

Mission (im)possible? Addressing Europeans' pressing concerns through research and innovation

The Guild welcomes the new mission-oriented approach to challenge-driven research in the next Framework Programme for Research and Innovation (FP9). Formulating missions that address the concerns of European citizens, contribute to the Sustainable Development Goals (SDGs) and foster interdisciplinary and transnational research excellence holds great potential to build on the successes of the current and past framework programmes. The Societal Challenges pillar in Horizon 2020 has provided a unique range of opportunities for researchers to collaborate in projects that address some of the most pressing societal concerns of our time, and it has set high standards for national and regional initiatives related to societal challenges. As a network of research-intensive universities that are fully committed to their service to society, the Guild shares the objectives of the mission-oriented approach: better articulating the impact of research, and increasing the societal engagement of research actors in different ways.

To participate in the development of research and innovation (R&I) missions for FP9, the Guild has published proposals for missions based on ideas formulated in the academic communities of its member universities. This document outlines the Guild's recommendations for the creation of ambitious and successful R&I missions. Missions in FP9 should focus on the following principles:

- They should build on Europe's research excellence, and make long-term contributions to global challenges by providing more opportunities for collaborative research.
- To achieve wide-ranging societal impact and address different societal concerns, the variety of missions should cover all disciplines.
- Missions should integrate research-led education in their outreach and societal engagement.

Furthermore, the Guild makes six recommendations for the development of effective R&I missions.

1. Concentrate on areas with European added value

The R&I missions should build on the legacy and positive outcomes of the Societal Challenges introduced in Horizon 2020, and at the same time focus on timely topics that haven't been addressed in the current programme. We urge the European Commission to concentrate on R&I missions that relate to the SDGs as effectively as possible, whilst adopting an approach that incorporates a European perspective to these challenges. This could be achieved by building on the priorities of the Europe 2020 strategy and the Commission's ten priorities for 2015-2019, as well as the strategies that are being developed for the next decade. However, it is crucial that the role and objectives of the future "Global Challenges pillar" are clearly distinguished from the goals of the pillar focusing on innovation and boosting European competitiveness.

The missions introduced in the Global Challenges pillar should form a coherent framework with the rest of the topics for challenge-driven research. The research topics should address the core concerns of European societies and citizens, making full use of the entire disciplinary spectrum across science, technology, engineering and mathematics (STEM), and the social sciences and humanities (SSH), maximising the creation of knowledge and solutions that benefit society.¹

2. Design missions that foster excellent collaborative research

The Guild welcomes the bottom-up approach designed for the missions, as it allows researchers and other stakeholders to choose their approach, partners and methods of addressing the topic. The Guild calls for the Commission to design a Global Challenges pillar for FP9 where societal relevance does not replace scientific excellence, but complements it. We warmly welcome the new kinds of collaborations between academia, industry, civil society and the public sector that the missions-based approach can foster. However, designing a structure that favours collaborations that can produce quick, marketable solutions and applications, but fails to attract European the collaboration of world-class researchers would not represent a long-term investment for finding solutions to the global challenges. Without fostering the unique role of research excellence that has become the hallmark of Horizon 2020, the future programme could also start losing its identity and attractiveness. Therefore, it is essential for the success of the future programme that the central role of fundamental research in the missions – and more widely in the Global Challenges pillar – is secured. The central role of research must be guaranteed in the projects funded by the missions through evaluation criteria that acknowledge research excellence as a key element for the evaluation and success of the projects.

3. Maximise the scientific and societal impact of missions

The Guild shares the vision that the missions approach to research and innovation could help sharpen the communication of scientific achievements expected from FP9. Adopting a broad notion of societal and scientific impact that matches the scope and nature of each mission will be crucial for their success. Missions with focused objectives could also lead to longer-term projects, which would enable participants to achieve more impact during the course of the project. As for the scale of the projects, it's important that the missions consist of both, smaller and larger projects, to guarantee their openness to different participants.

The Guild welcomes the Lamy report's wider approach to monitoring the impact of portfolios of projects rather than focusing on the impact of individual projects.² However, designing a system where the achievement of overall impact can be maximised through separate projects whilst fostering an optimal amount of coherence is challenging. This can be seen, for example, in the difficulties the European Institute of Innovation and Technology's Knowledge and Innovation Communities (EIT KICs) have had in producing impact that matches the amount of public funds invested in their development. Therefore, we recommend that Horizon 2020 and the previous framework programmes will be carefully considered whilst planning an evaluation and management framework for the missions approach, which will be equipped with a large-scale budget, and will come with high expectations for investment return.

¹ For instance, the Guild proposes a mission on eradicating antimicrobial resistance, which could help prevent millions of deaths globally. Achieving this objective would greatly benefit from EU-level cooperation and investment, and it would build on intersectoral and interdisciplinary collaboration covering fields from microbiology to behavioural sciences.

² European Commission (2017). *LAB-FAB-APP: Report of the Independent High-Level Group on maximising the impact of EU Research and Innovation Programmes* [p. 15]. Luxembourg: Office for Official Publications of the European Communities.

4. Bring research, innovation and education together

It is essential that the R&I missions, and the Global Challenges pillar in general, create links between research, innovation and education, as societal challenges represent an important area of engagement for European higher education. Educating future scientists and equipping new generations with the knowledge and skills needed to tackle our pressing societal challenges are core missions that research-intensive universities have in contributing to the European knowledge-economy. At the same time, research findings related to societal challenges and their interdisciplinary nature are constantly changing the ways of teaching in universities. Fostering stronger links between research related to societal challenges and education will allow universities to bring up a new generation that considers working towards societal goals and collaborating with different societal actors as something natural, regardless of their professions. Therefore, to maximise the impact of R&I missions we urge the Commission to include the aspect of education in their design, and encourage engagement with students in the projects funded through them.

5. Encourage engagement with citizens and stakeholders

The Guild supports the notion that the missions should attract a high level of visibility and public engagement, and build on cross-sectoral collaboration between different societal actors. We welcome the Lamy report's recommendation³ of opening up collaboration for actors such as cities and regions, as long as the scientific focus, transnational character, and European added value of the collaborations are guaranteed.⁴ It is essential that the missions approach does not duplicate the role of Structural Funds (ESIF) by supporting projects that focus on regional development, and could thus be funded through ESIF or the Regional Innovation Schemes of the EIT KICs.

Engagement with citizens is an important part of increasing the societal impact of research and innovation. However, whilst capturing the public imagination is important, the engagement with citizens must not compromise scientific excellence in the formulation of research questions or in the selection of projects. Improving the ways in which the projects engage with citizens and society at large can be addressed in various ways. For instance, researchers can enhance the communication and dissemination of their findings at different stages in their projects. Where appropriate, citizens and civil society can be involved in project activities integral to the research. Moreover, citizen engagement can be maximised by ensuring that research questions address topics that have an effect on real-life concerns experienced by citizens. The Guild recommends that the missions framework adopts a flexible bottom-up approach to citizens engagement, where researchers and innovators can design ways for engaging with citizens that best suit the nature of their project.

6. Facilitate collaboration between disciplines within and between projects

Horizon 2020 has not been fully successful in bringing different disciplines together in collaborative projects. However, FP9 – and especially its missions approach – have the opportunity to foster true interdisciplinarity, as well as introduce research topics that address our social, cultural and democratic concerns. It's crucial that the interdisciplinarity of the missions is taken into account throughout their

³ Ibid, p. 16.

⁴ For example, the Guild proposes a mission on developing sustainable cities and landscapes that builds on multi-stakeholder collaboration, where science plays a crucial role in producing evidence for policy-making, and supports citizen-driven social innovations.

programming. The interdisciplinary nature of the project applications could be guaranteed by evaluation panels that represent expertise across the entire disciplinary spectrum relevant to the mission. Also, the Commission could coordinate interactions between funded projects that approach the mission from different scientific perspectives. We acknowledge the fact that encouraging interdisciplinarity through the programming and evaluation of projects is only one side of the challenge, and as research-intensive universities we share the responsibility of further developing ways of facilitating true collaboration between disciplines within and across our institutional reimits.