ERA LEARN

COUNTRY REPORT

Poland

ERA-LEARN:
enabling systematic interaction with the P2P community

01/03/2019

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Preface

The Polish context in research and innovation

Poland is recognised as one of the most successful examples of the economic transition. Between 1990 and 2015, the gross domestic product (GDP) per capita increased more than seven times and during the latest financial crises, Poland was the only EU economy to show continued growth in its GDP. The Polish R&I system is centralised for the purposes of funding and governance, while important reforms have taken place in the last two years under the new Act on Higher Education and Science. However, certain challenges do persist and the quality of science and innovation outputs remains significantly below EU standards. Despite recent efforts, Poland is a moderate innovator (cf. European Innovation Scoreboard 2017) and compared to 2008 its performance has increased only marginally. Supported by public financing and the significant role of the EU Structural Funds, R&I investment has gradually increased. The business sector, however, still spends less than half of GERD and links between academia and the business sector and the regional socio-economic environment are weak. Despite the establishment – for the first time in Poland – of the inter-ministerial Council for Innovation, sectoral perspectives across the different ministries persist. National R&I strategy and RIS3 priorities are documented in the Strategy for Responsible Development as well as in regional strategic documents. Overall, the main challenges identified in the Polish R&I system relate to increasing the intensity of private R&I efforts and the collaboration between academia and businesses, improving the quality of the public research base (including changes in rigid career path rules which limit inter-sectoral, inter-institutional or international mobility) and strengthening priority setting in the R&I governance.[1] The latest reform in the science and higher education sector that took into consideration these recommendations, is expected to improve the position of Poland's national and international performance in research and innovation. In the report, Poland's performance is compared to Belgium, Spain, Romania and the Netherlands. The selection of these countries is based on similar levels of total researchers (full-time equivalent - FTE) (NL, B), similar levels of gross expenditure in R&D (GERD) normalised with the researchers FTE (RO, ES) and diverse levels of P2P involvement.[2] These will be referred to in the report as Poland's 'comparator group' of countries.

[1] Source: Rio Report Poland 2017; Peer Review of the Polish R&I System H2020 PSF study 2017.

[2] Total researchers (FTE): **NL**: 80,450; **B**: 53,586; **PL**: 86,469; **ES**: 126,125; **RO**: 17,783
GERD (current PPP av. 2014-2017)/researchers FTE: **NL**: 0,21; **B**: 0,23; **PL**: 0,11; **ES**: 0,15; **RO**: 0,10

Introduction

This is the first ERA-LEARN Country Report on P2P participation in a series of country reports that will follow in the course of ERA-LEARN. Four country reports are foreseen as pilot cases in 2019. Apart from Poland the other countries to focus on are Romania, Spain and Belgium. The selection of these countries is based on a combination of variables: number of network participations, network coordinations and national investments made to date, based on the data provided by the P2P networks to the ERA-LEARN database.

The ERA-LEARN data that are used in the report (cut-off date June 2018) mainly refer to networks that were launched and are supported under Horizon 2020. This data (especially the financial data) is 75% complete, as not all required information has been fully updated by the P2P networks. It is important to emphasise that the data collected in terms of pre-call budget committed or the actual investments in selected projects, do not take into account the differences across countries in the eligibility of certain expenses, for example, in some countries only additional costs of a research project are eligible and not personnel costs. In addition, the in-kind contributions made by funding organisations when participating in P2Ps are not usually considered as national investments on P2Ps.

The country reports provide an analysis of P2P participation and try to explain the 'performance' of a country in international collaboration, within the context of the overall situation in the national research and innovation system. In this regard data and analysis available in other reports are considered such as the RIO (Research Innovation Observatory) country reports, EU Semester national reports, European Innovation Scoreboard statistics, OECD and EUROSTAT statistics, country reviews and special reports by the Policy Support facility, MLE relevant special reports, etc.

The goal of the country reports is to provide an overall picture of international collaboration of a particular country, comparing this also to a number of other countries of interest, as well as the EU15, EU13 and EU28 overall averages. This may be useful for individual organisations in the specific country as they might only have a fragmented picture of the situation or they might lack explanations for certain features that may be found in the wider R&I context in the given country. The report may also be useful for organisations in other countries that wish to learn the reasons behind the 'position' of a particular country and/or learn from other countries' exemplary performances.

Acknowledgements

We owe special thanks to NCN and in particular Ms. Malwina Gębalska for the excellent collaboration in this task. We would also like to thank all the interviewees that shared with us valuable insights and information about their experience and knowledge about Poland's position in international collaboration and overall performance in research and innovation. In particular, Mr. Mateusz Gaczyński (Ministry of Science and Higher Education), Ms. Karolina Janczykowska (NCBR), Ms. Anna Plater-Zyberk, (Polish Academy of Sciences) and Ms. Justyna Woźniakowska (NCN). Special thanks are also due to the ERA-LEARN 2020 consortium members for commenting on earlier versions of this document and helping to improve it.

Key Highlights

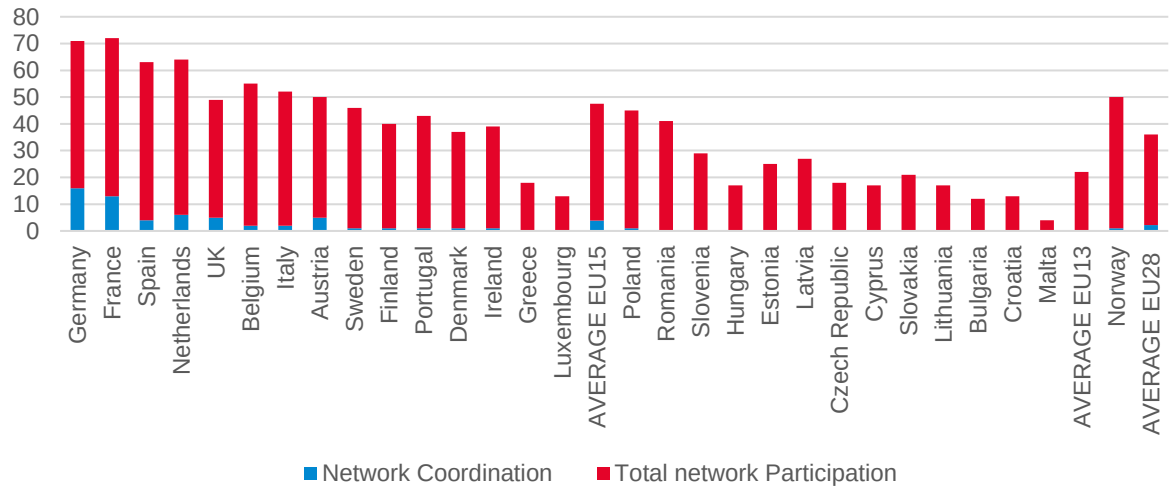
Poland participates in 44 public partnerships in research and innovation (P2Ps) in Horizon 2020. This equals the EU15 average and is way above the EU13 average (22 networks), although participation in only few networks may reflect a selective approach of a country rather than limited interest and engagement. Poland is the only EU13 member state coordinating a P2P network. Through participation in 87 P2P calls in H2020 Poland is supporting 137 projects, which is more than double the EU13 average but around half of the EU15 average. These figures are comparable to those of Romania albeit Romania has considerably fewer researchers. Countries with similar capacity in researchers (Belgium, Netherlands) or with similar levels of GERD per researcher (Spain) support a larger number of projects.

Table 1: Participation in H2020 P2Ps

	PL	B	ES	NL	RO	EU13 av.	EU15 av.	EU28 av.
P2P participations	44	53	59	58	41	22	44	34
P2P coordinations	1	2	4	6	0	0	4	2
Call participations	87	96	106	90	81	47	73	61
Supported projects	137	165	397	402	101	54	253	175

Source: ERA-LEARN database[3] (cut-off date June 2018).

Figure 1: Network participations and coordinations by countries in H2020



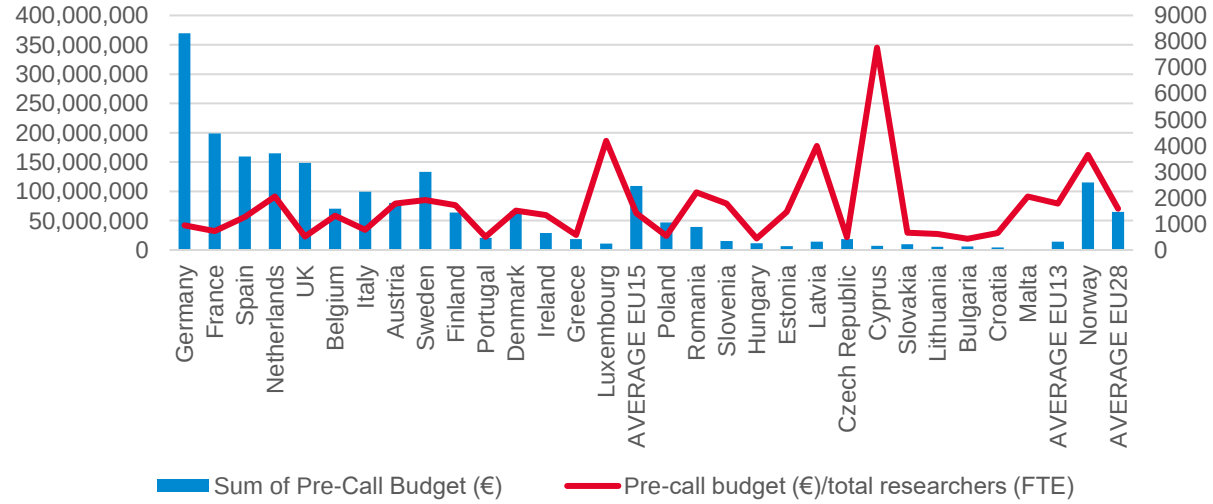
[3] These figures are actually higher considering that around 25% of the financial data of the H2020 P2Ps have still to be updated by the P2P networks in the ERA-LEARN database.

Source: ERA-LEARN database (cut-off date June 2018).
(*) Network coordinations: number of networks a specific country coordinates.(**) Total network participations: number of networks a specific country participates in with any role (i.e. coordinator, participant, observer, other).

In terms of national funds made available to fund research proposals, Poland leads the EU13 group in absolute terms (total pre-call budget), although the amount of money committed per full-time researcher is one of the lowest (around € 540) (Figure 2). However, this amount is not eventually spent as the successful proposals with Polish partners usually have a total budget of around half of the Polish funds made available (49%). Poland's initial budget allocations for the calls are based on previous experiences in ERA-NETs where around two successful proposals usually include Polish partners. Nevertheless, as international cooperation is a priority of the Polish research funding system, budget allocations are accordingly adjusted to fully cover the project budgets in the event of a higher success rate of Polish applicants.

Interestingly, the EU13 average amount committed per researcher (€ 1,778) is larger than the EU15 average (€ 1,411). Of the 'comparator group' Romania stands out. Yet, Romania absorbs even less funds than Poland - 33% of the national funds committed before the calls.

Figure 2: Pre-call budget commitments, total and per researcher (FTE) in H2020 P2Ps



Source: ERA-LEARN database (cut-off date June 2018)
(*) Pre-call budget is the money committed by each country before the launch of a joint call.
(**) Pre-call budget for each researcher is the total pre-call budget committed by a country divided by the total researchers in the country estimated in full-time equivalents (FTE).

Overall, interest of the local community for international collaboration is low although it varies across thematic areas. For instance, the quantum physics community was enthusiastic about formulating a framework for international collaboration in the area. This led to the creation of QuantERA, the only network coordinated by a Polish research funding organisation, the National Science Centre (NCN).

Nevertheless, several factors make P2Ps less attractive for Polish researchers. These include limited incentives for international collaboration, abundance of national funds through more familiar national programmes, P2P calls may also be more challenging than national calls,

(although more familiar than other H2020 opportunities) and other opportunities for international collaboration such as the bilateral agreements.

When Poland does take part though, the experience is quite positive. P2P participation has increased the capacity of research funders for international collaboration, as well as their visibility abroad. This has helped build trust with peers in other countries.

Research proposals with Polish partners usually end up in the middle space of the ranking list, thus limiting their chances of approval. Naturally, this varies between sectors but there is considerable room for improvement to increase the absorption rate of Polish funds. Means to do that include awareness activities and training of researchers in proposal writing, as well as match making events with top scientists and institutes abroad.

Poland has a dynamic presence in terms of P2P participation. However, the level of investment in P2P calls is rather limited. This is due to low visibility and attractiveness of P2Ps, low success of proposals with Polish partners and limited human resources.

1. Who are the key R&I funders in Poland?

The National Centre for Research and Development (NCBR) finances strategic R&D programmes and supports primarily applied R&D in business enterprises and science-industry consortia.

The National Science Centre (NCN) supports through a system of competitive, peer-reviewed grants, fundamental research, primarily performed by researchers from PROs following the ERC model.

Other R&I related activities including innovation and start-up activities or mobility of researchers are also financed by other sources such as:

Polish Agency for Enterprise Development	Foundation for Polish Science	Industrial Development Agency	Polish Development Fund	Polish National Agency for Academic Exchange

The two main funders participating in P2Ps are NCN and NCBR, both supervised by the Ministry of Science and Higher Education (MNiSW). NCN funds curiosity-driven research through a totally bottom up approach. Thus, NCN is not bound by the need to ensure compatibility with national priorities and thus, is independent in deciding in which P2Ps to become involved. On the other hand, NCBR usually receives suggestions from the Ministry as to which networks to join. They may also be notified about new networks from the National Contact Point or receive direct invitations from funding agencies in other countries. They then assess these on a case-by-case basis, in terms of compatibility with national priorities and possible levels of interest by the research community, by examining similar projects in their database.

For both organisations, availability of human resources is an issue to enable them to become more engaged in P2Ps. At the same time, they would like to see the P2P landscape streamlined with fewer and more effective networks. To limit participation, however, they need to evaluate the impact of the partnerships on the research community. Such an effort is expected to start during 2019. Currently, bilateral agreements win over P2Ps in terms of the administrative efforts required and the number of proposals eventually funded. Compare for example 38 projects funded in the last bilateral call with DFG-Germany, with an average of 2-3 proposals in the 'successful' P2Ps in which Poland participates.

Nevertheless, there is strong political support for international collaboration. The new Act for science and higher education embodies a strong push to international collaboration. A goal has been set by the Polish government to increase Poland's participation in Horizon Europe to at least 3% (from the current 1%). The Polish National Agency for Academic Exchange (NAWA) was created to support international mobility.

At the same time there are certain issues that need to be dealt with at the EC level. The EC needs to be more open with underperforming countries in relation to their participation in decision making boards in Framework Programmes. In addition, the 'widening' push that existed in H2020 needs to be maintained.

How are they doing in P2P participation and coordination?

The Polish funders are rarely work-package leaders or coordinators in P2P networks mainly because of limited human resources. When Poland does take part though, the experience is quite positive. For NCN, participation in ERA-NETs (including Cofunds) led to capacity building in international collaboration, as well as the in the internal management of the organisation. The experience has also helped improve their response to the needs of the research community. NCN's involvement in ERA-NETs was important in the process of building trust in the community of research funders, not obvious for a newly established organisation from a "less performing" country. P2P participation has also increased visibility of NCN more successfully than bilateral agreements that only involve agencies from two countries.

Why only one network coordination?

- Limited human resources in funding agencies for managing participation in P2Ps.
- Complex financial regulations for certain partnerships.
- Low awareness and/or interest from the national research community (although this varies across different scientific areas).
- Incompatibility between the more applied-research orientation of H2020 and the P2Ps in general, with the curiosity-driven research orientation, in certain funding organisations such as NCN.

There are challenges in increasing the level of engagement of Polish funders in P2Ps. When these are overcome, though, the benefits become obvious and are well appreciated.

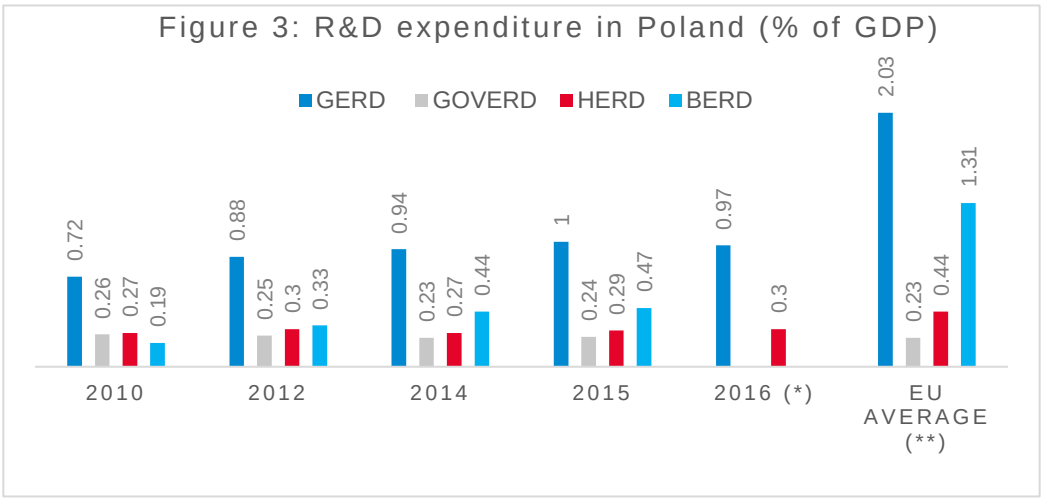
2. Who are the key R&I performers in Poland?

- Higher Education Institutes (HEIs, 109 entities).
- Public Research Organisations (PROs) including 309 R&D performers divided into distinctive groups with differentiated research interests.
- The Polish Academy of Sciences (PAN) with 69 institutes that concentrate on basic research with limited activity in applied research and experimental development.
- Research Institutes – 116 entities – that mainly undertake applied research and experimental development.

Based on EUROSTAT data the average size of the Polish research community in the last 3 years (2014-2017) is around 86,500 people (full-time equivalent).

The gross expenditure in R&D (GERD) reaches 0.97% of GDP in 2016, i.e. around half of the EU28 average. The majority of GERD (46%) is performed by businesses, although the business expenditure in R&D (BERD) is below EU average. HEIs and public research organisations perform around 29% and 25% of GERD respectively.

Figure 3: R&D expenditure in Poland (% of GDP)

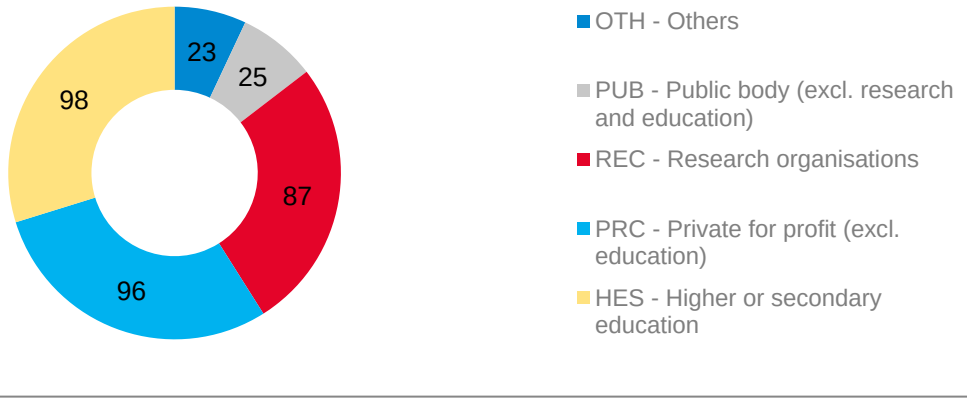


Source: OECD STI Indicators
(*) provisional data; (**) 2016 figure

The performance of the Polish research actors in H2020 is quite balanced, with the HEIs taking 30% of EC contributions, the PRCs (29%) and RECs (26.4%).

Figure 4: Performance of Polish research actors in H2020

EU contribution by Type of Organisation (Mil EUR)



Source: H2020 data https://webgate.ec.europa.eu/

How are they doing in P2P-project participation?

Based on data from the ERA-LEARN database, it is evident that during H2020, Polish research organisations took part in 137 P2P-supported projects and absorbed €24 million from Poland. This is better than their EU13 counterparts but it is only 8% of the total P2P projects supported during H2020 and around 1% of the total actual investments made by all involved countries in P2Ps in H2020.[4] This is comparable to the share of H2020-funded projects with Polish participation (5.14% of total H2020 projects) and the share of EC contributions absorbed by Polish organisations (0.93% of total EC contributions).

Interest of the local research community for international collaboration varies across thematic areas. For instance, the quantum physics community is quite responsive to the calls for proposals of QuantERA, where many high-quality proposals are submitted from Polish researchers. Similarly, participation of Polish researchers in the ERA-NETs in medical research, agriculture and forestry research and bio-economy is higher and more successful than in other areas.

[4] These figures are actually higher considering that around 25% of the financial data of the H2020 P2Ps have still to be updated by the P2P networks in the ERA-LEARN database.

Nevertheless, there are factors that make P2Ps less attractive for Polish researchers, i.e.:

- limited incentives for international collaboration in academic research careers,
- abundance of national funds through more familiar national programmes that are less competitive than EU programmes,
- other schemes for international collaboration such as the bilateral agreements that are more effective, less bureaucratic and higher in success rates,
- long proposal evaluation periods in P2Ps especially when 2-stage evaluation is applied.

On a positive note, the situation is expected to change with the latest reforms in science and higher education that are pushing international publishing, cooperation and mobility.

Polish research organisations take part more as partners than coordinators in research projects. However, it is interesting to highlight a notable difference between the proposals received by NCN (curiosity-driven bottom up research) and those by NCBR (applied research). In the case of curiosity-driven research, the coordinator is Polish in one out of four proposals received by NCN, but this ratio falls dramatically to one in thirteen proposals that are eventually funded. In the case of applied research, one out of eight proposals received by NCBR are led by a Polish organisation and this falls slightly to one out of ten that is eventually funded. This indicates that Polish organisations are more confident to take up the role of coordinator in curiosity-driven research areas, reflecting the national research strength, but the proposals they are part of are less likely to be funded (one out of fifteen proposals managed by NCN is funded in the end compared to one out of six proposals managed by NCBR).

In addition, the calls that are relevant to curiosity-driven research are more appealing to Polish researchers and attract more proposals on average. The number of proposals received by NCN under P2P calls is comparable to those received by NCBR (539 by NCN vs. 565 for NCBR) but the number of calls that NCN participated in is half of those of NCBR.

Thus, there is a need to improve the position of proposals with Polish partners in the ranking list. This could be achieved through effective match making events with top researchers abroad but also through training for proposal writing and international project management addressed to Polish researchers. The promotion of the calls directly to potential applicants also needs to be strengthened.

The international profile of the Polish research landscape is rather low. In the 69 institutes of the Polish Academy of Sciences only 8% of the staff are international, although this is still higher than in the other Polish research organisations. There are exceptions to the rule, as in the case of the highly recognised Institute of Mathematics that has approx. 40% international staff.

In general, there are three main factors hindering attraction of international staff and these include: hard competition from wealthier countries and institutes of high prestige offering much

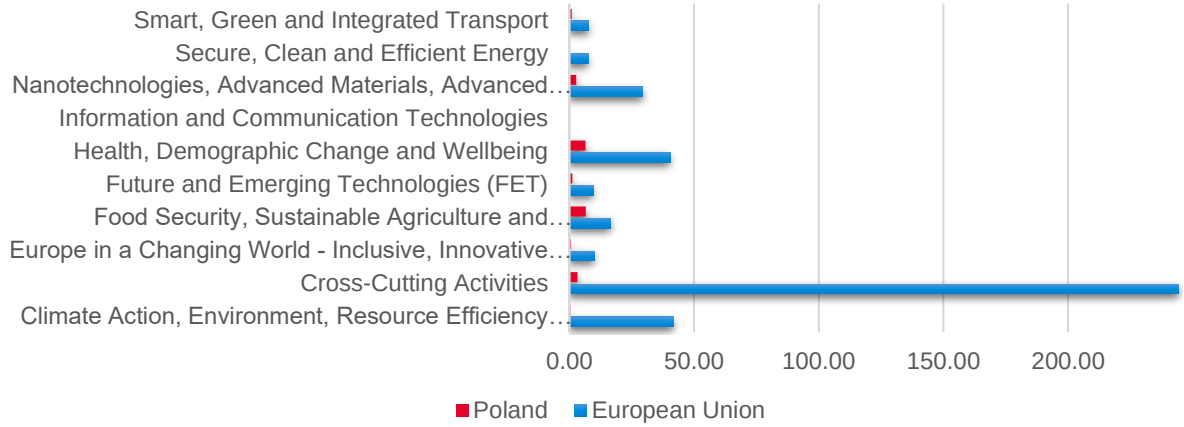
higher salaries, low visibility of Polish institutes in the international research landscape and limited funding for networking with counterparts abroad.

As in the case of H2020, Polish researchers are not fully exploiting the opportunities offered by P2Ps. Reasons include limited incentives for international collaboration, preference towards simpler national and other collaboration schemes such as bilateral agreements and low visibility of Polish research institutions.

3. In which areas does Poland invest through P2P participation?

Poland invests mainly in P2P projects in the areas of “Food Security, Sustainable Agriculture and Forestry, Marine and Maritime and Inland Water Research and the Bio-economy” and “Health, Demographic Change and Wellbeing”, followed by “Cross-cutting activities” and “Nanotechnologies, advanced materials manufacturing and processing”.

Figure 5: Actual P2P investment per thematic area during H2020 (in € M)



Source: ERA-LEARN
(*) The figures are actually higher given that about 25% of the P2P financial data during H2020 have not yet been updated by the networks.

This is in line with the country’s national priorities (Strategy for Responsible Development) comprising healthy society, agri-food, forestry-timber and environmental bio-economy, sustainable energy, natural resources and waste management, innovative technologies and industrial processes.

This is also in line with the country’s performance in H2020 where most proposals are submitted in the areas of MSC actions, ICT, energy, SSH, health etc., food and environment although with less emphasis in ICT and energy.

Poland’s areas of expertise based on the highest number of publication counts (2011-2015 SCImago data elaborated in the Peer Review of the Polish R&I system, 2017) lie in medicine, physics and astronomy, engineering, materials science and chemistry. Overall, Polish scientists excel in basic research.

However, internationalisation of Polish researchers as measured by the number of international co-publications per 1 million of the population is only a little more than half the EU average (277 vs. 494).

The strong expertise in physics and maths and the fact that Polish scientists could collaborate in physics internationally even under the communist regime, because that was the only way they could gain access to large infrastructure located abroad, can explain the strong international orientation e.g. in the area of quantum physics. The fact that quantum physics is an emerging area that does not require large investments is another enabling factor.

Polish participations in P2Ps are in line with the national thematic priorities. However, Poland has a strong potential for international collaboration especially in fundamental sciences and emerging fields that still remains untapped.

4. With whom does Poland collaborate and why?

The main factors guiding international collaborations include the compatibility with the national priority areas, economic benefits, proximity, levels of experience in international co-operation of Polish scientists and cultural relations, as well as historical associations at the level of states and research units.

At present, NCBR manages bilateral agreements with 12 countries, Brazil, China, Czech Republic, Germany, Israel, Japan, Luxembourg, Republic of South Africa, Singapore, Taiwan and Turkey.[5] The second main research funder, NCN, has concluded bilateral agreements with counterpart organisations in Germany, USA, Lithuania, Switzerland, Austria and China.[6] In addition, in most of the funding schemes managed by NCN, applicants may ask for funds related to international cooperation.

In P2P-supported projects[7] Polish researchers mostly collaborate with counterparts from Germany, France, Italy, Spain, Italy, Netherland and Austria. Other collaborators also include the Scandinavian countries (Sweden, Finland, Norway, Netherlands, Denmark) and United Kingdom.

These countries are the most active in both P2Ps as well as in Horizon 2020 projects (Germany, UK, France, Italy, Spain and the Netherlands) and it is the same countries that Polish organisations collaborate with in H2020 projects. As shown in the Interim Evaluation of H2020 (Annex I) the main collaborators of Polish organisations in H2020 projects are UK universities, German and French private commercial organisations and research organisations.

Historical reasons can explain certain collaborations. Germany for instance is a neighbouring country and has been a usual destination for Polish students, PhDs, and post-docs. The UK has also been a destination for Polish PhDs but is also a close collaborator due to its high international standing in many scientific fields.

At the same time, Poland is strong in medical education and research. It is quite usual for students from Scandinavian countries to go to Poland to study medicine. Collaboration with Scandinavian countries can also be explained by the existence of certain grants, such as the Norway grants supporting collaboration of Polish researchers with Norwegian counterparts.

[5] https://www.ncbr.gov.pl/en/programmes/international-programmes/bilateral-cooperation/

[6] https://www.ncn.gov.pl/wspolpraca-zagraniczna/instytucje-partnerskie?language=en

[7] Based on the data provided by NCN and NCBR.

Figure 6: Collaborations of Polish organisations in P2P-supported projects

Source: ERA-LEARN database

Polish research organisations collaborate with counterparts in the most active countries in P2Ps and H2020. This is driven by scientific as well as cultural and historical links among individuals and/or organisations. To improve the absorption rate of Polish funds in P2Ps these collaborations need to become more successful. This calls for more effective match-making of partners, higher quality of proposals and improved proposal writing and management skills.

5. What are Poland's overall strengths in R&I?

- A growing economy with a GDP per capita increase of more than seven times in 1999-2015 (although still below 40% of the EU average). The only EU economy with continued growth during the last global financial crisis.
- The Gross Domestic Expenditure on R&D (GERD) is 0.97 % (2016) after reaching a historical maximum of 1% in 2015 and high growth is observed for R&D expenditure in the business sector (15 %) and licence and patent revenues from abroad (15 %).
- Traditionally strong in basic sciences (mathematics, astronomy, chemistry and physics) but also increasingly recognising research and innovation as the engines for long-term growth.
- A number of significant recent reforms in the research, higher education and innovation system.
- Strong support for internationalisation by the two main funders, NCN and NCBR.
- Measures boosting international collaboration ('Pact for Horizon 2020').
- Strong clusters active in R&D such as the 'Aviation Valley' in Southeast Poland.
- Attractive for FDI especially in automotive, aircrafts, electronics, machinery and business services.
- The largest beneficiary of ESIF (more than € 100 billion).
- Poland has climbed up the Global Innovation index from the 49th place in 2012 to the 38th in 2016.

6. What are Poland's overall challenges in R&I?

- Poland is a moderate innovator (EIS, 2017), performing below the EU average in all dimensions, particularly in 'linkages and entrepreneurship' and 'open, excellent and attractive research systems'. Performance is also below the EU average in 'non-EU doctorate students', 'public-private co-publications', 'PCT patent applications' (in societal challenges) and 'licence and patent revenues from abroad'.
- Low places in international rankings. The best Polish universities are between the 401st – 500th places (Shanghai Ranking).
- The quality of scientific outputs remains below EU standards, as measured by the scientific publications that are among the top 10 % most-cited publications worldwide.
- Weak incentives for research excellence and international collaboration in universities and PROs.
- Despite the establishment – for the first time in Poland – of the inter-ministerial Council for Innovation, fragmentation across the different ministries' sectoral perspectives persists.
- Low level of R&D staff per 1000 citizens, in particular in business sectors.
- GERD still below 50% of the EU average (2.04%) with a target of reaching 1.7% in 2020.
- Despite the increase in R&D investments, the business sector still spends less than half of GERD and half of BERD comes from foreign-owned companies.
- Lack of focus on a limited number of highly dynamic smart specialisation areas.

Poland is on the up rise in its R&I performance with some key strengths supporting progress. Yet, challenges persist in the internationalisation of the Polish research community and the openness and attractiveness of the national R&I system. These are at the roots of the still limited presence of Poland in public partnerships for R&I.

7. Country-specific topic of interest for Poland: "Enhancing inclusiveness in international collaboration"

QUANTERA – POLAND'S HIGHLIGHT IN HORIZON 2020

QuantERA is a consortium of 31 funding organisations from 26 countries, coordinated by the National Science Centre, Poland. It is the only ERA-NET Cofund programme run by an EU13 country. With a budget of over €40 million, including €11.5 million from the European Commission, the network strives to support excellent research in the field of Quantum Technologies.

QuantERA's strategic research agenda includes the organisation of a co-funded call, as well as additional calls for research proposals with the potential to initiate or foster new lines of Quantum Technologies and help Europe grasp leadership early on in promising future technology areas. The consortium's ambition is also to promote responsible research and innovation support actions in the field of Quantum Technologies and map existing policies in this area of research.

The first QuantERA call was launched in 2017 and attracted unexpectedly high attention of the research community. Thanks to the joint funding provided by the European Commission and the QuantERA member organisations, 26 excellent international projects were granted over €32 million of funding. Promising research ideas involve 128 research teams from 23 countries and aim in particular to develop novel physical platforms for quantum communication, sensing and computing, advance architectures and algorithms for future quantum information processing systems, and push for hardware scalability. The results of the QuantERA-funded projects are expected to address a number of societal challenges, including cybersecurity.

Aiming to spread excellence across the European Research Area the network introduces specific mechanisms supporting inclusiveness and greater participation of less represented countries in EC Framework Programmes. The novel approach applied by QuantERA included explicit encouragement of applicants in its first call to include partners from the widening countries (without making compromises on excellence). Secondly, research consortia qualified to the full proposal stage were again encouraged to add partners from countries facing the risk of budget underspend. Thirdly, the selection criteria gave priority to projects with widening countries in case two or more projects were equally scored in the evaluation by an international peer review panel. As a result, research teams from the 'widening' countries are involved in 70% of the funded projects so far.

QuantERA was created and developed thanks to joint efforts of Polish and European research community in Quantum Technologies and the National Science Centre. It received support of the Polish Ministry of Science and Higher Education and the National Centre of Research and Development. Last but not least, QuantERA has been a significant milestone in the discussion about the future of Quantum research in the European Research Area and paved the way for the FET Flagship on Quantum Technology.

More information at: www.Quantera.eu.
Coordinator: Ms. Sylwia Kostka (sylwia.kostka@ncn.gov.pl)
QuantERA has received funding from the European Union's

Horizon 2020 research and innovation programme under Grant Agreement No 731473.

Enhancing inclusiveness in international collaboration does not occur at the expense of scientific excellence. On the contrary excellence is spread and established more widely in inclusive international projects that co-create opportunities and capacities for improvement.

Annex

Main indicators for P2Ps in H2020	Poland	Belgium	Spain	Netherlands	Romania	EU13 average H2020	EU15 average H2020	EU28 AVERAGE
Total pre-called budget available for P2P calls (€)	46.740.634	70.583.717	159.456.886	165.075.681	39.351.963	14.345.184,06	108.961.814,94	65.032.664,89
National actual investment in P2P calls (*)	22.868.495	46.084.494	70.690.199	118.091.598	13.131.488	6.117.931,26	65.099.526,36	37.715.214,35
Absorption rate (actual/planned investment) (*)	48,93%	65,29%	44,33%	71,54%	33,37%	42,65%	59,75%	57,99%
Number of network participations	44	53	59	58	41	22	44	34
Number of network coordinations	1	2	4	6	0	0	4	2
Number of funding organisations participating in P2Ps	7	22	30	21	10	8	20	14
Number of P2P calls with specific country participation	87	96	106	90	81	47	73	61
Number of proposals submitted to P2P calls (**)	1104							
Number of eligible proposals submitted to P2P calls								
Number of projects funded under P2P calls	137	165	397	402	101	54	253	175
Success rate (funded/submitted proposals) (**)	12,41%							
Number of participants in projects from specific country (***)								
EU top-up funding received (€ million)(**)	4,69							
Total budget of funded projects (€ million) (**)	24,28							
Total requested EC contribution for funded projects (€)								

Sources: ERA-LEARN database (cut-off date June 2018)
(*) Figures should be slightly higher as around 25% of P2P data in H2020 have not yet been updated by the networks.
(**) Based on data from NCN and NCBiR; Data not available for other countries
(***) To be estimated when gaps in ERA-LEARN database are filled in

Main R&I indicators	Poland				Belgium	Netherlands	Romania	Spain	EU 28 average
	2014	2015	2016	2017	2017	2017	2017	2017	
GERD (as % of GDP)	0,94	1	0,97	1,03	2.58	1,99	0,50	1,2	2.03 (2016)
Percentage of GERD funded by the business sector	39	39			58.60 (2015)	48,65	37.29 (2015)	45,85	54.65 (2015)
Percentage of GERD funded by government	45,21	41,81			22.51 (2015)	33.13 (2015)	41.69 (2015)	40.93 (2015)	31.74 (2015)
Percentage of GERD funded by rest of the world	13,36	16,74			16.55 (2015)	15.51 (2015)	19.23 (2015)	8.04 (2015)	10.88 (2015)
R&D funded by EC (% of GDP)	0,1	0,15			0.07 (2015)	0.03 (2015)	0.06 (2015)	0.06 (2015)	
Percentage of GERD performed by the business sector	46,59	46,57	65,57	65,57	69.71 (2016)	56.94 (2016)	55.19 (2016)	53.74 (2016)	64.19 (2016)
Percentage of GERD performed by higher education	29,16	28,88	31,88	31,88	20.17 (2016)	31.51 (2016)	11.32 (2016)	27.52 (2016)	22.83 (2016)
Percentage of GERD performed by government	23,95	24,39	2,51	2,51	9.51 (2016)	11.55 (2016)	33.26 (2016)	18.50 (2016)	11.85 (2016)
GOVERD (% of GDP)	0,23	0,24			0.24 (2016)	0.23 (2016)	0.16 (2016)	0.22 (2016)	0.23 (2016)
percentage of GOVERD financed by the business sector		4,48			6.15 (2015)	13.59 (2015)	15.19 (2015)	6.3 (2015)	7.85 (2015)
HERD (as % of GDP)	0,27	0,29	0,3	0,3	0.50 (2016)	0.64 (2016)	0.05 (2016)	0.33 (2016)	0.44 (2016)
percentage of HERD financed by the business sector	2,82	2,6			12.89 (2015)	7.85 (2015)	5.06 (2015)	5.7 (2015)	6.44 (2015)
BERD (% of GDP)	0,44	0,47	0,63		1.73 (2016)	1.16 (2016)	0.27 (2016)	0.64 (2016)	1.24 (2015)
percentage of BERD fudned by the business sector	79,36	79,77			79.21 (2015)	79.49 (2015)	69.51 (2015)	81.92 (2017)	81.91 (2015)
percentage of BERD fudned by government	11,49	10,01			5.49 (2015)	1.86 (2015)	13.66 (2015)	9.36 (2015)	6.35 (2015)
percentage of BERD funded by rest of the world	9,04	10,08			15.28 (2015)	18.44 (2015)	16.54 (2015)	7.86 (2015)	11.46 (2015)
Total researchers (full-time equivalent)	78622	82594	88165	96497	56067	85300	17518	133195	1951397
GERD current PPP (av 2014-2017)/ Total researchers FTE (av 2014-2017)	0,11				0,23	0,21	0,11	0,16	0,21
Number of international scientific co-publications per 1 m population	235,86	253,67	276,71		1408.08 (2016)	1568.99 (2016)	182.49 (2016)	701.4 (2016)	493.63 (2016)
ERC success rate (granted over evaluated)		0,04			0.09 (2015)	0.19 (2015)	0.05 (2015)	0.07 (2015)	

Sources:
EUROSTAT, https://ec.europa.eu/eurostat/data/database;
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H2020 data, https://webgate.ec.europa.eu/

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Ms. Anna Plater-Zyberk, Polish Academy of Sciences
Ms. Justyna Woźniakowska, NCN

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