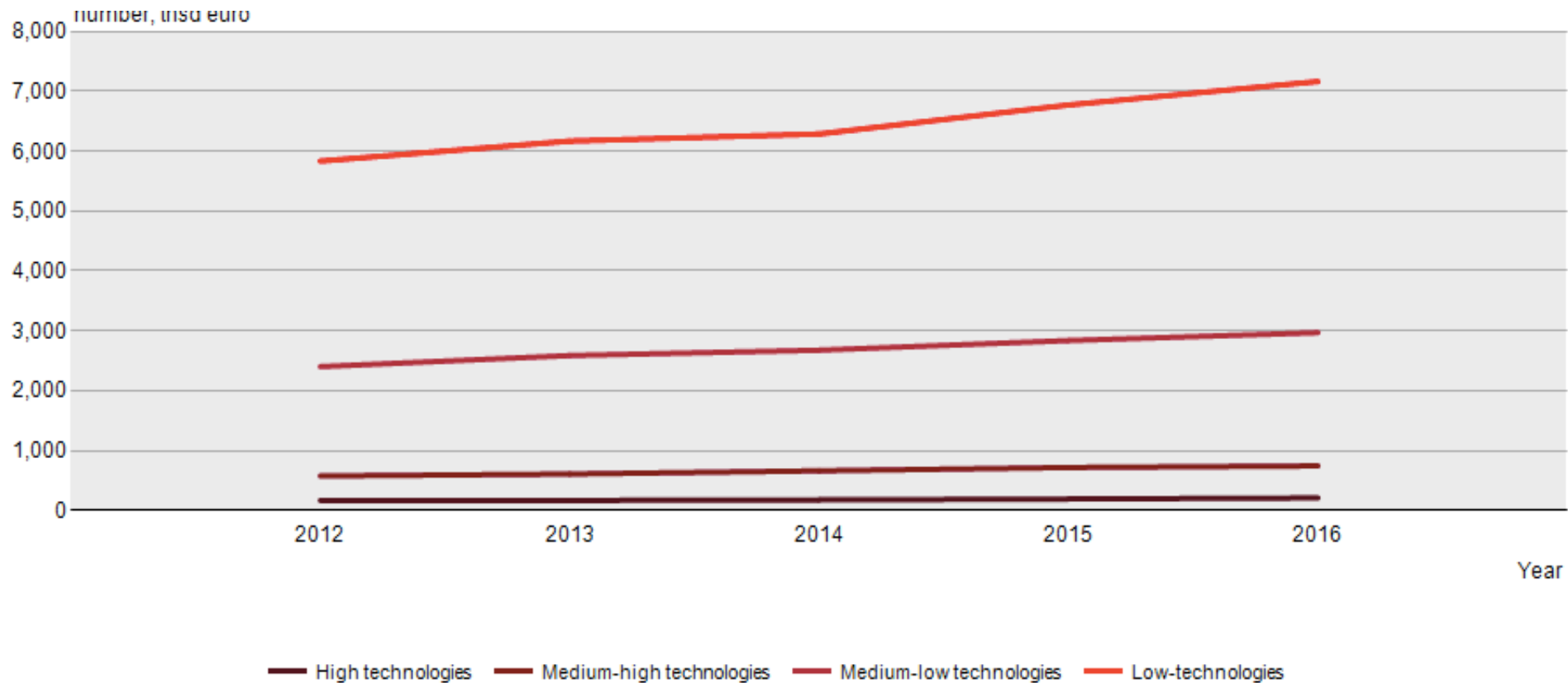
Real GDP growth rate - volume  
Percentage change on previous year



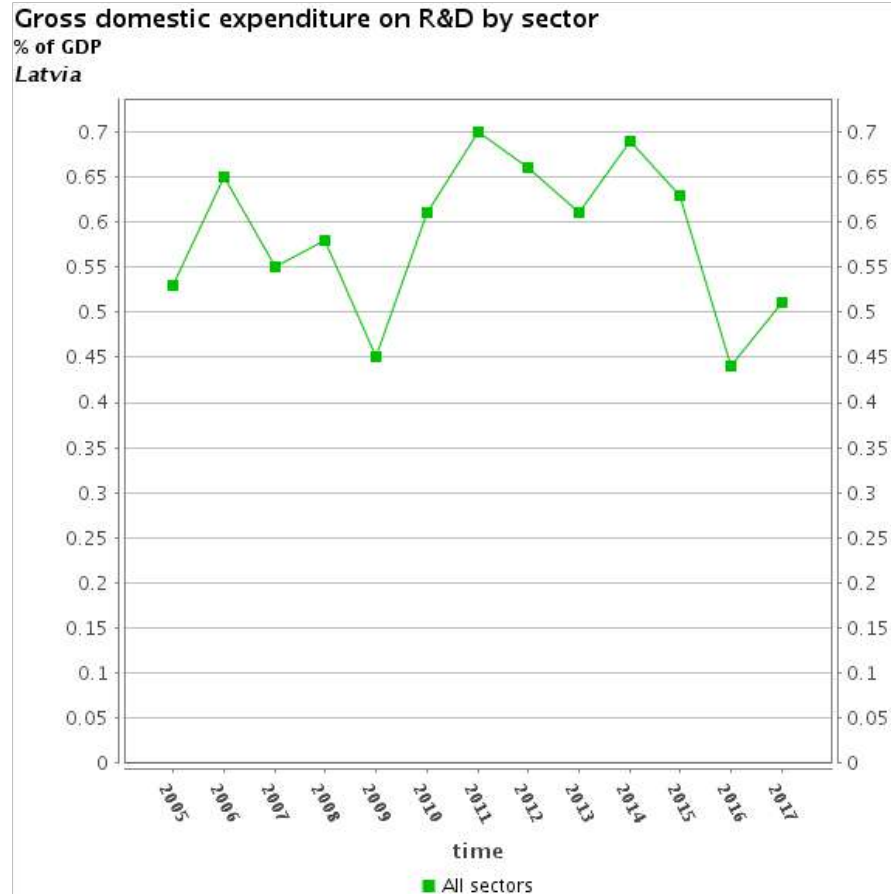
# Structure of Latvian economy



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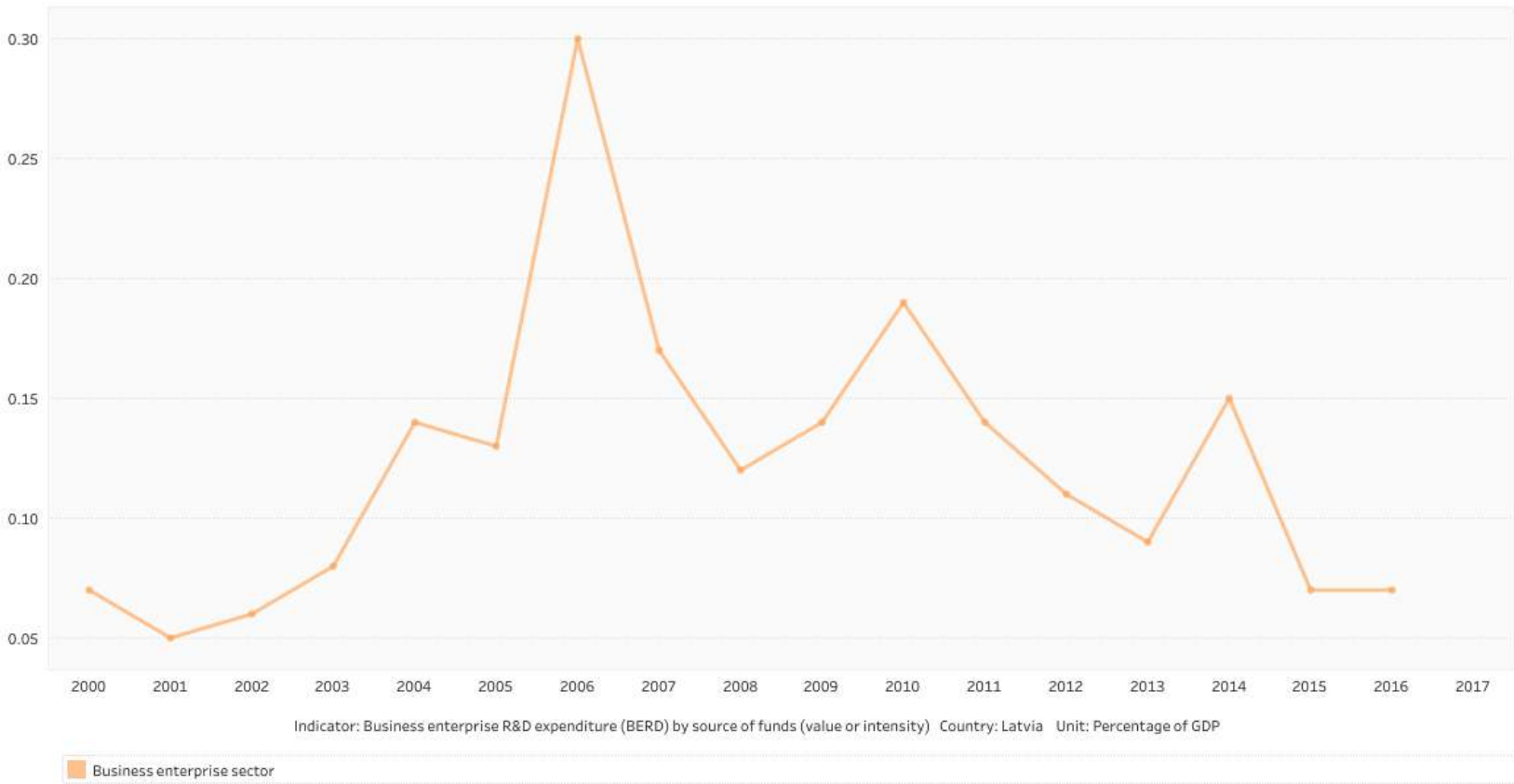


# Gross domestic expenditure on R&D



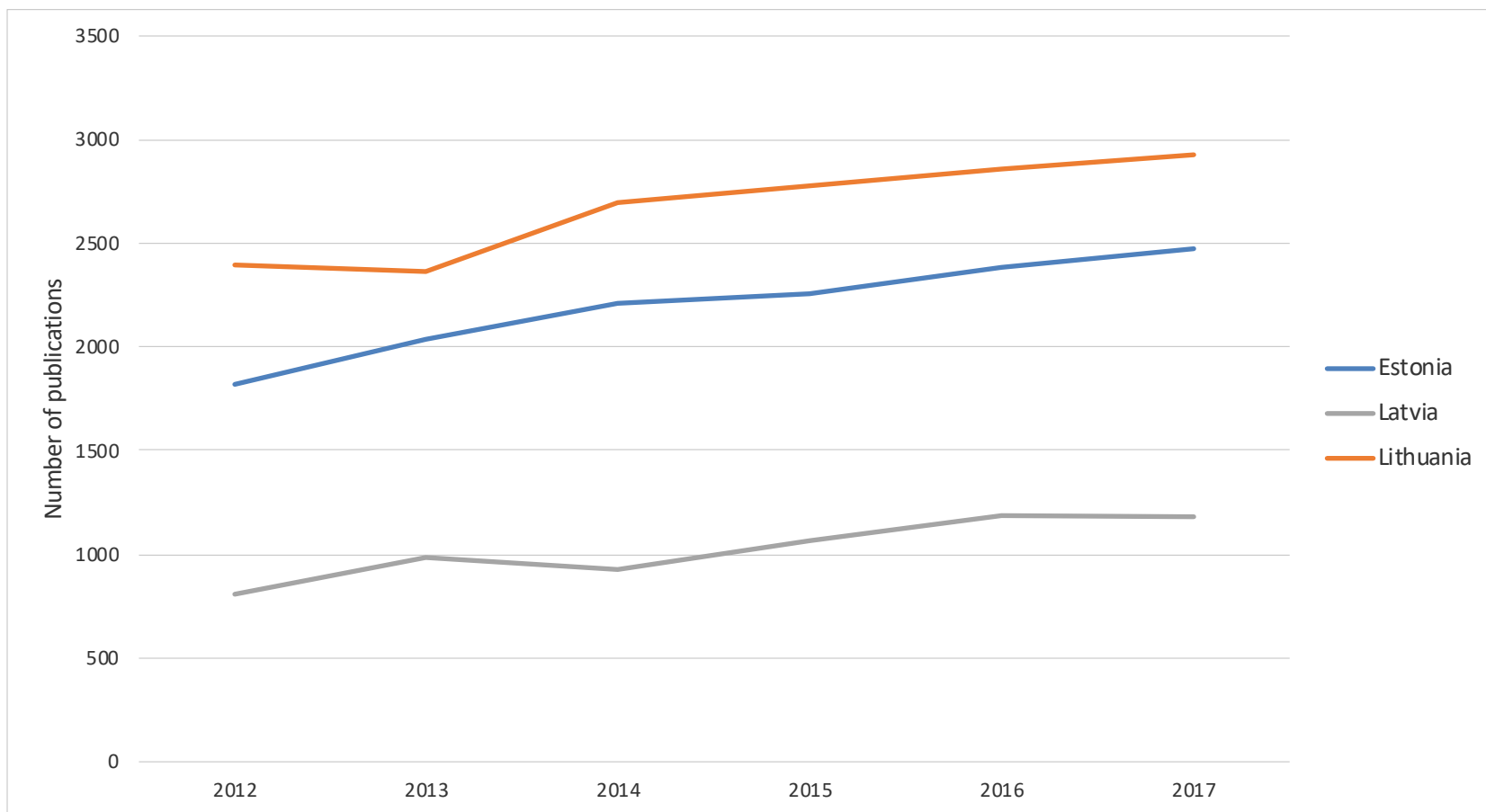


# Business expenditure on R&D as % of GDP

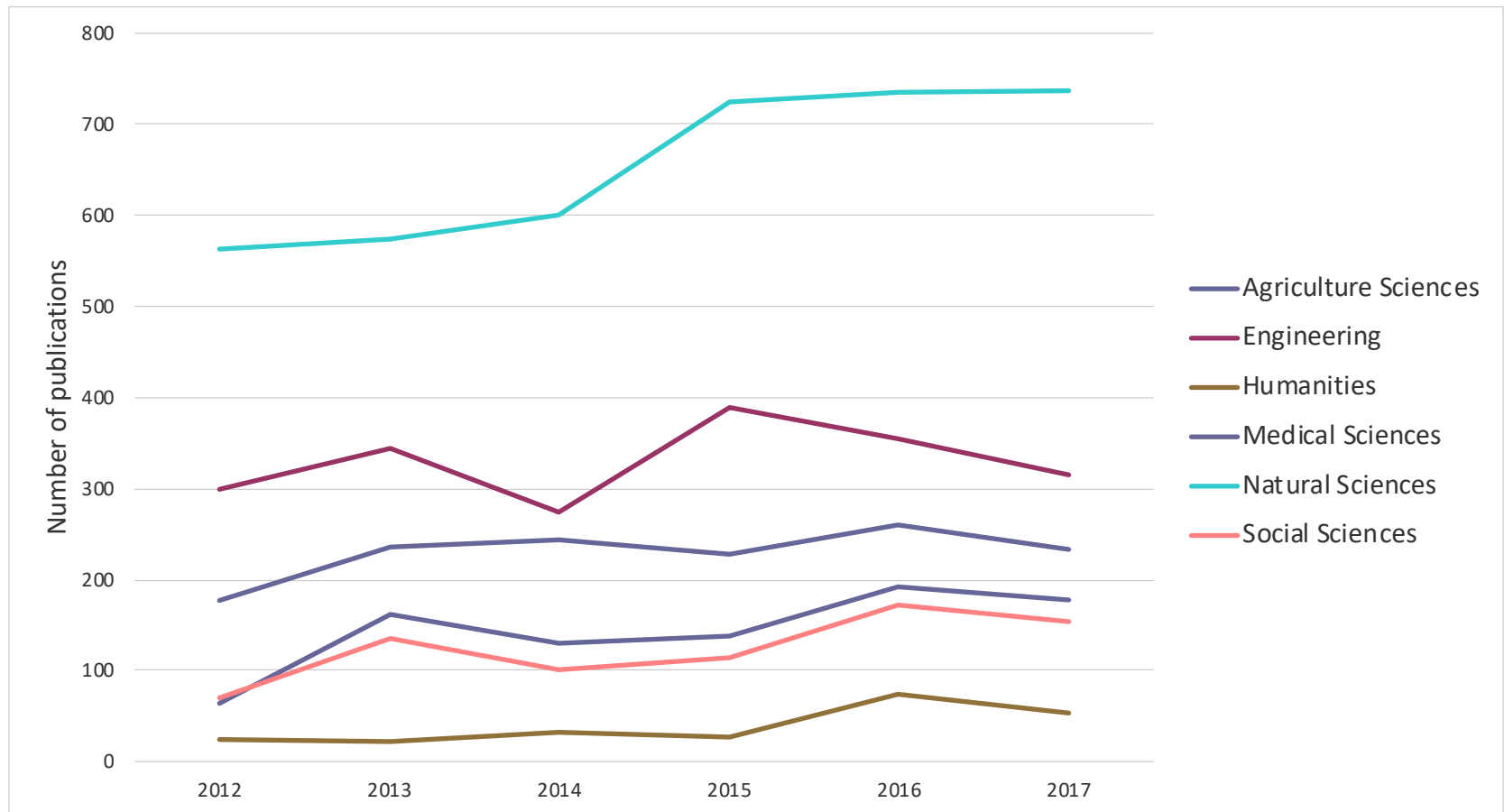




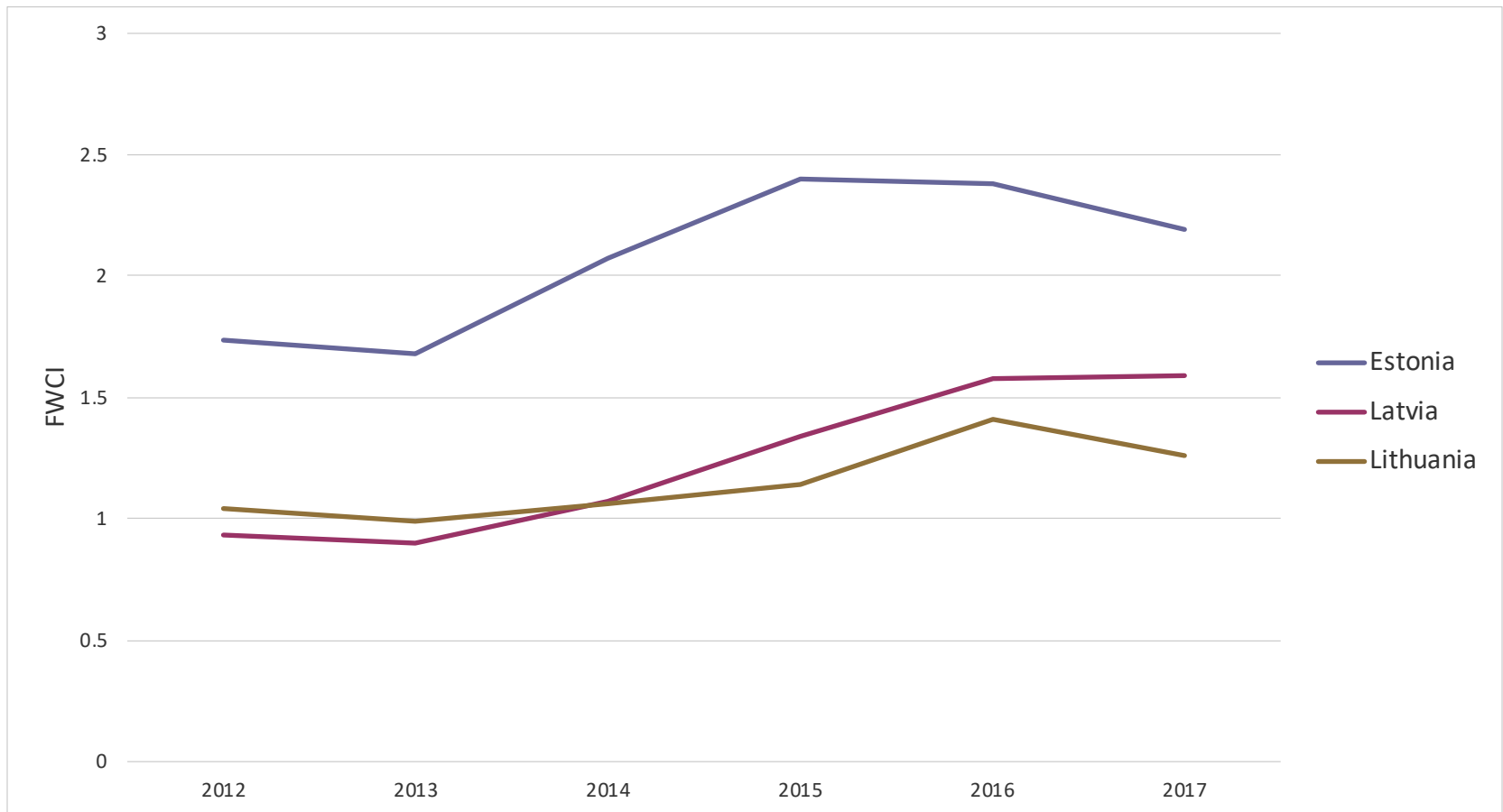
# Number of publications: Latvia, Lithuania and Estonia in the period 2012-2017



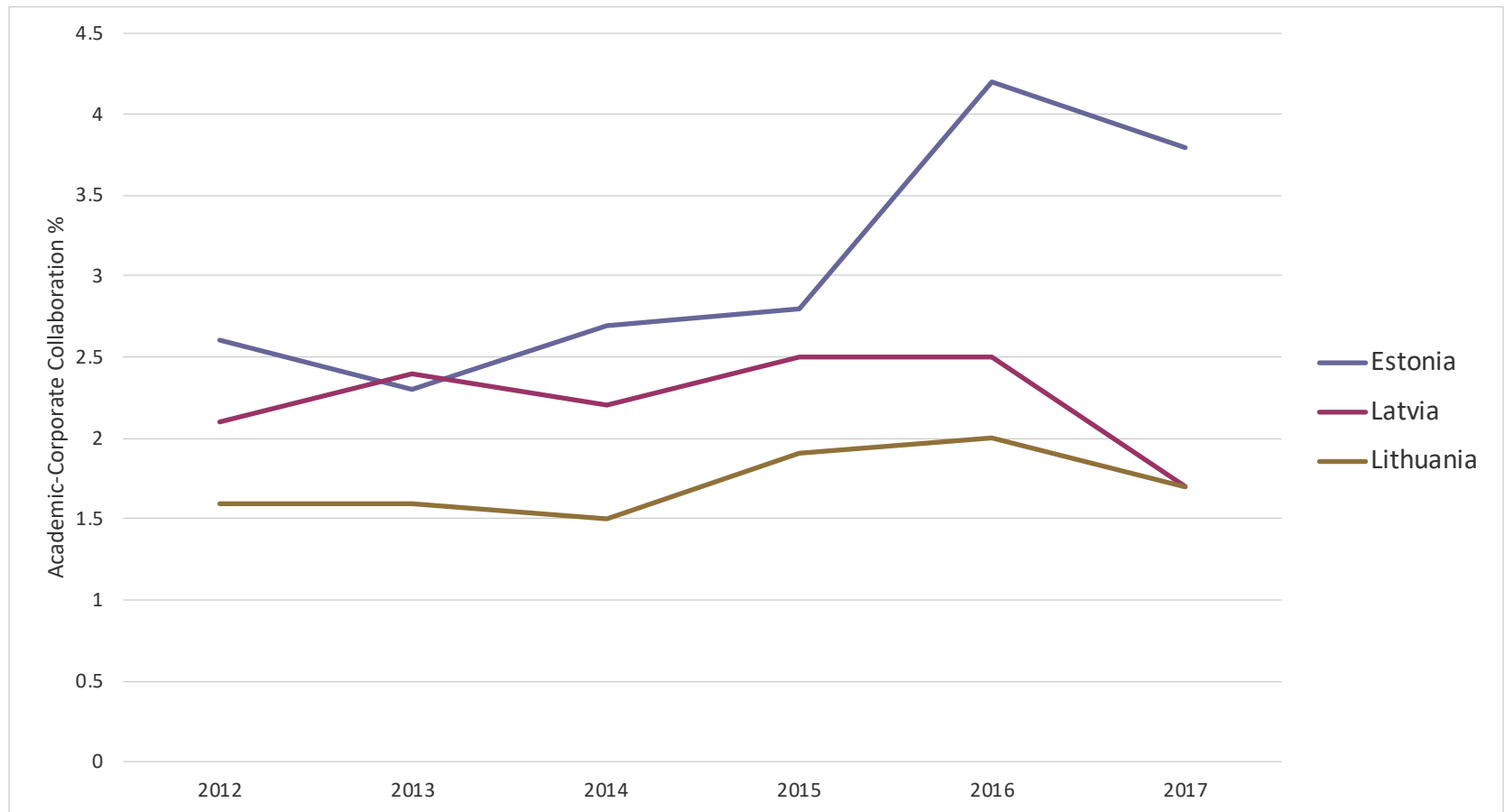
# Number of publications in different fields of science, Latvia



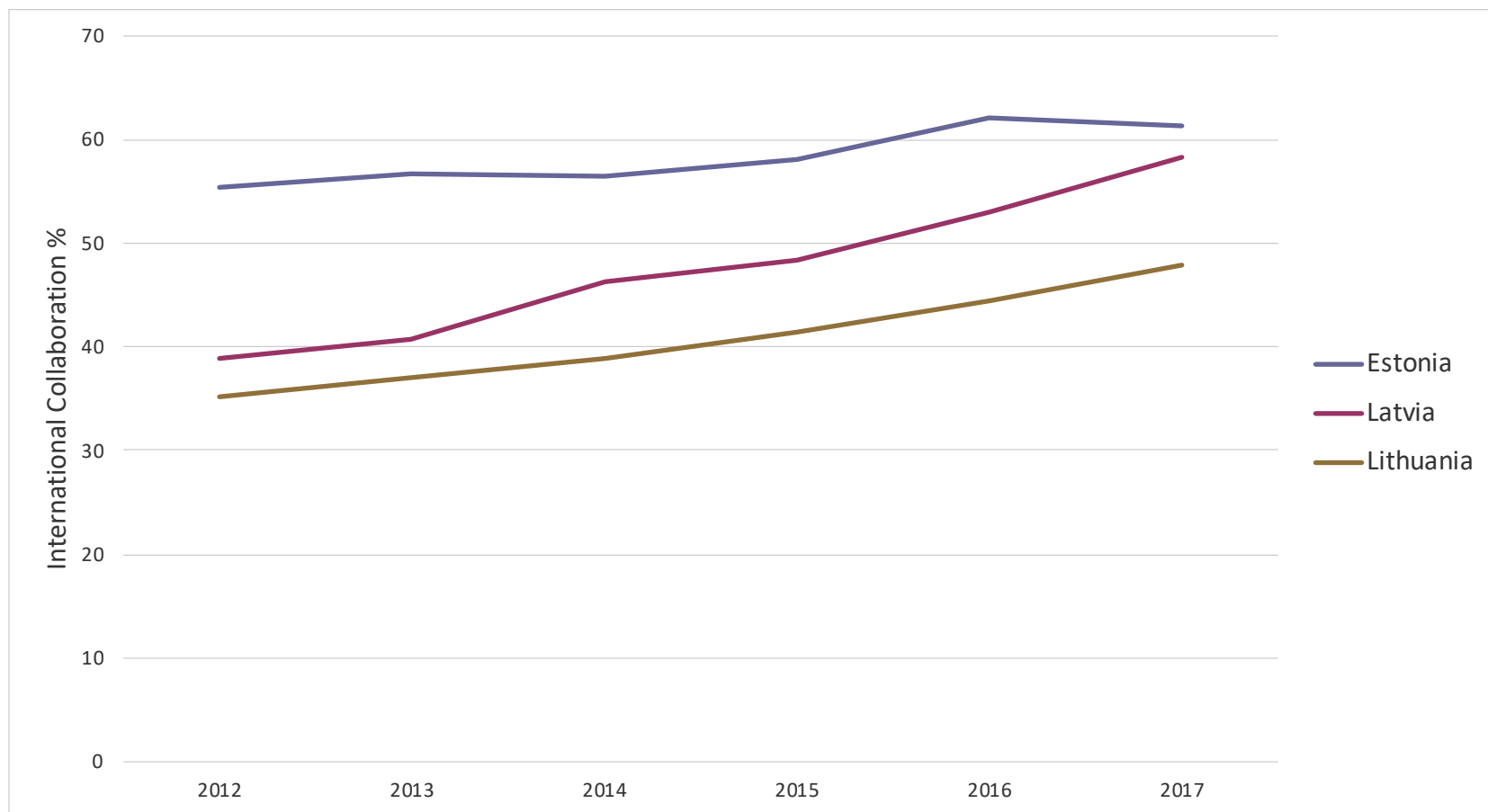
# FWCI in Latvia, Lithuania and Estonia



# Academic-Corporate Collaboration



# International co-publications, Latvia, Lithuania and Estonia



# Research performers

- Most research in Latvia is performed in higher education institutions and public research institutes
- Private R&D constitutes only 0.14% of R&D and employs minor share of R&D personnel
- Scientific institutions are listed in the Register of Scientific Institutions.
- Currently 67 (150 in 2011) institutions are listed in the register.
- According to the Law on Scientific Activity, a scientific institution should comprise at least five persons with PhD degrees in the corresponding field of science.



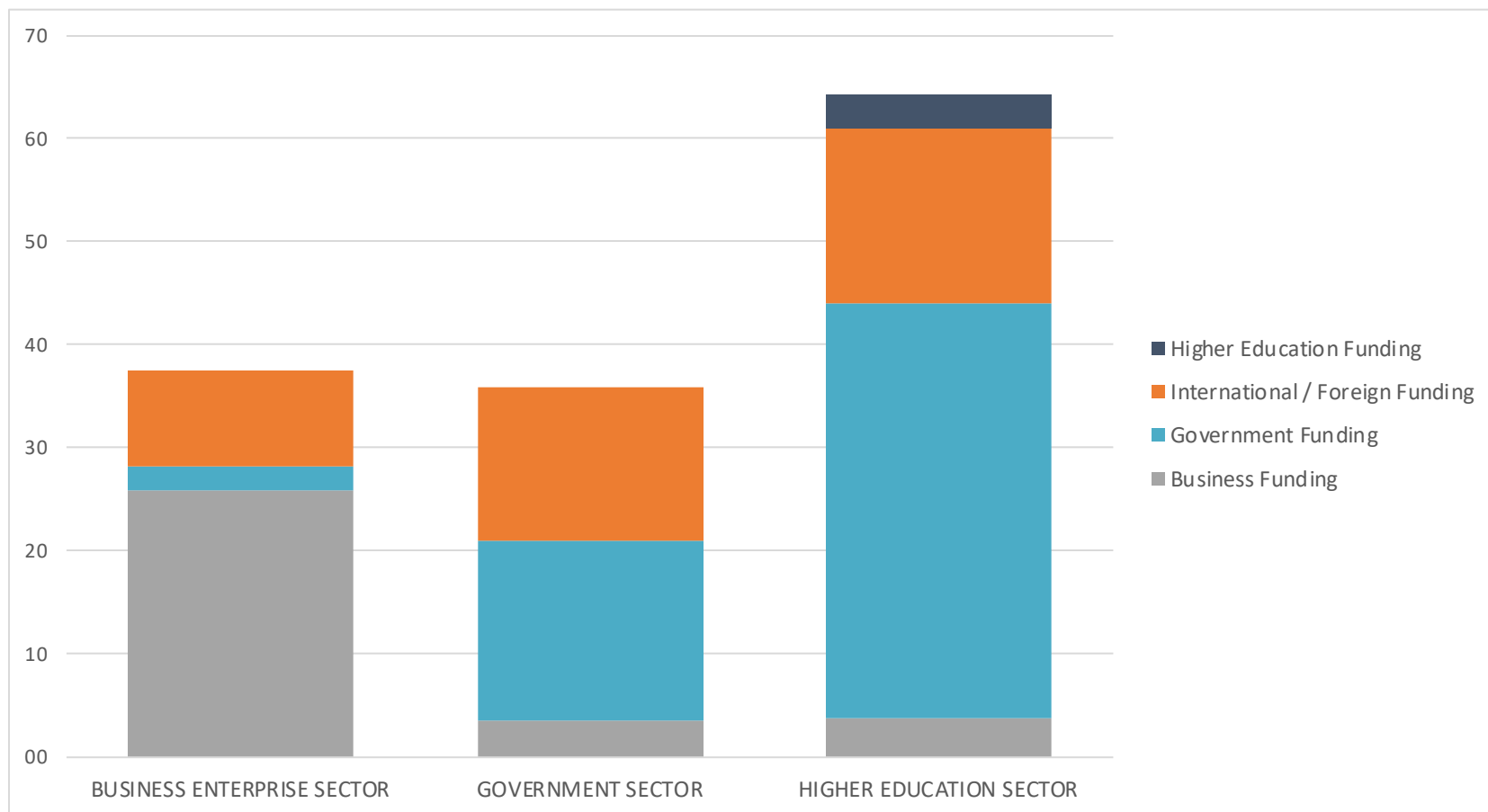
# Research performers

- 58 % of researchers concentrated in HE sector.
- 49 HEIs operating in Latvia in 2017
- 16 state HEIs and 12 state colleges
- 13 HEIs and 8 colleges established by legal persons
- University of Latvia and Riga Technical University – account for more than 40 % of researchers and academic staff working within the HEI sector
- Private sector is dominated by SMEs. Most FDI is not R&D intensive, state-owned companies perform little R&D





# R&D spending by sector of activity, 2017 (mEUR)



# Research Assessment Exercise, 2013

## **Assessed 150 scientific units**

- 4 and 5 points – 15 units
- 3 points – 33 units
- 2 points – 70 units
- 1 point – 22 units
- 0 points – 10 units

## **Criteria**

- quality of research
- impact on scientific discipline
- economic and social impact
- research environment and infrastructure
- development potential

## **Key observations**

- low level of financing
- Average level of quality and performance in the Latvian research system
- Fragmentation of research performers
- Human resource and research management skills need radical improvement
- Internationalization of people and themes is urgent

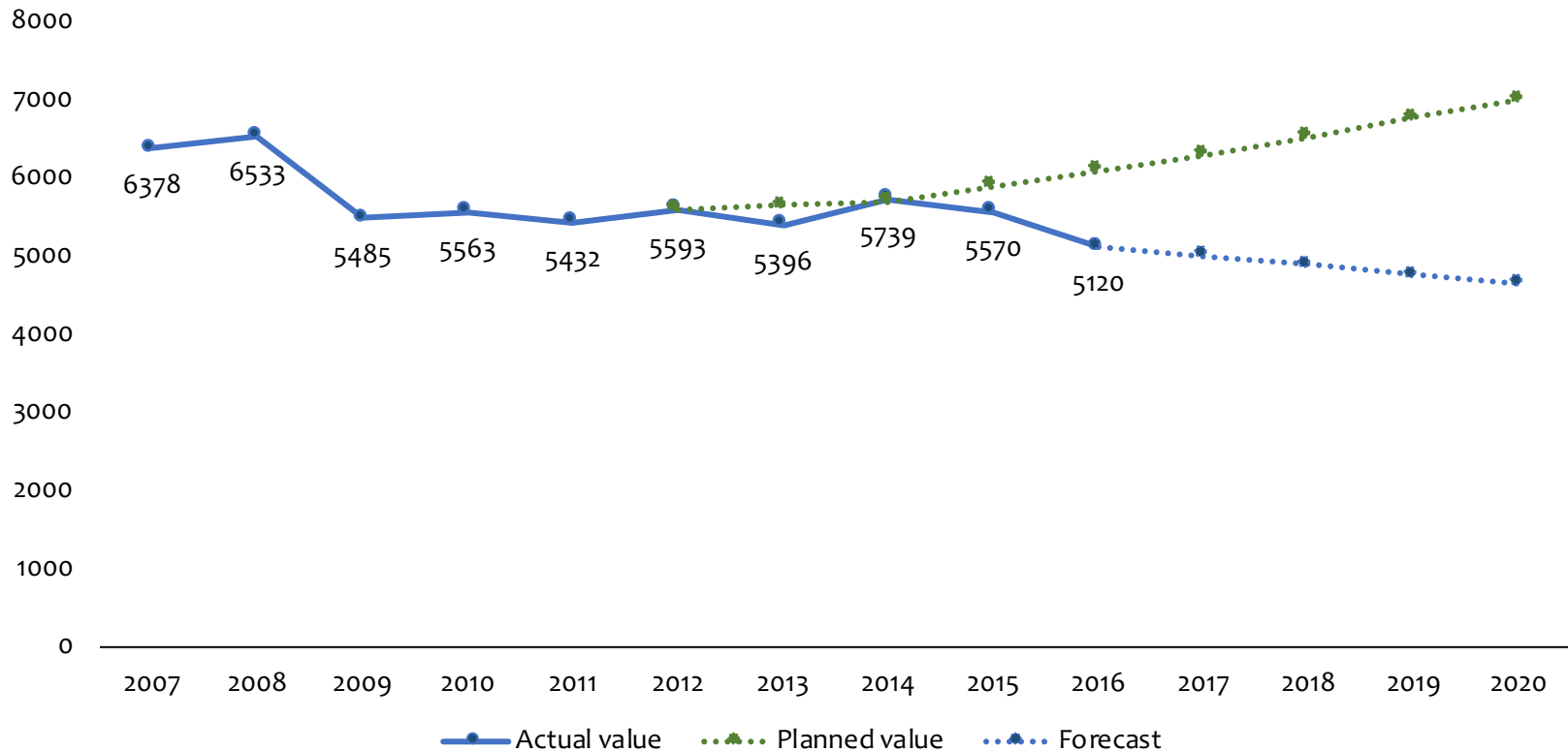


# Science and technology human resources

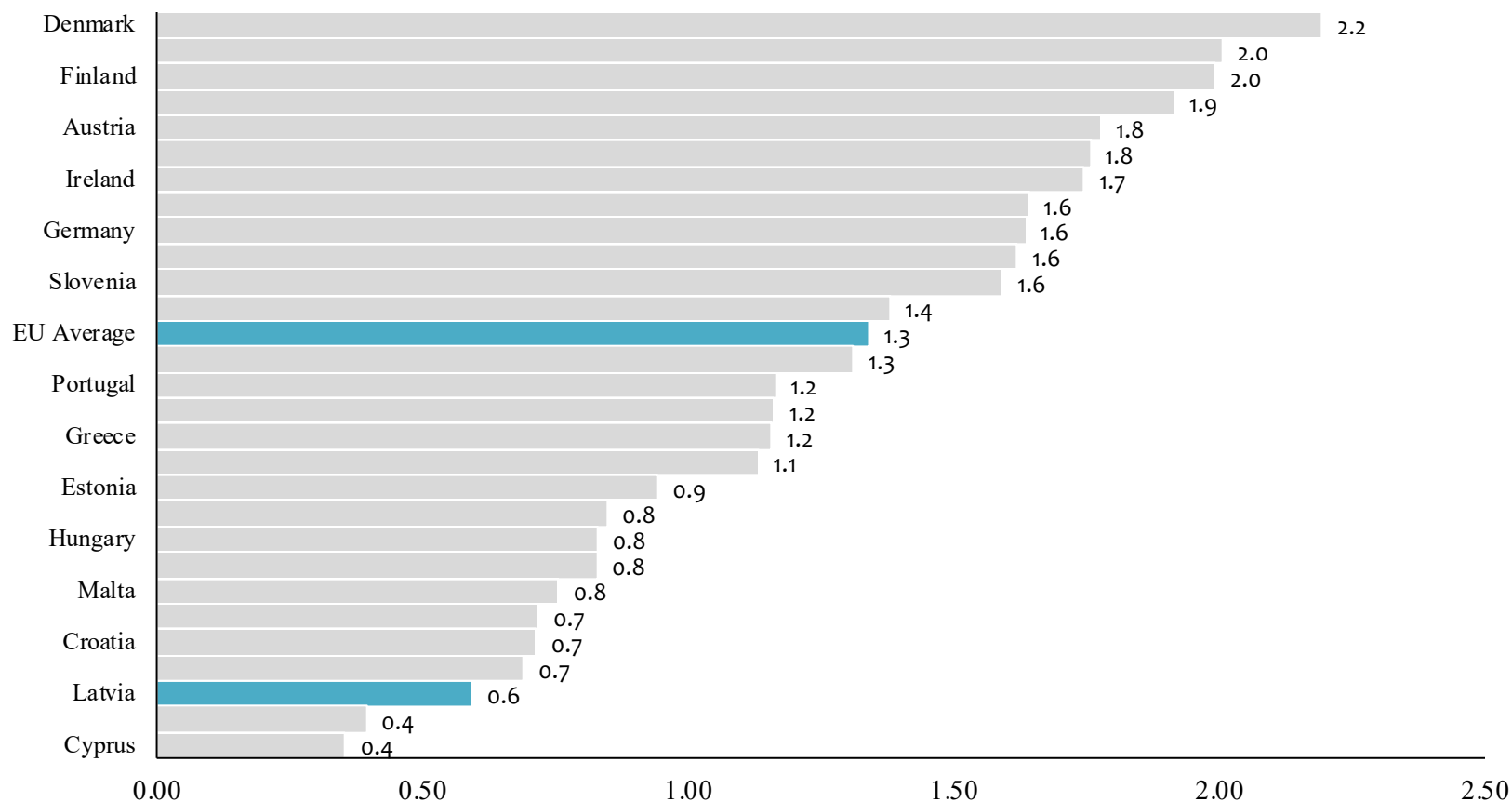


# Science and technology human resources statistics

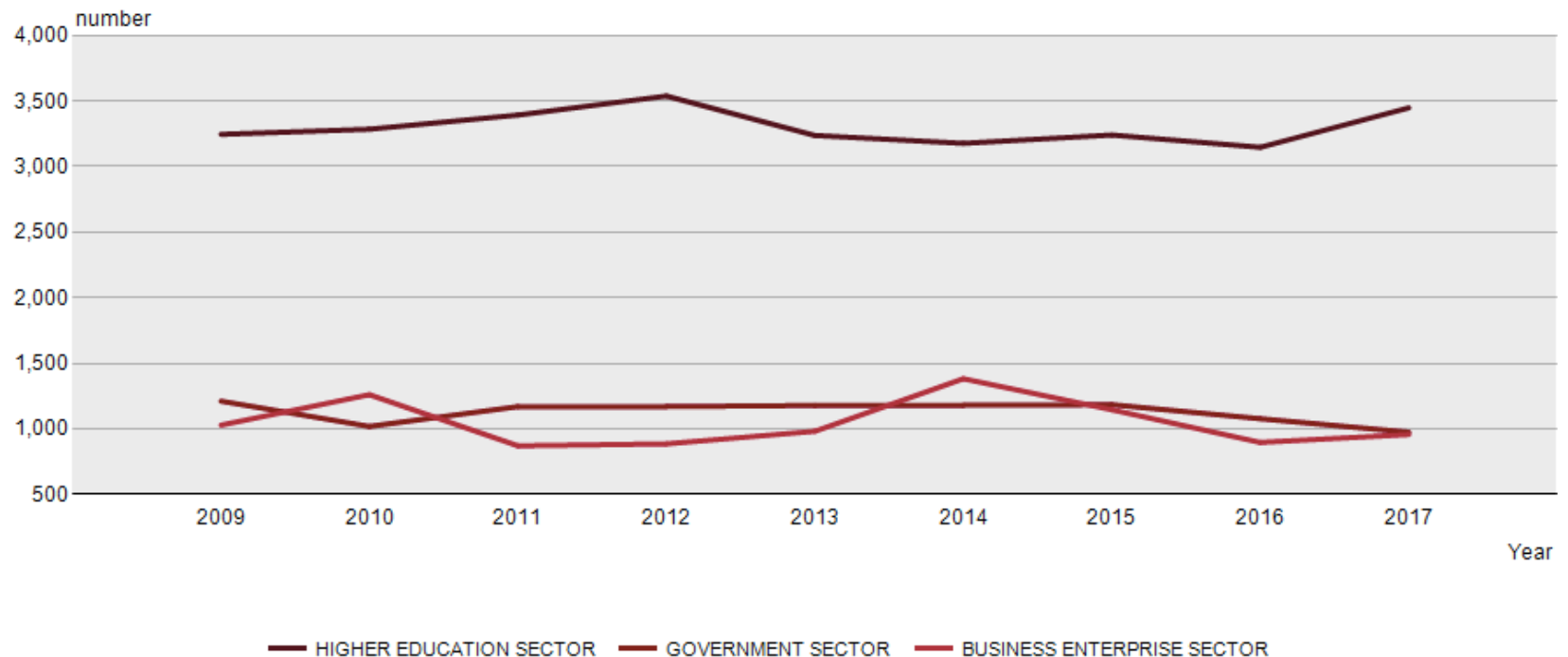
R&D personnel - planned vs. actual (in FTE)



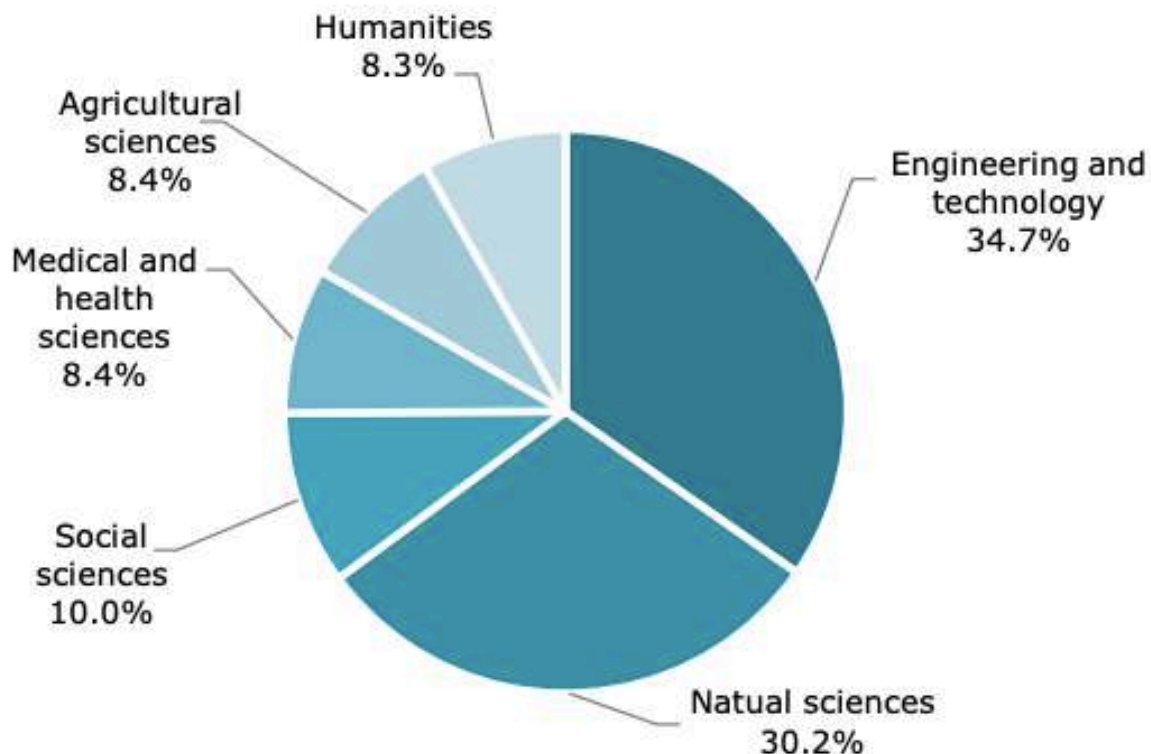
# Percentage of workforce employed in science, 2016



# R&D personnel per sector, FTE

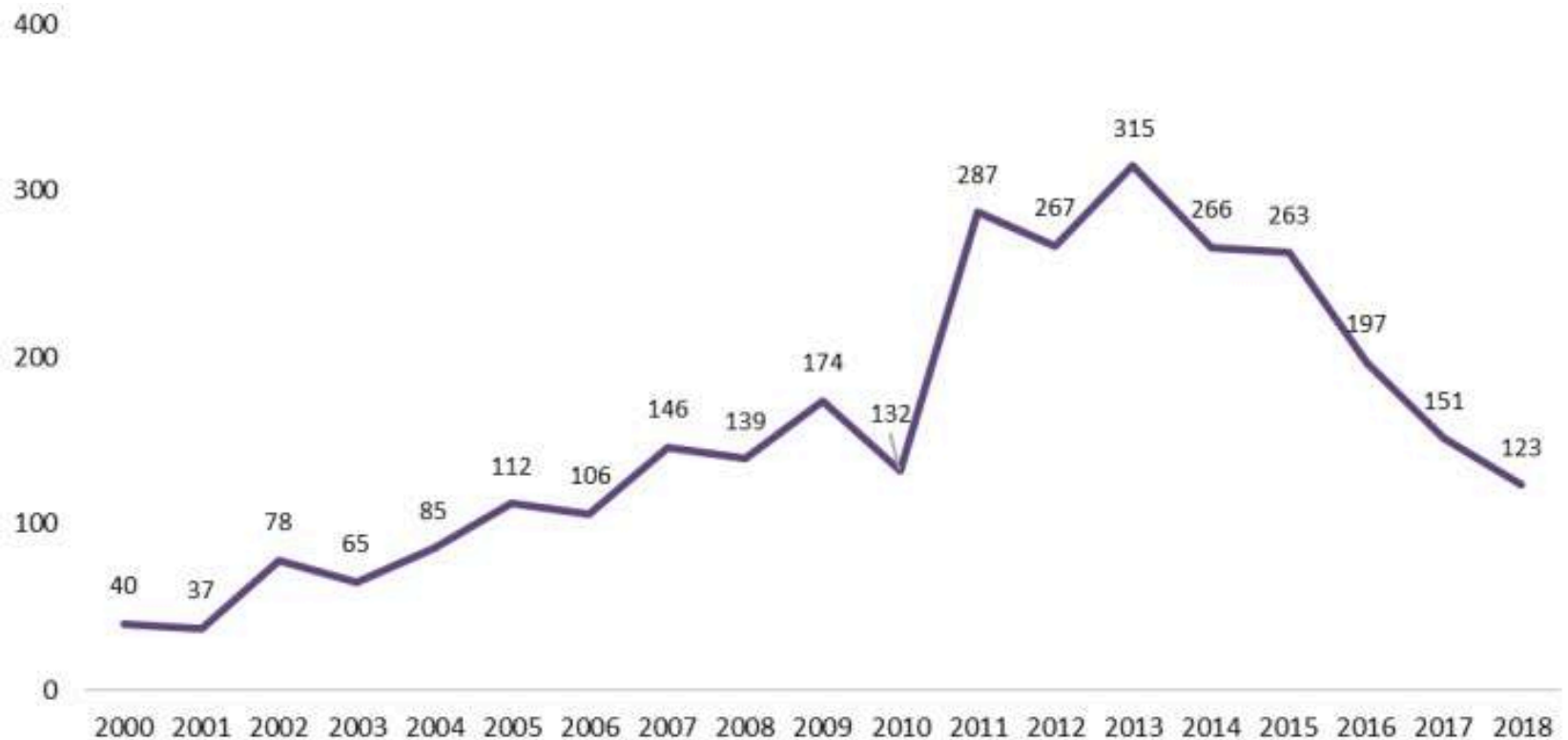


# Researchers by field of science, FTE, 2016

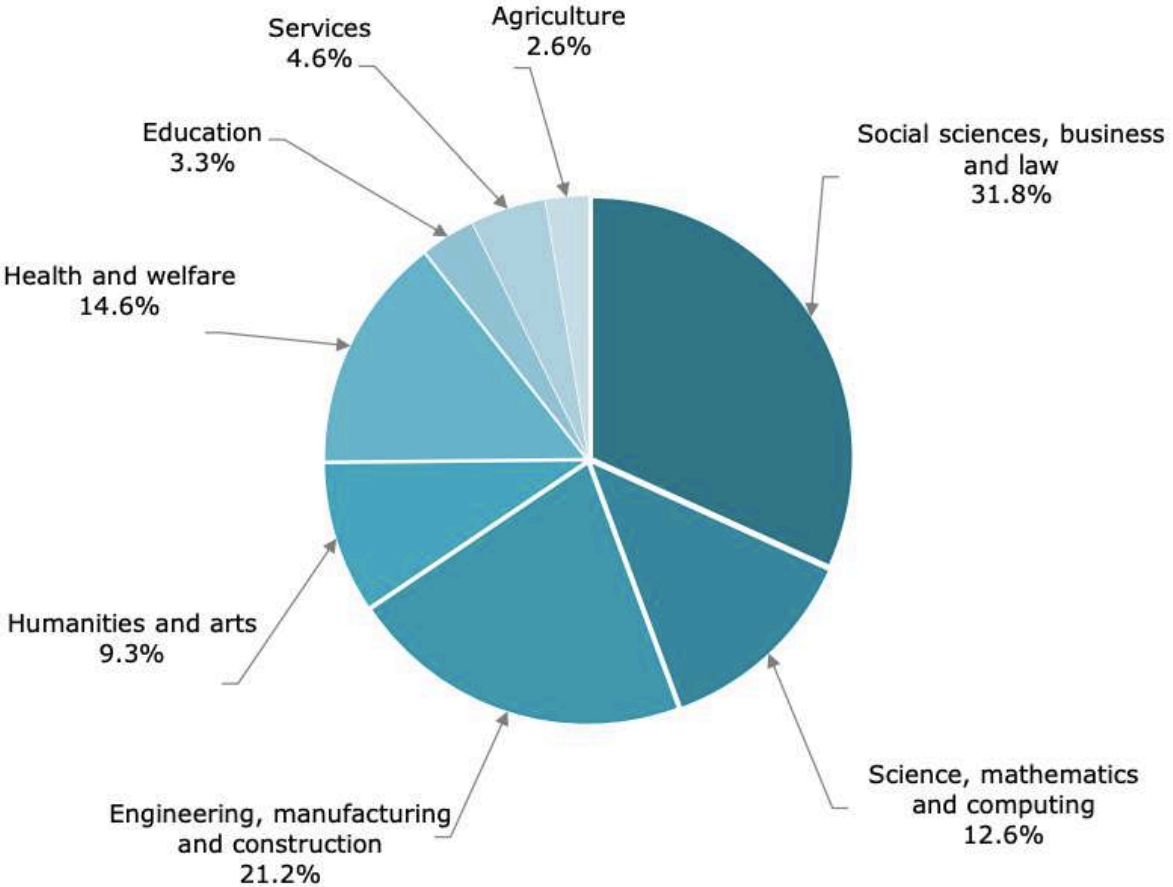




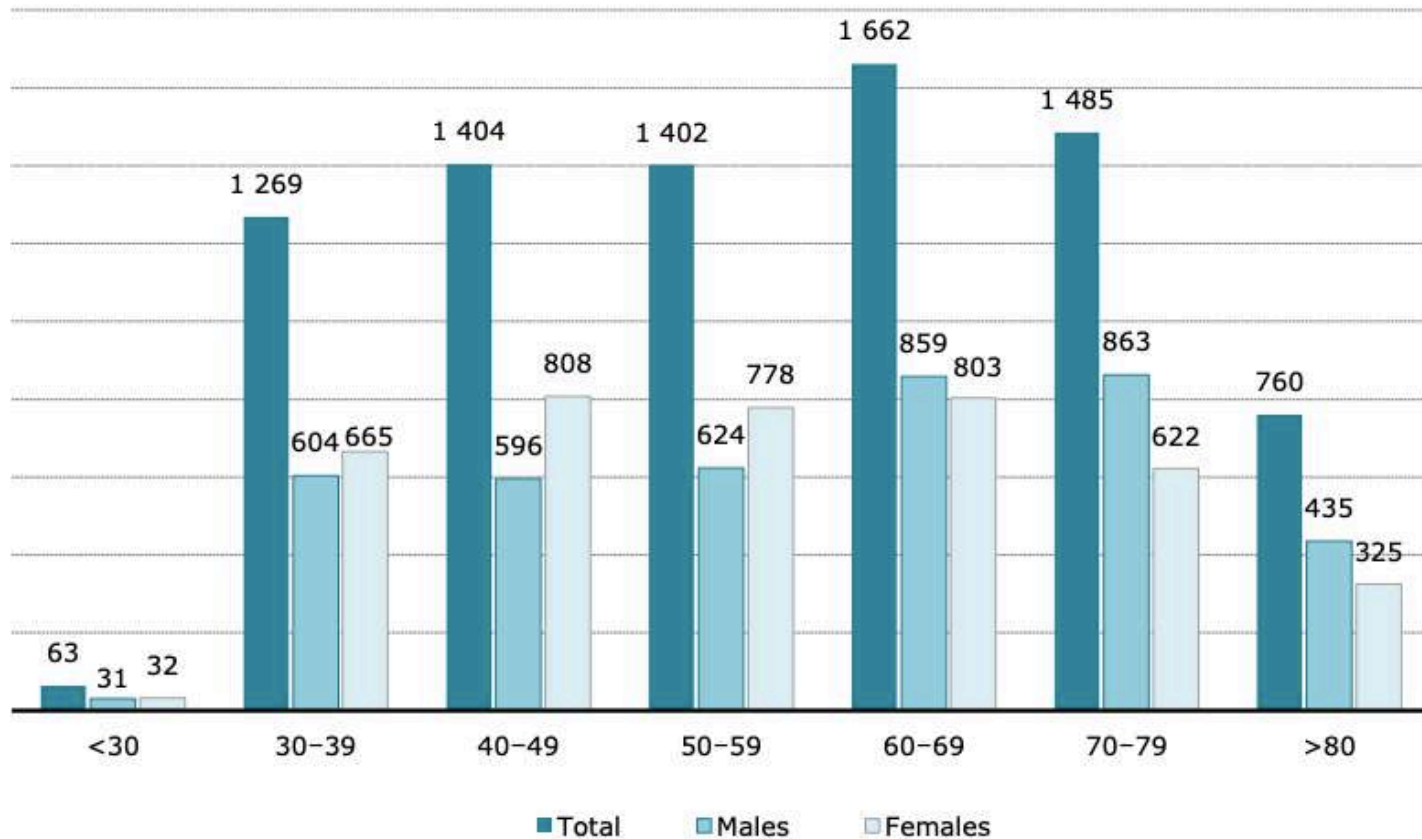
# Number of doctorate graduates



# Graduates of doctoral studies by field of education (academic year 2016/2017)



# Doctorate holders by age and gender, 2017



# STEM graduates

- STEM graduates number in 2017 per thousand of population was 12,7 (EU average 19,1)
- Doctorate graduates per thousand of population in STEM in Latvia was 0,2 in 2017 (EU average 1)
- In study year 2016/2017 19.8% of graduates were studying in a STEM study programme
- In 2018 about 60% of state-funded places were allocated for natural sciences, engineering, health care
- 41 % of state-funded study positions are provided in STEM programme



# Key challenges for R&I system

- Long-term underfunding and very low private R&D investment and share of high and medium technology companies
- Business sector collaboration with science is insufficient
- Fragmentation of R&D and higher education systems
- Insufficient supply and ageing of human resources
- Fragmentation in governance



# Governance and policy



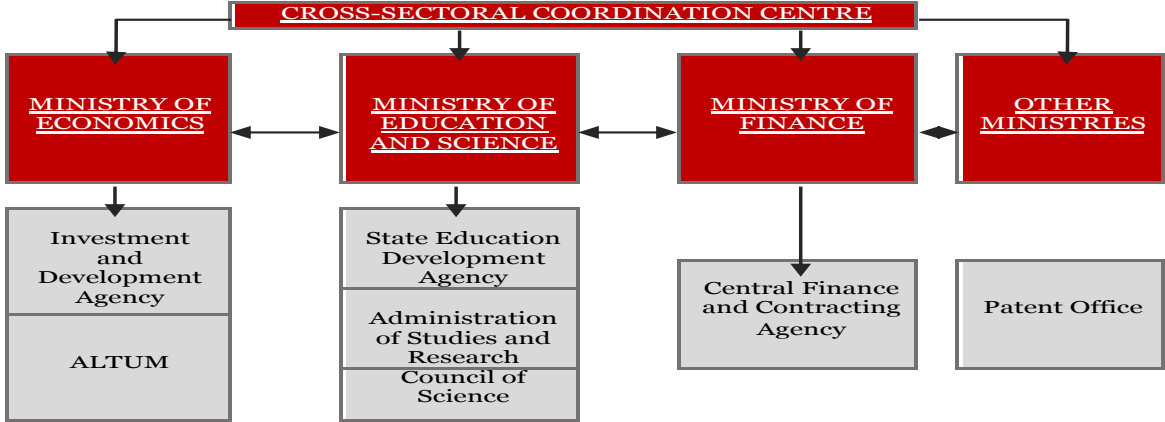
**PARLIAMENT**  
 Committee on Education, Culture and Science  
 Committee on Economic, Agricultural, Environmental and Regional Policy

POLITICAL  
 LEVEL

**CABINET OF MINISTERS**



ADVISORY  
 LEVEL



POLICY  
 LEVEL

ADMINIS-  
 TRATIVE  
 LEVEL



SUPPORT  
 LEVEL



R&I  
 PERFORMER  
 LEVEL





# Key policy objectives

- National Development Plan quantitative targets for R&I foresee increase in overall R&D investment to reach 1.5 % of GDP in 2020
- RIS3 of Latvia aims towards economic transformation towards higher added value and more efficient use of resources.



# RIS3 of Latvia

## Directions:

1. Structural changes of production and export in the traditional sectors of the economy;
2. Growth in sectors where there is or is likely to create products and services with high added value;
3. Branches with significant horizontal impact and contribution to economic transformation.

## Priorities:

1. High added value products
2. Productive Innovation System
3. Energy Efficiency
4. Modern ICT
5. Modern education
6. The knowledge base (*Bio-economy; Biomedicine, medical technologies, biopharmacy and biotechnology; Smart materials, technology and engineering, Smart energy; ICT*)
7. Polycentric development

## Specialization areas:

1. Knowledge-based bio-economics
2. Bio-medicine, medical technologies, bio-pharmacy and biotechnologies;
3. Advanced materials, technologies and engineering systems
4. Smart energy
5. Information and communication technologies.



# RIS3 indicators and progress

RIS3 INDICATORS	2014	2015	ACTUAL	PROGRESS	2020
Position in European Innovation scoreboard (EIS position)	„modest”	„modest”	„moderate” (2017)	▲	„moderate”
Productivity in manufacturing sector (t. EUR per worker)	21,4	22,4	23.6 (2016)	▲	29
% of population 30-34 years old with a tertiary education diploma	40	41	43 (2016)	▲	40
Number of state funded R&D institutions	40	29	22 (2017)	▲	20
Number of peer-reviewed research papers (SCOPUS)	1601	1978	1820* (2016)	▲	1500
Success rate in EU framework programs (%)	18,8	7,45	12,7 (2016)	▼	30
R&D expenditure (% of GDP)	0,69	0,62	0,44 (2016)	▼	1,5%
Number (FTE) of R&D personnel	5739	5570	5120 (2016)	▼	7000
Number of tertiary education graduates (in thousands)	17,4	17,0	15,8 (2016)	▼	24,6



# Recent reforms in research system

- Consolidation of research centres
  - change in mechanism for allocating science base funding
  - since 2014, the government has awarded 10 % of the additional science-base funding to scientific institutions that performed best in the research assessment exercise
- Development of performance based higher education funding model
- Further reforms needed to improve academic careers
- Reforms take time and often face reluctance from key players and political decision makers



# Measures for human capital development



# Measures for human capital development

- Basic and secondary education diagnostic tests in STEM subjects
- 40% of study places in STEM fields
- Funding for doctoral studies
- Support for the Implementation of Doctoral Study Programmes (closed)
- Innovation grants for students
- Industrial PhD programmes emerging
- Law on Start-ups provisions for highly qualified employees



# Measures for human capital development

- Support for Postdoctoral Research
  - Financing (total 60.8 mEUR) from EU Funds 2014-2020 period
  - Aims to develop skills of young scientists and provide opportunity to start career at scientific institutions and private companies
  - Will support approximately 455 post-doctoral (within 5 years after receiving doctorate degree) researchers
  - Provides grants up to 133 806 EUR and 36 months (full time employment contract with salary 2731 EUR per month) to perform research in Latvia



# Measures with indirect impact on human capital development

- Practically oriented research grants
- Support for development of new products and technologies within competence centres
- Support for employee training to increase business competitiveness and innovation
- Support to highly qualified citizens of third countries to receive work permits
- Start-up visas – temporary residence permits for non-EU start-up founders





# Cooperation with science diaspora

- The number of Latvia's diaspora scientists is unknown, but according to estimates and survey of diaspora scientists it is somewhere around 807
- Diaspora can be engaged either with return option or with diaspora/collaboration option
- Recent efforts to identify diaspora scientists
- Most members of science diaspora do not plan to return to Latvia or are undecided
- Diaspora scientists are interested in collaboration and already have networks with scientists in Latvia



# Thank you!

