

# Horizon Europe Co-design 2021-2024

Fields marked with \* are mandatory.

With a proposed budget of 100 billion euro from 2021 to 2027, the Horizon Europe framework programme represents the largest collaborative multinational research and innovation investment in Europe and is open to participants worldwide.

The European Parliament and the Council, the co-legislators have provisionally agreed on the Horizon Europe legislative package. Based on the agreement, a Strategic Plan will put forward the targeted impacts for the investment in research and innovation and the priorities for the first four years of implementation of Horizon Europe.

We invite you to contribute to co-designing and help shaping the future research and innovation investment by responding to this questionnaire. It takes approximately 20 minutes to respond. The results will inform the work on the first Strategic Plan of Horizon Europe. You can further engage by participating in the [Europe an Research and Innovation Days](#) on 24-25-26 September 2019 in Brussels.

It is recommended that prior to responding to the questions, you read the attached document: [Orientations](#) towards the first Strategic Plan implementing the research and innovation framework programme Horizon Europe.

## Section A – About you

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\* 1 You or your organisation are mainly active/interested in the following areas of Horizon Europe (Please select all that apply):

- Health (cluster 1)
- Culture, creativity and inclusive society (cluster 2)
- Civil security for society (cluster 3)
- Digital, industry and space (cluster 4)
- Climate, energy and mobility (cluster 5)
- Food, bioeconomy, natural resources, agriculture and environment (cluster 6)
- Widening Participation and Strengthening the European Research Area
- Pillar I Excellent Science
- Pillar III Innovative Europe
- Other

\* 2 You are responding:

- As an individual
- As a representative of a single organisation
- As a representative of an 'umbrella' organisation (a group of organisations)

3. You are responding as:

- \*  a researcher
- an entrepreneur
- an expert in research and innovation
- a citizen
- other

\* 3. You are representing:

- a university
- a research organisation
- a business or an industry
- an international organisation
- a national public authority
- a regional or local public authority
- a non governmental organisation including civil society organisations
- other

\* 4 Name of the organisation

*150 character(s) maximum*

European Molecular Biology Laboratory (EMBL)

4 Your name and last name

*150 character(s) maximum*

Edith Heard

\* 5 What is your country of residence or establishment?

Germany

\* 6 Please select the option that best describes your interest in European Union research and innovation framework programmes:

- I/my organisation is currently participating in at least one project funded by a European Union research and innovation framework programme.
- I/my organisation has proposed and/or participated in project(s) funded by a European Union research and innovation framework programme in the past, but I am/it is not participating in a running projects at this moment.
- I/my organisation has not yet proposed or participated in projects funded by European Union research and innovation framework programmes, but would be interested to do so.
- I/my organisation currently does not intend to propose and/or participate in projects funded by European Union research and innovation framework programmes, but I may be interested in the results of the projects/programme.

\* 7 Publication privacy settings

The Commission will publish the responses to this public consultation. You can choose whether you would like your details to be made public or to remain anonymous.

**Anonymous**

Only your type of respondent, country of origin and contribution will be published. All other personal details (name, organisation name and size, transparency register number) will not be published.

**Public**

Your personal details (name, organisation name and size, transparency register number, country of origin) will be published with your contribution.

I agree with the [personal data protection provisions](#)

## Section B – Where should Horizon Europe play its greatest role?

If you want more information to help answer this section, please follow the link towards the [general orientations](#) part of the document. A [reading guide](#) is as well available.

1. In your view, what is the role of Horizon Europe research and innovation investments in addressing the following challenges (as identified in the "Orientations" document)?

	1 (no role)	2	3	4	5 (very strong role)	I don't know
* Future prosperity and sustainable growth	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
* Climate action and environment preservation	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>
* European security and the well-being of our citizens	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

2. In your view, what is the role of Horizon Europe research and innovation investments in achieving the United Nations Sustainable Development Goals (as identified in the "Orientations" document)?

	1 (no role)	2	3	4	5 (very strong role)	I don't know
* 1 No poverty	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
* 2 Zero hunger	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
* 3 Good health and well-being	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>
* 4 Quality education	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
* 5 Gender equality	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
* 6 Clean water	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
* 7 Affordable and clean energy	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
* 8 Decent work and economic growth	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
* 9 Industry, innovation and infrastructure	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>
* 10 Reduced inequalities	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

* 11 Sustainable cities and communities	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
* 12 Responsible consumption and production	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
* 13 Climate action	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
* 14 Life below water	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>
* 15 Life on land	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>
* 16 Peace, justice and strong institutions	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
* 17 Partnerships for the goals	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>

3. In your view, what is the role of Horizon Europe research and innovation investments in supporting the following EU policy objectives (as identified in the "Orientations" document)?

	1 (no role)	2	3	4	5 (very strong role)	I don't know
* Protective Europe	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
* Competitive Europe	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
* Fair Europe	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>
* Sustainable Europe	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
* Influential Europe	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

4. Please provide here your comments on where Horizon Europe should play its greatest role in terms of global challenges, Sustainable Development Goals, and EU policy priorities.

*500 character(s) maximum*

Regarding global challenges, such as environmental collapse, Horizon Europe should not only play a strong role in supporting solution-focused research but it should also prioritize (and fund) fundamental research. For example, understanding the biological principles at every scale which lead to biodiversity loss, including invisible microorganisms which play an essential role in maintaining a healthy global ecosystem, is crucial.

5. In your view, to what extent will the following elements contribute to increase the scientific, economic and societal impacts of Horizon Europe investments (as identified in the "Orientations" document)?

	1 (no contribution)	2	3	4	5 (very strong contribution)	I don't know
* Integration of gender aspects in research and innovation content	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
* Social Sciences and Humanities role across clusters	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
* Development and uptake of Open Science practices, such as open access, open data, citizen science, in Europe	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>

* Adequate balance of research and innovation	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
* Integration of Key Enabling Technologies in strategic value chains	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>
* Fostering excellence by promoting collaboration of actors in higher education, research, innovation and business throughout the European territory	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
* Cooperation with the rest of the world	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

## Section C - What kind of impacts should Horizon Europe target?

A strategic and targeted approach to European research and innovation investment is needed to maximise the impact of Horizon Europe in line with the sustainable, fair and prosperous future we want.

### Protective Europe

**Policy objectives:** While the establishment of the European Union in itself has brought unprecedented peace and prosperity, there is a continued need to address terrorism and security issues, which are among the top concerns for European citizens, and to enhance internal security within and across the European Union, and along its external borders. The overarching ambition of secure societies is also reflected in Sustainable Development Goal 16 – Peace, Justice and Strong Institutions.

There are a number of EU policy responses to current security challenges. As regards disasters, these include the Union Civil Protection Mechanism, the EU Adaptation Strategy and the [Sendai Framework for Disaster Risk Reduction \(2015-2030\)](#). In the framework of the [European Agenda on Security](#) and as part of the development of a Security Union, the EU has adopted policies and instruments on integrated border management, on protection of public spaces, on security (including cybersecurity) of infrastructure, and on fighting crime, including cybercrime and terrorism. An EU Maritime Security Action Plan addresses relevant challenges. Policies have also been put in place to ensure cybersecurity, such as the Directive on security of network and information systems (NIS Directive) and the EU Cybersecurity Act, and online privacy.

If you want more information, in particular on [cluster 3](#) (civil security for society), please follow the link to the specific annex.

5. In your view, how relevant is it for Horizon Europe to deliver on the following impacts for a "Protective Europe"?

	1 (not relevant)	2	3	4	5 (very relevant)	I don't know
More effective fight against crime and terrorism	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
Increased cybersecurity	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
Improved security and resilience of infrastructure and vital societal functions	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>

Improved maritime security	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
Better protection of public spaces	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
Improved management of EU external borders	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
Improved disaster risk management and societal resilience	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
Improved management of EU external borders (air, land and sea)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>

6. Please provide here your comments or suggestions on the above (if any)

*300 character(s) maximum*

## Competitive Europe

**Policy objectives:** Research and innovation plays a central role in enhancing competitiveness throughout Europe and Europe has the potential to become a world leader in the ongoing and foreseeable sustainable and digital transitions. However, there is a need to prepare our technological and industrial future in a more strategic way, including incentivising and steering innovation and facilitating the uptake of new technologies and innovative solutions. New developments within mobility and transport, including automated and connected mobility, will also require new solutions, still to be developed and implemented. Furthermore, the need to promote inclusive and sustainable economic growth and industrialization and to foster innovation is reflected in Sustainable Development Goals 8 - Decent Work and Economic Growth, and 9 - Industry, Innovation and Infrastructure.

The [renewed EU Industrial Policy Strategy](#) shows how the EU must tackle missing segments in key strategic value chains if its industry is to stay competitive and become sustainable at the same time. This requires a stepping up of the level and quality of the EU research and innovation effort with focus on the key parts of strategic technology supply chains: from secure and sustainable supply of raw materials, maximising the value of its resources and materials, to batteries, low-carbon industry, space critical components smart connectivity platforms. At the same time, breakthrough technologies and solutions are necessary to bring about a deep decarbonisation of EU industries by 2050, and foster a circular economy. Future factories will be carbon-neutral, resource efficient and fully integrated in the circular economy. The zero-carbon and circularity ambitions should reinforce one another.

If you want more information, in particular on [cluster 4](#) (digital, industry and space), please follow the link to the specific annex.

Please, remember that Investment in research and innovation regarding [health](#) (Cluster 1) will support an innovative, sustainable and globally competitive health-related industry, while investments in research and innovation for [mobility and transport](#) (Cluster 5) will contribute to developing low-carbon and competitive transport solutions across all modes

7. In your view, how relevant is it for Horizon Europe to deliver on the following impacts for a "Competitive Europe"?

	1 (not relevant)	2	3	4	5 (very relevant)	I don't know
Low-carbon and competitive transport solutions across all modes	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Increased inclusiveness	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
Help achieve climate-neutral, circular and clean EU industries	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
Increased industrial leadership in key enabling and digital technologies and uptake of new technologies	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Increased autonomy in critical raw materials	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
Increased industrial leadership in key enabling technologies and uptake of new technologies	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
Climate-neutral, circular and clean EU industries	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
More appealing and creative jobs in Europe	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>

8. Please provide here your comments or suggestions on the above (if any)

*300 character(s) maximum*

## Fair Europe

**Policy objectives:** The promotion of social cohesion and inclusiveness and the health and well-being of its people are central aims of the European Union’s policies and programmes. With the [European Pillar of Social Rights](#), the EU set the direction towards a fairer, inclusive and more social Europe for all citizens based on a European social model that is fit for the challenges of the 21st century. To continue delivering on this agenda and to safeguard shared values and mutual trust, it is important to support Member States in addressing social challenges and inequalities, e.g. related to health or education, within and across their territories and regions. Further efforts should equally be devoted to make high-quality health care both available and affordable for citizens as well as to render health care systems more accessible and sustainable, including through the digital transformation of health and care.

These aims are also reflected in Sustainable Development Goals: 1 – No Poverty; 3 – Good Health and Well-being; 4 – Quality Education; 5 – Gender Equality; 6 – Clean Water and Sanitation, 8 – Decent Work and Economic Growth; 10 – Reduced Inequalities; 11 – Sustainable Cities and Communities, and 16 – Peace, Justice and Strong Institutions.

If you want more information, in particular on [cluster 1](#) (health) and [cluster 2](#) (culture, creativity and inclusive society), please follow the links to the specific annexes.

Please remember that Investments in research and innovation concerning [digital, industry and space](#) (Cluster 4) will also aim to contribute to create more appealing and creative jobs in Europe and increased

inclusiveness in the development of technologies and the acquisition of skills to put the new technologies, for instance the digital area or the area of advanced manufacturing, to use.

9. In your view, how relevant is it for Horizon Europe to deliver on the following impacts for a "Fair Europe"?

	1 (not relevant)	2	3	4	5 (very relevant)	I don't know
Healthy citizens in a rapidly changing society	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>
Healthy and health-promoting living and working environments	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>
Effective health services to tackle diseases and reduce the burden of diseases	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>
Improved access to innovative, sustainable and high-quality health care	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>
Unlocking the full potential of new tools, technologies and digital solutions for a healthy society	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>
A sustainable and globally competitive health-related industry in the EU	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>
Enhanced democracy and governance	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
Better approaches to tackle political extremism and polarisation	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
Reversing socio-economic and gender inequalities	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Improved understanding of societal – including political, ethical and economic - effects of technological advancements and the impact of drivers of change	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>
Novel growth model	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
Increased use of evidence-based strategies in the management of mobility and migration and the integration of migrants in European society	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
Better valorisation of European cultural heritage	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>

10. Please provide here your comments or suggestions on the above (if any)

*300 character(s) maximum*

The health-related impacts are highly relevant to deliver on the priority of 'Fair Europe' and should be supported by fundamental and interdisciplinary research which relies on, and in turn drives development of, innovative and cutting-edge technology.



## Sustainable Europe

**Policy objectives:** In order to achieve the objectives of the Sustainable Development Goals, significant changes are needed to modernise our economy towards sustainable consumption and production patterns, reinforce efforts to fight climate change and reverse environmental degradation, promote biodiversity and the transition to a circular economy respecting planetary boundaries. This includes maximising the potential of the Energy Union, including promoting a cleaner and more reliable energy supply to households and businesses.

These objectives also are reflected in especially Sustainable Development Goals 2 – Zero Hunger, 6 - Clean Water, 7 - Affordable and Clean Energy, 11 - Sustainable Cities and Communities, 12 - Responsible Consumption and Production, 13 - Climate Action, 14 - Life below Water and 15 - Life on Land.

In the areas of climate change and planetary boundaries, the EU is at the forefront of implementing the Paris Agreement. This EU has already put in place the legislation required to reach the Nationally Determined Contribution for 2030, and the Commission adopted a vision for achieving a [climate neutral economy by 2050](#). The long-term strategy outlines a vision of the technological, economic and societal transformations required to achieve climate neutrality and to ensure a socially fair transition that does not leave any EU citizens or regions behind. It recognises that a forward-looking research and innovation strategy should be guided by zero-carbon solutions that have the potential to be deployed by 2050, and that climate action is at the heart of Horizon Europe, with the intention of devoting 35% of the budget to climate objectives. In January 2019, the Commission adopted the reflection paper '[Towards a Sustainable Europe by 2030](#)', with the intention of launching a forward-looking debate among citizens, Member States and other stakeholders on how to best progress with the Sustainable Development Goals.

If you want more information on [cluster 5](#) (climate, energy and mobility) and [cluster 6](#) (food, bio-economy, natural resources, agriculture and environment), please follow the links to the specific annexes.

11. In your view, how relevant is it for Horizon Europe to deliver on the following impacts for a "Sustainable Europe"?

	1 (not relevant)	2	3	4	5 (very relevant)	I don't know
Advanced climate science and solutions	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Novel competitive cross-sectoral solutions for decarbonisation	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
Novel energy system	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
New demand side solutions to decarbonise the energy and transport systems	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
Increased adaptation of production systems	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
Reinforced supply of sustainable biomaterials and bio-economy	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Reduction of greenhouse gas emissions	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
More sustainable management of natural resources, prevention and removal of pollution	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>

Halt of decline, and restoration, of biodiversity and ecosystems services	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>
Establishment of new primary production and food systems	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
Establishment of new governance models enabling sustainability	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
A built Environment better fit for EU citizens	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>

12. Please provide here your comments or suggestions on the above (if any)

*300 character(s) maximum*

### Influential Europe

**Policy objectives:** In an increasingly fractured and multipolar world, the EU will need to strengthen its position in order to guarantee its prosperity and competitive position. Through EU international cooperation in research and innovation, the EU can shape new technologies and solutions to global challenges, set world standards and disseminate its values.

Innovation value chains and knowledge production are increasingly global and previously emerging economies have become major players in the research and innovation area. The EU is well placed to tap into this new wealth of research excellence and resources across the world. It has a long history of international cooperation within research and innovation, lies at the centre of most international collaborative networks and offers a general openness to international participation. The EU needs to build upon and further intensify this to fully benefit from the new global opportunities. Activities should promote and integrate international cooperation based on mutual benefits, EU interests, international commitments and, where appropriate, reciprocity, with each area developing its strategy for engaging internationally, in coherence with the overall EU strategy for international cooperation in research and innovation.

The Sustainable Development Goals are increasingly providing a reference point to prioritise and reshape research and innovation policy agendas, and international programmatic coordination through multilateral initiatives are more and more used as a means for global cooperation in areas such as climate change, biodiversity, clean energy, sustainable cities, infectious diseases, seas and oceans, sustainable agriculture and food and nutrition security. The expanding scope and interconnectivity of these challenges require that the EU strengthens its role in multilateral and bilateral setups while also asserting more pro-actively EU values and interests, including in strategic alliances and networks such as global environmental conventions on climate, desertification and biodiversity, the Belmont Forum, the Group on Earth Observations, the Mission Innovation initiative, the International Bioeconomy Forum, and a range of Global Health initiatives.

Increased attention is being paid to achieve sovereignty in strategic technology areas and critical infrastructures. Though no jurisdiction is fully autonomous in terms of design, development and production of enabling technology, in a world of globe-spanning value chains the EU should now do more to strengthen alliances with key actors in a strategic and principled way so as to ensure its competitive position.

International cooperation in research and innovation is indispensable for effectively tackling global challenges and for implementing global commitments. Collaborating with the world's top researchers, innovators and knowledge-intensive companies should strengthen the EU's research and innovation

excellence and attractiveness, increase the quality of research and innovation results, and reinforce the economic and industrial competitiveness of the Union. Increasing international engagement should also lead to an enhanced EU role in setting the research and innovation policy agendas and shaping global research and innovation systems and innovative solutions for the global challenges.

Engaging internationally should allow for a better assessment of challenges in their global, regional or local context, produce more targeted results, expand and diversify the global flow of knowledge and increase innovation capacity, contributing also to more efficient EU responses in key areas of political dialogue. The growing role of science diplomacy as a key element of EU external action should also foster mutual understanding, stability and progress.

13. Please provide here your suggestions for relevant Horizon Europe impacts to contribute to an "Influential Europe".

*300 character(s) maximum*

Defining future global scientific standards translates directly to Europe's global influence. In biomedical research, Europe could utilize its leading position to develop and set the future global standards in the application of medical genomics. Please see ,further general input'

For more informations on [missions and partnerships](#), please follow the link.

## Section D - More in detail on the "Orientations" document

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Please click on the part of Horizon Europe for which you would like to provide further general input regarding the targeted impacts from Horizon Europe.

- Health (cluster 1)
- Culture, creativity and inclusive society (cluster 2)
- Civil security for society (cluster 3)
- Digital, industry and space (cluster 4)
- Climate, energy and mobility (cluster 5)
- Food, bioeconomy, natural resources, agriculture and environment (cluster 6)
- Widening Participation and Strengthening the European Research Area
- Pillar 1 Excellent Science
- Pillar 3 Innovative Europe

Please provide here further general input regarding the targeted impacts from Horizon Europe.

*5000 character(s) maximum*

In spite of the focus of Pillar II on Global Challenges and European Industrial Competitiveness, EMBL sees that all Clusters should ensure sufficient possibilities for generating new knowledge as well as research at low technology readiness levels, because such research often provides the most important basis for subsequent innovations.

For selected areas and specific global challenges in the draft strategic plan, EMBL and its academic community has identified several R&I orientations that could significantly contribute to the short, medium and long-term impact of the targeted impacts (3.1-3.6) of the Health cluster:

Significant opportunity lies in exploring the quantitative effects of the environment and their influences on

human biology, e.g., using genetics to understand environmental impact. Exposures to environmental pollutants have been linked to diabetes, cancer, cardiovascular, respiratory, neurodegenerative, autoimmune, and other diseases but we still have a very limited understanding of the mechanisms leading to these adverse biological effects in humans. This is also true for how various exposures interplay with basic cellular and organismal physiology. Increasing research efforts in this field could in the medium-term could lead to novel intervention methods to address these global health concerns.

In the domain of antimicrobial resistance (AMR), research efforts in the next decade should be put into expanding our biochemical knowledge of the mechanisms of virulence and resistance, combined with research that would enhance our understanding of host-microbiome and host-pathogen interactions. Ultimately, this approach has the potential to enable us to combat not only the development but the transmission/spread as well.

The Health Cluster should also support bringing genomic medicine advances to clinical practice and healthcare systems. The ongoing genomic revolution has also the potential to increase the efficiency of treatments by allowing patients to receive drugs specific to their individual disease as well as the increase of Stratified Medicine approaches for the benefit of health care systems.

With genomic medicine, Europe has the opportunity to establish itself as the world's leading region of personalized medicine and 21st century healthcare, while staying committed to Europe's core values. But this will require novel diagnostic approaches, which in turn require both research and innovation actions as well as support actions to develop novel digital infrastructure and capabilities that can harness the vast potential of genomic medicine advances and bring these to standard clinical practice.

Another important area for the future basic health research will be the development of related infrastructures. In particular, in recent years the development of novel imaging technologies has proven indispensable in tackling key biomedical research questions.

Concerning Cluster 6, in order to achieve some of the targeted impacts of Cluster 6, such as halting biodiversity decline and restoring ecosystems, key collaborative R&I orientations should include gaining novel molecular and mechanistic insights into biodiversity and our environment. Research in this domain should also expand our understanding of the impact of humans on the environment and of the environment on humans as well as how organisms exist together, and in changing environments.

This will also require actions to Integrate environmental information into our understanding of organisms as well as Open data systems that foster sharing of plant, pathogen and environmental data and knowledge that enable further scientific research, environmental planning as well as the development of commercial products.

Thank you very much for your input.

An analysis of the results of this co-design consultation will be available after September 2019. The replies will also feed into the organisation of the debate in the co-design sessions at the European Research and Innovation Days where you are welcome to register for engaging in further discussion: [European Research and Innovation Days](#) on 24-25-26 September 2019 in Brussels.

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