



WHITE PAPER

Recommendations for Closing the Research & Innovation Gap in Europe

February 2020

Alliance4Life is a bottom-up initiative of **ten leading life science institutions** from **nine EU Member States** located in **Central and Eastern Europe** (CEE). The mission of Alliance4Life is to contribute to closing the divide in European health research and innovation (R&I). Members of the Alliance are committed to stimulating **institutional change** and having a say in shaping **research policy** on the national and European levels. Alliance4Life intends to become a **role model** for institutions in lesser performing regions and to serve as a **hub of excellence** through close collaboration with renowned European networks.

Despite huge investments from Structural Funds, the overall gap in health R&I is not closing. However, positive examples do exist.

Over the past decade, the substantial inflow of investments has allowed for an overall increase in scientific developments in the CEE region. Capacity building, change, and improvement have had an impact on both existing and newly established institutions, and have triggered an evolution of the whole research landscape in many countries of the region. In particular, investments made principally from the **European Union's Structural Funds** have provided a vital impetus for the emergence of **Life Sciences as a strong and visible field** of scientific research in this part of Europe. This happened during the time of a significant scientific and technological revolution in this field, which brought about a promise of tackling some of the major challenges of human health and welfare.

However, according to the recent benchmarking study performed by Alliance4Life, which compares the **gross domestic expenditure on research and development** (GERD¹) in euros per inhabitant with the number of **top 10% publications**² per million inhabitants, the

¹ Gross domestic expenditure on research and development (GERD) is total intramural expenditure on research and development by business enterprises, higher education institutions, as well as government and private non-profit organisations performed on the national territory during a given period. Source of data: Eurostat, 2017.

² Tier 10, i.e. publications issued in 10% of top journals in the ranking within the respective research field according to the Web of Knowledge classification.



map of Europe still shows significant differences between the so-called “old” and “new” Member States. The selection of these two indicators provides **another picture of the R&I gap** and gives more visibility to the fact that the **origin of innovation lies in excellent basic science**. The latest Eurostat data for all sectors available for 2017 were used for this comparison.

The **map and graph** presented in the **graphic summary** show that a **sufficient level of financing is critical** for the development of good science, as we can see is true in the Balkan countries, where the consequences of insufficient funding are especially obvious. However, if the research and development sector is not significantly underfinanced, then **closing the gap is possible**. The experience shared among Alliance4Life members, as well as discussions with policymakers and R&I stakeholders at the national round tables organised in all Alliance4Life member countries, revealed that the key factors are:

- **a sufficient level of financing, which is critical for the development of excellent science as the source of innovation**
- **a strategic setting and good governance on national and institutional levels, and**
- **cultural and geographical influences.**

The Czech Republic, Slovenia, and Estonia are visible examples of the positive trend towards closing the gap if all three factors are fulfilled. Although GERD is lower in these countries in comparison to their western and northern neighbours that fall under the “high performing countries” category (Germany, Austria, and Finland), their top 10% publication output is already comparable!

Alliance4Life hereby proposes a set of key recommendations to national and European policymakers, in order to speed-up closing the gap and enhancing European R&I as a whole:

During the two years of its existence, Alliance4Life made a great effort to produce and publish a **benchmarking study** and a **good practices inventory**, which were shared within the health R&I community. A series of **national round tables** including discussions with research policymakers and grant providers were organised in all Alliance4Life member countries, which pointed out persisting challenges, as well as positive changes.



The following recommendations represent the core of Alliance4Life's findings:

1. Concertation of Research Capacities and Support of Research Excellence

One of the specificities in the CEE region is shattered research infrastructures that emerged as a result of project schemes, such as Structural Funds or Horizon 2020 Teaming projects, that supported the establishment of new research institutes along existing entities. Institutional financing is very low and even more diluted. It is not realistic to assume that those newly established institutions will be able to achieve financial sustainability in the foreseeable future, while at the same time, some long-term established institutions may be underperforming without any significant consequences. One possible solution would be to identify excellent research institutions in each country and support quality. Additionally, the European Commission should consider strengthening support in upgrading existing institutions that demonstrably have potential.

2. Effective Management and Financing of Research Infrastructures

The concept of Core Facilities (i.e., shared research infrastructure / laboratories under specialised management that are separated from individual research groups) is not common in the CEE region, and it is not always considered in national grants. The biggest advantage of Core Facilities is their effective service-oriented management that follows the highest quality standards and economic principles. National grant providers do not support the economic independence of Core Facilities, and it is not possible to pay Core Facility services from national grants, which hinders the financial sustainability of established research infrastructures.

3. Modern Human Resource Management and Career System

Currently, there are not any internationally recognised human resource management and science career system models in existence that could be applied across the CEE countries. A modern career progression system reflecting the reality of current research careers is often absent, and many institutes face a huge inbreeding problem. This situation blocks the desired institutional change, and hinders the recruitment of international talents and an inflow of new people that could bring new ideas into the institutions and foster innovation.

4. Up-To-Date Governance of Research Institutions

Today's competitive world of research and science needs professional and strategically thinking management and Research Group Leaders. Unfortunately, the systematic support



and financing of managerial capacity development from institutional sources are missing. In order to improve the situation, it is necessary to strengthen employees' managerial skills at every level, which includes also the development of transferable and soft skills.

5. National Financing Structure and Grant System Supporting Excellence

Research Institutions in CEE countries cannot survive solely on EU financing. Almost none of the research institutions in the world can do without substantial funding from their national governments (or other local sponsors). The national grant schemes are missing complementary programs that would enable the sustainability of excellence. National funding support for newly established excellent research teams for a minimum duration of five years, or follow-up funding for ERC holders that would grant a long-term perspective to productive research groups, is desperately needed. Research groups struggle to achieve a reasonable baseline of institutional financing, which leads to high levels of project funding with high overhead costs. An additional problem arises from a low frequency of grant calls and a long evaluation process of proposals. Additionally, international evaluation panels within national grants evaluation processes are often missing.

6. Development and Recognition of Professional Research Administration

Institutions in the CEE countries are often missing professional administration and support services, especially devoted professionals in Grant Offices that provide pre- and post-award support. Technology Transfer offices with professionals specialised in technology scouting, intellectual property management, and business development connections to industrial partners are often non-existent. Research Managers that are specialists in communication, public relations, career development, recruitment, and integration of foreign scientists are also rather a novelty. The roles of professional science managers are often assigned to scientists with no previous experience in such highly specialised fields. The CEE region needs to effectively invest in the development and recognition of specialised research manager professions, based on needs and capacities.



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Alliance4Life is a bottom-up initiative of ten leading life science institutions from nine countries of Central and Eastern Europe that aim at closing the divide in European health research and innovation. Members of the Alliance are progressive research institutions that have the necessary strength to stimulate institutional change.

Alliance4Life Partners:

Masaryk University (CEITEC MU – Central European Institute of Technology), Czech Republic
St. Anne's University Hospital Brno (FNUSA-ICRC – International Clinical Research Center),
Czech Republic

Biomedical Research Center of the Slovak Academy of Sciences (BMC SAS), Slovakia

Medical University of Łódź (MUL), Poland

University of Zagreb School of Medicine (UZSM), Croatia

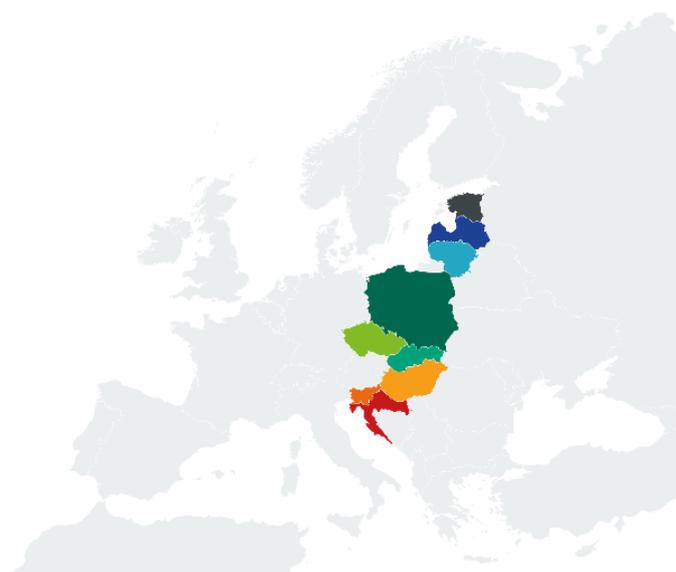
University of Tartu (TU), Estonia

Vilnius University – Faculty of Medicine (VU), Lithuania

Latvian Institute of Organic Synthesis (LIOS), Latvia

University of Ljubljana (UL), Slovenia

Semmelweis University (SU), Hungary



Closing the EU Research & Innovation Gap

Recommendations to European Policymakers, Research Universities and Research Institutions



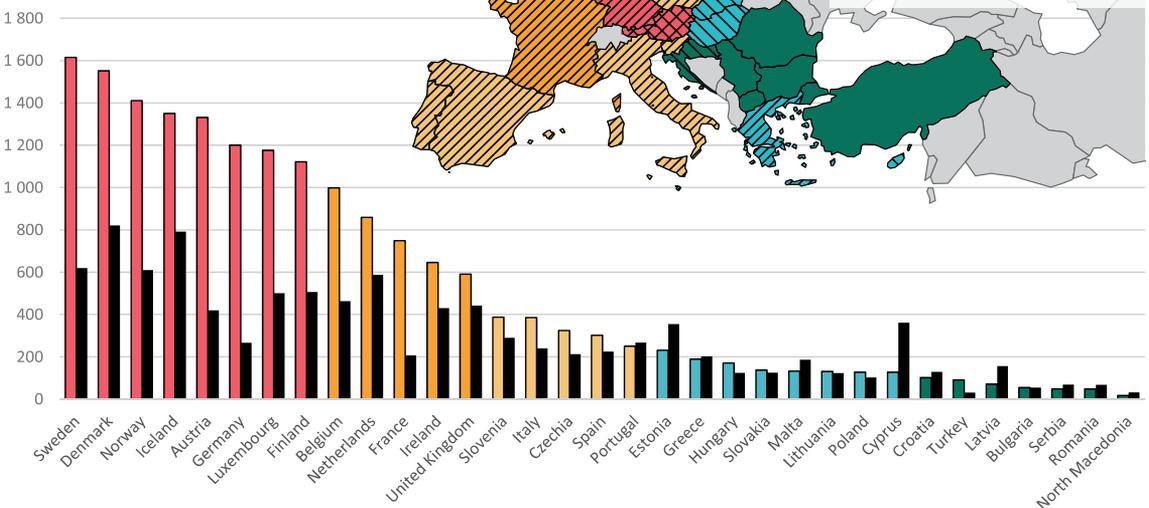
Alliance4Life

The Health Research and Innovation Gap Between West and East Still Persists despite the substantial inflow of investments into the CEE region.

The Czech Republic, Slovenia, and Estonia are on the best track for closing the gap.

Comparison of GERD – Gross domestic expenditure on research and development (both public and private) and top 10% publications in Europe (Eurostat, 2017, Web of Science, 2019)

■ GERD (Euro per inhabitant)
■ Top 10% publications per mil. inhabitants



Key Factors of Success

- € A sufficient level of financing, which is critical for the development of excellent science as the source of innovation
- E A strategic setting and good governance on national and institutional levels
- 📍 Cultural and geographical influences

Recommendations to European Policymakers

- 🔬 Concertation of research capacities and support of research excellence
- 🔗 Effective management and financing of research infrastructures
- 👤 Modern human resource management and career system
- 📅 Up-to-date governance of research institutions
- 🌐 National financing structure and grant system supporting excellence
- ⚙️ Development and recognition of professional research administration