

A decorative header image featuring several interlocking gears in various colors (orange, red, green, purple, blue) against a dark blue background. Each gear contains a white icon: a target, a person, a star, a hand, and a gear. The background also has a faint world map and light blue lines.

A comprehensive toolkit for performance-based research funding systems

The case for Performance-based Research Funding Systems (PRFS) is building as more countries adopt them to increase the performance of their research system. To date, few comparative studies have been conducted bringing together practices and experiences with this relatively new policy instrument. The PSF Mutual Learning Exercise (MLE) provided the platform for an extensive discussion on the challenges related to the design of PRFS and their position, role and value within the broader policy mix. The outcome is a comprehensive report providing insights on the advantages and drawbacks of the different options, and recommendations for an optimal PRFS design.

A relatively new tool, PRFS assess the quality of university research according to various performance criteria and then use the results, via a formula, to allocate funding for universities and their research. While these systems can vary considerably from one country to another, the MLE set out to identify practices and share experiences to help countries design an optimal research evaluation and institutional funding system.

The outcome of the MLE is a comprehensive toolkit that brings together evidence and experience about when and how PRFS can fruitfully be used in order to support policy development. The report is divided into eight logical chapters setting the PRFS in the context of the policy mix for research governance, looking into the sources and types of information used, the assessment process, the use of the assessment results in the funding formulae, and the effects of PRFS – both intended and unintended. A summary report presents the key lessons learned and recommendations.

Fourteen participating countries – Armenia, Austria, Croatia, Cyprus, Czech Republic, Estonia, Italy, Moldova, Norway, Portugal, Slovenia, Spain, Sweden and Turkey – shared their experiences and practices. Regular meetings in Brussels and a meeting in Italy hosted by the National Agency for the Evaluation of the University and Research Systems (ANVUR) provided considerable scope for discussion and exchange of ideas. Although not participating in the MLE, the Higher Education Funding Council of England (HEFCE) kindly invited the members of the MLE to visit it in London and shared its experience of the UK system with the team.

"Firmly embedded in the expectations of the participant countries, a meticulous process was run to identify current practices and indicator frameworks, including concrete operational recommendations, lessons learned and success factors," says MLE chair Koenraad Debackere, Professor of Technology and Innovation Management at K.U. Leuven, Belgium. *"Wherever possible, this was based on robust evidence available to the participants, resulting in an elevated debate on the measures, their impacts and the contextual factors that may explain them."*

Important lessons and recommendations emerged from this MLE.

A focused, transparent PRFS as a component of the overall policy mix

The core purpose of PRFS is to induce behavioural changes in the research communities by means of **financial incentives**, thus addressing failures in the research system. PRFS therefore address policy goals, which can range from enhancing the quality and competitiveness of research, strengthening accountability, and promoting international research collaboration, to encouraging links with education and society, and providing strategic information for policy making.

To address multiple policy goals in a complementary and transparent manner often is a key challenge in PRFS design. The MLE participants found it is vital not to overload the system by trying to create incentives for all tasks assigned to universities. The risk of defining too many policy goals is that the PRFS becomes so complex that it misses its purpose, in practice creating no or at the best, very unclear and conflicting incentives that researchers cannot satisfy. It is hard for the research system to react appropriately to a PRFS unless it is **transparent** and the incentives provided by the system can easily be understood.

It is also critical to consider research funding in an **integrated** manner. A common reflection among the MLE participants was that typically, PRFS are not designed as a component of a policy mix. There rarely is a systemic view that looks into creating connections or complementarities between the different policy instruments. The shared opinion was that a **more well-balanced funding mix** would enhance the efficiency and effectiveness of research funding. In addition, it would avoid the PRFS to create unintended negative effects in the research system. *"If universities lack adequate incentives for good teaching and knowledge exchange with the rest of society, then a PRFS focusing on research quality can marginalise these two other missions,"* according to the MLE rapporteur Erik Arnold, Adjunct Professor in Research Policy at the Royal Institute of Technology, Stockholm and chairman of R&I policy consultancy Technopolis Group.

The MLE experts panel and participants especially recommend policy makers in the EU Member States carefully to consider the **proportion of institutional funding** governed by the PRFS, based on national policy needs and the likely interplay between the PRFS and other policy instruments. Evidence shows that effects of PRFS are visible at both low and high proportions of funding, so it is not necessary to make large changes in funding structures in order to obtain positive effects on performance.

Another general conclusion was that PRFS are **highly context specific**. The nature of PRFS – based on peer reviews, metrics or a combination of both – varies considerably among countries. While policy makers can learn a lot from the experiences in other countries, Steinar Johannessen – national contributor from Norway's Ministry of Education and Research – cautioned against "uncritically" applying one-size-fits-all measures from one country to another. *"One has to take into consideration the specific challenges and goals (and probably also the socio-cultural climate) of one's own country, and design or adjust a system aimed at addressing these country-specific factors,"* he notes.

In most countries, PRFS are contentious

The greater the proportion of universities' research income governed by a PRFS, the more robust its methods need to be in order to withstand scrutiny by the beneficiaries.

Discussion about PRFS in the research communities tends to focus on technical characteristics, especially the way in which PRFS assess research.

On the one hand, this concerns the choice between **peer review and (biblio)metrics** as a method for research assessment. The MLE report considers that the choice between the two systems should be made based on the needs that the PRFS is intended to satisfy and

the constraints under which it will operate. A combination of the two approaches is often useful and should be considered, in the understanding that both systems have their strengths and weaknesses.

Referring to the DORA declaration¹ and the Leiden Manifesto², the MLE report notes that the evaluation community – and especially bibliometricians – has devoted considerable effort to clarifying principles for good research assessment and in identifying practices that lead to distortions. The MLE panel and participants consider that in bibliometrics based PRFS, professional bibliometricians (independent of the commercial database vendors) should be involved in the design and implementation of the PRFS. In peer review based systems, procedures should be in place to prevent conflicts of interest and care must be taken in defining the membership of peer panels not to predetermine outcomes by excluding relevant disciplines or schools of thought.

On the other hand, most PRFS currently focus on the **scientific impact of research**, creating incentives for the production of publications. While PRFS do not – and should not – report at the individual researchers' level, universities often (choose to) mirror the PRFS criteria in their institutional management, so the PRFS not only affect institutional research income but also the career prospects of individual researchers – and in several countries, the individual researchers' salaries. Not surprisingly, therefore, the '**publish-or-perish**' phenomenon is often indicated as one of the negative effects of PRFS. The MLE report emphasises that designers of PRFS should anticipate and simulate as far as possible the likely intended and unintended effects of the PRFS and take these effects into account when deciding on the choice and weighting of criteria or indicators.

A broader discussion, which was covered also in this MLE exercise, relates to the extent to which the **value of research for society** should be taken into account when assessing 'quality' in research – and how. The MLE concludes that PRFS experimenting with assessing societal impacts should consider whether it is better to reward outputs and outcomes that can reasonably be expected to be steps on the way to impact or whether they want to reward impact itself. At the current state of the art, though, human judgement is the only way to assess impact. This can be supported by metrics but these must be interpreted by people.

Finally, the MLE recommends Member States to consider **evaluating their PRFS** periodically, aiming not only to describe the net effect of current research performance policies, but also the PRFS itself – and whether behavioural and organisational changes undermine its ability to deliver the results over time. This will help them better understand the potential risks of PRFS when deciding on the mix of university funding instruments and the design and architecture of their PRFS. Internationally comparative studies and evaluations are also needed to help disentangle PRFS from national contexts.

Further information:

[The summary report of the MLE on Performance-based Research Funding System](#)

[The full final report of the MLE on Performance-Based Funding of University Research](#)

¹ <http://www.ascb.org/dora/>

² <http://www.leidenmanifesto.org/>

* PSF Mutual Learning Exercises focus on specific R&I challenges of interest to several EU Member States and/or Associated Countries. They aim to identify good practices, lessons learned and success factors based on robust evidence, and exchange knowledge and experience among the participants.

The expert panel behind this study was led by Koenraad Debackere (chair) and Erik Arnold (rapporteur), together with Gunnar Sivertsen, Jack Spaapen, and Dorothea Sturn. The contributions of Bea Mahieu, project manager and quality reviewer, are acknowledged.

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