



Horizon 2020 Policy Support Facility

Peer Review of the Polish higher education and science system: final report

Warsaw, 13 September 2017

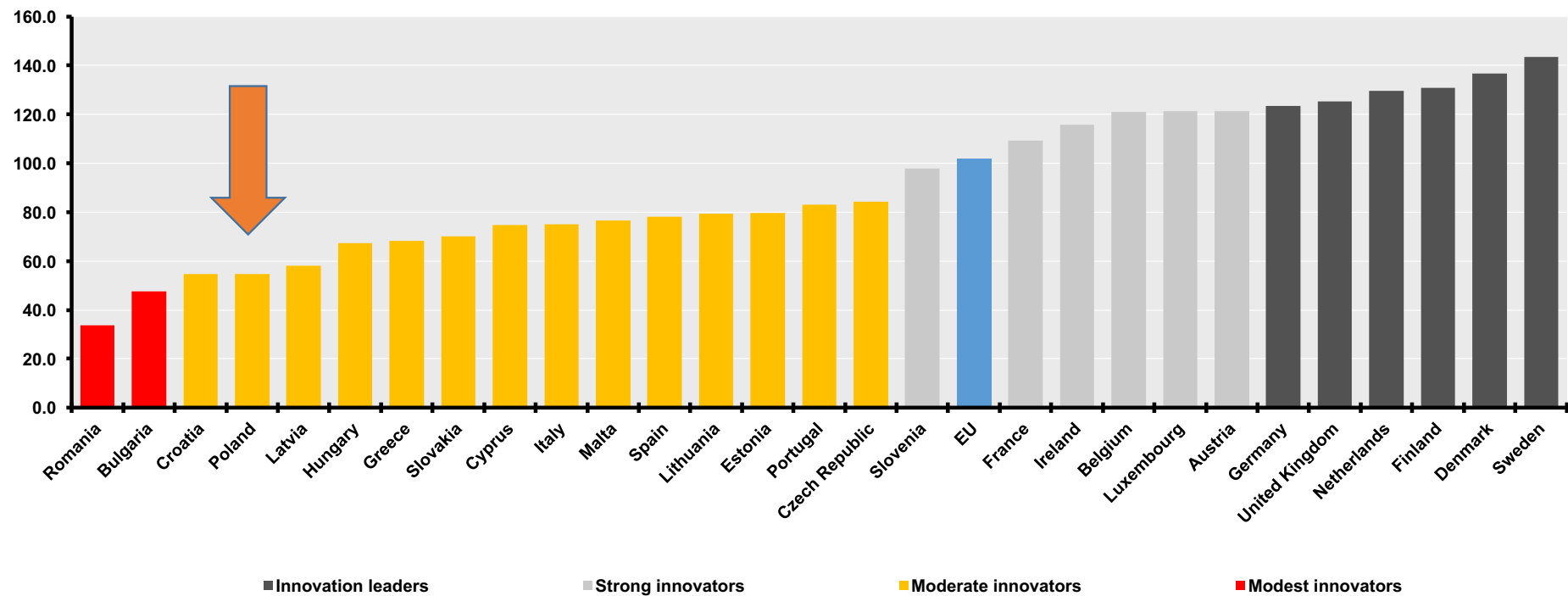
Georg Winckler (AT, Chair)
Jaana Puukka (FI, Rapporteur)



Background to the report

- Poland is continuing its transition towards an open and globally competitive economy.
- An efficient higher education (HE) and science system is at the nexus of knowledge creation, education, innovation and economic growth.
- Despite past efforts, Poland's HE and science performance and innovation outcomes remain at a sub-optimal level.
- A series of well-designed reforms is a prerequisite to achieving Poland's goals.
- Successful implementation of these reforms means one or two decades of continuous and consistent efforts.

EU Member States' innovation performance



Focus of the Horizon 2020 Policy Support Facility Peer Review for Poland

- The aim of the Horizon 2020 Policy Support Facility Peer Review is to give external advice and independent recommendations on possible reforms to undertake in the context of the on-going restructuring of the national Science and Higher Education system
- Polish authorities requested the PSF Peer Review to focus on:
 - Structural changes in the science and higher education system
 - Links between the higher education sector and the other actors of the innovation systems
 - Internationalisation of the science and HE sector - trends, key areas for improvement

The PSF Peer Review Panel

Independent Experts:

Georg Winckler, Chair & Thematic Expert for QAA & Evaluation, and Internationalisation (AT)

Jaana Puukka, Rapporteur & Thematic Expert for Third Mission and Industry linkages, and Funding (FI)

Jon File, Thematic Expert for HE Landscape Reform (NL)

Lauritz B. Holm-Nielsen, Thematic Expert for Governance and Doctoral Training (DK)

Göran Melin, Thematic Expert for HR & Careers (SE)

National Peer Experts:

Göran Marklund (SE)

Christian Naczinsky (AT)

Ward Ziarko (BE)

PSF Peer Review process

- Peer Review panel – 3 national peers and 5 independent experts.
 - Analysis of documents, policies, data
 - 2 field visits to Warsaw (March and June 2017)
 - Interviews and discussions with
 - HE and R&I performers
 - Intermediary organisations in the R&I system
 - Public administration bodies
 - Private sector representatives

Reform of the Polish higher education and science landscape

Diversification, consolidation and incorporation

Challenges of the HE and science system: fragmentation and lack of diversity



Lack of diversity of institutional missions particularly in terms of **internationally competitive research-intensive universities** and a **robust and dynamic vocational HE sector**



A fragmented HE system with many small HEIs. Non-public HEIs will reduce due to population decline. Public sector includes many small specialised HEIs (ca. 50 with <2000 students) and “broad specialised” HEIs (Technical, Medical...)



Large part of Poland's public RDI capacity is outside of universities. The universities have the majority of highest achieving scientific units (62% of the A+ units and 73% of the A units), but a **significant number (91) of A+ and A research units are in the Academy of Sciences (PAN) and the Research Institutes.**

Key Message 1 - HE & Science Landscape Reform

Poland's higher education system needs more diversity of institutional missions particularly in terms of internationally competitive research-intensive universities and a robust and dynamic vocational higher education sector.

HE & science landscape reform: key recommendations



1

Create a more diversified HE institutional landscape

- Develop a robust binary HE system by establishing a modern University of Applied Sciences (UAS) sector that should enroll a significant proportion of HE students within a decade
- Strengthen and concentrate research in selected research-intensive universities: Competitive Excellence Initiative and Flagships
- Support and maintain the system through mission-differentiated governance; funding; human resource management; and institutional evaluation and accreditation criteria.



2

Reduce the number of public HEIs through a process of consolidation

- Financially supported voluntary mergers within a framework of clear and motivated goals for the future HE landscape.
- The primary consolidation target should be the large cities (79 public HEIs).
- Move from a large number of broadly/highly specialized HEIs to a smaller set of more comprehensive HEIs.



3

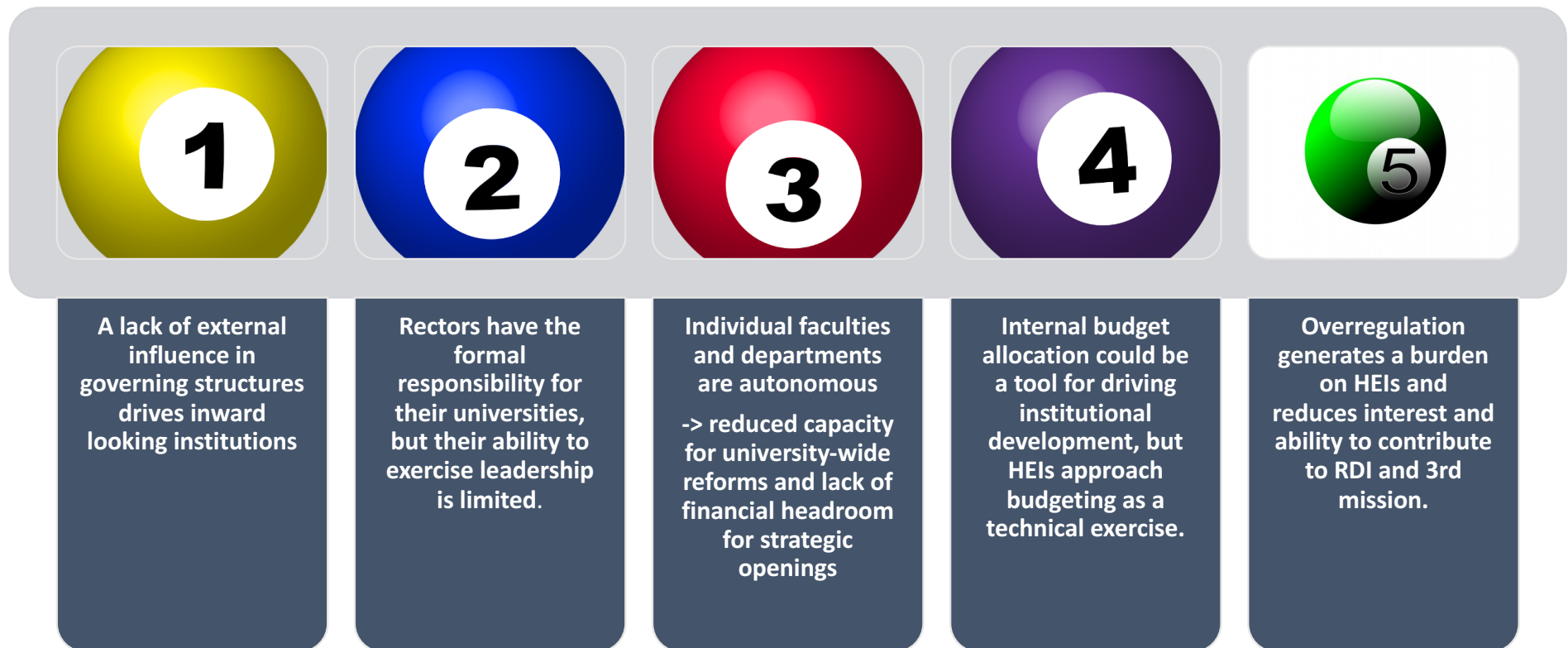
Incorporate the best-performing public research organisations into research-intensive universities

- Incorporate the A+ and A evaluated public research organisations into research-intensive universities.
- Consider remaining institutes for inclusion in the “Research Network Lukasiewicz” with incorporation into universities as the alternative for the remaining Polish Academy of Sciences’ institutes.
- Develop the Polish Academy of Sciences into a distinguished scientific society.

Higher education governance

Enhancing autonomy and accountability

Challenges: sub-optimal governance system and overregulation



Key Message 2 - HE Governance

Ensure effective governance and regulation. Facilitate the development of sufficient, professional and executive leadership in public higher education institutions in line with their profile.

Enhance institutional autonomy and accountability through:

- strengthening the power of executive management within institutions, including appointed leadership and management***
- reducing the power and influence by collegial bodies***
- establishing governing bodies with external stakeholders in all types of HEIs***

HE Governance: key recommendations



Mission-differentiated governance: in line with the institutional profile

- Allow HEIs to organise a **governance structure** in which the leadership is conducted with checks and balanced **externally (society, funders etc.)** and **internally (faculty, staff and students)**.
- **Mandate external stakeholder participation** in the governing board of all HEIs.



A new governance system that balances professional management of the HEI, collegial influence on academic matters, and closer links to key stakeholders and the market.

- A small effective senior management team supports the appointed Rector.
- **Faculties consolidated to a smaller number**; Deans supported by “small” academic councils.
- Collegial influence focuses to the faculty (and departmental) level.



The governing board with (a majority of) external board members

- selects and appoints the rector; decides on the institutional strategy based a proposal presented by the rector; decides the budget and signs the statement of accounts.
- has regular insight in the general matters and strategy : a sounding board for the top management to increase transparency and trust between the Polish society and the university community.

Funding in HE and science system

Building long term sustainability

Challenges: Underfunding, cost-sharing & inefficiencies in funding allocation and spending



Due to the low GDP per capita and high student numbers, the annual expenditure per student is dismally low.



Poland's higher education R&D expenditure (HERD) is less than half of the EU average.



For the balance btw public and private financing of HE, Poland has a small share of business funding (2%) and high share of household funding (18).



The HE system places a financial burden on families, but provides limited support for students.



Fragmentation of the HE system leads to waste of resources.
Fragmentation of funding allocation system overburdens HEIs (20 funding streams).

Funding allocation mechanisms

$b \pm \sqrt{v}$

New funding formulas for HEIs' core funding for education acknowledge the difference of the academic and vocational sectors, but are more suited for accounting purposes within the state budget, than for steering institutions.



The current system of HEIs' core funding for research based on a mechanical link with the research quality evaluation is not the best way to incentivise research performance or institutional reform. The allocation to units instead of universities deprives the university centre the ability to use the funding strategically.



Competitive funds are an effective and flexible resource allocation mechanism. Care should be taken to enhance transparency and international evaluation and ensure that the funding of overhead costs is set at a sufficient level.

Key message 3 - funding

Introduce an investment target for the higher education and science system and multi-annual budgeting system for higher education institutions.

Design a sustainable financing strategy aligned with the long term strategic goals, keeping in mind that the shape and institutional configuration of the HE system will largely determine the cost of operating HEIs and that the reform will require fresh sustainable funding to the system.

Funding: key recommendations

- 1** Implement a 2-pronged strategy: (i) increase share of public expenditure for HE and science and (ii) encourage resource diversification in HEIs
- 2** Consolidate the HE sector to avoid waste of public resources and achieve critical mass. **UAS sector; digitalisation**
- 3** Ensure sufficient need-based student aid and consider cost-sharing btw state and students in full-time studies
- 4** Develop the HE funding formulas in line with their profile.
- 5** Launch performance-based agreements to set objectives, underpinned with additional funding

Contract research, consultancy, adult education, fundraising, Matched funding schemes (UK, FI)

A limited number of transparent indicators, a clear link btw indicators and strategic goals. An objective way to distribute funds to link the amount of resources spent on inputs to an indicator of institutional performance.

Human Resources and Careers in HE

Attracting, nurturing and retaining talent

Challenges in HR and career system



Sub-optimal
doctoral
training
system



Habilitation
delays the
opportunity
to embark
on
independent
research



Modest
levels of
national,
international
and cross-
sector
mobility



In-breeding
in
recruitment
(90%)



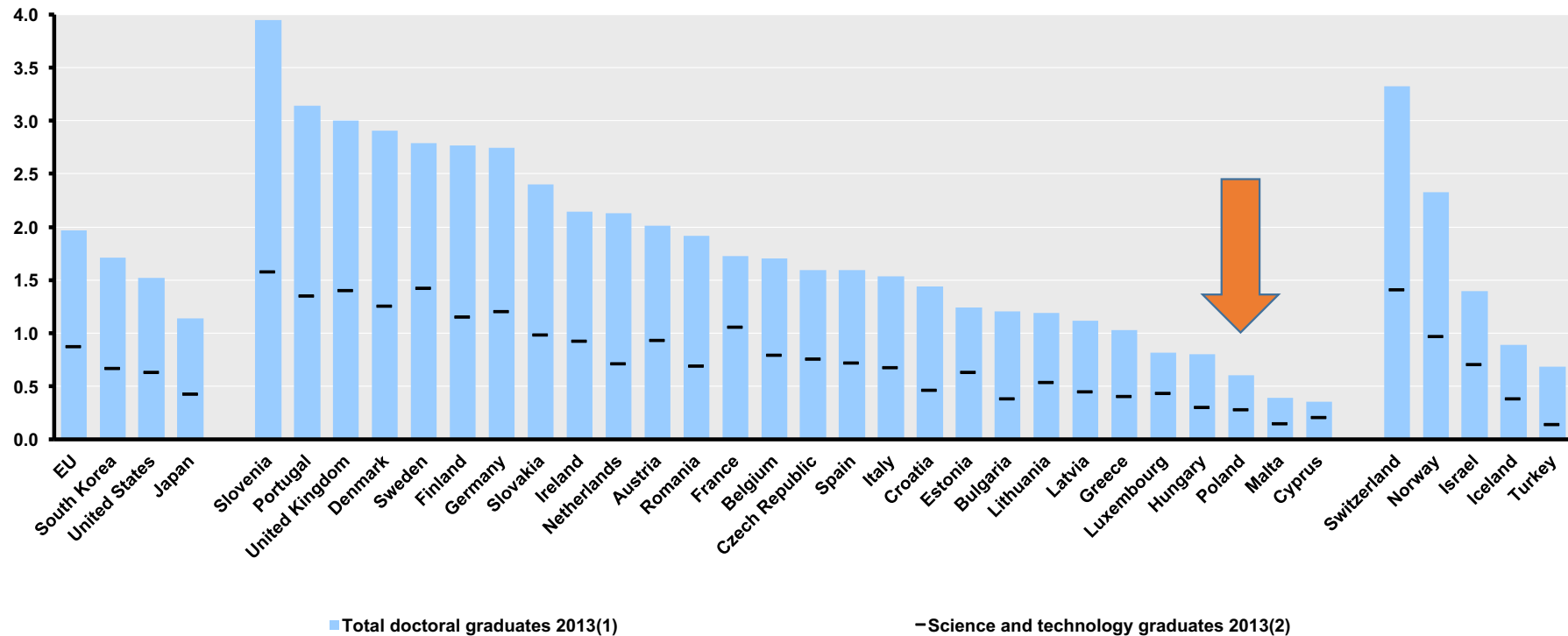
Low share of
international
staff



Insecurity
among
junior staff

Gender bias

New doctoral graduates per thousand population aged 25-34, 2013



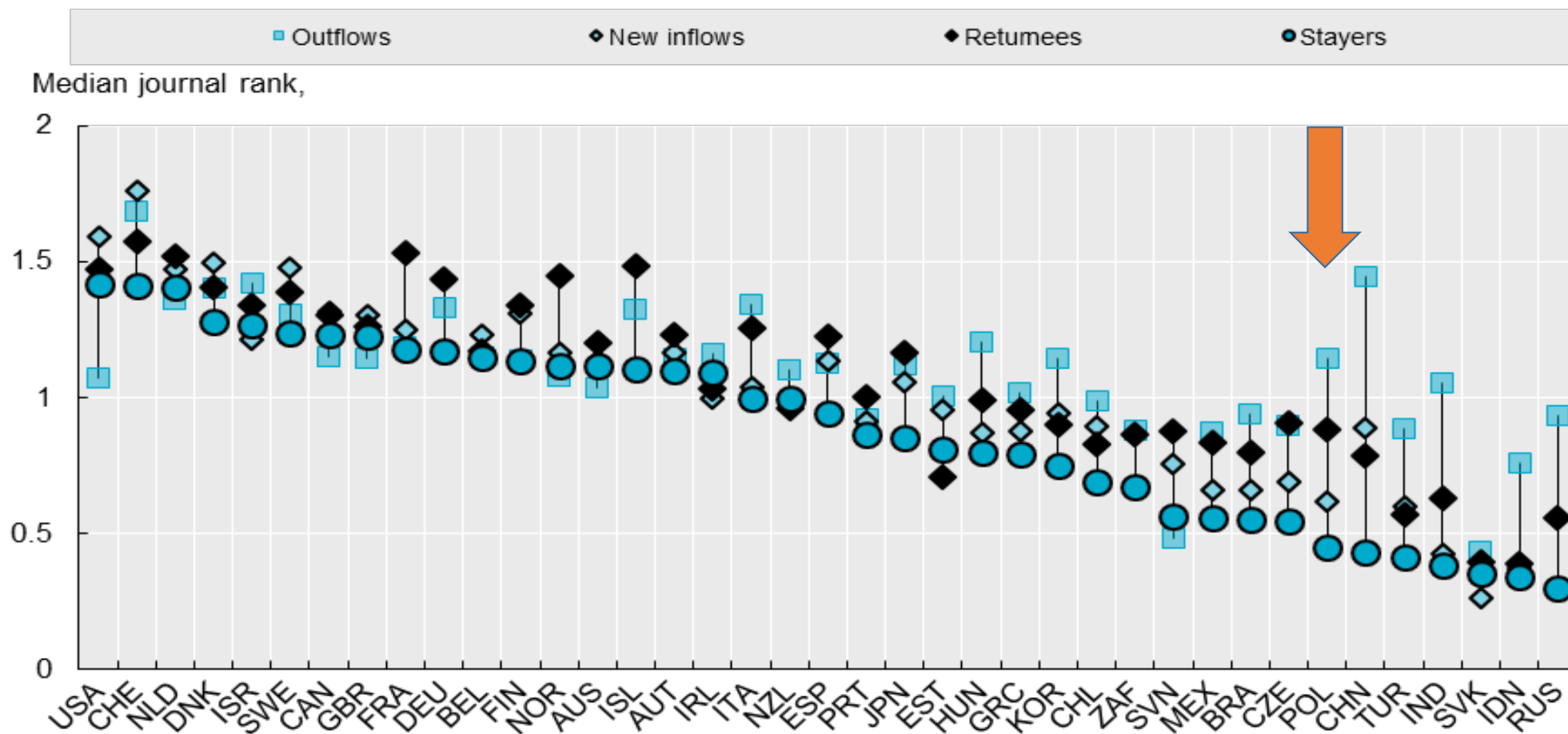
Key Message 4 – Human Resources & Careers

Enhance the quality of the HE and science and innovation system by radically reforming the doctoral training and the academic career system.

HR & Careers: key recommendations

- 1** *Reform doctoral training: doctoral schools & industrial PhDs.*
- 2** *Reform recruitment and career progress structures; Abolish habilitation.*
- 3** *Enhance in-country, international and cross-sectoral mobility.*
- 4** *Enhance professional development of teaching and administrative staff.*
- 5** *Bridge the gender gap to make full use of Poland's human capital (40% minimum).*

Impact of mobility on scientific impact: Expected citation impact of scientific authors, by mobility profile in 2013 (OECD EAG 2016)



Quality assurance and evaluation in HE and science system

Developing a lean, effective and transparent
system of QA and evaluation

Challenges: Poland's system of quality assurance and evaluation of HE and research...

1

...is nationally driven and relies on the actions of state authorities

2

...insufficiently aligned with international standards

3

...lacks transparency due to overregulation and excessively detailed procedures

Key Message 5: QA & evaluation

Enhance the adoption of sound evaluation practices and a quality culture to support diversified higher education and science system based on a lean, effective and transparent system of QA and evaluation for HE and science:

- *simplify the QA system architecture*
- *align the system with international standards in order to enhance excellence and reduce state control*
- *enhance the transparency and openness*

QA & evaluation: key recommendations

- 

Reform the Research Evaluation System:
Research performance based on publications - impact of research - International peer reviews
- 

Abolish the link btw research funding and the SEDN system (basis of the research evaluation system)
- 

**Review the role of the COMMITTEE FOR EVALUATION OF SCIENTIFIC RESEARCH INSTITUTIONS (KEJN).
Link the evaluation by KEJN to HEI's public funding (UK 'Research Excellence Framework), or finance excellence layers within HEIs on the basis of a competitive bid.**
- 

Move away from study programme evaluation to institutional assessment.
Allow PKA to propose institutional assessments. Refocus PKA's work on assessing the quality of institutional QA systems
- 

Phase out the DEGREES AND TITLES COMMISSION and transfer responsibilities to PKA and HEIs.

Third Mission and links btw HE and industry and society

Fostering a long term relationship between HEIs
and industry and the wider community

Challenges in Third Mission and links btw HEIs and industry and society



Narrow policy focus on HEIs' Third Mission and knowledge exchange



Lack of focus on HEIs' role in regional development;
Uneven involvement of HEIs in smart specialisation
A lack of strategic anchoring within HEIs and HE system

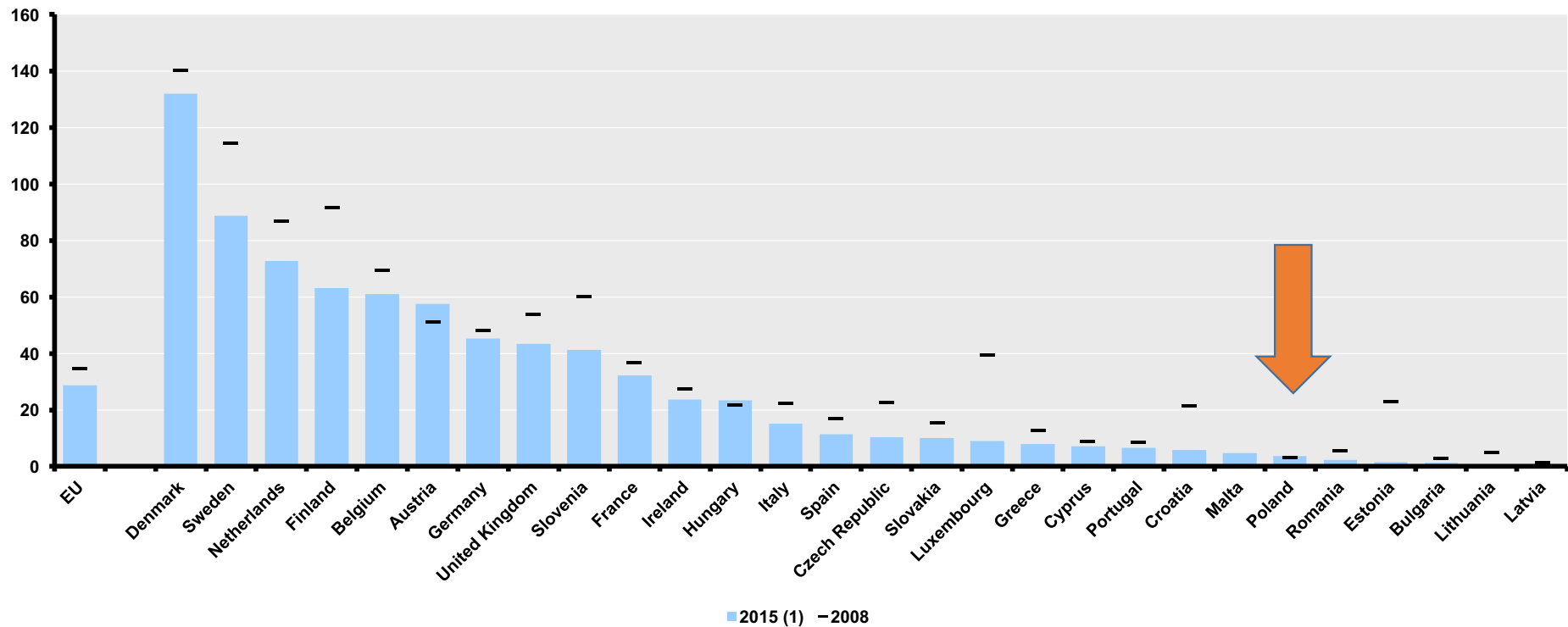


Success is measured by the ability to absorb public funding;
Risk of undercutting the goal of developing entrepreneurship and leading to commercially non-viable innovations



Limited focus on students'/graduates' role in knowledge exchange and entrepreneurship

Public-private co-publications per million population, 2008 and 2015



Key Message 6 - Third Mission and links between HE and industry and society

Ensure a broad approach to innovation through universities' third mission and system linkages by stimulating academic and student entrepreneurship and third mission activities based on long term cooperation between universities and industry, and the public sector and civil society.

- ***support the skills and human capital development***
- ***work with SMEs as well as large corporations***
- ***measure success in terms of the sustainability and transformation of industry and employment growth.***

Third Mission and links btw university and industry and the society: key recommendations

- 1** Create a demand pull to promote long term cooperation
 - 2** Foster university-industry partnerships across all fields and review current instruments
 - 3** Enhance student entrepreneurship and cross-sectoral mobility for students and staff
 - 4** Develop Technology Transfer Centres and Alliances and Intellectual Property Rights
 - 5** Foster responsibility and strengthen the evidence base
 - 6** Mobilise regions and HEIs. Consider a stronger role for regional authorities in HE incl. ESIF
 - 7** Take advantage of the HE landscape reform to strengthen linkages.
- Competence Centres (SE)**
- Industrial PhDs, Professors of Practice**
- e.g. Dual Universities**

Internationalisation of HE and science system

Challenges in internationalisation of HE and science system and talent attraction



Internationally excellent science:

Poland receives 0.9 % out of H2020 funds, but contributes 3.03 % to the overall budget (average 2014-2015).



International research collaboration:

5% of publications are in the top-10% most cited publications worldwide compared to the EU average of 10.6% (2014).



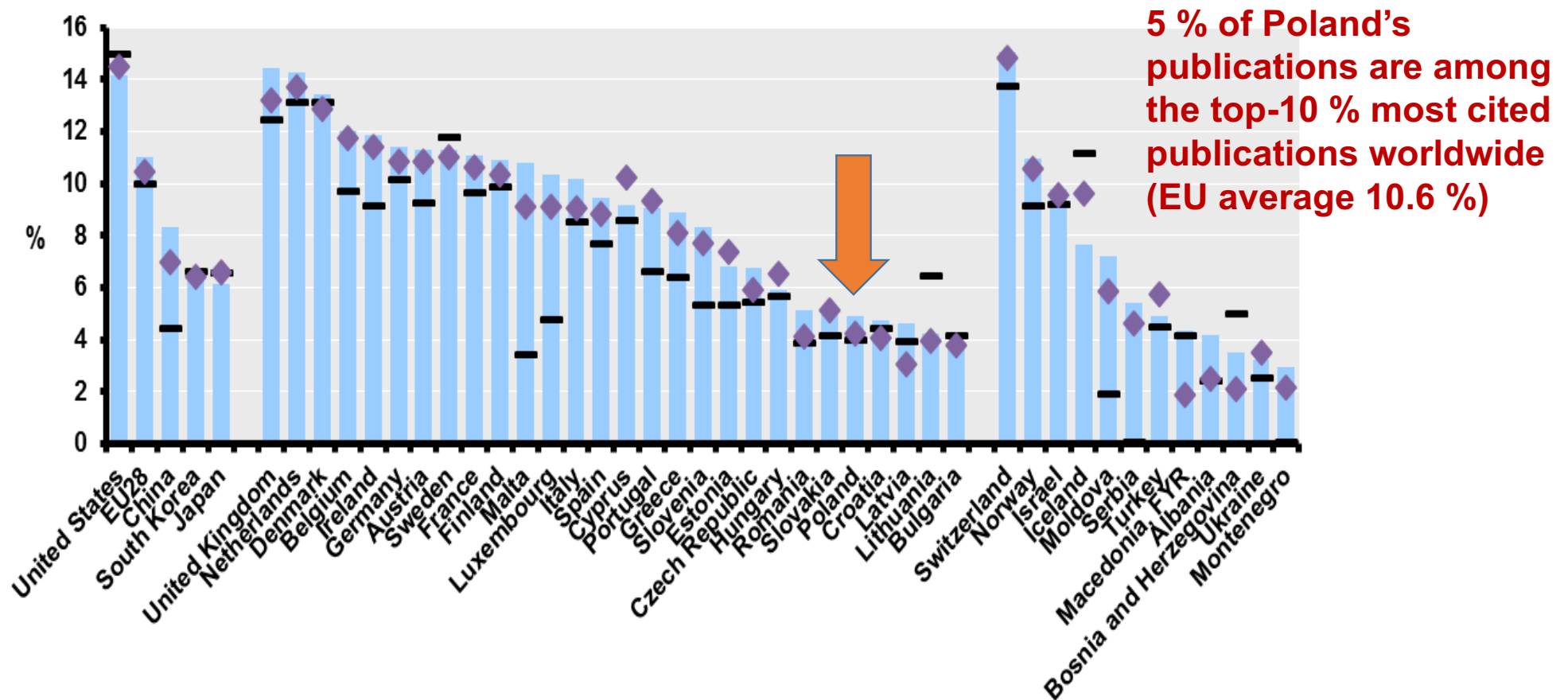
International mobility benefits only a minority of students and staff; lack of focus on 'Internationalisation at Home'



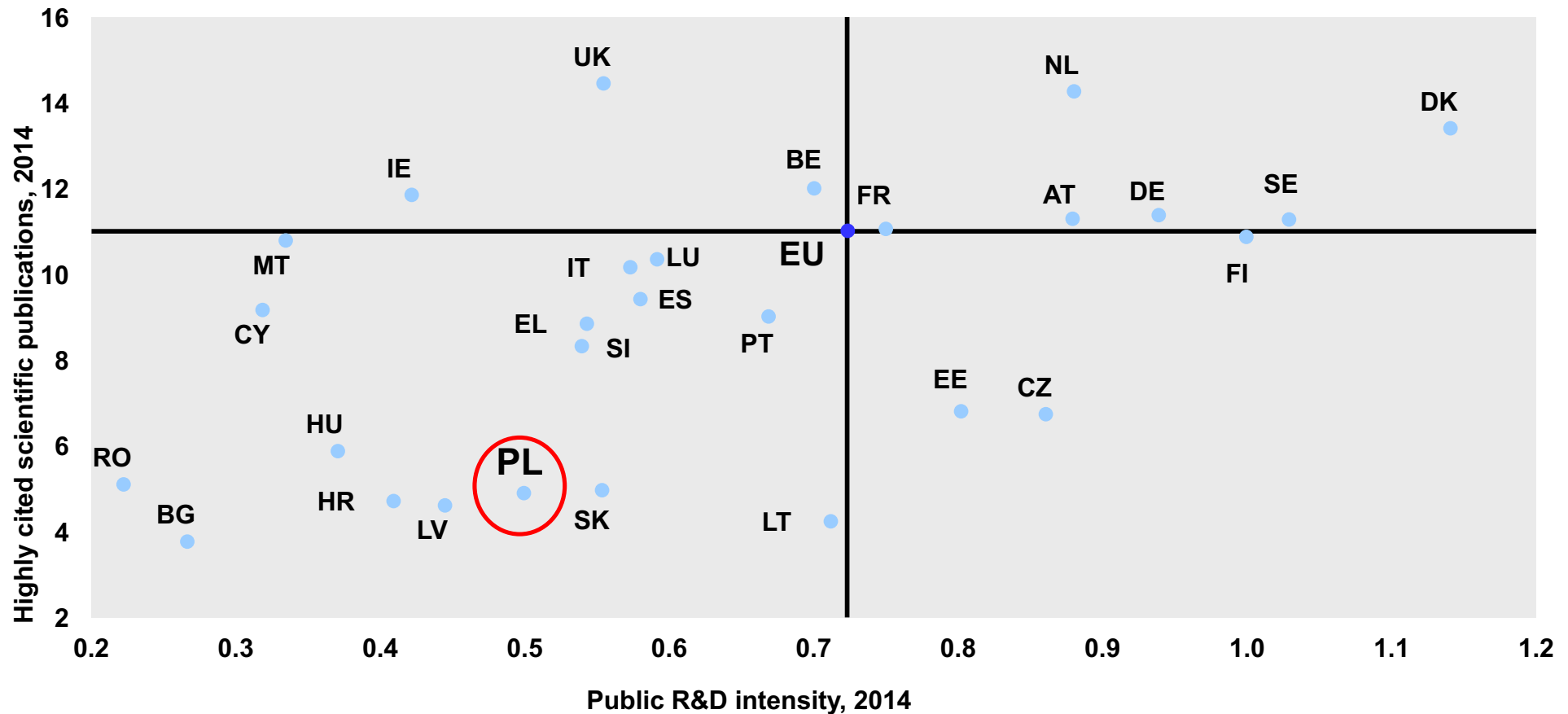
Talent attraction: very low number of non-EU PhD graduates and candidates as well as foreign-born individuals with PhD

Highly cited scientific publications, 2000, 2007 and 2014

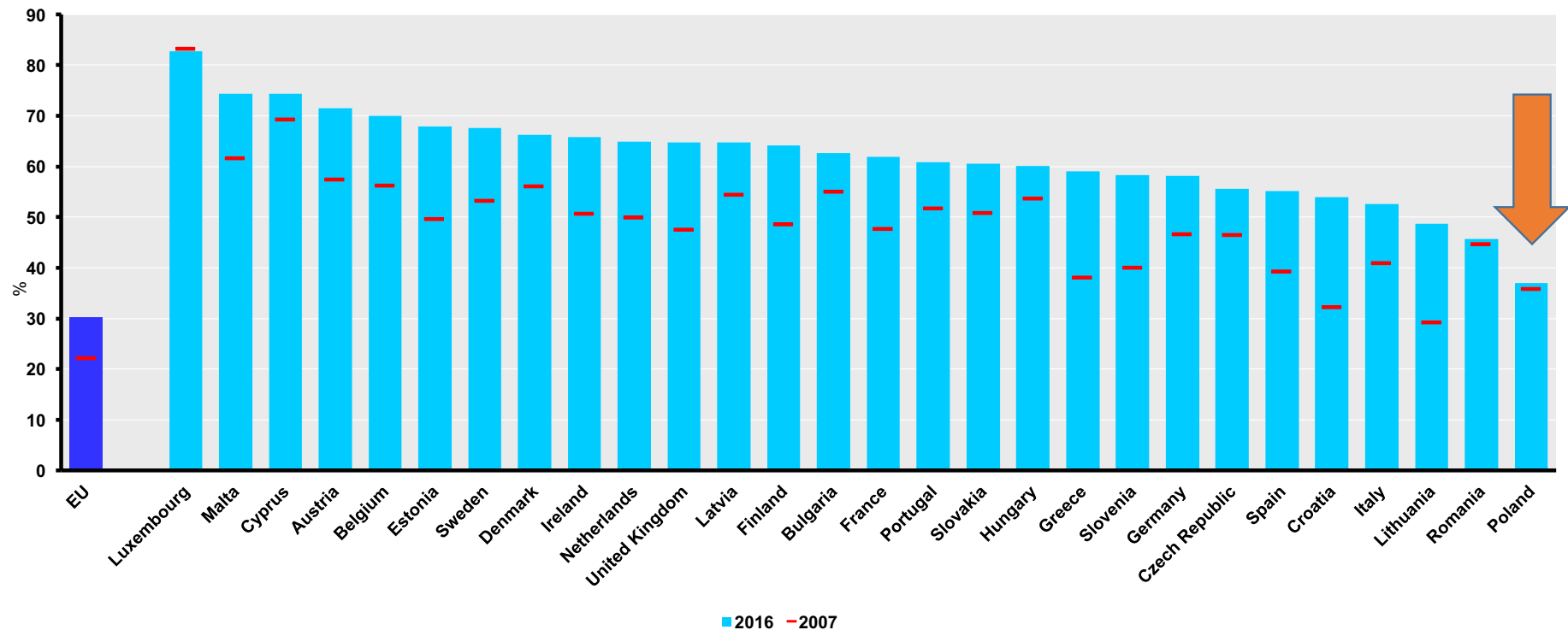
Scientific publications within the 10 % most cited scientific publications worldwide as percentage of total scientific publications of the country



Compared with other countries with a low public R&D intensity, Poland performs poorly concerning highly-cited publications (2014)



New total international scientific co-publications per country as % of total scientific publications per country, 2007 and 2016



Part of the problem is the modest expenditure in R&D per student on R&D in higher education.



International doctoral students tend to study in countries which make substantial investments in R&D in universities

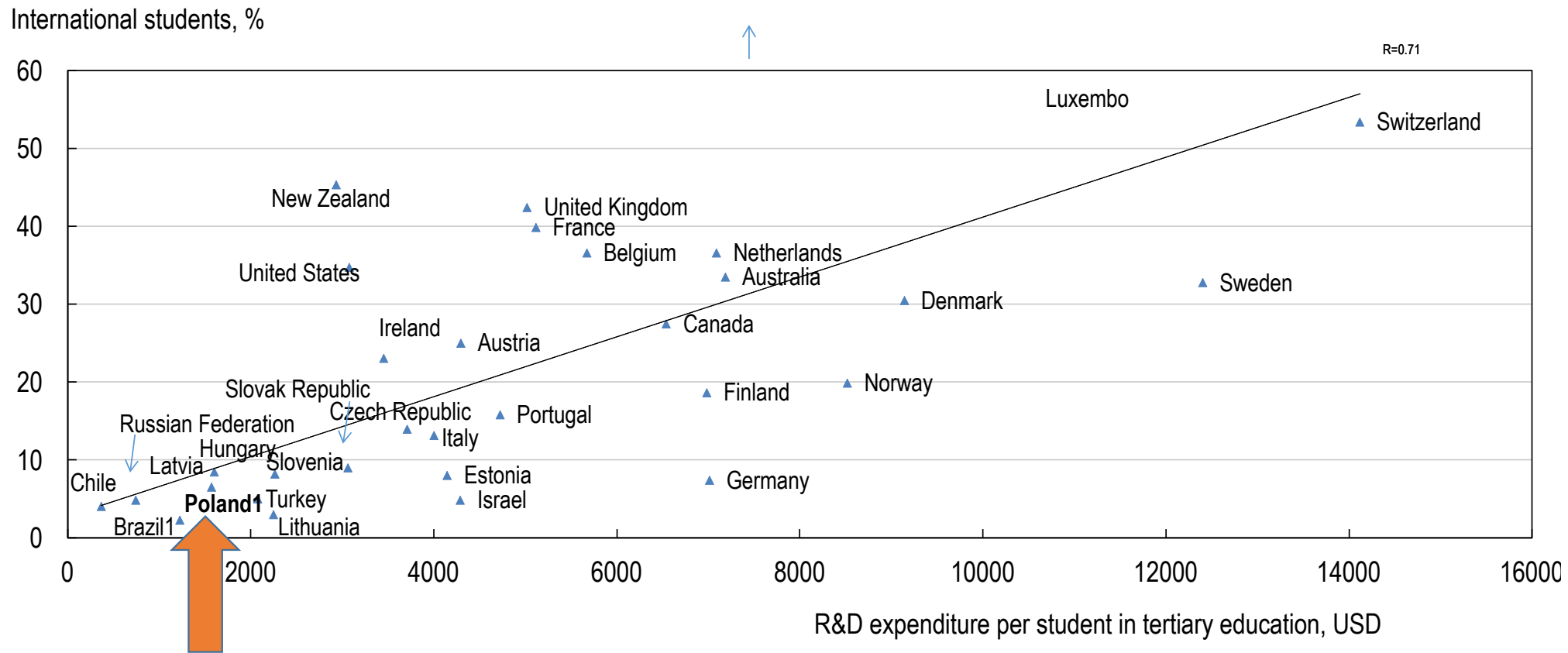


Poland spends less than USD 1,600 per student on R&D in tertiary education and has a low share of international doctoral students.



Countries that spend more than USD 5,000 in R&D per student have over 30% of international doctoral students.

Relationship btw share of int'l doctoral students and R&D investment in TEIs (2013/14) OECD EAG 2016



Key Message 7: Internationalisation

Develop a broad-based internationalisation strategy for Poland that sets out clear orientations and actions to promote the internationalisation of Polish science and innovation, mainstreaming internationalisation in existing policies, programmes and institutions.

Internationalisation: key recommendations

1

Develop a broad-based sustainable strategy for internationalisation that embeds internationalisation in all aspects of HE and science system

2

Take strong measures to become an active partner in the global brain circulation system. In collaboration with HEIs develop an open, excellent and attractive HE and science system.

3

Develop policies to internationalise Poland's labour market and education system and address discrimination and xenophobia.

The report is published at the website:

European Commission, Research and Innovation Observatory –
Horizon 2020 Policy Support Facility:

<https://rio.jrc.ec.europa.eu/en/library/peer-review-poland%E2%80%99s-higher-education-and-science-system>