



Horizon 2020 Policy Support Facility

Peer Review of the Polish Research & Innovation System - Briefing

Kick-off meeting

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Outline

- Introduction - General remarks
- Main actors & R&D performers
- R&D personnel
- Financing of research and higher education
- Strengths & weaknesses
- Reforms 2010-2011 & summary assessment
- Key challenges

Introduction - General remarks (I)

- Poland is characterised by a wide range of actors and stakeholders are involved in the STI landscape.
- Poland made a series of attempts to reform national R&I system in 2000s.
- Poland recorded an upward trend on the main performance indicators but changes in structural indicators are less evident.
- European Structural Investment Funds constitute the main source of funding R&I activities. 2014-2020 'Smart Growth' operational programme (ca.€8.6 billion). 16 regions with own regional operational programmes & S3 strategies.
- The economy has been resilient to the financial crisis in 2009. GDP (PPS per capita): 19,800 in 2015, +112% since 2000 but still below EU28 average 28,900.

Introduction - General remarks (II)

- 1st most attractive FDI destination in CEE (and 5th most attractive in Europe).
- 415 HEIs in total (132 public and 283 non-public) in 2015. Declining trend in the number of students due to demographic change.
- Policy objective to reach GERD of 1.7% of GDP.
- In 2016, the establishment of a national council for innovation to coordinate R&I policy.

Main actors & R&D performers

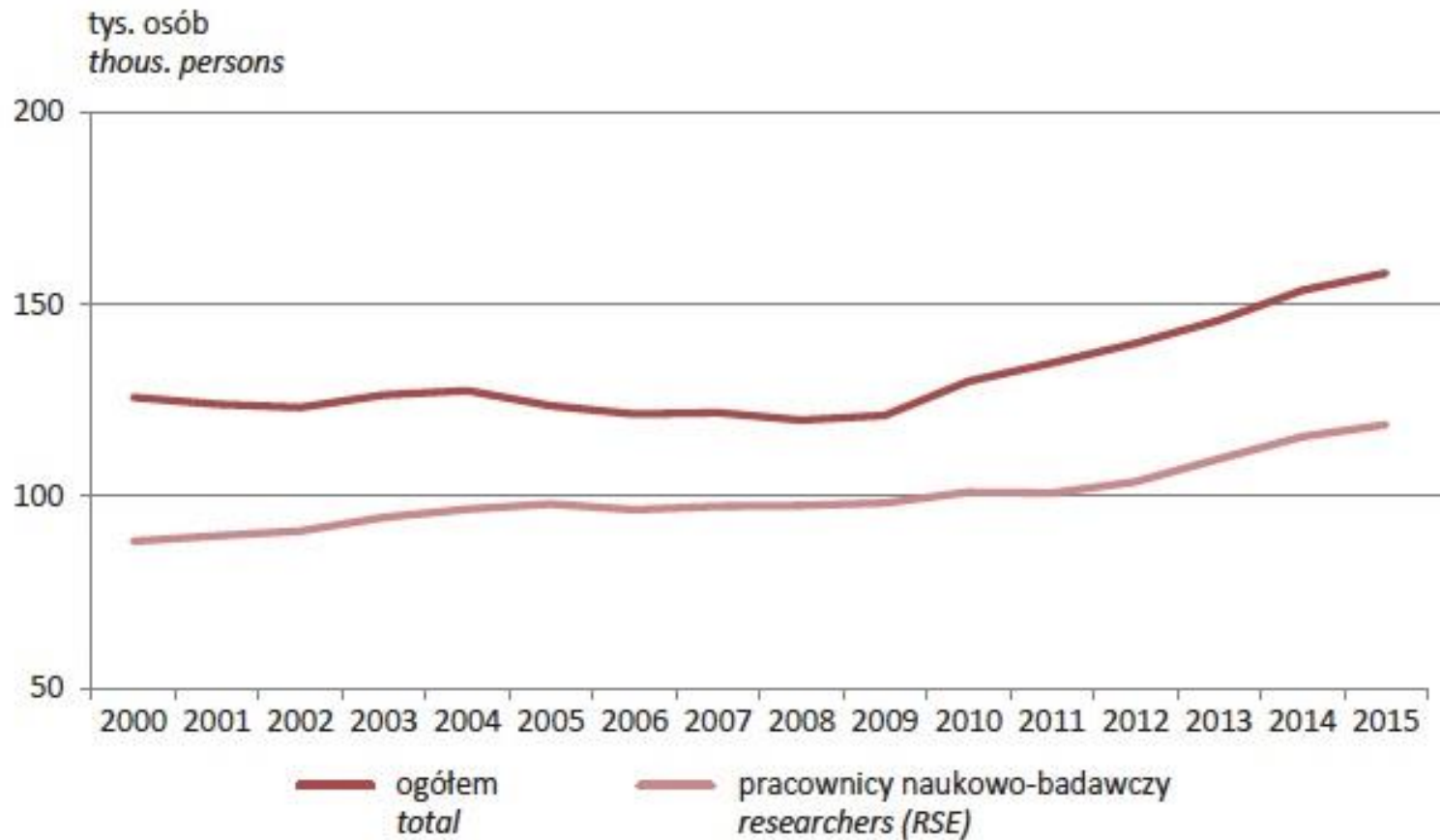
■ Actors

- National council for innovation - an inter-ministerial body
- Ministry of Economic Development - established in Dec. 2015 to define and implement the innovation strategies and oversees the European Structural and Investment Funds (ESIF)
- Polish Agency for Enterprise Development (PARP)
- Ministry of Science and Higher Education
- National Science Centre (NCN) - basic research
- National Centre for Research and Development (NCBiR) - applied R&D projects
- The Foundation for Polish Science (FNP) - awards research grants and scholarships

■ R&D performers

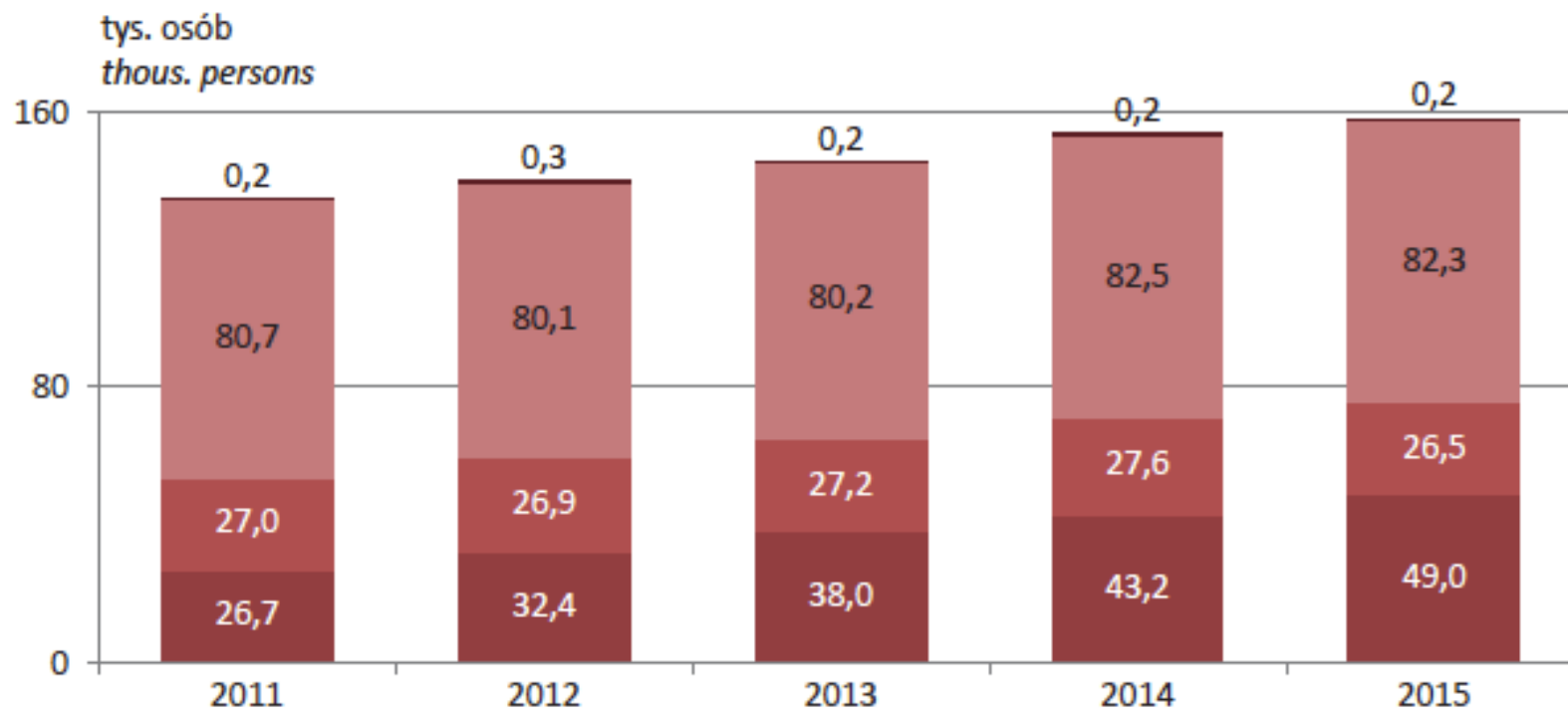
- Public higher education institutions (109 in total)
- Public research organisations
 - Scientific institutions of the PAS (in total 70)
 - Public research organisations (in total 100 research institutes and 16 national research institutes)

R&D personnel



Source: GUS (2016) Science and technology in 2015.

R&D personnel by sectors of performance



■ sektor przedsiębiorstw *BES*

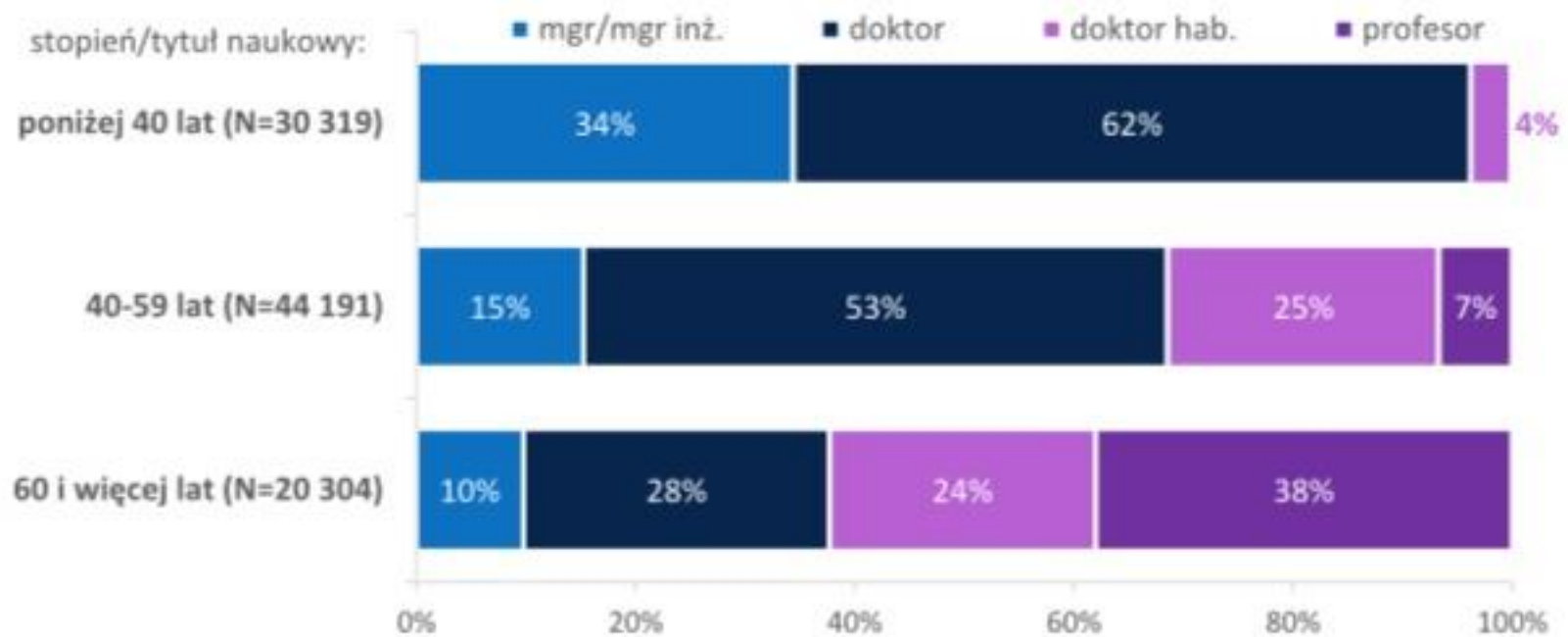
■ sektor szkolnictwa wyższego *HES*

■ sektor rządowy *GOV*

■ sektor prywatnych instytucji niekomercyjnych *PNP*

Source: GUS (2016) Science and technology in 2015.

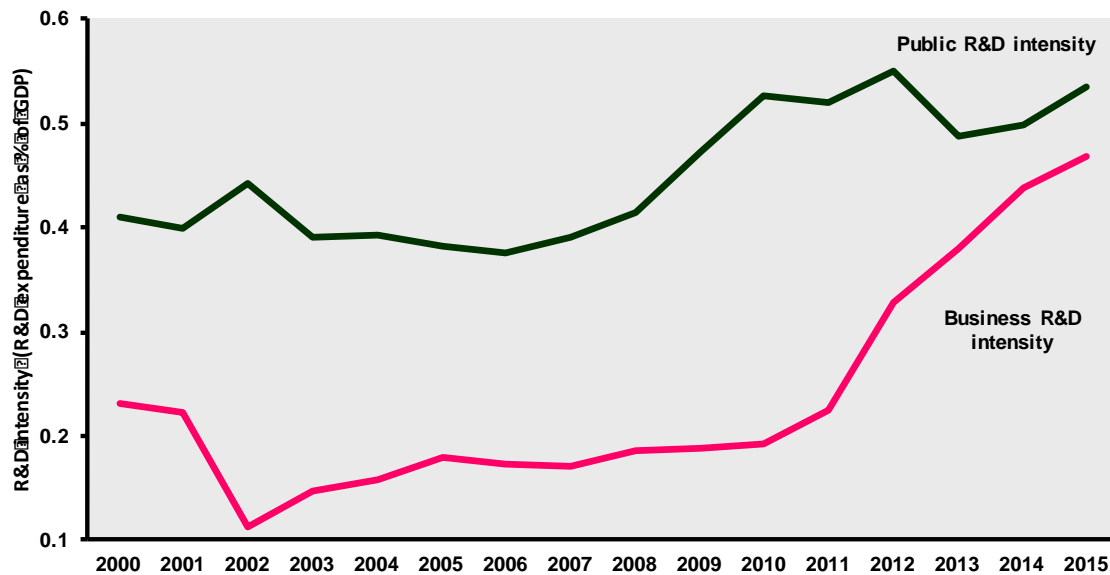
Career development of researchers



OPI (2016) Higher education in Poland – 2013-2015.

R&D intensity

Poland - evolution of business R&D intensity and public R&D intensity, 2000-2015



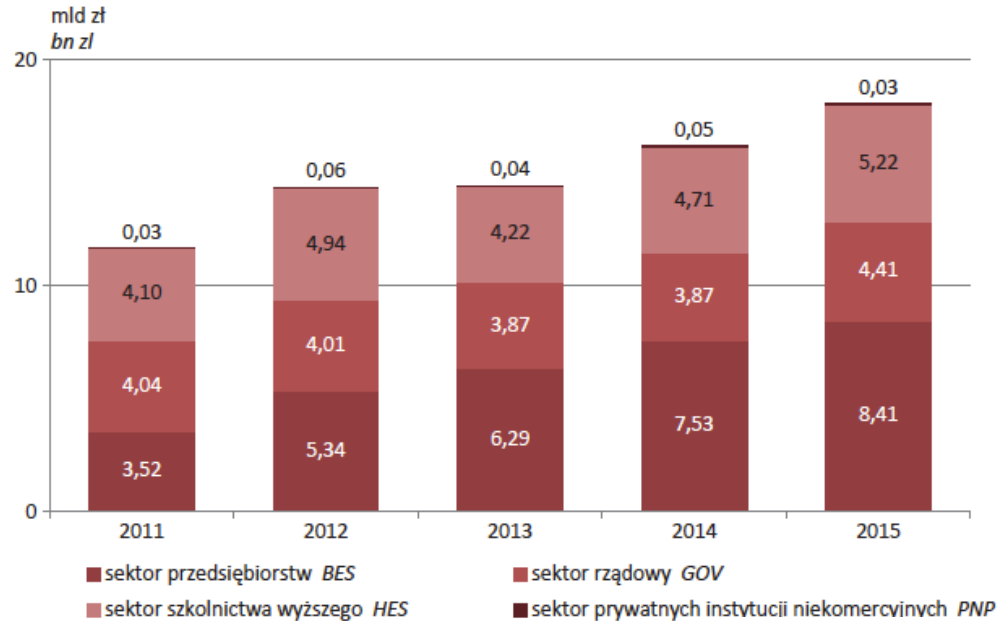
Source: DG Research and Innovation - Unit for the Analysis and Monitoring of National Research Policies

Data: Eurostat

Notes: (1) Business R&D intensity: Business enterprise expenditure on R&D (BERD) as % of GDP.

(2) Public R&D intensity: Government intramural expenditure on R&D (GOVERD) plus higher education expenditure on R&D (HERD) as % of GDP.

Intramural R&D expenditure by sectors of performance & by funding sector



Source: GUS (2016) Science and technology in 2015.

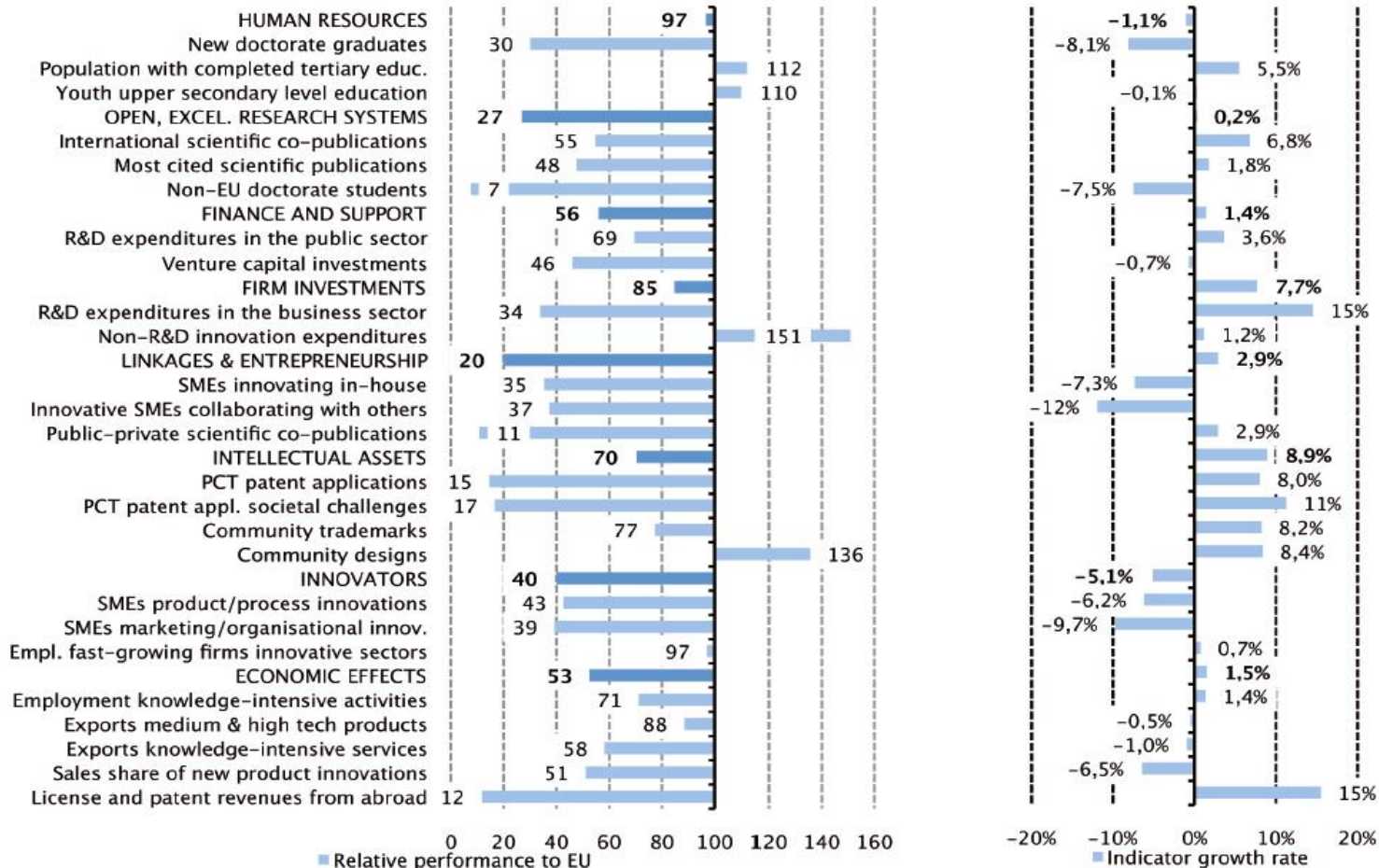
Sektory wykonawcze Sectors of performance	Ogółem Total	Sektor finansujący Funding sector					
		rządowy government	przedsiębiorst w business enterprise	szkolnictwa wyższego higher education	prywatnych instytucji niekomercyjny ch private non- profit	zagranica abroad	
W TYS. ZŁ IN THOUS ZŁ							
Ogółem	2011	11.686.705,8	6.521.536,6	3.285.802,9	285.146,0	29.199,9	1.565.020,4
Total	2012	14.352.914,6	7.367.472,4	4.636.630,5	373.434,6	59.482,0	1.915.895,1
	2013	14.423.788,6	6.814.497,6	5.384.339,7	307.313,2	25.538,0	1.892.100,1
	2014	16.168.229,3	7.310.246,8	6.304.999,5	360.087,6	32.236,8	2.160.658,6
	2015	18.060.685,9	7.553.710,1	7.044.483,6	397.414,3	41.239,8	3.023.838,1

Revenues from research activity of HEIs

WYSZCZEGÓLNIENIE SPECIFICATIO N	Przychody z działalności badawczej <i>Revenues from research activity</i>	W tym <i>Of which</i>									
		dotacje na finansowanie działalności statutowej <i>subsidies for financing statute activity</i>	w tym <i>of which</i>		środki na realizację projektów finansowanych przez Narodowe Centrum Badań i Rozwoju <i>funds for realization of projects financed by The National Centre for Research and Development</i>	środki na realizację projektów finansowanych przez Narodowe Centrum Nauki <i>funds for realization of projects financed by National Science Centre</i>	środki na finansowanie współpracy naukowej z zagranicą <i>funds for financing international scientific cooperation</i>	w tym zagraniczne środki finansowe		sprzedaż pozostałych prac i usług badawczych i rozwojowych <i>sale of other research and development projects and services</i>	środki na realizację programów lub przedsięwzięć określanych przez Ministra <i>funds for Minister's projects and programmes</i>
			dotacje na utrzymanie potencjału badawczego <i>subsidies for maintenance of research potential</i>	dotacje na prowadzenie badań naukowych lub prac rozwojowych służących rozwojowi młodych naukowców <i>subsidies for research and development activities undertaken in order to improve young scientists skills</i>				razem <i>total</i>	w tym z Funduszy Strukturalnych <i>of which from Structural Funds</i>		
W TYSIĄCACH ZŁOTYCH IN THOUSANDS PLN											
2004.....	1.366.325,8	454.634,9	:	:	:	:	:	:	:	281.493,2	:
2014.....	3.064.522,4	902.797,0	528.520,7	90.630,4	509.775,9	560.854,8	432.674,7	358.828,1	203.454,2	355.039,4	87.572,3
2015.....	3.253.781,7	945.481,5	578.011,2	92.910,5	615.014,1	569.113,3	417.193,4	358.580,8	194.833,8	358.867,9	104.152,2

Source: GUS (2016, 2015, 2005) HEIs and their finances in 2015, 2014, and 2004.

Strengths & weaknesses - indicators



Source: European Innovation Scoreboard (2016).

Reforms 2010-2011

- Reform package (2010), known as ‘Building upon knowledge’, consisted of five legislative acts:
 - Act on the Principles of funding science - transparent funding system, concentration of funding, new system for assessing activities.
 - Act on the National R&D Centre - proposal of strategic R&D programmes, changes in IPR, new catalogue of tasks.
 - Act on the Research Institutions - legal framework for mergers, restructuring, commercialisation or liquidation.
 - Act on the National Science Centre - basic research funding.
 - Act on the Polish Academy of Sciences - changes to the Academy’s structure and ways of functioning.
- Act on Higher Education (2010) - effective model of management, programme autonomy and quality of education, career development.

Summary assessment (I)

- Many **regulations** in the subsequent years were overly bureaucratic and had a negative influence of the initial objectives of reforms.
- The current **institutional evaluation system** is excessively focused on quantitative indicators. Considered to be very complex. The use of same criteria and different weights. Main issues are related to: counting publications, writing in Polish, and local use of points.
- Raising the level of **commercialisation** of research outputs continued to be a challenge - limited scope of knowledge transfer activities of public research institutes. Higher education institutes face barriers to effective **technology transfer** (transfer of IPR rights & formal valuation of IPRs).
- The financing model of **higher education** does not promote quality sufficiently.

Summary assessment (II)

- **Career development path** is not differentiated and associated with the type of institutions.
- **Appraisal of staff** employed for an indefinite period based on the results of scientific work is an area of improvement (evaluations remain a mere formality).
- Lack of employment stability for **young researchers** and limited R&D financing possibilities.
- The need to increase requirements for candidates at the level of **doctorate, habilitation or titular professor**.
- **Titular professor** employed in public universities for at least 30 years should be guaranteed the right to retirement (75% of average salary in the last 3 years).

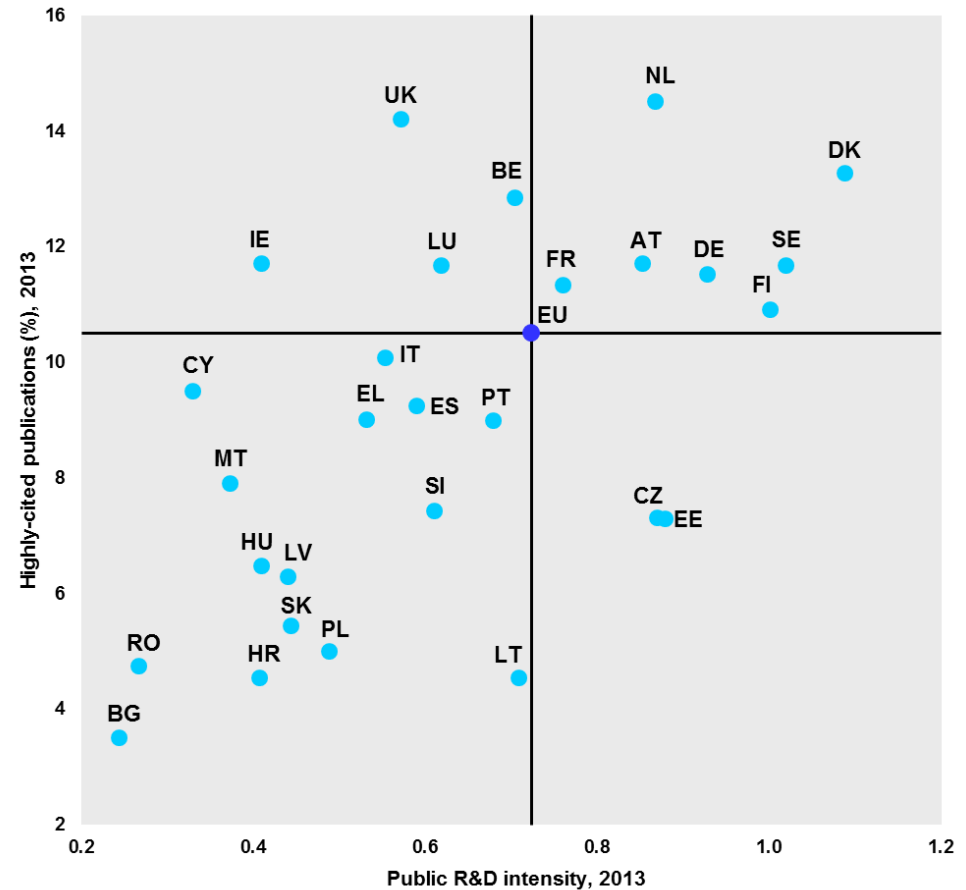
Challenge 1 - Quality

Highly-Cited Publications

vs.

Public R&D Intensity

With only 5.0 % of Polish scientific publications among the 10 % most-cited worldwide (2013) Poland ranks 24th in the EU.



Challenge 2 - Internationalisation

- Remains very limited both in terms of the number of foreign students (31,635 in public HEIs) and participation in international scientific collaboration (international scientific co-publications relative performance to EU is 55).

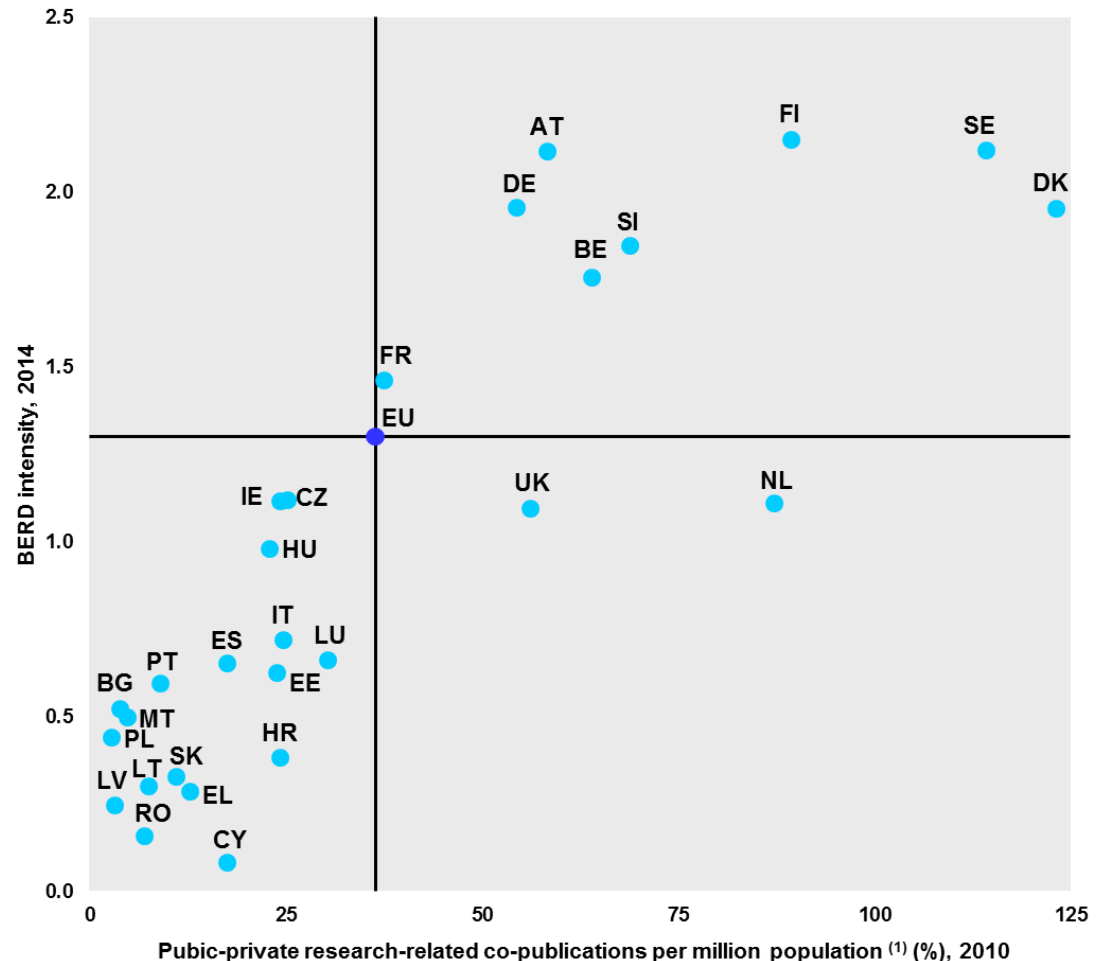
Challenge 3 - Science-industry co-operation

**Public-private
co-publications**

vs.

Business R&D intensity

10.5% of innovative companies cooperate with higher education institutions and joint patent applications and co-publications is insignificant.



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