



# **Danube-INCO.NET**

**Advancing Research and Innovation  
in the Danube Region**

*Performance-based research funding –  
Towards more effective national research and  
innovation systems in the Danube region*

## **Policy recommendations**



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## Context

The Danube-INCO.NET project is a strategic coordination and support action facilitating the implementation of the EU Strategy for the Danube Region (EUSDR) and its Priority Areas Knowledge Society (PA7) and Competitiveness (PA8).

Within the work package “policy dialogue”, exchanging with other regional policy initiatives and enhancing the bi-regional dialogue between EU and non-EU countries are key objectives. This is done through presenting and discussing the ‘Innovation Union’ (IU) and the European Research Area (ERA) Framework concepts and targets in a series of three workshops held in different non-EU Member States, i.e. Serbia, Ukraine and Moldova. Each workshop focuses on a coherent set of topics related to ERA priorities and IU commitments.

The third event in this series was held in Chisinau, Republic of Moldova, on June 23, 2016.

The workshop addressed a multifaceted subject area specifically identified as a priority for dialogue between project partner countries: effective national research systems (ERA Priority 1).

The underlying rationales for the implementation by the Danube non-EU member states, H2020 associated countries, of the research performance-based funding (RPBF) systems is to maximize the effectiveness (relevance, quality etc.) and efficiency (cost-benefit ratio etc.) of public spending on research by, i.e. ensuring a good balance of competitive and institutional funding. This includes 1) providing incentives for improving research performance, e.g. through a suitable share of competitive funding allocated to projects, and 2) the concentration of resources in the best performing organisations, which includes a suitable level of organizational funding in order to secure continuity of research efforts in strategic fields.

The workshop had as specific objectives to:

- analyse the state of progress in both EU countries and in non-EU countries regarding the level of competition in research and innovation funding and usage of performance indicators as criteria for R&D funding;
- discuss key issues in the Danube countries in this regard from the national perspectives, focussing on Moldova as the host country and the non-EU Danube region countries at large (this includes, i.a. the exchange of arguments regarding data availability and robustness in line with the Innovation Union Scoreboard and the EU innovation indicator);
- transfer good practice from Danube countries with well-functioning R&I systems to those with identified deficiencies in this regard; and
- identify concrete measures to be recommended to policy-makers and funding agencies in the countries with ongoing reform processes of the R&I systems for enhancing progress towards catching-up to international excellence standards.

A discussion paper<sup>1</sup> had been prepared prior to the event, establishing a level-playing field of information on the topic area and creating a common point of departure for discussion. Furthermore, the main findings of a JRC report<sup>2</sup> analysing the different nature of RPBF systems in EU Member States, selected associated and third countries, were presented during the event.

The outcome of the workshop is summarised below in a set of jointly developed recommendations. The recommendations are shared among all participants and considered to be relevant across the entire Danube region.

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<sup>1</sup> <https://danube-inco.net/>

<sup>2</sup> <https://ec.europa.eu/jrc/en/publication/eur-scientific-and-technical-research-reports/research-performance-based-funding-systems-comparative-assessment>

# ***Policy recommendations***

## ***1. System-learning through an evolutionary approach***

### ***Background:***

Increasing the level of competitive funding and institutional assessments with the aim to improve effectiveness of the Research & Innovation system is currently considered by almost all Danube countries. As stated by the workshop participants, the provisions concerning RPBF are part of their countries' R&I or ERA Strategies. Even if there are large differences between national research funding systems (including the ratio of the two main funding mechanisms: institutional funding (block funding) and project-based funding) there is a strong interest for a peer learning process in the Danube region and beyond concerning RPBF systems. Taking into consideration the different national features, such as the specific evaluation culture and the overall perception of evaluation and assessment, the current amount of funding available for R&I and the percentage of it allocated through competition as well as the historical experience in this area, are important when planning to introduce a certain performance based research funding model.

### ***Recommendations:***

- Evidence shows that research-performance-based funding systems have a positive impact on research excellence, thus should be considered an important tool in the reform agenda. Introducing the concept of a RPBF systems a way to aid policy makers as well as sectorial and institutional management bodies in preparing strategy decisions, influencing the strategic behaviour of research performing organisations hence steering the national research, development and innovation (RDI) system at large;
- The concentration of resources in the best performing institutions will help creating critical mass for excellent scientific output as well as societal and economic impact;
- Based on reports given by national representatives, there seems to be a strong need for expanding the evaluation culture based on analytical evidence within the scientific communities and among the policy-makers of the Danube countries, and particularly non-EU member states, towards merit-based, independent and transparent procedures of assessment of the science system. This cultural shift is indispensable to diminish the existing resistance to change and will stimulate performance at the level of individuals, departments, institutions and overall R&I systems;
- As there is no "one-size-fits-all" solution, countries should consider the experiences of existing RPBF systems and make adjustments according to their national specificities and level of ambition. Case studies show that it is easier to implement RPBF mechanisms in a period when the amount of funding for RDI is increasing. The model selected (formula-based, peer review etc.) is as important as the share of funds allocated through a RPBF mechanism;
- A functioning RPBF system can be established either by introducing different RDI assessment methodologies applicable to the different kinds of organisations in a certain sector of the national RDI system (universities, public research organizations), or by including all RDI organizations in the RPBF system in order to justify the concentration of funding based on merit; however, if the second option is chosen, it is recommended to create different pillars in the RPBF to account for differences in the nature and mission of the organisations.

- The introduction of a RPBF system requires, in addition to developing a sound R&D assessment methodology, a clear strategy backed by the highest political levels, optimally a minister;
- A gradual introduction of a RPBF seems to be the most prudent approach, initially involving relatively small shares of funding, in order to avoid negative shocks to the science system. The stability of a functioning R&I system can be supported by introducing a continuous re-engineering process that allows adapting the RPBF systems to changing realities, e.g. in terms of level of funding, thematic priorities, development of R&I capacity (researchers, infrastructure, equipment) or success in attracting competitive funding.

## **2. Mix of qualitative and quantitative indicators**

### *Background:*

Considering the costs of time and resources involved in introducing a RPBF system, the national conditions as to available budget or diversity in the R&I system is to be accounted for when choosing the specific nature of the RPBF system and the balance of the mechanisms deployed. Recent experience shows that an imperfectly designed metrics-based R&D assessment system bears the risk of creating unintended incentives for generating research outputs focused on quantity rather than quality. The definition of indicators and evaluation criteria to be included in the formula is a key aspect that is particularly to be taken care of. A mixed approach comprising peer review mechanisms based on – or informed by – quantitative analyses seems to be more suitable.

### *Recommendations:*

- There is a need for a well-functioning national science information system, in order to facilitate the collection and analysis of indicators. The indicators chosen should be kept simple for the researchers and research administrators, and at the same time relevant enough for expressing the quality of the scientific activity; although it is desirable to develop the indicator systems in consensus with the units to be evaluated, it is also important to realise that the different stakeholders may not have compatible objectives nor do they necessarily all sign up to the objectives that policy-makers may have to change the system; rigidity (or inflexibility) should, therefore, be avoided in newly established PBRF systems to allow system-learning. Although this may seem contradictory, since research information systems require precision to allow meaningful comparisons, it is essential to adjust assessment criteria and indicators to the needs and possibilities;
- Metrics-informed peer-review is a favourable methodology on which to base RDI investment decisions, as it allows for an assessment of the RDI potential based on human expertise while incorporating quantitative (objective) indicators and criteria;
- As far as peer-review is used in determining RPBF, it should be considered to involve experts from other (Danube) countries, in order to increase systemic independence and incorporate an international benchmark of the level of research excellence;
- Autonomous research facilities and universities are crucial to continued scientific development. Most participating countries are on a promising path of reforms to reaching this goal;

- Both qualitative and quantitative indicators have their own strengths and weaknesses; a mix of them, depending on the type of activity assessed, would be mostly advised<sup>3</sup>; choosing quantitative indicators recognised internationally in terms of quality and significance is recommendable in order to allow comparison and accelerate the increase of reputation being built-up; for less R&I-competitive EU countries and those associated to Horizon 2020<sup>4</sup>, it is very important to include indicators such as participation in the EU Framework Programme for Research, which is also a sign of the quality of research;
- Indicators as well as evaluation criteria should be chosen in line with the strategic objectives of a research system or institution. For example, for a research system tasked to build-up critical mass of research excellence, the number of doctoral degrees awarded may be a suitable indicator encouraging research entities to invest in doctoral programmes and research; for a country pursuing the goal of creating more impact out of research results, the degree of science-business cooperation or the number (and quality) of interdisciplinary curricula may be suitable assessment criteria.

### 3. Networking and collaboration

#### *Background:*

The presence in the region of both, countries with long-lasting performance based research funding experience and those that are piloting at some extent this mechanism, could be considered as an opportunity for further peer learning activities. Beyond bilateral and regional cooperation, the fact that Danube Region non-EU countries are associated H2020 country offers them access to the capacity building and policy support activities developed under the aegis of different ERA groups or the Commission itself.

#### *Recommendations:*

- First analyses feature a large variation of tools and methods for research funding<sup>5</sup>; more intensive exchange of experience is required to build a more robust body of knowledge of current reform practices, thus informing mutual learning;
- For EU countries and those associated to Horizon 2020, the specific objective “Spreading Excellence and Widening Participation” (SEWP) features a range of funding schemes suitable to establish competitive R&I systems at various scales (systemic national, institutional, department level, research area), which should be deployed to induce structural reforms by modelling suitable system changes based on collaboration with experienced partners, i.e. Teaming, Twinning and ERA Chairs<sup>6</sup>;

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<sup>3</sup> The three indicators common in all countries present at the workshop were; share of highly-cited publications, share of third-party funding, share of degree completions.

<sup>4</sup> Categorization according to the European and Regional Innovation Scoreboards ([http://ec.europa.eu/growth/industry/innovation/facts-figures/scoreboards\\_en](http://ec.europa.eu/growth/industry/innovation/facts-figures/scoreboards_en))

<sup>5</sup> for example Jonkers, K. & Zacharewicz, T., Research Performance Based Funding Systems: a Comparative Assessment, 2016

([http://publications.jrc.ec.europa.eu/repository/bitstream/JRC101043/jrc101043\\_RPBF%20final\(1\).pdf](http://publications.jrc.ec.europa.eu/repository/bitstream/JRC101043/jrc101043_RPBF%20final(1).pdf))

<sup>6</sup> for the specific eligibility and admissibility conditions, see H2020 Work Programme 2016-17: Spreading excellence and widening participation, pp. 17-20

- The Danube countries from the region should continue the exchange of experiences and practices in the area of RPBF, through peer learning exercises and bi- or multilateral twinning actions; the Policy Support Facility (PSF) financed from the SEWP budget offers an ideal opportunity to implement such actions, including customized advice services provided by experienced international experts;
- The non-EU MS Danube countries may use the European Neighbourhood Policy Twinning and TAIEX technical assistance instruments and IPA funds in order to foster their capacities in the area of S&T policies, including RPBF;
- The effects and impact of a RPBF system should be monitored constantly. Here the role of regional collaboration, by involving foreign experts from the region, should be foreseen in order to allow for comparative perspectives on the functionality of the RDI system.

*Chisinau, Republic of Moldova, 23 June 2016*