Yerun
Young European Research Universities

A Research and Innovation Agenda for a global Europe: Priorities and Opportunities for the 9th Framework Programme

A Position Paper by the Young European Research Universities Network

About YERUN

The Young European Research University Network (YERUN) is a cluster of highly-ranked young universities in Europe that strengthens and facilitates cooperation in the areas of scientific research, academic education and services which benefit society.

YERUN members are universities with a strong interdisciplinary character, of relatively small-scale and with a flexible structure, which facilitate innovation in their respective research and education fields. Indeed, the dynamic nature of our universities allows us to easily develop intersectoral collaborations with business, government and civil society (triple- and quadruple-helix). The members of YERUN believe that an interdisciplinary, collaborative and open approach in research, education and innovation is needed to address pressing global challenges and to anticipate future ones in a timely manner.

In this context, YERUN members consider that adequate support to human capital is essential to foster the next generations of (European) researchers and innovators. Strong support for excellent early-career researchers is therefore a priority for all YERUN members.

Moreover, YERUN members are fully committed to promote Open Science, which is evidenced by our active engagement at European level. We believe that a transition to Open Science requires not only infrastructures and skills, but a major change of culture inside and outside academia. YERUN members also consider dissemination of knowledge essential to empower citizens and contribute to developing stronger and more resilient societies.

Finally, although characterized by a strong European and international orientation, YERUN members make it a priority to also contribute to and promote strong regional and national European knowledge economies.

This document provides YERUN's perspective on key aspects we believe should be addressed in the 9th European Framework Programme (FP9). Our position on FP9 reflects the vision and the collective experience of all its member universities.

Introduction

Our societies are witnessing major and unprecedented changes at the geopolitical, demographic, economic and environmental level in Europe and worldwide. These developments need to be addressed in a timely manner and informed by a strong evidence base. In order to meet this aim appropriate support for interdisciplinary research and innovation is needed more than ever. YERUN believes that Europe has the potential to play a leading role in solving and anticipating global challenges and opportunities. To fulfil this ambition, it is crucial to build an FP9 that, even more so than its predecessors, addresses the following aspects:

1. **Sustainable funding to match Europe's ambition in research and innovation**
2. **Engage society in the creation of knowledge and innovation**
3. **Promote and reward a full implementation of open science**
4. **Recognise a more comprehensive definition of impact**
5. **Enhance support for early career researchers**
6. **Revise submission and evaluation processes to improve efficiency, transparency, fairness and impact**

YERUN's perspective on FP9 presented here is not meant to be exhaustive, but rather to be the first contribution of the network[1] to a wider debate that is of prime importance, not only for European academia and research/innovation enterprises, but also for all citizens of the European Union and beyond.

1. SUSTAINABLE FUNDING TO MATCH EUROPE'S AMBITION IN RESEARCH AND INNOVATION

The overarching goal of FP9 should be to create and fulfil a European Research and Innovation Agenda inspired by global challenges and missions. Continuing the explicit alignment of the United Nations Sustainable Development Goals (SDGs) with the future FP9 missions is warranted for Europe to become the global leader in research and innovation. Europe and its trading partners need an FP9 that is mission-oriented, addresses both current and future global challenges, and encourages bottom-up solutions. YERUN supports the position of the Commission and the stakeholders' community[2,] advocating for an FP9 budget that adequately matches the ambitions of the programme.

YERUN also believes that FP9 should give a central place and provide adequate funding to high-risk research. Curiosity-driven research is the core and the irreplaceable fuel of breakthrough innovation, which requires continuous and long-term investments at European and national level. It is moreover a misconception that only high Technical Readiness Level research can deliver impactful results for society and economy.

Although YERUN appreciates the success stories of ERC[3] and FET[4] in Pillar 1 (Excellent Science), we are convinced that these programmes cannot offset the need for collaborative fundamental and interdisciplinary research in the field of global missions. Therefore, YERUN asks for increased, stable and long-term investments in excellent science, both fundamental and applied,

[1] This position paper builds on YERUN's position on the mid-term evaluation of Horizon 2020, published in January 2017.
[2] LERU's views on the 9th Framework Programme for Research and innovation; The Guild. Supporting Europe's Societies. R&I for the 9th Framework Programme; Lab- Fab-App. Report of the independent High Level Group on maximising the impact of EU R&I programmes.
[3] European Research Council.
[4] Future and Emerging Technologies.

at all levels. We believe that at this time bold choices are needed on funding of research and innovation to fulfill Europe's ambition to become a world leader in this field.

2. ENGAGE SOCIETY IN THE CREATION OF KNOWLEDGE AND INNOVATION

The results of research and innovation funded at EU level should benefit society and be effectively communicated to all citizens. YERUN member universities believe that is the responsibility of all research stakeholders and funders to contribute to effective knowledge dissemination, to educate the public on the meaning and implications of scientific findings and innovation on their lives (as part of an overall Responsible Research and Innovation strategy[5]).

In this context, YERUN members find it of outmost importance to address the following two aspects in FP9:

- **Citizen science**: For relevant missions, co-production should be embedded within the project; project applicants should involve, where relevant, societal stakeholders in the project-development phase and describe in their proposal how the input collected has been taken into account and translated into the specific research questions;
- **Knowledge dissemination**: FP9 should make every possible effort to facilitate scientists to communicate the impact of their research to the public and to provide the citizens with the knowledge resulting from their work. YERUN members consider outreach and dissemination training for researchers extremely important.

For an effective implementation of these aspects in EU-funded research projects, YERUN encourages the European Commission to increase the funding of training actions focusing on educating and supporting scientists in knowledge dissemination and citizen engagement.

Finally, YERUN agrees that effective **communication** to citizens about the added value to Europe of a strong and competitive R&I programme also enhances their support of a knowledge-based economy. YERUN will do its part in communicating the impact of the research its members undertake.

3. PROMOTE AND REWARD A FULL IMPLEMENTATION OF OPEN SCIENCE

Science should be Open by default: collaborative, transparent and accessible. In this context, strong emphasis is currently placed by the European Agenda on developing the necessary research infrastructure and promoting Open Access to research findings and research data.

It cannot be ignored, however, that the standard indicators that are currently adapted to evaluate researchers, research teams and institutions, do not necessarily foster a culture of *openness, collaboration* and *sharing* among scientists and innovators. YERUN proposes therefore to work toward an FP9 that radically works to change this and introduces recognition and rewards to the efforts made in Open Science by individual researchers, institutions and consortia. As long as scientific excellence of researchers and their teams is mainly assessed on the basis of publications in top scientific journals, implementation of Open Science will not become a reality. Therefore, YERUN urges the Commission to take this into account and to seize the opportunity provided by FP9 to develop quality indicators and evaluation criteria that reflect and reward the contribution to a culture of Open Science.

[5] See ALLEA, The European Code for Research Integrity, available at: http://www.allea.org/wp-content/uploads/2017/03/ALLEA-European-Code-of-Conduct-for-Research-Integrity-2017-1.pdf

From a practical point-of-view, researchers still need support to operate in an Open Science culture also via increased access to crucial expertise related to data management, legal and ethical issues, and intellectual property.

Finally, YERUN pleads with the Commission for an FP9 that catalyses the transition towards full implementation of Open Science and FAIR principles. This also would be a key step in making Europe the world leader in science and innovation.

4. RECOGNISE A MORE COMPREHENSIVE DEFINITION OF IMPACT

Horizon 2020 has been characterized by an enhanced focus towards short-term innovation (higher Technology Readiness Levels, close-to-market applications) sometimes to the detriment of high-risk, fundamental research. The success of funding lines like the ERC shows the high demand for research that is curiosity-driven, high-risk and hence oriented towards a long-term impact.

Emphasizing long-term impact provides the opportunity to design comprehensive impact criteria pertaining to science, society, technology and economics alike. YERUN strongly believes that measurements of impact should address the mission rather than the project level. Major breakthroughs (and impact) are in fact in most cases the result of a multitude of efforts that require sufficient time and investments.

Moreover, YERUN suggests introducing the possibility for applicants to design their own impact criteria. This might provide a more realistic picture of what can be expected from a project and how this would contribute to the relevant mission.

YERUN members are convinced that a more comprehensive definition of impact will provide the policy backbone for programmes that guarantee more adequate support to all excellent research, from basic to applied, within the European innovation pipeline.

5. ENHANCE SUPPORT FOR EARLY CAREER RESEARCHERS

European early-career researchers will, if adequately nurtured and supported, become the next generation of world-leading scholars, investigators and innovators. The success and reputation of future European research excellence depends upon adequate investment being made now in the step-wise processes that will transform our early career talents into an internationally recognised European research and innovation force.

- Increase MSCA and ERC budgets and place additional focus on young researchers

YERUN asks for increased support for the very successful Marie Skłodowska-Curie Actions (MSCA). Europe needs a better funded action for mobility of early career researchers (Innovative Training Networks and Individual Fellowships), as there is an added value of well-trained early-career researchers in reaching the European Research Area goals. YERUN stresses, moreover, that the mobility of early career researchers is extremely important to build excellent research teams and to strengthen research capacities across Europe.

The ERC has proved essential to foster European scientific excellence and innovation. However, especially for researchers at the start of their careers, currently it cannot provide sufficient support to all talents that Europe has to offer. YERUN proposes therefore to label a larger portion of the ERC budgets to Starting Grants and to introduce smaller-size grants for early career researchers (right after PhD completion).

Moreover, participation of early-career researchers should be promoted, together with interdisciplinarity, in all the granting schemes funded via FP9, included ITN (here also among

the coordinators) and ERC Synergy Grants. The two aspects could be included as criteria and explicitly provided in the calls and in the instructions to evaluators.

- **Support and foster the education-research-innovation triangle**

The **education-research-innovation triangle** is of pivotal importance to promote and spread (excellence and) impact. YERUN members attribute a central role to the training of doctoral students within research projects carried out by academics, businesses and government. FP9 could allow existing funding instruments to stimulate these models to optimally train future generations and make research and innovation sustainable in the long-run (not only as part of the EIT[6]). YERUN members play a key role in education-research-innovation triangles in their regions and could contribute to developing this model across Europe.

In this context, more support for joint doctoral training schemes is also needed to facilitate collaboration between institutions in EU regions with lower participation in framework programmes and more experienced partners across Europe.

In general, YERUN believes that FP9 investments in **human research capital** will be essential to prepare the next generations of European research and innovation leaders.

6. REVISE SUBMISSION AND EVALUATION PROCESSES TO IMPROVE EFFICIENCY, TRANSPARENCY, FAIRNESS AND IMPACT

As already observed with Horizon 2020, simplification of procedures has a positive impact on the whole evaluation process. However, the current low success rate of Horizon 2020 is still associated with a substantial investment of human capital and financial resources in unsuccessful applications, which negatively impacts researchers and their institutions. Furthermore, the current evaluation system and the requirements of applicants make it difficult for newcomers and early-career researchers to participate in projects and thus harness their involvement in the development of a European Research Area. YERUN provides below some suggestions aimed at simplifying the process and increase participation in FP9.

First, YERUN suggests revising the submission and evaluation process in a way that it becomes less onerous for both evaluators and applicants, and thus overall more efficient. We suggest a wider use of multiple-stage evaluation, with two- or even three-steps. Initially, the first selection could be made on light outline proposals to move to evaluation of more comprehensive applications as the projects progress through selection. The further simplification and enhancement of the submission and evaluation process would benefit all involved parties, not last the European Commission, which would be able to use and distribute funding in a more effective and fair manner.

Second, YERUN believes that, while maintaining the focus on excellence as the cornerstone of FP9 is crucial, interdisciplinarity and diversity in general should be included as additional criteria both in calls for proposals and when putting together the evaluation panels. As far as the "diversity of consortium" criterion is concerned, this should address diversity in terms of career stage, gender, scientific background, disabilities, etc. Taking diversity into account would also stimulate the creation of mixed consortia in which newcomers and early career researchers can be included and, thus, be jointly introduced to the European research and innovation funding programme.

[6] European Institute of Innovation and Technology.