

EuChemS Position Paper and draft amendments for Horizon Europe

EuChemS, the European Chemical Society welcomes the proposal for the future Framework Programme 9 – Horizon Europe – put forward by the European Commission. An ambitious research Framework Programme can fundamentally alter the quality, capacity and competitiveness of research and innovation in Europe. A robust and forward-looking Horizon Europe will allow society to take a significant step forward in tackling major environmental, societal, health and economic challenges and will ensure Europe maintains a leading position as a hub of breakthrough research, science and innovation.

We welcome the proposal for the three pillars as well as the notion of ‘Missions’ that have been introduced by the European Commission. We also welcome the reports prepared by Members of the European Parliament, rapporteurs Dan Nica and Christian Ehler. Nevertheless, we have, in the following paper, through our unique perspective as representatives of the field of Chemistry in Europe, and recognising the central role played by the chemical sciences across scientific disciplines in delivering solutions to major societal challenges, outlined further proposals and amendments that we perceive as fully enhancing Horizon Europe’s potential.

Ambition and excellence for a successful Horizon Europe

In order to unlock the full potential of Horizon Europe, a budget of at least €160 billion is needed. Whilst we welcome the European Parliament’s increased proposal of €120 billion, it remains only an unassertive step forward from the European Commission’s initial figure. If Europe is to be successful in dealing with issues such as climate change, an ageing population, the threat of diseases and antimicrobial resistance, but also to support new and emerging technologies, and help innovators develop their projects from start to finish, greater ambition and forward-thinking is needed.

In a similar vein, EuChemS is disappointed to see only a very modest increase in the budget proposal for the European Research Council (ERC) and the Marie Skłodowska-Curie Actions (MSCA), in particular as these programmes contribute to the training of younger generations of researchers, needed to sustain high quality research and innovation in Europe. EuChemS, through its members, has witnessed the positive outcomes of such programmes. In view of the highly successful results of the MSCA, as well as the vast amount of excellent proposals that are unfortunately rejected due to lack of funds, we call for a more pronounced increase in the funds over and above those currently proposed by MEP Dan Nica in his amendment.

EuChemS strongly supports maintaining excellence as the basis for ERC proposals and of Horizon Europe more generally. Removing ‘excellence’ as suggested by MEP Dan Nica’s report would effectively undermine the *raison d’être* for researchers’ motivations in applying for European funding, and with it, the ambition, competitiveness and quality of research proposals. We moreover urge that active steps be taken to ensure diversity be respected and encouraged throughout all selection processes.

Developing ‘Missions’ in Horizon Europe

The notion of ‘Missions’ under Pillar 2 of Horizon Europe proposed by the European Commission is a welcome and interesting proposal. Applied correctly and in close collaboration with all relevant stakeholders, such missions can effectively allow greater involvement, support and interest in Horizon Europe by researchers, innovators, decision-makers and citizens.

If appropriately applied, the use of missions can deeply transform a number of challenges we face today. To better exemplify such prospects, we have laid out just eight topics that could be translated into missions and where chemistry plays an essential role. An ambitious Framework Programme could help Europe take a very important step forward in achieving:

- A clean sustainable world

Striving to engender resource efficiency, the circular economy, the protection and replacement of critical elements, and the use of sunlight to drive chemical and fuel manufacturing could form the basis of such a mission. Urgent targets include reducing the use of, reusing and recycling plastics with an aim to have zero plastics being added to the environment by 2030; recycling and reusing phosphorus from human waste, traceability and recycling of elements in disposable electronic gadgets. There is a large social element in altering attitudes towards recycling, recycled goods and reduced packaging.

- Averting an antimicrobial resistance disaster

Address the challenge of antimicrobial resistance using a one-health approach. Alongside the development of new drugs and types of therapeutics, further mechanisms of resistance and understanding the spread of resistance are needed. Developing and implementing rapid and accurate diagnostics, and effective public health interventions need to be rapidly established.

- Forming a fit-for-purpose food landscape

Safe, sustainable and sufficient food supplies across the world can be delivered through developing methods to improve production, develop innovations in new foods, reduce waste and ensure food safety authenticity. Examining our social and cultural relationships with food, alongside research into public health interventions that encourage improvements in diet could also be part of this mission.

- Sustainable low carbon energy for all

Delivering advances across energy efficiency, exploitation, storage and distribution to ensure adequate, equitable and sustainable energy for all should form the components of this potentially core mission. This in turn encompasses research into materials and processes to deliver new and improved technologies, as well as routes to implementation on the scale needed for public and industrial use.

- Viable nuclear energy and waste policy

Addressing whether to continue or not with nuclear energy is crucial to develop the expertise necessary to either replace or retreat nuclear waste.

- Enabling our ageing population

Developing new technologies, services and systems to support an ageing population is a pressing current challenge that will take on further urgency as the proportion of older people increases globally. Themes would encompass advances in personalised medicine, medical diagnostics, and assisted living technologies, as well as new models for social care and services tailored for an ageing population.

- Eliminating lifestyle diseases

Led by sociological and psychological efforts to change behaviours that lead to such illnesses as obesity, diabetes, addictions and anorexia, this mission would use all the tools of food chemistry and formulation as well as medical interventions to improve the health, quality of life and life expectancy of a sector of society that is growing at an alarming rate.

- Smart non-invasive medical diagnostics

Such a mission could lead to smart fast non-invasive diagnostics for a whole range of diseases, as well as imaging hard and soft tissue allowing the phasing out of X-radiography and other potentially harmful techniques.

Whilst missions can be specific in focus, we highly recommend that very diverse activities and projects to achieve these missions be permitted.

We look forward to further developments and clarity on the scope, designation and implementation of missions in Horizon Europe. We also call for greater transparency in all selection processes, including in the selection of an advisory group for defining and selecting missions in Horizon Europe.

Science and borders

Horizon 2020 has immensely benefited from the research and ambition that has stemmed from third countries. Horizon Europe needs to ensure that the right mechanisms are in place to continue and increase collaboration across geographical boundaries. Science knows no borders, and involving more players can only result in more positive results. We strongly suggest that countries that have participated in previous Framework Programmes should be given similar opportunities to continue taking part in the Horizon Europe programme. In light of the uncertain situation on the future relationship between the EU and the United Kingdom, the programme should absolutely foresee mechanisms that give the possibility for UK researchers to participate in the programme.

Driving innovation from start to finish

EuChemS welcomes MEP Christian Ehler's explanatory statement that sees Horizon Europe as a way forward to improve the resilience and success of innovative projects in Europe. To this day, too many excellent projects are killed off, with the 'valley of death' of innovation still too wide to cross for many. Mechanisms that fund projects through all Technology Readiness Levels (TRLs) – from basic research right up to commercialisation are needed.

Moreover, we would like to see tools to ensure more academia-industry collaboration are put in place. We have therefore suggested in our amendments (see Annex) that Knowledge Transfer projects between universities and industry be included.

Open Science

We believe that the title given to Pillar 1 of Horizon Europe may lead to confusion, as ‘Open Science’ is strongly associated with the transformation that the sciences and scientific community is currently undergoing – in particular, the growth of open access publishing, citizen science, open peer-reviewing and open data.

Regarding the operational objectives of the programme set out by the European Commission, we welcome the proposed amendments by MEP Christian Ehler that fostering Open Science should be done *when appropriate*, and with MEP Dan Nica that it should be *fair and internationally promoted*. Indeed, whilst Horizon Europe should include tools that encourage greater transparency in scientific publishing and integrity, we view the many unanswered questions on the effect of Open Science on the whole of the scientific community as warranting a more cautious approach.

Cultural Heritage

We are pleased to see comments put forward by the European Commission on the role of Cultural Heritage in Horizon Europe. The role of chemical sciences in the preservation, conservation and development of cultural heritage is one of Europe’s little mentioned success stories. Research and innovation not only play a crucial role in the development of the EU’s heritage, it is EU heritage in its own right.

About the European Chemical Society (EuChemS)

EuChemS, the European Chemical Society, coordinates the work of 47 Chemical Societies and other chemistry related organisations in Europe, representing more than 160,000 chemists. Through the promotion of chemistry and by providing expert and scientific advice, EuChemS aims to take part in solving today’s major societal challenges.

For further information, please see www.euchems.eu and contact us secretariat@euchems.eu @EuChemS

28 August 2018

ANNEX

I) Proposed amendments to the report prepared by MEP rapporteur Christian Ehler

Amendment

Proposal for a decision Recital 6a

Text proposed by the Commission

Amendment

(6a)

(6a) ***The Specific Programme's priorities on closing the gap between research and innovation should be specially oriented to improving the conditions of university - industry collaboration and support the establishment of more Knowledge Transfer projects and grants.***

Amendment 3

Proposal for a decision Recital 7 a (new)

Text proposed by the Commission

Amendment

(7 a) ***Science and especially one of its most important bases, the chemical sciences, are part of a shared European and international heritage. Cultural and creative industries (CCI) are considered amongst the most innovative companies; they are vital for ensuring linguistic and cultural diversity, pluralism and for offering innovative and high-quality services and they trigger innovative spillovers in other industrial sectors, such as tourism, retail, and digital technologies. Cultural heritage is an integral part of European cohesion and has the potential to build bridges between tradition and innovation. Preserving***

heritage and developing creative solutions, in particular in the field of digitalisation, shall be a priority of the research programme. Horizon Europe will invest at least EUR 500 million into research activities in the CCI field, including EUR 100 million in the creation of a “Cultural Heritage Cloud”,

Amendment 15

Proposal for a decision Article 4 – paragraph 1

Text proposed by the Commission

1. In accordance with Article 9(1) of Regulation ... FP/RfP Regulation, the financial envelope for the implementation of the Specific Programme for the period 2021 to 2027 shall be EUR **94 100 000 000** *in current* prices.

Amendment

1. In accordance with Article 9(1) of Regulation ... FP/RfP Regulation, the financial envelope for the implementation of the Specific Programme for the period 2021 to 2027 shall be EUR ~~120 000 000 000~~ **000-160 000 000 000** *in constant* prices.

Justification

The Commission itself states that this would be the necessary budget for the Programme to carry out its tasks.

Amendment 219

Proposal for a decision Annex I – part III – point 3 – point 3.2 – point 3.2.3 – paragraph 2 – indent 2 a (new)

Text proposed by the Commission

Amendment

- ***Fully integrate the entire innovation value chain: from student to entrepreneur, from idea to product, from lab to customer. This includes support for start-ups ~~and~~ scaling-up businesses and Knowledge Transfer projects between universities and industry.***

II) Proposed amendments to report prepared by MEP rapporteur Dan Nica

Regulation

Article 9 – paragraph 1

Budget

1. The financial envelope for the implementation of the Framework Programme for the period 2021 – 2027 shall be **EUR 94 100 000 000** in current prices for the specific programme referred to in Article 1(3)(a) and, in addition, the amount for the specific programme referred to in Article 1(3)(b), as laid down in Regulation.... establishing the European Defence Fund.

EuChemS Amendment

1. *The financial envelope for the implementation of the Framework Programme for the period 2021 – 2027 shall be **EUR 160 000 000 000** in current prices for the specific programme referred to in Article 1(3)(a) and, in addition, the amount for the specific programme referred to in Article 1(3)(b), as laid down in Regulation.... establishing the European Defence Fund.*

Justification

The Commission itself states that this would be the necessary budget for the Programme to carry out its tasks.

Article 9 – paragraph 2

1. The indicative distribution of the amount referred to in paragraph 1, first half sentence, shall be:
 - (a) EUR 25 800 000 000 for Pillar I 'Open Science' for the period 2021-2027, of which
 - (1) EUR 16 600 000 000 for the European Research Council;
 - (2) **EUR 6 800 000 000** for Marie Skłodowska-Curie Actions;
 - (3) EUR 2 400 000 000 for research infrastructures;

EuChemS Proposal

EuChemS asks for bigger increase in funding for Marie Skłodowska-Curie Actions as currently proposed in amendment by MEP Dan Nica

Justification

When the proposed overall budget increases (to 160 000 000 or less), substantially more funds should be made available for the highly successful and tried and tested Marie Skłodowska-Curie Actions. The present proposed increase is deemed insufficient to fund many excellent proposals.

Article 12 - paragraph 1

- (a) third countries and territories that fulfil all of the following criteria:
- i. a good capacity in science, technology and innovation;
 - ii. commitment to a rules-based open market economy, including fair and equitable dealing with intellectual property rights, backed by democratic institutions;
 - iii. active promotion of policies to improve the economic and social well-being of citizens.

EuChemS Amendment**Article 12 - paragraph 1**

- (b) third countries and territories that fulfil all of the following criteria:
- i. a good capacity in science, technology and innovation;
 - ii. commitment to a rules-based open market economy, including fair and equitable dealing with intellectual property rights, backed by democratic institutions;
 - iii. active promotion of policies to improve the economic and social well-being of citizens.
 - iv. participated in Horizon2020 as either a member state or associated country

Justification

In view of its important history in the former Framework Programmes, and the principle of the spreading of excellence, explicitly stated for all countries with whom the EU had partnerships
