

# Horizon Europe First Strategic Plan 2021-2024

Fields marked with \* are mandatory.

## INTRODUCTION

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**Horizon Europe**, the ninth European Research and Innovation Framework programme (2021-2027), is the key instrument of the Union for supporting research and innovation. It also plays an important role in steering and accelerating Europe's recovery, preparedness and resilience along the twin digital and green transitions. It will strengthen our knowledge base through frontier research, spur breakthrough innovation and support the development and demonstration of innovative solutions, and it will help restore our industrial leadership and strategic autonomy, while helping tackle the coronavirus pandemic and the climate challenges.

**The first Horizon Europe Strategic Plan** will define the strategic orientations for our research and innovation investments over the period 2021-2024 and will act as a compass to stay on course with the political priorities of the Commission: a climate-neutral and green Europe, fit for the digital age, where the economy works for the people.

This **survey is part of the strategic planning process**, to which the European Parliament, EU Member States, Countries of the European Economic Area (EEA Countries), as well as stakeholders and interested citizens, contribute collectively.

The **objective of this survey** is to receive feedback on the expected impacts to be targeted by research and innovation within Horizon Europe and the contribution of Research and Innovation (R&I) investments to the EU's political priorities. The results of the survey will be used to finalise the Strategic Plan and to precise the impact logic, which will set the direction for to the future Horizon Europe work programmes.

The survey is structured around **six Horizon Europe clusters and their expected impacts**: 1. Health; 2. Culture, Creativity and Inclusive Society; 3. Civil Security for Society; 4. Digital, Industry and Space; 5. Climate, Energy and Mobility; 6. Food, Bioeconomy, Natural Resources, Agriculture and Environment.

You do not have to respond to all six clusters. It should take **about 20 minutes to reply to the questions for each cluster**. The **deadline is Friday, 18 September 2020, 18.00 Brussels time**.

## ABOUT YOU

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\* Have you or your organisation participated in the web-survey "Horizon Europe Co-design 2021-2024" in July 2019?

- Yes
- No

\* 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

\* You are responding:

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

\* You are responding:

- As a researcher
- As an entrepreneur
- As an expert in research and innovation
- A citizen
- Other

\* You are representing:

- Yourself
- A university or similar institution
- A research organisation
- A business or an industry
- An international organisation
- A national public authority
- A regional or local public authority
- A civil society organisation (including non-governmental organisations, community associations, etc.)
- Other

Name of the organisation:

*150 character(s) maximum*

European Marine Board Secretariat

Your name and last name:

*150 character(s) maximum*

Paula Kellett

\* What is your country of residence or establishment?

BE - Belgium

\* Please select the option that best describes your interest in European research and innovation 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

\* **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

Please have a look at our Privacy Statement.

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## EXPECTED IMPACTS AND R&I CONTRIBUTION

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This section aims at validating the targeted impacts and the role of R&I to reach the impact for the four years covered by the Strategic Plan, as developed with stakeholders during the Strategic Planning Process. This survey builds upon last year's survey and aims at making final revisions.

\* You would like to provide your views on the following Horizon Europe clusters:

*at least 1 choice(s)*

- Cluster 1 : Health
- Cluster 2 : Culture, Creativity and Inclusive Society
- Cluster 3 : Civil Security for Society
- Cluster 4. Digital, Industry and Space
- Cluster 5. Climate, Energy and Mobility
- Cluster 6. Food, Bioeconomy, Natural Resources, Agriculture and Environment

## CLUSTER 1: Health

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### Impact 1: Staying healthy in a rapidly changing society

**Short description of the impact:** Citizens stay healthy in a rapidly changing society thanks to healthier lifestyles and behaviours, healthier environments, improved evidence-based health policies, and more effective solutions for health promotion and disease prevention.

**R&I contribution:** Research and innovation can provide a better understanding of specific health and care needs throughout the life course, including age-specific and sex/gender-specific needs, and develop more effective solutions for health promotion and disease prevention, including for needs related to chronic health conditions, physical and mental disabilities, or age-related impairments. Research and innovation can help people, as well as communities, in developing innovative services, policies, guidelines and digital solutions, also ensuring that they are accessible, equitable and effective in preventing disease and promoting health. Key to achieving these objectives is the availability and accessibility of real-world health data, which will require appropriate support by research and data infrastructures.

1. Based on the description above, to what extent do you agree with the following statements:

	Strongly agree	Somewhat agree	Neither agree nor disagree	Somewhat disagree	Strongly disagree
The expected impact is clear	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
R&I will play an important role to reach this impact	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The text describes well the role of R&I and the ambition of the impact	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

2. Would you like to share an original idea or wording suggestion on this impact?

*500 character(s) maximum*

People cannot be truly healthy, or optimize health benefits, within a compromised natural environment. In addition, the health-promotion capabilities of natural environments for mental and physical health holds interesting promise. Therefore, it is imperative for health and natural science communities to collaborate to identify win-win scenarios for human and environmental health.

### Impact 2: Living and working in a health-promoting environment

**Short description of the impact:** Living and working environments are health-promoting and sustainable thanks to better understanding of environmental, occupational, social and economic determinants of health.

**R&I contribution:** Research and innovation will produce the knowledge necessary to identify and assess the risks and benefits for health, and to enable health promoting and disease preventive policy actions. Results will support the EU's environment and health policies and overarching policy frameworks such as

the European Green Deal, the future 8th Environment Action Programme, the EU Strategic Framework on Health and Safety at Work and the European Environment and Health Process (EHP). The outcome will also contribute to the development of new and improved health interventions and technologies. In order to achieve sustainable impacts, research and innovation must provide solid evidence and stimulate its uptake into a large number of environmental, occupational, social, economic, fiscal and health policies at the EU, national and regional level. Strong collaborations across sectors and with other Horizon Europe clusters dealing with issues such as agriculture, food, environment, climate, mobility, security, urban planning, social inclusion and gender will be needed to ensure that maximal societal benefits will be reached. Likewise, international cooperation, including at science-policy level, will be key to drive forward and tackle this challenge.

1. Based on the description above, to what extent do you agree with the following statements:

	Strongly agree	Somewhat agree	Neither agree nor disagree	Somewhat disagree	Strongly disagree
The expected impact is clear	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
R&I will play an important role to reach this impact	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The text describes well the role of R&I and the ambition of the impact	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

2. Would you like to share an original idea or wording suggestion on this impact?

*500 character(s) maximum*

Transdisciplinary R&I based on big data and artificial intelligence should be prioritized to determine the links between the environmental, occupational, social and economic determinants of health. An important hurdle to overcome to realize this is open data sharing and interoperability between these different fields of research.

### **Impact 3: Tackling diseases and reducing disease burden**

**Short description of the impact:** Health care providers are able to tackle diseases (infectious diseases, including poverty-related and neglected diseases, non-communicable and rare diseases) and reduce the disease burden on patients effectively thanks to better understanding of diseases, using more effective and innovative health technologies and better ability and preparedness to manage epidemic outbreaks.

**R&I contribution:** There is an urgent need for research and innovation on new prevention, public health interventions, diagnostics, vaccines, therapies, alternatives to antibiotics, as well as to improve existing prevention strategies to create tangible impacts, taking into account sex/gender-related issues. This will require international cooperation to pool the best expertise and know-how available worldwide, to access world-class research infrastructures and to leverage critical scales of investments on priority needs through better alignment with other funders of international health research and innovation cooperation. The continuation of international partnerships and cooperation with international organisations is particularly needed to combat infectious diseases, including antimicrobial resistances, to respond to major unmet

needs for global health security, including the global burden of non-communicable diseases, and to strengthen patient safety.

1. Based on the description above, to what extent do you agree with the following statements:

	Strongly agree	Somewhat agree	Neither agree nor disagree	Somewhat disagree	Strongly disagree
The expected impact is clear	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
R&I will play an important role to reach this impact	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The text describes well the role of R&I and the ambition of the impact	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

2. Would you like to share an original idea or wording suggestion on this impact?

*500 character(s) maximum*

Research should also be conducted to understand the links between humans, natural environments, anthropogenic activity and biodiversity in relation to disease e.g. linked to the conditions thought to have led to the COVID outbreak. Other related issues such as the microbial carrying capacity of marine plastics, antimicrobial resistant microbes in the ocean, and conversely, the potential for new medicines, antibiotics and medical procedures derived from the natural environment should be explored.

**Impact 4: Ensuring access to innovative, sustainable and high-quality health care**

**Short description of the impact:** Health care systems provide equal access to innovative, sustainable and high-quality health care thanks to the development and uptake of safe, cost-effective and people-centred solutions, with a focus on population health, health systems resilience, as well as improved evidence-based health policies.

**R&I contribution:** Research and innovation can help by supporting the development of innovative solutions for health care systems in all their various dimensions (e.g. governance, resilience, financing, generation of human and physical resources, health service provision, and patient empowerment). In addition, research and innovation can provide decision-makers with new evidence, methods and tools to successfully implement those innovative solutions into their health care systems. It will in turn help to improve the governance and resilience of health care systems as well as to allocate resources according to people’s needs and preferences while delivering fiscal sustainability to make sure those needs can be met in the long-term.

1. Based on the description above, to what extent do you agree with the following statements:

	Strongly agree	Somewhat agree	Neither agree nor disagree	Somewhat disagree	Strongly disagree
The expected impact is clear	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

R&I will play an important role to reach this impact	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The text describes well the role of R&I and the ambition of the impact	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

2. Would you like to share an original idea or wording suggestion on this impact?

*500 character(s) maximum*

**Impact 5: Unlocking the full potential of new tools, technologies and digital solutions for a healthy society**

**Short description of the impact:** Health technologies, new tools and digital solutions are applied effectively thanks to their inclusive, secure and ethical development, delivery, integration and deployment in health policies and health and care systems.

**R&I contribution:** Research and innovation is needed on the large spectrum of tools and technologies for bio-medical research, prevention, diagnosis, therapy and monitoring. Managing benefits and risks of new technologies and due consideration of aspects of safety, effectiveness, inter-operability, appropriateness, accessibility, comparative value-added, affordability and sustainability (environmental, fiscal, socio-economic) and issues of ethical, societal, regulatory and legal nature will be crucial in order to boost the acceptability of these novelties and to translate these innovations into health policies, health and care systems, and clinical practice responsibly. Moreover, to provide high-quality healthcare and reduce health inequalities, end users' engagement in multidisciplinary, cross-sectorial cooperation with key stakeholders (patients, health care providers, researchers, regulatory bodies, policy-makers, funders) could help addressing specific unmet needs for health tools, technologies and digital solutions with limited commercial interest but also designing and developing suitable health products and services tailored to specific needs related to sex/gender or other aspects. Artificial Intelligence technologies have recently shown great promise for analysing high volumes of health data, with high potential for advancing biomedical research, personalised medicine and health care and for supporting health care systems in their clinical, organisational and logistical functions.

1. Based on the description above, to what extent do you agree with the following statements:

	Strongly agree	Somewhat agree	Neither agree nor disagree	Somewhat disagree	Strongly disagree
The expected impact is clear	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
R&I will play an important role to reach this impact	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The text describes well the role of R&I and the ambition of the impact	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

2. Would you like to share an original idea or wording suggestion on this impact?

500 character(s) maximum

**Impact 6: Maintaining an innovative, sustainable and globally competitive health-related industry**

**Short description of the impact:** EU health industry is more innovative, sustainable and globally competitive thanks to improved up-take of breakthrough technologies and innovations, which makes the EU with its Member States more resilient and less dependent from imports with regard to the access to and supply of critical health technologies.

**R&I contribution:** There is a convergence and a need for cross-sectorial research and innovation (integrating medical technologies, pharmaceuticals, biotechnologies, digital health and eHealth technologies) to strengthen the single market, including by implementing the Digital Single Market strategy, supporting the standardisation policy, driving innovation from the demand side and providing evidence and guidelines for stakeholders and regulators to ensure take-up of innovations supports sustainability (environmental, fiscal, socio-economic) while fostering access and reducing health inequalities. The health sector is subjected to strict regulatory requirements that impose the demonstration of clinical benefit(s) and safety. This means additional development steps, uncertainties and a longer time to market. Support to studies for health assessment procedures, clinical performance demonstration, quality assurance schemes and standardisation are therefore important elements.

1. Based on the description above, to what extent do you agree with the following statements:

	Strongly agree	Somewhat agree	Neither agree nor disagree	Somewhat disagree	Strongly disagree
The expected impact is clear	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
R&I will play an important role to reach this impact	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The text describes well the role of R&I and the ambition of the impact	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

2. Would you like to share an original idea or wording suggestion on this impact?

500 character(s) maximum

Opportunities should be taken to optimize the full bio-discovery pipeline from the natural to the medical science sectors, with far greater collaboration for more targeted approaches to discovery and drug development, including for rare diseases. This activity also requires a foundation of ongoing discovery and recording of new species, which in turn requires observations infrastructure and funding, increased taxonomy expertise, and the halting of catastrophic biodiversity decline.



Do you have any other comments regarding the expected impacts of this Cluster?

*1500 character(s) maximum*

While other related sectors of research and policy (e.g. environment, especially marine) are dictated chiefly at European scale, health is typically a national-level competency. This leads to challenges in European-level strategy and oversight, cross-sectoral collaboration, and data sharing, as has recently been highlighted during the recent COVID crisis. These challenges will need to be overcome to move forward and achieve the ambitions and expected impacts laid out above.

## CLUSTER 1 - COHERENCE AND SYNERGIES

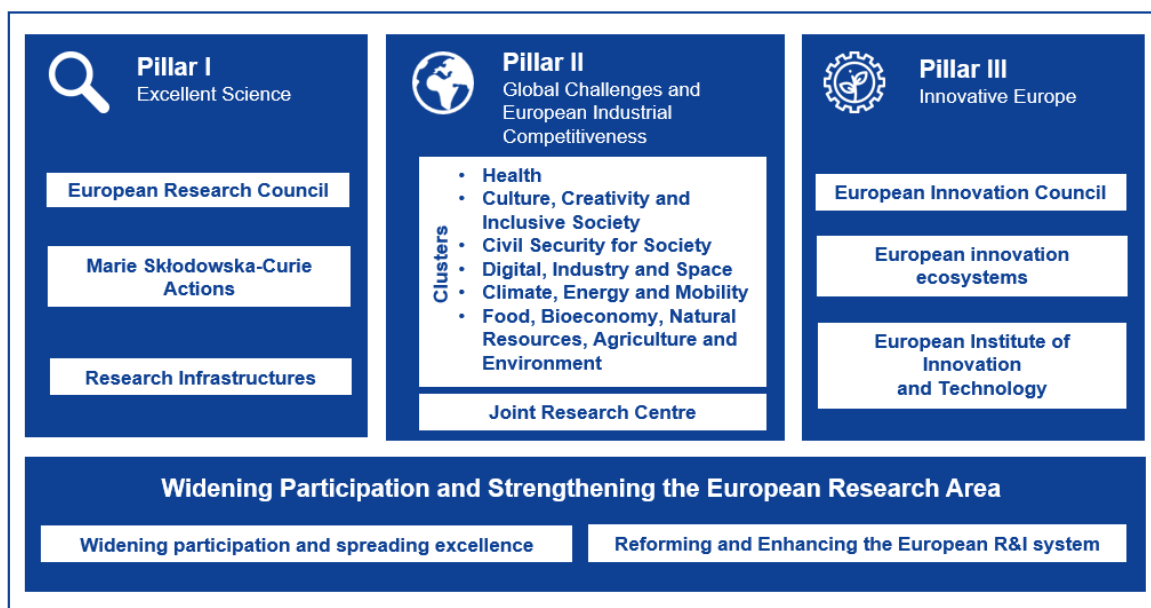
### Coherence and synergies with other parts of the Framework Programme or with other EU programmes

In order to maximise the impact of research and innovation on society, environment and economy at large and to contribute to the achievement of the Union’s objectives, Union funding programmes must be coherent and work in synergy. Synergies and coherence are based on complementarity between programme design and objectives, as well as financing rules and processes at implementation level.

The Strategic Planning process, and the ensuing implementation process, must ensure the alignment of priorities of the different parts of Horizon Europe and between Horizon Europe and other EU funding programmes, ensuring coherent funding options at different stages of the research and innovation cycle. This includes facilitating the deployment of research results and innovative solutions developed in Horizon Europe (or previous Framework Programmes) with the support of other Union funding programmes.

The following questions seek your views on the priorities for coherence and synergies between this cluster of Horizon Europe and other parts of the Horizon Europe, and other EU funding programmes.

## Horizon Europe Structure



**Missions** shall be programmed within the **Pillar II**, 'Global Challenges and European Industrial Competitiveness', but may also benefit from actions carried out within other parts of the Programme as well as complementary actions carried out under other Union funding programmes.

Horizon Europe Missions are an integral part of the Horizon Europe framework programme. Missions are programmed under Horizon Europe Pillar II. Missions implementation will go beyond research and innovation. Missions will benefit from actions carried out within other parts of the Programme as well as complementary actions carried out at national level and under other Union funding programmes. Each selected mission will be a mandate to solve a pressing challenge in society within a certain timeframe and budget. More information on Missions is available on the [Missions website](#).

1. In your view, how important is coherence between this cluster and other clusters or elements of Horizon Europe Pillar II?

	Very important	Important	Neutral	Not important	Not important at all
Pillar II – Cluster 2 ‘Culture, Creativity and Inclusive Society’	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Pillar II – Cluster 3 ‘Civil Security for Society’	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Pillar II – Cluster 4 ‘Digital, Industry and Space’	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Pillar II – Cluster 5 ‘Climate, Energy and Mobility’	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Pillar II – Cluster 6 ‘Food, Bioeconomy, Natural Resources, Agriculture and Environment’	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Mission Area ‘Cancer’	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Mission Area ‘Adaptation to climate change including societal transformation’	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Mission Area ‘Healthy oceans, seas coastal and inland waters’	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Mission Area ‘Climate-neutral and smart cities’	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Mission Area ‘Soil health and food’	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

2. In your view, how important is coherence between this cluster and the other parts of Horizon Europe?

	Very important	Important	Neutral	Not important	Not important at all
Pillar I – Excellent Science: European Research Council	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Pillar I - Excellent Science: Marie-Sklodowska Curie Actions	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Pillar I – Research Infrastructures	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Pillar III - Innovative Europe: European Innovation Council	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Pillar III - Innovative Europe: European Innovation Ecosystems	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Pillar III - Innovative Europe: European Institute of Innovation and Technology	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Widening participation and spreading excellence	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Reforming and enhancing the European R&I system	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

3. In your view, how important are synergies between this cluster and the following other EU funding programmes?

	Very important	Important	Neutral	Not important	Not important at all
European Social Fund Plus (ESF+)	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Internal Security Fund (ISF)	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Connecting Europe Facility (CEF)	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Digital Europe Programme (DEP)	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
European Agricultural Fund for Rural Development (EAFRD)	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Programme for Environment and Climate Action (LIFE)	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Innovation Fund under the Emission Trading Scheme (the 'Innovation Fund')	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
InvestEU	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Border Management and Visa Instrument (BMVI) as part of the Integrated Border Management Fund	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
European Agricultural Guarantee Fund (EAGF)	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other [Note: A field for comments opens at the end of the list, when you select the level of importance]	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
European Defence Fund	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>

Neighbourhood, Development and International Cooperation	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Erasmus Programme	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Euratom Research and Training Programme	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
Single Market Programme	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
European Space Programme	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Creative Europe	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
European Regional Development Fund (ERDF)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
European Maritime and Fisheries Fund (EMFF)	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

(Other) Please specify:

*500 character(s) maximum*

4. Do you have any other comments or suggestions regarding the expected potential of coherence or synergies with Horizon Europe?

*1500 character(s) maximum*

## CLUSTER 3: Civil Security for Society

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### **Impact 1: Reduced losses from natural, accidental and man-made disasters**

**Short description of the impact:** Losses from natural, accidental and man-made disasters are reduced through enhanced disaster risk reduction based on preventive actions, better societal preparedness and resilience and improved disaster risk management in a systemic way.

**R&I contribution:** R&I actions will improve disaster risk management, including better understanding of the disaster risk management cycle for incidents with a high impact but a low probability of occurrence. R&I will enhance societal risk awareness, prevention and preparedness, including through early warning and alert systems and a capacity to be better prepared (including psychologically) and able to respond to natural and man-made disasters. With the help of enhanced technological solutions and concepts, relevant communities can be better involved in developing and implementing plans for cost-effective risk reduction and societal resilience, including for the evacuation of vulnerable populations. An improved response to disasters requires better tools and procedures for the coordination of cross-border incidents, more integrated and interoperable technologies, tools and methods to support emergency procedures which are developed with all relevant actors. R&I can lead to the creation of standards on the EU-level for response

and emergency planning. Target R&I will tackle cross-sectoral and multilevel governance on disaster risk management at EU level which also manages trade-offs in policy-making (not only civil protection as such but related areas such as land management, agriculture and rural development, as well as environment, climate and energy). It will contribute to the creation of methodologies to be defined for 'resilient by design' infrastructure. As a result of improved knowledge of human and social factors, post-disaster recovery that respects local communities' aesthetic-historical-social values as well as quality standards for cultural heritage sites.

More specifically, four areas require more targeted R&I: (a) Chemical, biological, radiological, nuclear and explosive (CBRN-E) incidents (deeper understanding of risks, better comparability of data, filling gaps in capabilities for first responders, methods for cooperation between relevant actors); (b) Climate-related risks and extreme events (more exact forecasting of occurrences and impacts, understanding of climate change related risks and vulnerabilities, including their application within emergency planning, more flexible adaptation to climate change impacts, improved cross-border management); (c) Geological disasters, such as earthquakes, volcanic eruptions and tsunamis (better and technologically advanced civil protection capacities, notably faster detection and evacuation of victims); (d) Pandemics and emerging infectious diseases (earlier detection of outbreaks, better response for example by European Pandemic Preparedness Plans).

In addition, R&I activities will better ensure security and resilience of basic societal functions such as healthcare, law enforcement, energy, mobility, public services, financial services, communication and logistics infrastructures and networks (both physical, on ground and in space, and digital), so as to minimise societal disruptions. In order to allow for effective countermeasures, there is a need for better risk- and vulnerability assessments, especially taking into account systemic threats, interdependencies between different infrastructures and cascading risks taking into account the cross-border dimension.

1. Based on the description above, to what extent do you agree with the following statements:

	Strongly agree	Somewhat agree	Neither agree nor disagree	Somewhat disagree	Strongly disagree
The expected impact is clear	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
R&I will play an important role to reach this impact	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The text describes well the role of R&I and the ambition of the impact	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

2. Would you like to share an original idea or wording suggestion on this impact?

*500 character(s) maximum*

There are additional marine geological hazards requiring awareness, e.g. gas hydrate releases, underwater landslides and other processes producing instability of underwater sediments. They may trigger disaster events e.g. tsunamis, breaks or fractures in underwater communication / energy cables and pipelines. To support the aim of early warning & preparation, sustained & funded earth observation systems & infrastructures are indispensable, as is collaboration between social & natural sciences.

## **Impact 2: Improved passengers and shipments travel into the EU**

**Short description of the impact:** Legitimate passengers and shipments travel more easily into the EU, while illicit trades, trafficking, piracy, terrorists and other criminals acts are prevented, thanks to improved air, land and sea border management and maritime security including better knowledge on social factors.

**R&I contribution:** R&I will enhance the interoperability and performance of relevant EU information systems, leading to better and faster exchange as well as analysis. Concerning the movement of persons, and with the contribution of the European Border and Coast Guard Agency (Frontex) in identifying the relevant requirements, R&I will contribute to developing tools and methods for Integrated Border Management, in particular to increase reaction capability and capacity for border surveillance and monitoring movements across external borders, as well as better risk-detection, incident response and prevention, and identification of and response to crime. Concerning the flow of goods, R&I actions will address requirements identified by EU customs authorities, notably improved detection of fraudulent activities at border crossing points and throughout the transportation and supply chain. R&I will address capability requirements identified by the EU Maritime Security Action Plan, thus enabling better maritime surveillance, risk awareness and management of EU critical maritime infrastructure border protection and coast guard functions.

1. Based on the description above, to what extent do you agree with the following statements:

	Strongly agree	Somewhat agree	Neither agree nor disagree	Somewhat disagree	Strongly disagree
The expected impact is clear	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
R&I will play an important role to reach this impact	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The text describes well the role of R&I and the ambition of the impact	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

2. Would you like to share an original idea or wording suggestion on this impact?

*500 character(s) maximum*

The impact of ballast waters from ships should be also consider, as these water may introduce invasive species in European waters, producing large economic and environmental loss.

## **Impact 3: Crime and terrorism are more effectively tackled**

**Short description of the impact:** Crime and terrorism are more effectively tackled, while respecting fundamental rights, and resilience and autonomy of physical and digital infrastructures are enhanced and vital societal functions are ensured, thanks to more powerful prevention, preparedness and response, a better understanding of related human and societal aspects, and the development of cutting-edge capabilities for law enforcement agencies and infrastructure operators, including measures against c y b e r c r i m e .

**R&I contribution:** R&I will bring improved prevention, investigation and mitigation of impacts of criminal acts, including of new/emerging types (such as those resulting from digitisation and other technologies). This needs to be based on a deeper knowledge of human and social aspects of relevant societal challenges, such as violent radicalisation, child sexual exploitation, trafficking of human beings, corruption and cyber criminality, including support to victims. R&I can further help to transpose such knowledge into the operational activities of EU law enforcement agencies and civil society organisations. R&I will support law enforcement agencies in better tackling crime, including cybercrime and terrorism as well as the different forms of serious and organised crime (such as smuggling, money laundering, identity theft, counterfeiting of products, trafficking of illicit drugs and of falsified/substandard medicines, environmental crime or illicit trafficking of cultural goods) by developing new technologies, tools and systems (including digital tools, e.g. artificial intelligence). This refers especially to capabilities to analyse in near-real-time large volumes of data to forestall criminal events, or to combat disinformation and fake news with implications for security. R&I actions will develop operational tools for enhanced criminal investigation capabilities for law enforcement agencies, covering a broad range of activities including forensics, big data management, investigation of cybercriminal activities, improved cross-border cooperation and exchange of evidence. With regards to CBRN-E threats, R&I allows to generate knowledge for counter-terrorism on the continuously evolving methods related to dangerous chemicals, and developing technologies to counter and respond to related incidents.

1. Based on the description above, to what extent do you agree with the following statements:

	Strongly agree	Somewhat agree	Neither agree nor disagree	Somewhat disagree	Strongly disagree
The expected impact is clear	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
R&I will play an important role to reach this impact	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The text describes well the role of R&I and the ambition of the impact	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

2. Would you like to share an original idea or wording suggestion on this impact?

*500 character(s) maximum*

#### **Impact 4: Increased cybersecurity and a more secure online environment**

**Short description of the impact:** Increased cybersecurity and a more secure online environment by developing and using effectively EU and Member States' capabilities in digital technologies supporting protection of data and networks, while respecting privacy and other fundamental rights; this should contribute to secure services, processes and products, as well as to robust digital infrastructure capable to resist and counter cyber-attacks and hybrid threats.

**R&I contribution:** Supported by R&I, citizens, public authorities and companies, including SMEs, will be empowered to protect their data and online activities notably when using social media. This requires a

resilient critical digital infrastructure, both private and public, that better protects the Digital Single Market and the digital life of citizens against malicious cyber activities, including via non-digital fall-back technology and appropriate levels of systemic redundancy. R&I should strengthen European cybersecurity industrial capacities and thus increased strategic autonomy vis-à-vis foreign technologies. R&I will support in this regard use of innovative digital technologies, including self-healing, artificial intelligence, cryptography, massively distributed computing and storage, as well as quantum technologies to increase data security and augment cybersecurity. It will further allow for security-relevant innovations in the areas of governance of algorithms, coding architecture and programming languages. All these measures are aimed at defending the EU's high standards concerning rights to privacy, protection of personal data, and the protection of fundamental right in the digital age on the global stage. The frequency and complexity of cyber-attacks from state and/or criminal actors is increasing rapidly. R&I will therefore need to support the effectiveness and coordination of measures to respond to them. For all activities against cyber-threats, the architectural principles of 'security-by-design' and 'privacy-by-design' will be implemented in digital technologies and their applications, such as 5G, industry 4.0, artificial intelligence, Internet of Things, block chain, quantum technologies, mobile devices and connected cooperative and autonomous mobility and energy. To better prevent and detect attacks (including cyber and hybrid attacks) or natural hazards as well as to allow for quick response, R&I will bring new tools for security actors (police, relief workers, disaster managers, crisis managers) notably in the fields of communication, data analysis and advanced robotics, with a view to developing largely autonomous detection and response capabilities. R&I will contribute to technologies, new concepts and cooperation instruments that will help mitigation of consequences and faster recovery of service performance levels, including leveraging the potential of big data analysis and artificial intelligence.

R&I actions will also:

- generate knowledge and value in cross-cutting matters in order to avoid sector specific bias and to break silos that impede the proliferation of common security solutions;
- strengthen key pillars of the research and innovation cycle to increase the effectiveness and efficiency of its contribution to the development of security capabilities;
- support innovation uptake and go-to-market strategies with the aim of paving the way towards an increased industrialisation, commercialisation, adoption and deployment of successful outcomes of security research, thus contributing to reinforce the competitiveness of EU security industry and safeguard the security of supply of EU-products in key security areas.

1. Based on the description above, to what extent do you agree with the following statements:

	Strongly agree	Somewhat agree	Neither agree nor disagree	Somewhat disagree	Strongly disagree
The expected impact is clear	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
R&I will play an important role to reach this impact	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The text describes well the role of R&I and the ambition of the impact	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

2. Would you like to share an original idea or wording suggestion on this impact?

*500 character(s) maximum*



Do you have any other comments regarding the expected impacts of this Cluster?

*1500 character(s) maximum*

## CLUSTER 3 - COHERENCE AND SYNERGIES

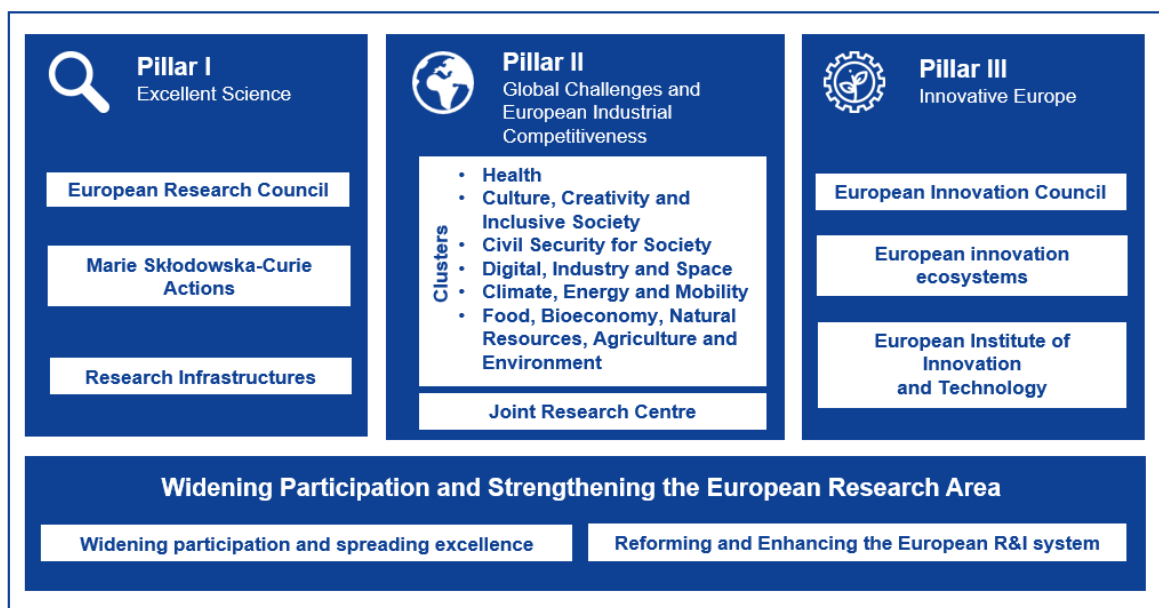
### Coherence and synergies with other parts of the Framework Programme or with other EU programmes

In order to maximise the impact of research and innovation on society, environment and economy at large and to contribute to the achievement of the Union's objectives, Union funding programmes must be coherent and work in synergy. Synergies and coherence are based on complementarity between programme design and objectives, as well as financing rules and processes at implementation level.

The Strategic Planning process, and the ensuing implementation process, must ensure the alignment of priorities of the different parts of Horizon Europe and between Horizon Europe and other EU funding programmes, ensuring coherent funding options at different stages of the research and innovation cycle. This includes facilitating the deployment of research results and innovative solutions developed in Horizon Europe (or previous Framework Programmes) with the support of other Union funding programmes.

The following questions seek your views on the priorities for coherence and synergies between this cluster of Horizon Europe and other parts of the Horizon Europe, and other EU funding programmes.

## Horizon Europe Structure



**Missions** shall be programmed within the **Pillar II**, 'Global Challenges and European Industrial Competitiveness', but may also benefit from actions carried out within other parts of the Programme as well as complementary actions carried out under other Union funding programmes.

Horizon Europe Missions are an integral part of the Horizon Europe framework programme. Missions are programmed under Horizon Europe Pillar II. Missions implementation will go beyond research and innovation. Missions will benefit from actions carried out within other parts of the Programme as well as complementary actions carried out at national level and under other Union funding programmes. Each selected mission will be a mandate to solve a pressing challenge in society within a certain timeframe and budget. More information on Missions is available on the [Missions website](#).

1. In your view, how important is coherence between this cluster and other clusters or elements of Horizon Europe Pillar II?

	Very important	Important	Neutral	Not important	Not important at all
Pillar II – Cluster 1 ‘Health’	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Pillar II – Cluster 2 ‘Culture, Creativity and Inclusive Society’	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Pillar II – Cluster 4 ‘Digital, Industry and Space’	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Pillar II – Cluster 5 ‘Climate, Energy and Mobility’	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Pillar II – Cluster 6 ‘Food, Bioeconomy, Natural Resources, Agriculture and Environment’	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Mission Area ‘Cancer’	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Mission Area ‘Adaptation to climate change including societal transformation’	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Mission Area ‘Healthy oceans, seas coastal and inland waters’	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Mission Area ‘Climate-neutral and smart cities’	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Mission Area ‘Soil health and food’	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

2. In your view, how important is coherence between this cluster and the other parts of Horizon Europe?

	Very important	Important	Neutral	Not important	Not important at all
Pillar I – Excellent Science: European Research Council	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Pillar I - Excellent Science: Marie-Sklodowska Curie Actions	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Pillar I – Research Infrastructures	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Pillar III - Innovative Europe: European Innovation Council	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Pillar III - Innovative Europe: European Innovation Ecosystems	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Pillar III - Innovative Europe: European Institute of Innovation and Technology	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Widening participation and spreading excellence	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Reforming and enhancing the European R&I system	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

3. In your view, how important are synergies between this cluster and the following other EU funding programmes?

	Very important	Important	Neutral	Not important	Not important at all
Neighbourhood, Development and International Cooperation	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Innovation Fund under the Emission Trading Scheme (the 'Innovation Fund')	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
InvestEU	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Creative Europe	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
European Agricultural Fund for Rural Development (EAFRD)	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other [Note: A field for comments opens at the end of the list, when you select the level of importance]	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
European Space Programme	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
European Regional Development Fund (ERDF)	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Programme for Environment and Climate Action (LIFE)	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Connecting Europe Facility (CEF)	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Digital Europe Programme (DEP)	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Internal Security Fund (ISF)	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Border Management and Visa Instrument (BMVI) as part of the Integrated Border Management Fund	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
European Maritime and Fisheries Fund (EMFF)	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Euratom Research and Training Programme	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
European Social Fund Plus (ESF+)	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
European Agricultural Guarantee Fund (EAGF)	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
European Defence Fund	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Single Market Programme	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Erasmus Programme	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

(Other) Please specify:

*500 character(s) maximum*

4. Do you have any other comments or suggestions regarding the expected potential of coherence or synergies with Horizon Europe?

*1500 character(s) maximum*

Connections should be made to the Maritime Spatial Plan (MSP) Directive, especially for avoiding or preparing for disasters at the European Coasts.

## CLUSTER 5: Climate, Energy and Mobility

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### **Impact 1: A climate-neutral and resilient society and economy**

**Short description of the impact:** Transition to a climate-neutral and resilient society and economy enabled through advanced climate science, pathways and responses to climate change (mitigation and adaptation) and behavioral transformations.

**R&I contribution:** Advancing climate science and creating a user-centric knowledge base remain essential to catalyze the global transition to a climate neutral and resilient economy. Addressing this challenge will involve research that furthers our understanding of the changing climate and its implications, closes knowledge gaps (as identified in IPCC reports), develops the tools that support decision makers for mitigation and adaptation actions on various time and spatial scales, and evaluates the societal impact of climate change and the technologies required for a low-carbon transition.

The first objective is to accelerate climate action (both mitigation and adaptation) uptake globally in line with

the Paris Agreement and the SDGs, by improving knowledge of the earth system under different socio-economic pathways, estimating the impacts of climate change and by designing and evaluating solutions and pathways for mitigation and adaptation and related social transformation. The second objective is to contribute substantially to key international assessments such as the Intergovernmental Panel on Climate Change (IPCC). The third objective is to strengthen the European research area on climate change.

1. Based on the description above, to what extent do you agree with the following statements:

	Strongly agree	Somewhat agree	Neither agree nor disagree	Somewhat disagree	Strongly disagree
The expected impact is clear	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
R&I will play an important role to reach this impact	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The text describes well the role of R&I and the ambition of the impact	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

2. Would you like to share an original idea or wording suggestion on this impact?

*500 character(s) maximum*

The role of innovation in the 3 objectives should be clearly stated, as should the need for improved knowledge on the role of the ocean in climate change, & the acceleration of climate action using both land- & ocean- based solutions. In addition to contributing to IPCC assessment, IPBES assessments should be included explicitly. We will not achieve a resilient society and economy without essential biodiversity & ecosystem services (i.e. food production, coastal protection, carbon storage.).

## **Impact 2: Clean and sustainable transition of the energy and transport sectors towards climate neutrality**

**Short description of the impact:** Clean and sustainable transition of the energy and transport sectors towards climate neutrality facilitated by innovative cross-cutting solutions.

**R&I contribution:** Many challenges of the energy and transport sectors are closely interlinked and must be addressed in a holistic approach, including with regard to their implications for citizens and society and making use of the social sciences and the humanities (SSH). As regards batteries, R&I activities will develop more performant, sustainable and circular battery technologies according to sectoral needs, thereby sustaining a competitive and sustainable EU battery value chain. With a view to hydrogen, a global leadership role of European industry along a competitive near-zero carbon hydrogen supply chain will be supported with R&I actions targeting improved efficiency, cost, performance, safety and environmental footprint of hydrogen and fuel cell technologies. Synergies and collaboration between these cross-sectoral solutions and their application in down-stream sectoral R&I in energy, transport and industry will be ensured. In addition, emerging and break-through technologies with a high potential for decarbonising the energy and transport sector will be supported.

More than 80% of the EU's population live in urban areas – R&I actions will provide concrete solutions for

urban energy and mobility systems, thereby increasing the overall energy and resource efficiency as well as the climate-resilience of Europe’s cities and communities and their attractiveness to businesses and citizens in a holistic fashion. The low-carbon transition will however only succeed if citizens accept and engage in it – R&I actions will investigate more effective ways to involve citizens, in particular through the Mission on Climate-neutral Cities.

1. Based on the description above, to what extent do you agree with the following statements:

	Strongly agree	Somewhat agree	Neither agree nor disagree	Somewhat disagree	Strongly disagree
The expected impact is clear	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
R&I will play an important role to reach this impact	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The text describes well the role of R&I and the ambition of the impact	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

2. Would you like to share an original idea or wording suggestion on this impact?

*500 character(s) maximum*

A wider do-no-harm concept (see Green Deal) for the entire lifetime and value chain of batteries / hydrogen power etc. should be explicitly considered, in addition to the stated net-zero carbon aim. We urge that research on the environmental impacts of obtaining raw materials included in new battery systems be included. Only aiming at urban areas for this R&I contribution does not go far enough. In many European countries energy use in rural areas are much higher per capita than in urban areas.

**Impact 3: More efficient, clean, sustainable, secure and competitive energy supply**

**Short description of the impact:** More efficient, clean, sustainable, secure and competitive energy supply through new solutions for smart grids and energy systems based on more performant renewable energy solutions .

**R&I contribution:** The transition of the energy system will rely on reducing the overall energy demand and decarbonising the energy supply side. R&I actions will make the energy supply side cleaner, more secure, and competitive by boosting cost performance and reliability of a broad portfolio of renewable energy solutions , in line with societal needs and preferences. Furthermore, R&I activities are needed to underpin the modernisation of the energy networks to support energy system integration, including the progressive electrification of demand side sectors (buildings, mobility, industry) and integration of other decarbonised energy carriers, such as clean hydrogen. Innovative energy storage solutions (including chemical, mechanical, electrical and thermal storage) are a key element of such energy system and R&I actions will advance their technological readiness for industrial-scale and domestic applications. Carbon Capture, Utilisation and Storage (CCUS) is a CO2 emission abatement option that holds great potential and R&I actions will accelerate the development of CCUS in electricity generation and industry applications.

1. Based on the description above, to what extent do you agree with the following statements:

	Strongly agree	Somewhat agree	Neither agree nor disagree	Somewhat disagree	Strongly disagree
The expected impact is clear	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>
R&I will play an important role to reach this impact	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>
The text describes well the role of R&I and the ambition of the impact	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>

2. Would you like to share an original idea or wording suggestion on this impact?

*500 character(s) maximum*

The inclusion of social research & innovation to address social license and transformation for new energy sources and practices will be imperative. In addition, the safety, sustainability & cleanliness of CCUS are not proven. It is imperative that these be thoroughly researched before CCUS are seen as reliable solutions. R&I should focus on renewable energy solutions first rather than on CCUS, which allow for the continued use of non-renewable energy, & are not ambitious enough to reach the SDGs

#### **Impact 4: Efficient and sustainable use of energy, accessible for all**

**Short description of the impact:** Efficient and sustainable use of energy, accessible for all is ensured through a clean energy system and a just transition.

**R&I contribution:** Fostering demand side solutions and improving energy efficiency are among the most cost effective ways to support decarbonisation, to create inclusive growth and employment in Europe, to bring down costs for consumers, to reduce our import dependency and redirect investments towards smart and sustainable infrastructure.

Buildings are pivotal to the energy transition and the achievement of a climate neutral economy and R&I actions will facilitate cost-effective energy renovation of buildings, thereby delivering energy savings, better life-cycle resource efficiency, and a more synergetic interactions of buildings with the energy system and between buildings. Furthermore, R&I is needed to scale the positive impacts from building level to the much more complex district and city level where a maximum of synergies can be achieved, involving citizens and different levels of government. As regards industry, efficient use of decarbonised energy will be optimised at all levels, with a focus on the integration of renewable and low-carbon energy sources and the optimisation of energy flows across integrated industrial installations and the wider energy system.

1. Based on the description above, to what extent do you agree with the following statements:

	Strongly agree	Somewhat agree	Neither agree nor disagree	Somewhat disagree	Strongly disagree
The expected impact is clear	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

R&I will play an important role to reach this impact	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The text describes well the role of R&I and the ambition of the impact	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

2. Would you like to share an original idea or wording suggestion on this impact?

*500 character(s) maximum*

Energy transition should be just, sustainable & efficient FOR ALL. HOW energy demand reductions are achieved in buildings should be considered (e.g. insulation material type (sustainable & recyclable), if “smart” appliances are necessary, how industrial waste (heat) can be re-used & what the environmental cost is. New energy consumption, production & distribution in cities & interconnection between industry & household energy-needs should be better analysed, considering costs & benefits for all.

### **Impact 5: Climate-neutral and environmental friendly mobility**

**Short description of the impact:** Towards climate-neutral and environmental friendly mobility through clean solutions across all transport modes while increasing global competitiveness of the EU transport s e c t o r .

**R&I contribution:** The transport sector is responsible for 23% of CO2 emissions and remains dependent on oil for 92% of its energy demand. While there has been significant technological progress over past decades, projected GHG emissions are not in line with the objectives of the Paris Agreement due to the expected increase in transport demand. Intensified research and innovation activities are therefore needed, across all transport modes and in line with societal needs and preferences, in order for the EU to reach its policy goals towards a net-zero greenhouse gas emissions by 2050 and to reduce significantly air p o l l u t a n t s .

As regards road transport, R&I actions will contribute to the transformation to zero-emission mobility ensuring that Europe remains world leader in innovation, production and services in relation to road transport. The rail system will be supported with R&I action in its transformation focussing on decarbonisation, automation and digitalization. R&I action on aviation will develop enabling and integrated aircraft technologies for deep decarbonisation transformation, reducing all aviation impacts and emissions, and strengthening European aero-industry collaboration and industrial leadership position. With a view to waterborne transport, R&I actions will advance zero-emission solutions in the shipping sector, improve its system efficiency, enhancing digital and EU satellite-navigation solutions and contribute to its competitiveness. To reduce the negative impact of transport on environment and the human health, R&I actions will help to devise more effective ways of reducing emissions and their impacts.

1. Based on the description above, to what extent do you agree with the following statements:

	Strongly agree	Somewhat agree	Neither agree nor disagree	Somewhat disagree	Strongly disagree
The expected impact is clear	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>



R&I will play an important role to reach this impact	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The text describes well the role of R&I and the ambition of the impact	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

2. Would you like to share an original idea or wording suggestion on this impact?

*500 character(s) maximum*

Consider the wider do-no-harm concept (as outlined in the Green Deal) for the entire lifetime and value chain of batteries / hydrogen power or any other innovation coming from R&I actions, in addition to the stated zero emission ambition.

## **Impact 6: Safe, seamless, smart, inclusive, resilient and sustainable mobility systems**

**Short description of the impact:** Safe, seamless, smart, inclusive, resilient and sustainable mobility systems for people and goods thanks to user-centric technologies and services including digital technologies and advanced satellite navigation services.

**R&I contribution:** Europe needs to maintain the competitiveness of its transport industry and manage the transformation of supply-based transport to demand-driven, safe and sustainable mobility services for passenger and freight. Suitable research and innovation initiatives will help to prepare such transformation. Emerging digital technologies and advanced satellite navigation services (Galileo/EGNOS) provide a great potential for developing connected and automated transport and managing traffic across the whole transport network. It can enable significant safety, environmental, economic and social benefits by reducing accidents, traffic congestion, energy consumption and emissions of vehicles and logistics networks while increasing efficiency and productivity of operations and improving working conditions.

To succeed in this transformation, Europe's ageing (and not always sustainable) transport infrastructure needs to be prepared for enabling cleaner and smarter operations.

Research and innovation results will set the basis for future standards and regulatory framework, creating European and global markets. To maximise societal, environmental and economic benefits, in addition to technological solutions, it is essential to address human and social aspects such as: analysis of mobility factors and patterns (for both passenger and freight transport), representations of different social groups and inclusiveness of new solutions, data privacy concerns, capacity building and public acceptance, etc.

1. Based on the description above, to what extent do you agree with the following statements:

	Strongly agree	Somewhat agree	Neither agree nor disagree	Somewhat disagree	Strongly disagree
The expected impact is clear	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
R&I will play an important role to reach this impact	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

The text describes well the role of R&I and the ambition of the impact	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
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2. Would you like to share an original idea or wording suggestion on this impact?

*500 character(s) maximum*

It is suggested that aspects of accessibility and equity and environmental sustainability of transport systems are specifically stated.

Do you have any other comments regarding the expected impacts of this Cluster?

*1500 character(s) maximum*

Actions within this cluster must be policy oriented towards effective implementation. Many solutions already exist for Climate, Energy and Mobility, but other priorities always come first (e.g. migration, COVID crisis). The transition to more sustainable energy and mobility systems for climate change mitigation and adaptation drop down the list, such as the outcomes of the Special European Council of 17-21 July 2020.

## CLUSTER 5 - COHERENCE AND SYNERGIES

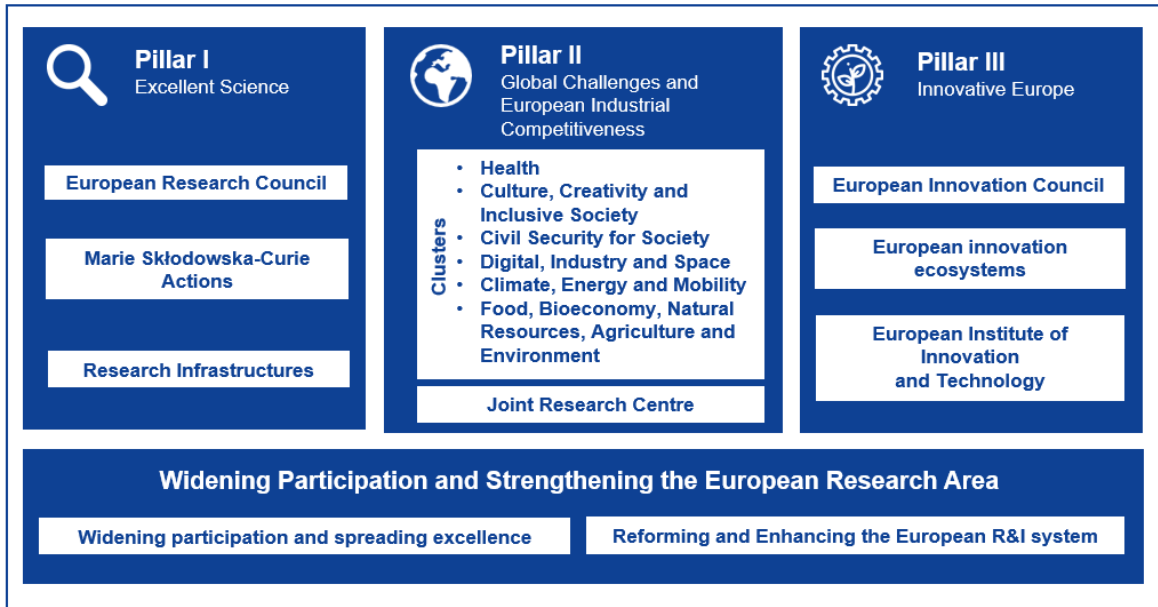
### **Coherence and synergies with other parts of the Framework Programme or with other EU programmes**

In order to maximise the impact of research and innovation on society, environment and economy at large and to contribute to the achievement of the Union's objectives, Union funding programmes must be coherent and work in synergy. Synergies and coherence are based on complementarity between programme design and objectives, as well as financing rules and processes at implementation level.

The Strategic Planning process, and the ensuing implementation process, must ensure the alignment of priorities of the different parts of Horizon Europe and between Horizon Europe and other EU funding programmes, ensuring coherent funding options at different stages of the research and innovation cycle. This includes facilitating the deployment of research results and innovative solutions developed in Horizon Europe (or previous Framework Programmes) with the support of other Union funding programmes.

The following questions seek your views on the priorities for coherence and synergies between this cluster of Horizon Europe and other parts of the Horizon Europe, and other EU funding programmes.

# Horizon Europe Structure



**Missions** shall be programmed within the **Pillar II**, 'Global Challenges and European Industrial Competitiveness', but may also benefit from actions carried out within other parts of the Programme as well as complementary actions carried out under other Union funding programmes.

Horizon Europe Missions are an integral part of the Horizon Europe framework programme. Missions are programmed under Horizon Europe Pillar II. Missions implementation will go beyond research and innovation. Missions will benefit from actions carried out within other parts of the Programme as well as complementary actions carried out at national level and under other Union funding programmes. Each selected mission will be a mandate to solve a pressing challenge in society within a certain timeframe and budget. More information on Missions is available on the [Missions website](#).

1. In your view, how important is coherence between this cluster and other clusters or elements of Horizon Europe Pillar II?

	Very important	Important	Neutral	Not important	Not important at all
Pillar II – Cluster 1 'Health'	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Pillar II – Cluster 2 'Culture, Creativity and Inclusive Society'	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Pillar II – Cluster 3 'Civil Security for Society'	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Pillar II – Cluster 4 'Digital, Industry and Space'	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Pillar II – Cluster 6 'Food, Bioeconomy, Natural Resources, Agriculture and Environment'	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Mission Area 'Cancer'	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Mission Area 'Adaptation to climate change including societal transformation'	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Mission Area 'Healthy oceans, seas coastal and inland waters'	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Mission Area 'Climate-neutral and smart cities'	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Mission Area 'Soil health and food'	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

2. In your view, how important is coherence between this cluster and the other parts of Horizon Europe?

	Very important	Important	Neutral	Not important	Not important at all
Pillar I – Excellent Science: European Research Council	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Pillar I - Excellent Science: Marie-Sklodowska Curie Actions	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Pillar I – Research Infrastructures	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Pillar III - Innovative Europe: European Innovation Council	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Pillar III - Innovative Europe: European Innovation Ecosystems	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Pillar III - Innovative Europe: European Institute of Innovation and Technology	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Widening participation and spreading excellence	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Reforming and enhancing the European R&I system	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

3. In your view, how important are synergies between this cluster and the following other EU funding programmes?

	Very important	Important	Neutral	Not important	Not important at all
European Maritime and Fisheries Fund (EMFF)	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Creative Europe	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Internal Security Fund (ISF)	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>

Border Management and Visa Instrument (BMVI) as part of the Integrated Border Management Fund	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>
European Agricultural Guarantee Fund (EAGF)	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Digital Europe Programme (DEP)	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
European Agricultural Fund for Rural Development (EAFRD)	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
European Space Programme	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other [Note: A field for comments opens at the end of the list, when you select the level of importance]	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
European Social Fund Plus (ESF+)	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
European Regional Development Fund (ERDF)	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Euratom Research and Training Programme	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Neighbourhood, Development and International Cooperation	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Programme for Environment and Climate Action (LIFE)	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Single Market Programme	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
InvestEU	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
European Defence Fund	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Erasmus Programme	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Connecting Europe Facility (CEF)	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Innovation Fund under the Emission Trading Scheme (the 'Innovation Fund')	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

(Other) Please specify:

*500 character(s) maximum*

4. Do you have any other comments or suggestions regarding the expected potential of coherence or synergies with Horizon Europe?

*1500 character(s) maximum*

Coherence across the full scope of Horizon Europe is imperative. The grand challenge of climate change is one that affects every aspect of society and our interaction with our planet. This in turn requires transdisciplinary dialogue and cooperation. No one aspect of Horizon Europe stands truly alone, and to maximise the funding and resources available, synergy must also be maximised. Transdisciplinary sustainability science will be key to ensure coherence across all topics covered in Horizon Europe.

## CLUSTER 6: Food, Bioeconomy, Natural Resources, Agriculture and Environment

### Impact 1: Climate neutrality

**Short description of the impact:** Climate neutrality is achieved by reducing GHG emissions, maintaining natural carbon sinks, and enhancing the sequestration and storage of carbon in ecosystems, including by unfolding the potential of nature based solution, production systems on land and at sea as well as rural and coastal areas, where adaptations to climate change are also being fostered.

**R&I contribution:** Cluster 6 has the potential to deliver significantly on EU climate objectives by accelerating systemic changes. Thanks to R&I the climate mitigation and adaptation potential of ecosystems, primary production systems on land and at sea as well as in food and bio-based systems will be better understood and seized. Innovative production, transformation, distribution consumption and waste management systems will lead to the reduction of GHG emissions in primary and secondary production, notably in agriculture, food and bio-based systems. Innovative approaches will enable maintaining natural carbon sinks and enhance capture and storage functions provided by ecosystems, including soils (in particular organic soils), forests and oceans, primary production systems (e.g., carbon farming and agroforestry) as well as sustainable bio-based industry and products. R&I will also foster adaptation to the impacts of climate change. It will allow resource efficiency and sustainable cascading use of biomass. The ocean-climate nexus will be better understood. R&I will support monitoring, risk-based assessment and forecasting capacities including sea-level rise, and adaptation solutions to extreme sea level events and coastal hazards.

1. Based on the description above, to what extent do you agree with the following statements:

	Strongly agree	Somewhat agree	Neither agree nor disagree	Somewhat disagree	Strongly disagree
The expected impact is clear	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
R&I will play an important role to reach this impact	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The text describes well the role of R&I and the ambition of the impact	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

2. Would you like to share an original idea or wording suggestion on this impact?

*500 character(s) maximum*

Text mentions adaptation but not transformation & this wording should be included. Adaptation refers to continuing our current ways of living & operating the system in a climate change context while transformation refers to changing those systems to be more climate friendly. Reference to R&I to optimize conservation & restoration practices would be useful. Also research into carbon storage potential of the high seas is important as they cover around ½ of the Earth’s surface & are not regulated.

## **Impact 2: Biodiversity decline is halted**

**Short description of the impact:** Biodiversity in Europe is back on a path of recovery by 2030, and ecosystems and their services are preserved and sustainably restored on land, inland water and at sea through improved knowledge and innovation.

**R&I contribution:** Although transformative changes could bend the curve of biodiversity loss, they are currently not happening sufficiently quickly, widely or systemically, requiring the increased mobilization of R&I and all actors. R&I will be used to better observe, understand, monitor, value, restore and manage biodiversity and ecosystem services. Innovative solutions will be designed, up-scaled and implemented, to reverse ecosystems degradation and biodiversity decline, including of pollinators, corals, etc. R&I will also improve conservation, management and use of plant, animal, fungal and microbial genetic resources, thereby preserving and enhancing biodiversity in natural and primary production systems (including agriculture, forestry, aquaculture and fisheries), environmental applications and biodiscovery. Direct and indirect drivers of biodiversity loss will be tackled, and transformative change promoted in all sectors and societal aspects, notably by using natural capital accounting. European R&I will increase its contribution to biodiversity science and policy at European and global level.

1. Based on the description above, to what extent do you agree with the following statements:

	Strongly agree	Somewhat agree	Neither agree nor disagree	Somewhat disagree	Strongly disagree
The expected impact is clear	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
R&I will play an important role to reach this impact	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
The text describes well the role of R&I and the ambition of the impact	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>

2. Would you like to share an original idea or wording suggestion on this impact?

*500 character(s) maximum*

“Back on the path of recovery by 2030” is not ambitious enough. We suggest to re-word to “Starting on the path to recovery in 2021”, or “has recovered by 2030”. You cannot manage biodiversity. You can only manage people thus social sciences are needed. “Direct and indirect drivers of biodiversity loss..by using natural capital accounting.” This disregards social license and other social drivers of change. “R&I will also improve...use of plant, animal, ...” Please include sustainable.

### Impact 3: Sustainable and circular management and use of natural resources

**Short description of the impact:** Sustainable and circular management and use of natural resources as well as prevention and removal of pollution are mainstreamed, unlocking the potential of the bioeconomy, ensuring competitiveness and guaranteeing healthy soil, air, fresh and marine water for all, through better understanding of planetary boundaries and deployment of innovative technologies and other solutions, notably in primary production, forestry and bio-based systems.

**R&I contribution:** Physical and biological planetary boundaries and flows will be better understood and defined, notably in relation to the use and management of natural resources. Innovative solutions for a minimised, circular use of resources and the mainstreaming of circular systems, including at local and regional levels, to increase resource efficiency along and across value chains will be developed, tested and demonstrated. Attention will be given to prevention and mitigation of pollution, including with nutrients, pesticides, plastics and emerging contaminants, towards clean seas and oceans, water, soil and air. The innovative, safe circular approaches, implemented through adequate business models, will ensure competitiveness and contribute to increased and fairly distributed added-value along and across value chains as well as to more attractive jobs in areas which are more socially and economically disadvantaged (e.g. rural areas), especially in the context of the post-COVID-19 pandemic. Innovative circular approaches will enable sustainable management of soil, water resources and nutrients, enhance their value, allow to better cope with the impacts of floods and droughts and reduce the high economic costs related to soil remediation and water pollution prevention, control and removal. R&I will benefit also sustainable forest management and the delivery of multiple forest products and services. Innovative bio-based solutions will unlock the potential of sustainable bioeconomy and replace fossil – based, carbon intensive and harmful materials with innovative, climate-neutral, bio-based, circular, non-toxic materials and chemicals.

1. Based on the description above, to what extent do you agree with the following statements:

	Strongly agree	Somewhat agree	Neither agree nor disagree	Somewhat disagree	Strongly disagree
The expected impact is clear	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
R&I will play an important role to reach this impact	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The text describes well the role of R&I and the ambition of the impact	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

2. Would you like to share an original idea or wording suggestion on this impact?

*500 character(s) maximum*

The objective mentions ocean and marine, but the further text refers to pollution & should also specifically link to blue bio-economy & sustainable use of natural ocean resources & MSP. We suggest to include: "R&I will benefit also sustainable seas and ocean management and the delivery of multiple "blue" products and services." In addition, R&I to improve understanding of the impacts of multiple stressors in the ocean and on land is needed for sustainable and circular management of marine resource



## **Impact 4: Food and nutrition security for all**

**Short description of the impact:** Food and nutrition security for all within planetary boundaries is ensured through knowledge, innovation and digitalisation in agriculture, fisheries, aquaculture and food systems, which are sustainable, resilient, inclusive, safe and healthy from farm to fork.

**R&I contribution:** R&I will be a key driver in accelerating the transition to sustainable, low ecological footprint, healthy and inclusive food system from primary production to consumption. Farmers will be empowered to manage land, soil, water and nutrients in sustainable ways, reduce the use of pesticides and antimicrobials as well as excess fertilisation and to move towards more climate and environment-friendly and resilient agriculture systems. The fish and seafood production will rely on more sustainable fisheries and aquaculture, including with novel foods. Key research areas include governance, AKIS, agroecology, organic farming and diversified farming systems, low trophic aquaculture, plant and animal health (including One-Health approach), animal nutrition, animal welfare, the microbiome, alternative proteins for sustainable agriculture and dietary shift, feed and food safety and traceability, personalised nutrition, prevention and reduction of food losses and waste, and urban food systems transformation. Innovative, climate smart, deforestation free, and sustainable food value chains with balanced power relations will ensure access to a sufficient supply of affordable food to citizens including when facing crisis situations. R&I will advance solutions to shift to sustainable healthy diets. Efforts to boost digitalisation based on fair data economy in agriculture, fisheries, aquaculture, and at the food system level will foster the development of tailored digital technology-based solutions enabling sustainability and transparency, as well as enhance data generation capacities and enhance databases increasing their effectiveness.

1. Based on the description above, to what extent do you agree with the following statements:

	Strongly agree	Somewhat agree	Neither agree nor disagree	Somewhat disagree	Strongly disagree
The expected impact is clear	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
R&I will play an important role to reach this impact	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The text describes well the role of R&I and the ambition of the impact	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

2. Would you like to share an original idea or wording suggestion on this impact?

*500 character(s) maximum*

The description puts a lot of emphasis on the digital economy and none on the social license, and social sciences needed to implement a change in eating habits and food waste practices.

## **Impact 5: Sustainable development of rural, coastal and urban areas is achieved**

**Short description of the impact:** Rural coastal and urban areas are developed in a sustainable, balanced and inclusive manner thanks to a better understanding of the environmental, socio-economic, behavioural

and demographic drivers of change as well as deployment of digital, social and community-led innovations.

**R&I contribution:** The differential impacts of climate, environmental, socio-economic and demographic changes on rural, coastal and urban areas, will be better understood and turned into equal opportunities for people wherever they live, enhancing territorial cohesion. Transdisciplinary R&I with a strong social sciences dimension will improve understanding of the behaviours and values of producers, consumers and all other actors, with attention to the gender aspects. People will have also more equitable access to knowledge and skills required for making informed choices and being actively engaged in sustainable management of natural resources, from production to consumption and disposal. Rural, coastal and urban communities, in particular women and the most vulnerable groups and those hit hardest by the COVID-19 pandemic, will see their labour conditions, quality of life, access to services and long-term socio-economic prospects in the context of major transitions and rising health threats improved. Their capacity to drive community-led innovations will be enhanced. Mobilising the forces of digital transformation, nature-based solutions, as well as social and policy innovation will facilitate those changes and support smart, environment friendly, climate-neutral and resilient lifestyles. In marine and costal environments, emphasis will be put on ecosystem protection, climate adaptation and resilience.

1. Based on the description above, to what extent do you agree with the following statements:

	Strongly agree	Somewhat agree	Neither agree nor disagree	Somewhat disagree	Strongly disagree
The expected impact is clear	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
R&I will play an important role to reach this impact	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The text describes well the role of R&I and the ambition of the impact	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

2. Would you like to share an original idea or wording suggestion on this impact?

*500 character(s) maximum*

It is suggested that issues around accessibility of different types of areas for all people should also be included in this text. Please also include all diversity, not only gender.

## **Impact 6: Established Innovative governance models enable sustainability and resilience**

**Short description of the impact:** Innovative governance models enabling sustainability and resilience are established and monitored through enhanced and shared use of new knowledge, tools, foresight, and environmental observations as well as digital, modelling and forecasting capabilities.

**R&I contribution:** R&I will provide strong evidence-based knowledge and tools to support policy design, implementation and monitoring for achieving the necessary transformative changes. Environmental observations will be enhanced and metrics improved, including for ocean exploration, conservation and the digital ocean. Particular efforts will be dedicated to support the development of digital twins of the Earth

systems in collaboration with the Destination Earth initiative of the European strategy for data. By supporting better understanding of the impacts of global changes, environmental observations as well as the application of digital and big data technologies to assess socio-economic and environmental aspects, systems and flows will provide solid and reliable information and enable sound decision making and adaptation measures. Moreover, effective knowledge and innovation systems will encourage multi-actor, risk-aware, place-based and community-led innovations to benefit all, from primary producers to consumers. The EU's and international science-policy interfaces will be strengthened with a view to establish governance models fostering sustainable solutions to be applied.

1. Based on the description above, to what extent do you agree with the following statements:

	Strongly agree	Somewhat agree	Neither agree nor disagree	Somewhat disagree	Strongly disagree
The expected impact is clear	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
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2. Would you like to share an original idea or wording suggestion on this impact?

*500 character(s) maximum*

There is no clear role for society. Refer to a science-society-policy interface & extend aim to specify co-design of innovative governance approaches. Social science research is needed to determine the most suitable governance models. Reference is made to digital & big data technologies, but that will be insufficient without other modelling techniques for a true digital twin. A diversity of methods will be needed for sound decision making. R&I to expand safe & reliable use of AI is important.

Do you have any other comments regarding the expected impacts of this Cluster?

*1500 character(s) maximum*

Actions coming this cluster must be policy oriented, towards an effective implementation. Many solutions already exist for Food, Bioeconomy, Natural Resources, Agriculture and Environment, but always other priorities come first (e.g. migration, COVID crisis), and the transition to a real sustainable and inclusive bioeconomy drop down the list, such as the outcomes of the Special European Council of 17-21 July 2020.

## CLUSTER 6 - COHERENCE AND SYNERGIES

### **Coherence and synergies with other parts of the Framework Programme or with other EU programmes**

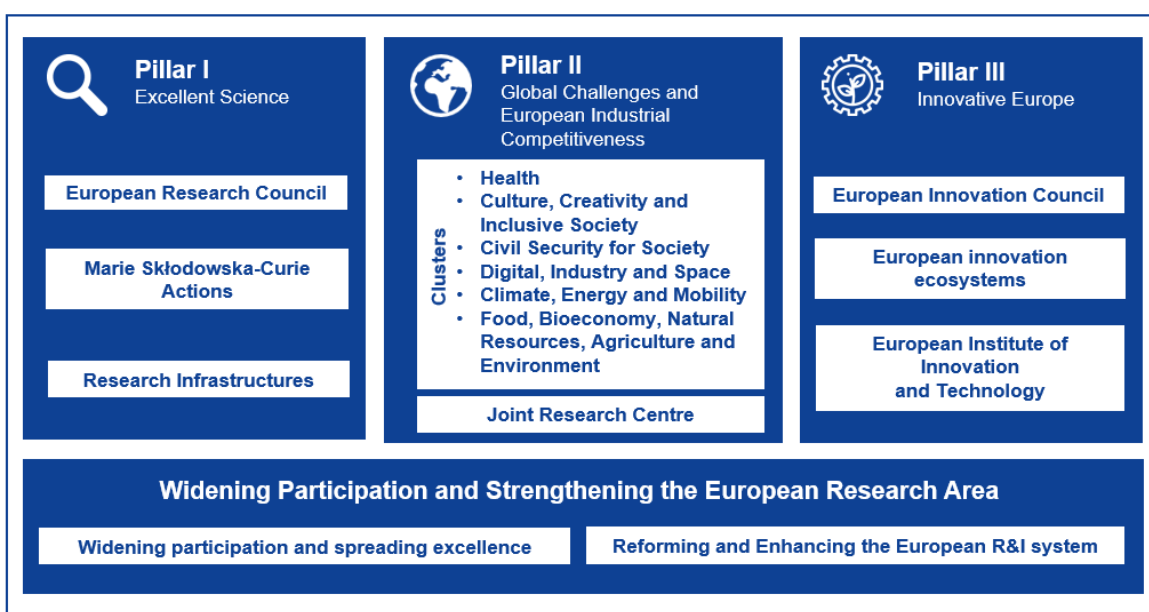
In order to maximise the impact of research and innovation on society, environment and economy at large and to contribute to the achievement of the Union's objectives, Union funding programmes must be

coherent and work in synergy. Synergies and coherence are based on complementarity between programme design and objectives, as well as financing rules and processes at implementation level.

The Strategic Planning process, and the ensuing implementation process, must ensure the alignment of priorities of the different parts of Horizon Europe and between Horizon Europe and other EU funding programmes, ensuring coherent funding options at different stages of the research and innovation cycle. This includes facilitating the deployment of research results and innovative solutions developed in Horizon Europe (or previous Framework Programmes) with the support of other Union funding programmes.

The following questions seek your views on the priorities for coherence and synergies between this cluster of Horizon Europe and other parts of the Horizon Europe, and other EU funding programmes.

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1. In your view, how important is coherence between this cluster and other clusters or elements of Horizon Europe Pillar II?

	Very important	Important	Neutral	Not important	Not important at all
Pillar II – Cluster 1 'Health'	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Pillar II – Cluster 2 'Culture, Creativity and Inclusive Society'	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Pillar II – Cluster 3 ‘Civil Security for Society’	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Pillar II – Cluster 4 ‘Digital, Industry and Space’	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Pillar II – Cluster 5 ‘Climate, Energy and Mobility’	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Mission Area ‘Cancer’	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Mission Area ‘Adaptation to climate change including societal transformation’	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Mission Area ‘Healthy oceans, seas coastal and inland waters’	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Mission Area ‘Climate-neutral and smart cities’	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
Mission Area ‘Soil health and food’	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

2. In your view, how important is coherence between this cluster and the other parts of Horizon Europe?

	Very important	Important	Neutral	Not important	Not important at all
Pillar I – Excellent Science: European Research Council	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Pillar I - Excellent Science: Marie-Sklodowska Curie Actions	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Pillar I – Research Infrastructures	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Pillar III - Innovative Europe: European Innovation Council	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Pillar III - Innovative Europe: European Innovation Ecosystems	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Pillar III - Innovative Europe: European Institute of Innovation and Technology	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Widening participation and spreading excellence	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Reforming and enhancing the European R&I system	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

3. In your view, how important are synergies between this cluster and the following other EU funding programmes?

	Very important	Important	Neutral	Not important	Not important at all
Border Management and Visa Instrument (BMVI) as part of the Integrated Border Management Fund	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
Internal Security Fund (ISF)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Digital Europe Programme (DEP)	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
European Social Fund Plus (ESF+)	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
European Agricultural Guarantee Fund (EAGF)	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
European Space Programme	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
European Agricultural Fund for Rural Development (EAFRD)	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Euratom Research and Training Programme	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other [Note: A field for comments opens at the end of the list, when you select the level of importance]	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
Programme for Environment and Climate Action (LIFE)	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Single Market Programme	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
European Regional Development Fund (ERDF)	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Innovation Fund under the Emission Trading Scheme (the 'Innovation Fund')	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
InvestEU	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Erasmus Programme	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Creative Europe	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Neighbourhood, Development and International Cooperation	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Connecting Europe Facility (CEF)	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
European Defence Fund	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
European Maritime and Fisheries Fund (EMFF)	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

(Other) Please specify:

*500 character(s) maximum*

4. Do you have any other comments or suggestions regarding the expected potential of coherence or synergies with Horizon Europe?

*1500 character(s) maximum*

## Contact

[Contact Form](#)