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1. /BMBF/ Online-Informationsveranstaltung Mission Krebs & NKS Gesundheit, 25. Mai um 10 Uhr

In den fünf Europäischen Missionen zu den Themen Krebs, Klimaanpassung, Gewässer, Städte und Böden werden in Kürze neue Ausschreibungen veröffentlicht.

In mehreren thematischen Online-Informationsveranstaltungen präsentieren Ihnen die jeweils beratenden Nationalen Kontaktstellen (NKS) vom 29. April - 25. Mai 2022 Informationen zu folgenden Fragen:

- Was sind die Missionen in Horizont Europa?
- Welche europäischen Herausforderungen sollen mit ihnen gelöst werden?
- Welche Ausschreibungsthemen gibt es in den verschiedenen Missionen?

Alle Veranstaltungen finden vormittags ab 10:00 Uhr statt:

- 29.04.2022 Einführung in die Missionen & NKS Bioökonomie und Umwelt
- 11.05.2022 Mission Städte & NKS Klima, Energie und Mobilität
- 12.05.2022 Mission Böden & NKS Bioökonomie und Umwelt
- 19.05.2022 Mission Gewässer & NKS Bioökonomie und Umwelt
- 20.05.2022 Mission Klimaanpassung & NKS Klima, Energie und Mobilität
- 25.05.2022 Mission Krebs & NKS Gesundheit (10:00 Uhr bis ca. 11:00 Uhr)

Die Teilnahme ist kostenfrei.

Für die Veranstaltung müssen Sie sich bis zum 23. Mai 2022 anmelden.

Weitere Informationen:

<https://www.nksgesundheit.de/de/Missionen-in-Horizont-Europa-Ihre-Fordermöglichkeiten-in-der-Krebs-mission-2769.html>

2. /HORIZON EUROPE/ Advanced Low Weight Integrated Fuselage and Empennage for Short Range and Short-Medium Range Aircraft, deadline: 23. June 2022 17:00 Brussels time

With the greater attention to environmental aspects (even with stringent regulations) and higher market demand, the mid-2030s are expected to see the entry of a new generation of SR/SMR aircraft (with a capacity of up to 250 seats) aiming towards sustainable climate-neutral flight. While hybrid/electric energy architectures are considered to pave the way towards climate-neutral aviation on routes shorter than 1000 km, aircraft for classical short and medium-range distances, i.e. from 1000 km up to 3700 km, will rely on ultra-efficient aircraft designs and ultra-efficient thermal energy-based propulsion technologies using sustainable drop-in and non-drop-in fuels.

A novel fuselage and empennage design is one of the key enablers for the successful realization of hydrogen-powered SR/SMR aircraft with a targeted energy consumption reduction of minimum 15%¹²⁷.

- The assumptions relative to the aircraft operating envelope, to the flight mission profile, to the aircraft range, to the aircraft cruise speed, to the aircraft seating capacities and to the main aircraft sizing parameters in general, shall be fully consistent with those applicable in the SR/SMR aircraft architectures¹²⁸.

- Consistent fuselage and empennage requirements shall be derived accordingly from the SR/SMR aircraft architectures¹²⁹. Any deviation from these references as a result of different configuration effects (e.g., for technical feasibility, project viability reasons, or for optimizing the project outcome) should be identified and substantiated.

The scope of this topic is to deliver a design of a minimum environmental impact fuselage and empennage including the relevant technology bricks expected to meet TRL 4 at integrated fuselage level and TRL 4 at integrated empennage level at project completion and compatible with SR/SMR hydrogen-powered aircraft concept(s) selected at the end of 2025 as well.

The hydrogen-powered propulsion system will come with challenges in system integration and in aircraft integration. Therefore, a fuselage and empennage design and the enabling technologies need to be developed and validated in close connection with solutions and choices at aircraft, system and component level, and taking into account interdependencies.

The future potential use of hydrogen as energy source requires the development and demonstration of compatible technologies and sub-systems that will have an impact on the fuselage and empennage, as well as on the aircraft architecture. Inputs from relevant hydrogen technology developments (e.g. H2 distribution system), as well as from the propulsion system will be delivered by separated projects launched under Clean Aviation.

The goal is to achieve is TRL 4 at integrated fuselage level and TRL 4 at integrated empennage level at project completion duly supported by component and subsystem ground tests at appropriate scale at project completion, so that the selected fuselage and empennage designs can be further matured in the Clean Aviation Programme and embedded and integrated in a specified architecture for (flight) demonstration. Scalability to other applications is an opportunity to be pursued. Life cycle aspects should be considered in the overall environmental impact.

Further Information:

<https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/horizon-ju-clean-aviation-2022-01-smr-03;callCode=null;freeTextSearchKeyword=;matchWholeText=true;typeCodes=1;statusCodes=31094502;programmePeriod=2021%20-%202027;programCcm2Id=43108390;programmeDivisionCode=null;focusAreaCode=null;destination=null;mission=null;geographicalZonesCode=null;programmeDivisionProspect=null;startDateLte=null;startDateGte=null;crossCuttingPriorityCode=null;cpvCode=null;performanceOfDelivery=null;sortQuery=startDate;orderBy=asc;onlyTenders=false;topicListKey=topicSearchTablePageState>

3. /HORIZON EUROPE/ Multi-WM Hybrid-Electric Propulsion System for Regional Aircraft, deadline: 23. June 2022 17:00 Brussels time

Today, three different propulsion system concepts have the potential to achieve the emissions reduction objective. All concepts will drive propellers to maximize propulsive efficiency as required in the given typical regional mission and range. The propulsion concepts are associated each to a reference aircraft configuration and size and scalability potential and limits shall be analyzed both quantitatively and qualitatively:

- Electric motors on wing + LH2 fuel cells (full electric) (up to 50 passengers range)
- Electric motors on wing + turbogenerator + batteries or fuel cells (serial hybrid) (50<passengers< 85)
- gas turbines on wing + motor/generator + batteries or fuel cells (parallel hybrid) (50<passengers< 85)
- H2 burning gas turbines on wing (> 85 passengers)
- H2 burning gas turbines on wing + motor/generator + batteries or H2 fuel cells (H2 parallel hybrid) (> 85 passengers)

Proposed solutions shall explore critical ground situations linked to sizing or off-design conditions such as little or no relative cooling flow in hot & high conditions during taxiing within HER typical operative range on ground and in flight.

The project shall provide relevant data to the other relevant project(s) on aircraft architecture 42 in order to estimate performance elements such as aircraft noise, cabin noise and comfort, acquisition and operating costs, and overall system maintenance and reliability. Results should be provided in a comparative way for different configurations that will be studied, highlighting the advantages and drawbacks, finally proposing / substantiating the optimal selection (s). Each project is encouraged to

exploit the involvement and expertise of EASA to de-risk and secure the certification process of novel hybrid-electric propulsion technologies.

The project shall take into account:

- the specifications for propulsive and non-propulsive energy requirements at a/c level from the targeted a/c concept
- the potential engine architectures selected for the targeted a/c concept
- the targeted operating envelope / mission (profile), to be consistent with the one assumed in the corresponding HER aircraft architecture and configuration topic.
- The research and further development of components where relevant and validation of the following sub-systems up to TRL5 (ground demonstration) at the 2 to 5 MW power level, in 2025:
 - Development of electrical components such as but not limited to electric motors, motor/generators, turbogenerators, etc. The maturity target is TRL 5, to be achieved by subsystem tests
 - Propellers, including folding propellers, and its integration into the overall hybrid powerplant system, including pitch control system development and its integration into powerplant control system and monitoring.
 - Hybrid System enablers such as but not limited to batteries, fuel cells, power distribution. The maturity target is TRL 5, to be achieved by subsystem tests.
 - Advanced Thermal Engine optimization (including hybridization) and related integration with electrical system, nacelle systems cooling/ventilation etc. The maturity target is TRL 5, to be achieved by subsystem tests with appropriate sizing and performance, may be not at real scale and operating environment but assuring their scalability to the HER requirements.
 - The propulsion system efficiency improvement targets shall be transformed into appropriate metrics, such as cruise specific fuel consumption (fuel to mechanical shaft power) for clarity and comparisons capability.
 - Quantified reduction potential in CO₂ and all other relevant GHG emissions (see performance targets section below) are expected to be derived from the project (both in terms of actual demonstrated and potential performance impact); further reduction potential beyond the target in one or several of the known GHG emissions related to aviation propulsion will receive strong consideration within the evaluation of proposals

Further Information:

<https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/horizon-ju-clean-aviation-2022-01-her-01;callCode=null;freeTextSearchKeyword=;matchWholeText=true;typeCodes=;typeCodes=1;statusCodes=31094502;programmePeriod=2021%20-%202027;programCcm2Id=43108390;programDivisionCode=null;focusAreaCode=null;destination=null;mission=null;geographicalZonesCode=null;programmeDivisionProspect=null;startDateLte=null;startDateGte=null;crossCuttingPriorityCode=null;cpvCode=null;performanceOfDelivery=null;sortQuery=startDate;orderBy=asc;onlyTenders=false;topicListKey=topicSearchTablePageState>

4. /HORIZON EUROPE/ Direct Combustion of Hydrogen in Aero-engines, deadline: 23. June 2022 17:00 Brussels time

Hydrogen can be considered as a potential energy source for aviation as shown in a recent independent study, jointly commissioned by the Clean Sky 2 and Fuel Cells & Hydrogen 2 Joint Undertakings. Hydrogen can be used as a fuel for aircraft when it is burned in an H₂-fuelled engine or reacted in a fuel cell powering electric motors. Hydrogen combustion allows for the complete elimination of CO₂ and most of the non-volatile Particulate Matter (nvPM) at the exhaust, leaving water vapour and nitrogen oxides (NO_x) as main combustion emissions. In time, hydrogen fuel may also be generated carbon-free - resulting in absolute zero-CO₂ emissions over the entire fuel life cycle. In time, NO_x emissions from H₂ direct combustion may be substantially reduced by novel combustion technologies (advanced lean-mixture

concepts, "micromix" type

combustors, etc.) without significant impact on combustion efficiency.

Why direct combustion? Roughly half of today's kerosene consumption - which directly correlates with CO₂ emissions - comes from flights operated in the 1000-3000 km range aircraft. Regional and short-medium range aircraft offer a unique introduction opportunity for hydrogen (given their typical mission against the aircraft size and capability), but they will need to rely on H₂ "direct burn", as the power density of fuel cell systems is still likely to be insufficient for such high-power applications.

The topic aims to demonstrate the technical feasibility of direct combustion of hydrogen in a gas turbine (donor engine). The following key issues are within the scope of the topics and should be taken into consideration:

- Safety: at least equivalent or even better safety levels must be achieved for an H₂ Direct Combustion propulsion system versus the well-proven conventional jet-fuel technology.
- Technological challenges at system and sub-system level, in particular the fuel injection system and associated H₂ combustion chamber sizing and design, and the fuel delivery systems.

Although not requested as a mandatory outcome of the topic, the following challenges, towards accelerating the introduction of H₂ Direct Combustion Propulsion Systems, are also considered to be within the scope of this topic and may be covered in a proposal:

- H₂ distribution and conditioning.
- H₂ injection and combustion.
- The achievement of "Ultra-low" NO_x emission levels with similar combustion efficiencies and satisfactory stability characteristics.
- The management of system packaging (volume, weight) and complexity.
- Improved overall efficiency at engine level to enable acceptable tank size for airframe integration.
- Exploration of dual-fuel operation

The H₂ Direct Combustion early Demo Engine power/thrust class will be aligned to one of the two following target power/thrust class scenarios in relation with the HER and/or SR/SMR aircraft concepts:

- Turboprop option: 5000 shp at MTO sea level static
- Turbofan option: 20,000 lbf thrust at sea level static, Mn 0.25, ISA +15K

Phase 2 is expected to target a turboprop engine with more than 5,000 shp or a turbofan engine with at least 20,000 lbf (all sea level static) as a minimum requirement for future SMR integrated propulsion system. Final requirements, for the second phase, are expected to be defined during Phase 1, in accordance with the Airframer, to properly support the substantiation of H₂ Direct Combustion Aircraft EIS by 2035.

The climate impact assessment of hydrogen direct combustion at altitude is not within the scope of this topic which is limited to ground tests, up to permit-to-fly. GHG emissions at altitude and climate impact assessment will be addressed in a subsequent dedicated topic in a later call for proposals for flight tests. However, analytical or virtual flight test predictions (for a typical mission) are highly desirable.

Further Information:

<https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/horizon-ju-clean-aviation-2022-01-hpa-01;callCode=null;freeTextSearchKeyword=;matchWholeText=true;typeCodes=;typeCodes=1;statusCodes=31094502;programmePeriod=2021%20-%202027;programCcm2Id=43108390;programDivisionCode=null;focusAreaCode=null;destination=null;mission=null;geographicalZonesCode=null;programmeDivisionProspect=null;startDateLte=null;startDateGte=null;crossCuttingPriorityCode=null;cpvCode=null;performanceOfDelivery=null;sortQuery=startDate;orderBy=asc;onlyTenders=false;topicListKey=topicSearchTablePageState>

5. /HORIZON EUROPE/ Near Term Disruptive for Hydrogen-Powered Aircraft, deadline: 23. June 2022 17:00 Brussels time

The primary objective of this topic is twofold:

- Ground Test (flight ready testbed) of a Small Scale Fuel Cell HIPS (Hydrogen Integrated Propulsion System)
- Flight Test of a Small Scale LH2 Integral Tank

For the HIPS Ground Test, the goal is to achieve TRL 5 at overall propulsion system level at project completion duly supported by component and subsystem ground tests at appropriate scale at project completion, so that the selected propulsion concept can be further matured in the Clean Aviation Programme and embedded and integrated in a specified architecture for (flight) demonstration. Scalability to other applications is the main opportunity to be pursued.

For the Tank Flight Tests, the goal is to achieve TRL 5 at storage system level at project completion duly supported by component and subsystem ground tests at appropriate scale at project completion, so that the selected storage concept can be further matured in the Clean Aviation Programme and embedded and integrated in a specified architecture. Scalability to other applications is the main opportunity to be pursued. Consideration should be given to aspects such as, but not limited to, refilling operations, considering the coupling and control interface, as well as the safety and reliability issues required to allow aircraft refuelling according to the performance targets in all the possible vessel state conditions (cold, warm, level, pressure) and according to a/c regulations.

The project shall also deliver digital twins of the components, subsystems and the full propulsion system compatible with the reference aircraft digital framework and requirements, in order to regularly assess the contribution to the overall aircraft performance in the context of the impact monitoring framework. These models shall be continuously validated and updated at each TRL loop.

The topic aims to:

- de-risk the development of disruptive LH2 storage solutions and Fuel Cell based power train architectures;
- validate and verify these solutions on a smaller scale demonstrator with the opportunity for disruptive quick market implementation;
- facilitate their implementation in the HER and SR/SMR aircraft concepts.

Both SMR and HER thrusts in Clean Aviation are relying on technology development, maturation and validation of key technologies within the H2 pillar. Rapidly maturing these technologies with an agile and iterative approach on lower risk certification classes will enable Clean Aviation to follow the ambitious timeline and shorten the time to bring new products to market and into service while maintaining European leadership and competitiveness.

The Fuel Cell HIPS system to be ground tested is expected to be based on State-of-the-Art components simulating a complete drive train system: LH2 storage tank, fuel distribution system, FC including Balance of Plant and thermal management, high voltage electrical distribution network and power conversion (potentially including batteries or super-capacitors), and loads (propulsive and non-propulsive, i.e. electric motor(s) with propeller, ECS, etc.).

Aircraft level demonstrations of fuel delivery and boil-off management must showcase compatibility not only with aircraft energy storage function but also with the envisioned concepts of operation (considering also power and trajectory management during flight).

The storage structure to be flight-tested in the cargo deck (of a freight transport aircraft for example) is expected to be a state-of-the-art vacuum insulated integral tank (metallic/composite non-conformal/cylindrical inner tank with outer composite shell as external load bearing structural part) including boil-off management, gas leak detection system, venting, metering and health monitoring.

The project should focus in a first step on manufacturing such an integral tank including relevant instrumentation for flight test, targeting a flight test campaign in a second step. Flight tests are expected to be completed within the 36 month project period.

Further Information:

<https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/horizon-ju-clean-aviation-2022-01-hpa-04;callCode=null;freeTextSearchKeyword=;matchWholeText=true;typeCodes=;typeCodes=1;statusCodes=31094502;programmePeriod=2021%20-%202027;programCcm2Id=43108390;programDivisionCode=null;focusAreaCode=null;destination=null;mission=null;geographicalZonesCode=null;programmeDivisionProspect=null;startDateLte=null;startDateGte=null;crossCuttingPriorityCode=null;cpvCode=null;performanceOfDelivery=null;sortQuery=startDate;orderBy=asc;onlyTenders=false;topicListKey=topicSearchTablePageState>

6. /HORIZON EUROPE/ Multi-WM Fuel Cell Propulsion System for Hydrogen-Powered Aircraft, deadline: 23. June 2022 17:00 Brussels time

Hydrogen can be considered as a potential source of energy for aviation as shown in a recent independent study¹⁴, jointly commissioned by the Clean Sky 2 and Fuel Cells & Hydrogen 2 Joint Undertakings. Hydrogen can be used as a "fuel" for aircraft when it is burnt in an H₂ fuelled engine or reacted in a fuel cell, powering electric motors. While Hydrogen combustion allows for the elimination of CO₂ and most of the non-volatile Particulate Matter (nvPM) at the exhaust, its emissions leave an increased amount of water vapour, as well as nitrogen oxides (NO_x), although there is longer term potential to reduce those by new combustor technologies.

Hydrogen Fuel Cells, on the other hand, are probably the cleanest power generation source that may be envisaged for aircraft propulsion, as they produce no CO₂, no NO_x, and no particulates; only water and heat as by-products of the reaction of Hydrogen with Oxygen.

The topic aims to demonstrate the technical feasibility of a multi-MW Fuel Cell Propulsion System for Hydrogen-Powered Aircraft. In terms of propulsion system or complete drive train, in principle, three different concepts have the potential to achieve the GHG emissions reduction objective of -30% (at aircraft level) for regional aircraft applications. All concepts will drive propellers to maximize propulsive efficiency as required for the given typical regional mission and range. The propulsion concepts are associated each to a reference aircraft configuration, size, scalability potential and limits:

- Electric motors on wing + LH₂ Fuel Cells (full electric) (~ 50 passengers range)
- Electric motors on wing + Turbo-generator + Batteries or Fuel Cells (serial hybrid) (50 < passengers < 85)
- Gas Turbines on wing + Motor/Generator + Batteries or Fuel Cells (parallel hybrid) (50 < passengers < 85)
- H₂ burning Gas Turbines on wing (> 85 passengers < 100)
- H₂ burning Gas Turbines on wing + Motor/Generator + Batteries or H₂ Fuel Cells (H₂ parallel hybrid) (> 85 passengers < 100)

While propulsion concepts no. 2a) and 2b) as well as technology bricks for electric motors, motor/generators, turbogenerators, batteries and hybrid turboprop engines will be developed in the HER thrust¹⁶ of the Clean Aviation partnership, the benchmark and trade-off analyses to achieve a propulsion architecture suitable to HER will be performed under the HER architecture / platform project in close coordination with the H₂ Thrust.

Technologies other than PEM (Polymer Electrolyte Membrane) Fuel Cells are considered not mature enough to have concrete application and/or demonstration within the Clean Aviation timeframe.

Therefore, such technologies are not in-scope of this topic. Their maturation shall be performed in other dedicated research programmes.

The coordination with the HER aircraft architecture and propulsion systems related projects, as well as with relevant activities performed outside of Clean Aviation will be key to ensure consistency at all levels CAJU-GB-2022-03-16 Annex Call 1 topics descriptions 18 (concept, configuration, programmatic, timing, objectives, orientations, etc.) and overall work

optimization/efficiency relative to the whole aircraft, systems, sub-systems and components, in anticipation of future work subsequent to this project.

Further Information:

<https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/horizon-ju-clean-aviation-2022-01-hpa-02;callCode=null;freeTextSearchKeyword=;matchWholeText=true;typeCodes=;typeCodes=1;statusCodes=31094502;programmePeriod=2021%20-%202027;programCcm2Id=43108390;programDivisionCode=null;focusAreaCode=null;destination=null;mission=null;geographicalZonesCode=null;programmeDivisionProspect=null;startDateLte=null;startDateGte=null;crossCuttingPriorityCode=null;cpvCode=null;performanceOfDelivery=null;sortQuery=startDate;orderBy=asc;onlyTenders=false;topicListKey=topicSearchTablePageState>

7. /HORIZON EUROPE/ Ultra Efficient Propulsion System for Short and Short-Medium Range Aircraft, deadline: 23. June 2022 17:00 Brussels time

With the greater attention to environmental aspects (even with stringent regulations) and higher market demand, the mid-2030s are expected to see the entry of a new generation of SR/SMR aircraft (with a capacity of up to 250 seats) aiming towards sustainable climate-neutral flight. While hybrid/electric energy architectures are considered to pave the way towards climate-neutral aviation on routes shorter than 1000 km, aircraft for classical short and medium-range distances, i.e. from 1000 km up to 3700 km, will rely on ultra-efficient aircraft designs and ultra-efficient thermal energy-based propulsion technologies using sustainable drop-in and non-drop-in fuels.

Propulsion represents a major challenge for the successful realization of the SR/SMR aircraft with a targeted fuel burn reduction of minimum 20%⁹² at overall engine / propulsion system level, supporting a fuel burn reduction of 30%⁹³ at aircraft level.

- The assumptions relative to the aircraft operating envelope, to the flight mission profile, to the aircraft range, to the aircraft cruise speed, to the aircraft seating capacities and to the main aircraft sizing parameters in general, shall be fully consistent with those applicable in the SR/SMR aircraft architectures⁹⁴.

- Consistent propulsion power requirements shall be derived accordingly from the SR/SMR aircraft architectures⁹⁵. Any deviation from these references as a result of different configuration effects (e.g., for technical feasibility, project viability reasons, or for optimizing the project outcome) should be identified and substantiated.

This topic is intended to deliver a novel engine architecture expected to meet, by project completion, a technology maturity levels at TRL5 for Configurations 1 and 2, and TRL4 for Configuration 3, and to be compatible with the SR/SMR aircraft concepts selected at that time. Engine integration activities are addressed within a separate topic dedicated to aircraft architecture concepts.

Novel propulsion technologies will bring challenges in system integration as well as in aircraft integration. Therefore, they need to be developed and validated in close connection with solutions and choices at aircraft, system and component level, while taking into account interdependencies.

The future potential use of hydrogen as energy source requires the development and demonstration of compatible technologies (e.g. hydrogen burning engines) and sub-systems that will have an impact on the propulsion system architecture, as well as on the aircraft architecture. Inputs from relevant hydrogen technology developments (e.g. hydrogen-burn technologies) will be delivered by a separate project launched under the hydrogen dedicated part of Clean Aviation programmes.

Proposed concepts will build on, adapt, complement and add to DO 160, DO 178 and CS-25 and other regulations to highlight any gaps and maximize the impact potential, and to enable new certification standards, while maintaining or enhancing safety levels. The project shall propose a qualification and certification plan suitable to SR/SMR aircraft. It shall support Clean Aviation initiatives to define new certification or qualification rules as well new standardisation efforts concerning the areas of the project and others related to them. Any specific safety or certification issue should be highlighted, and mitigation action should be proposed.

Each project is encouraged to exploit the involvement and expertise of EASA to de-risk and secure the certification of novel engine technologies.

Further Information:

<https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/horizon-ju-clean-aviation-2022-01-smr-01;callCode=null;freeTextSearchKeyword=;matchWholeText=true;typeCodes=;typeCodes=1;statusCodes=31094502;programmePeriod=2021%20-%202027;programCcm2Id=43108390;programDivisionCode=null;focusAreaCode=null;destination=null;mission=null;geographicalZonesCode=null;programmeDivisionProspect=null;startDateLte=null;startDateGte=null;crossCuttingPriorityCode=null;cpvCode=null;performanceOfDelivery=null;sortQuery=startDate;orderBy=asc;onlyTenders=false;topicListKey=topicSearchTablePageState>

8. /HORIZON EUROPE/ Novel Certification Methodas and Means of Compliance for Disruptuve Technologies, deadline: 23. June 2022 17:00 Brussels time

With the greater attention to environmental aspects (even with stringent regulations) and higher market demand, the mid-2030s are expected to see a change of scenario of air mobility in the regional range, i.e. with a sizing mission of around 1000 km and a typical sector distance flown of around 400- 500 km, and the entry of a new generation aircraft for the short and short-medium-range, i.e. with typical mission range from 1000 Km and up to 3700 km, aiming towards sustainable climate-neutral flight. While hybrid/electric energy architectures are considered to pave the way towards climate- neutral regional aircraft (with a capacity of up to 100 seats), SR/SMR aircraft (with a capacity of up to 250 seats) are expected to rely on ultra-efficient aircraft designs and ultra-efficient thermal energy- based propulsion technologies using sustainable drop-in and non-drop-in fuels.

Certification is a major challenge for the successful realization of the HER and SR/SMR aircraft 163 with a targeted fuel burn reduction of minimum 50% and 30%, respectively, and compatible with Entry into Service (EIS) 2035. In order to identify the critical areas and regulatory gaps linked to the disruptive technologies and concepts of operation, it is essential to analyse the risks of existing regulations, such as but not limited to CS23/FAR23, CS25/FAR25 and CS-E.

This topic is intended to deliver a novel framework for certification enabling the compliance of innovative and disruptive technologies, systems and architectures with certification requirements and a safe integration of these new sustainable concepts, and compatible with the HER and SR/SMR aircraft concepts and systems selected at the end of phase 1. The project should be built on two main streams of activities (closely connected with all the projects of the three main thrusts 166) focusing on process and methods development and means of compliance set up and optimisation.

More robust processes and methods are mandatory to guarantee the compliance of innovative and disruptive technologies (e.g. hydrogen technologies) and architectures with certification requirements and a safe integration of these new sustainable concepts. In this context, defining key inputs/dispositions on process and methods for draft certification conditions is an essential step to future certification basis and the implementation of new regulations and potential new rulemaking.

Each project is encouraged to exploit the involvement and expertise of EASA to de-risk and secure the certification of novel technologies. Proposals shall include a detailed project plan with key milestones and deliverables together.

Further Infomation:

<https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/horizon-ju-clean-aviation-2022-01-tra-02;callCode=null;freeTextSearchKeyword=;matchWholeText=true;typeCodes=;typeCodes=1;statusCodes=31094502;programmePeriod=2021%20-%202027;programCcm2Id=43108390;programDivisionCode=null;focusAreaCode=null;destination=null;mission=null;geographicalZonesCode=null;programmeDivisionProspect=null;startDateLte=null;startDateGte=null;crossCuttingPriorityCode=null;cpvCode=null;performanceOfDelivery=null;sortQuery=startDate;orderBy=asc;onlyTenders=false;topicListKey=topicSearchTablePageState>

9. /HORIZON EUROPE/ Thermal Management Solutions for Hybrid Electric Regionale Aircraft, deadline: 23. June 2022 17:00 Brussels time

Greater attention to environmental aspects (even with stringent regulations) and higher market demand are changing the scenario of air mobility in the short range, centred on 500 km and up to 1000 km. Air vehicles (as defined in CS25/FAR25) operating in this range and operational environment (including regional aircraft with a capacity of up to 100 seats) are considered the first application in the scheduled air transport system that will adopt hybrid-electric propulsion technologies and associated complementary solutions for reducing the environmental footprint, toward climate-neutral aviation. Air vehicles operating at smaller distances or on thinner routes will also benefit from electric propulsion solutions tested on regional aircraft testbeds, by sharing the development of power modules and making use of different approaches to air vehicle integration.

Thermal management is one of the key challenges for the successful realization of the Hybrid-Electric Regional aircraft (HER) with a targeted fuel burn reduction of minimum 50% at aircraft level. The reference HER aircraft shall have a seating capacity up to 100 passengers in a standard configuration, with a sizing mission of around 1000 km and a typical sector distance flown of around 400-500 km.

- Any deviation from these references as a result of different configuration effects (e.g., for technical feasibility, project viability reasons, or for optimizing the project outcome) should be identified and substantiated.

- The thermal management performance requirements shall be dependent on the targeted HER aircraft architecture configuration(s)⁵¹ also considering the thermal management of the hybrid- electric propulsion system⁵², which both will be delivered by one or more separate projects launched under Clean Aviation.

The scope of this topic is to deliver a thermal management concept including all relevant key enabling technologies matured to TRL 5 at system level at project completion, compatible with HER aircraft concept(s) selected at the end of 2025.

The project may explore different configurations, which shall be described in detail (justification, targeted advantages, anticipated drawbacks, anticipated challenges, possible adaptations, risks, etc.) and compared in terms of potential and the most promising option selected.

The hybrid-electric architecture will be challenging in terms of thermal management to match the systems architecture cooling requirements. Therefore, a suitable thermal management concept at aircraft level needs to be developed and validated in close connection with solutions at component and system levels which take this interrelationship into account.

Regarding the future potential use of liquid hydrogen tanks for fuel cells or direct burn in a gas turbine engine, this will have an impact on the thermal management architecture and may provide novel cooling solution opportunities. Inputs from relevant H2 technology developments (e.g. Liquid Hydrogen (LH2) heat exchangers or LH2 fuel systems) will be delivered by another relevant project launched under the Clean Aviation programme.

Proposed concepts will build on, adapt, complement and add to DO 160, DO 178, CS-25 and any other relevant regulations, to highlight any gaps and maximize the impact potential, and to enable new certification standards, while maintaining or enhancing safety levels. The project shall propose a qualification and certification plan suitable to HER aircraft. It shall support Clean Aviation initiatives to define new certification or qualification rules as well new standardisation efforts, as necessary, concerning the areas of the project and others related to them.

Proposed solutions shall explore critical ground situations linked to sizing or off-design conditions such as little or no relative cooling flow in hot & high conditions during taxiing within HER typical operative range on ground and in flight.

Each project is encouraged to exploit the involvement and expertise of EASA to de-risk and secure the certification process of novel hybrid-electric propulsion technologies.

Scalability (down and up) to other applications is an opportunity to be pursued, in particular versus the Short and Short-Medium Range (SR/SMR) class, given the fact that the HER and SR/SMR classes are today adjacent, if not overlapping. This requires an effective coordination to establish collaboration with the other relevant projects.

Further Information:

<https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/horizon-ju-clean-aviation-2022-01-her-02;callCode=null;freeTextSearchKeyword=;matchWholeText=true;typeCodes=;typeCodes=1;statusCodes=31094502;programmePeriod=2021%20-%202027;programCcm2Id=43108390;programDivisionCode=null;focusAreaCode=null;destination=null;mission=null;geographicalZonesCode=null;programmeDivisionProspect=null;startDateLte=null;startDateGte=null;crossCuttingPriorityCode=null;cpvCode=null;performanceOfDelivery=null;sortQuery=startDate;orderBy=asc;onlyTenders=false;topicListKey=topicSearchTablePageState>

10. /HORIZON EUROPE/ Innovative Wing Design for Hybrid-Electric Regional Aircraft, deadline: 23. June 2022 17:00 Brussels time

Greater attention to environmental aspects (even with stringent regulations) and higher market demand are changing the scenario of air mobility in the short range, centred on 500 km and up to 1000 km. Air vehicles (as defined in CS25/FAR25) operating in this range and operational environment (including regional aircraft with a capacity of up to 100 seats) are considered the first application in the scheduled air transport system that will adopt hybrid-electric propulsion technologies and associated complementary solutions for reducing the environmental footprint, toward climate-neutral aviation. Air vehicles operating at smaller distances or on thinner routes will also benefit from electric propulsion solutions tested on regional aircraft testbeds, by sharing the development of power modules and making use of different approaches to air vehicle integration.

A novel wing design is one of the key enablers for the successful realization of the Hybrid-Electric Regional aircraft (HER) with a targeted fuel burn reduction of minimum 50% at aircraft level. The reference HER aircraft shall have a seat capacity up to 100 passengers in a standard configuration, with a sizing mission of around 1000 km and a typical sector distance flown of around 400-500 km. The necessary overall aircraft power shall be in the range of 4 to 10 MW.

- Any deviation from these references as a result of different configuration effects (e.g. for project viability reasons, or for optimizing the project outcome) should be identified and substantiated.
- The wing performance requirements shall be dependent on the targeted HER aircraft architecture configuration(s) including the selected hybrid-electric propulsion system, which both will be delivered by one or more separate projects launched under Clean Aviation.

The scope of this topic is to deliver an innovative wing design including the relevant technology bricks expected to meet TRL 5 at wing system level at project completion and compatible with HER aircraft concept(s) selected at the end of 2025.

The hybrid-electric propulsion system will come with challenges in system integration (e.g. wing- engine, controls, energy distribution) and in aircraft integration. Therefore, a wing design and the enabling technologies need to be developed and validated in close connection with solutions and choices at aircraft, system and component level, and taking into account interdependencies. The future potential use of hydrogen as energy source requires the development and demonstration of compatible technologies and sub-systems that will have an impact on the wing system, as well as on the aircraft architecture. Inputs from relevant hydrogen technology developments (e.g. H2 distribution system), as well as from the propulsion system and fuselage will be delivered by separated projects launched under Clean Aviation. The project shall also investigate the impact and features of the proposed concept(s) on operations and systems (e.g. flight control systems, anti-icing, etc.). Life cycle aspects should be considered in the overall environmental impact. A quantitative and qualitative estimation of future potential performance, identifying issues and potential solutions should be provided.

Proposed designs will build on, adapt, complement and add to DO 160, DO 178, CS-25 and any other relevant regulations, to highlight any gaps and maximize the impact potential, and to enable new certification standards, while maintaining or enhancing safety levels. It shall support Clean Aviation initiatives to define new certification or qualification rules as well new standardisation efforts concerning the areas of the project and others related to them. Any specific safety or certification issue should be highlighted.

Each project is encouraged to exploit the involvement and expertise of EASA to de-risk and secure the certification process of novel wing technologies. Scalability (down and up) to other applications is an opportunity to be pursued, in particular versus the Short and Short-Medium Range (SR/SMR) class, given the fact that the HER and SR/SMR classes are today adjacent, if not overlapping. This requires an effective coordination to establish collaboration with the other relevant projects.

Further Information:

<https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/horizon-ju-clean-aviation-2022-01-her-04;callCode=null;freeTextSearchKeyword=;matchWholeText=true;typeCodes=;typeCodes=1;statusCodes=31094502;programmePeriod=2021%20-%202027;programCcm2Id=43108390;programDivisionCode=null;focusAreaCode=null;destination=null;mission=null;geographicalZonesCode=null;programmeDivisionProspect=null;startDateLte=null;startDateGte=null;crossCuttingPriorityCode=null;cpvCode=null;performanceOfDelivery=null;sortQuery=startDate;orderBy=asc;onlyTenders=false;topicListKey=topicSearchTablePageState>

11. /HORIZON EUROPE/ Large Scale Lightweight Liquid Hydrogen Integral Storage Solutions, deadline: 23. June 2022 17:00 Brussels time

Liquid hydrogen storage in aircraft implies challenges in several disciplines due to:

- exceptionally low energy content per unit of volume. As an example, an integral fuselage tank for equivalent energy could mean increasing fuselage length as much as 10 m for current single aisle aircraft, and over 20m for wide bodies.
- the need to adapt LH2 storage solutions for a/c environment, particular challenges on:
 - Safety concerns for H2 management in a/c environment. Beyond the implicit associated with the storage conditions, safety is very relevant in relation to H2 leakage and materials behaviour at cryogenic conditions. This implies a specific development of certification means. The design should consider all critical safety requirements / analyses and certification requirements pertaining to the aircraft application targeted, including, but not limited to, potential critical structural cases, such as acceleration characteristics under crash landing and gust conditions.
 - Solve the non-integral tank issue. In principle, H2 tanks are considered independent from the functional aircraft structure which creates a high weight impact compared current solutions in which the fuel tanks are integral.
 - Solve the non-conformal tank issue. Today, most of the gas or liquid storage tanks are spherical or cylindrical. Enabling the tank shape to be conformal to the volume shape where it is integrated would result in a much better optimization of the volume occupancy, hence storage capacity

Further Information:

<https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/horizon-ju-clean-aviation-2022-01-hpa-03;callCode=null;freeTextSearchKeyword=;matchWholeText=true;typeCodes=;typeCodes=1;statusCodes=31094502;programmePeriod=2021%20-%202027;programCcm2Id=43108390;programDivisionCode=null;focusAreaCode=null;destination=null;mission=null;geographicalZonesCode=null;programmeDivisionProspect=null;startDateLte=null;startDateGte=null;crossCuttingPriorityCode=null;cpvCode=null;performanceOfDelivery=null;sortQuery=startDate;orderBy=asc;onlyTenders=false;topicListKey=topicSearchTablePageState>

12. /HORIZON EUROPE/ Aircraft architectures & technology integration for aircraft concepts ranging from regional to short-medium range applications, deadline: 23. June 2022 17:00 Brussels time

With the greater attention to environmental aspects (even with stringent regulations) and higher market demand, the mid-2030s are expected to see a change of scenario of air mobility in the regional range, i.e. with a sizing mission of around 1000 km and a typical sector distance flown of around 400- 500 km, and the entry of a new generation aircraft for the short and short-medium-range, i.e. with typical mission range from 1000 km and up to 3700 km, aiming towards sustainable climate-neutral flight. Hence mission profiles that minimize greenhouse gas emissions at aircraft level should be considered. While hybrid/electric energy architectures are considered to pave the way towards climate-neutral regional aircraft (with a capacity of up to 100 seats), SR/SMR aircraft (with a capacity of up to 250 seats) are expected to rely on ultra-efficient aircraft designs and ultra-efficient thermal energy-based propulsion technologies using sustainable drop-in and non-drop-in fuels.

Proposals are requested to cover the spectrum of payload/capacity and design range of regional, short-haul and short/medium range aircraft that collectively represent at least 90% of the air transport system operations typically flown with these aircraft types. While not limitative and prescriptive, applicants are expected to focus on aircraft ranging from a 'regional' capacity of around 50 seats up to a maximum 'single aisle' capacity of 250 seats, and with design range (at full payload) from no less than 900 km for disruptive zero emissions regional concepts up to 3700 km for an ultra-advanced short/medium range aircraft.

A successful development of the Ultra-Efficient regional, short and short/medium range aircraft described in the ambition of the Clean Aviation SRIA144 requires that R&I activities for all contributing key technologies follow a coherent approach based on an aircraft concept and (digital) development platform providing the required top level aircraft requirements. This will include certification aspects, eco design and sustainability requirements. The aircraft concept projects resulting from this topic will provide a common virtual (digital) platform to integrate the contributing technologies under investigation and development across the various projects to which these projects will be linked (see Special Conditions). In order to work within a common aircraft development plan, projects selected will therefore provide through a collaborative framework all required information, tools, design methods and digital platforms enabling a continuous link between all Research and Technology activities relevant to the aircraft concepts in question, in order to deliver solutions meeting the high level goals as stated in the SRIA.

Each project is encouraged to exploit the involvement and expertise of EASA to de-risk and secure the certification of novel designs and architectures.

Further Information:

<https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/horizon-ju-clean-aviation-2022-01-tra-01;callCode=null;freeTextSearchKeyword=;matchWholeText=true;typeCodes=e;typeCodes=1;statusCodes=31094502;programmePeriod=2021%20-%202027;programCcm2Id=43108390;programDivisionCode=null;focusAreaCode=null;destination=null;mission=null;geographicalZonesCode=null;programmeDivisionProspect=null;startDateLte=null;startDateGte=null;crossCuttingPriorityCode=null;cpvCode=null;performanceOfDelivery=null;sortQuery=startDate;orderBy=asc;onlyTenders=false;topicListKey=topicSearchTablePageState>

13. /HORIZON EUROPE/ Developing a European Clean Aviation Regional Ecosystem, deadline: 23. June 2022 17:00 Brussels time

The objective of this CSA is to establish a Clean Aviation regional ecosystem and develop further the synergies between Clean Aviation programmes/projects and the regional or national authorities implementing the European Regional Development Funds (ERDF), and/or other national/regional R&I initiatives and programmes. It will result in the establishment of a networking platform that will facilitate the interaction between the national and regional stakeholders (including clusters), support and coordinate the national and regional activities with the Clean Aviation programme and identify specific measures aimed at increasing the involvement of SMEs and other stakeholders in Clean Aviation programme. This CSA also aims to increase interaction and better planning and programming between the Clean Aviation and National/Regional programmes.

In line with these objectives, all the following aspects should be addressed:

- Strengthening the strategic cooperation between Clean Aviation and Member States/regions/clusters and facilitating the synergies with ERDF and other national/regional programmes for the interested regions and countries;
- Fostering of the links between Clean Aviation and national/regional programmes and activities for aviation research and innovation and supporting coordination of activities with Member States and regions.
- Investigation of plans and implementation of suitable tools and mechanisms to foster the communication and collaboration between the participating countries/regions/clusters, to increase the awareness of Clean Aviation activities and to promote the synergies and investments from EU funds;
- Organisation of events, conferences, workshops and dissemination activities to present and discuss the Clean Aviation results, exchange experience and foster innovation aspects of aviation research and innovation;
- Setting up a digital platform that will facilitate the exchanges between the members, and the described mission of the platform;

The networking activities will also aim to strengthening the interregional cooperation on aeronautics R&I between participating regions and build joint R&I plans complementary to Clean Aviation programme objectives eligible for ERDF or other regional/national funding. Where appropriate, the networking activities should establish close links or build on the existing networks (e.g., networks of aeronautic clusters such as the European Aerospace Cluster Partnership (EACP).

Further Information:

<https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/horizon-ju-clean-aviation-2022-01-csa-01;callCode=null;freeTextSearchKeyword=;matchWholeText=true;typeCodes=;typeCodes=1;statusCodes=31094502;programmePeriod=2021%20-%202027;programCcm2Id=43108390;programDivisionCode=null;focusAreaCode=null;destination=null;mission=null;geographicalZonesCode=null;programmeDivisionProspect=null;startDateLte=null;startDateGte=null;crossCuttingPriorityCode=null;cpvCode=null;performanceOfDelivery=null;sortQuery=startDate;orderBy=asc;onlyTenders=false;topicListKey=topicSearchTablePageState>

14. /HORIZON EUROPE/ Electrical Distribution Solutions for Hybrid-electric Regional Aircrafts, deadline: 23. June 2022 17:00 Brussels time

Greater attention to environmental aspects (even with stringent regulations) and higher market demand are changing the scenario of air mobility in the short range, centred on 500 km and up to 1000 km. Air vehicles (as defined in CS25/FAR25) operating in this range and operational environment (including regional aircraft with a capacity of up to 100 seats) are considered the first application in the scheduled air transport system that will adopt hybrid-electric propulsion technologies and associated complementary solutions for reducing the environmental footprint, toward climate-neutral aviation. Air vehicles operating at smaller distances or on thinner routes will also benefit from electric propulsion solutions tested on regional aircraft testbeds, by sharing the development of power modules and making use of different approaches to air vehicle integration.

The Advanced Electrical Distribution network is one of the key enablers for the successful realization of the Hybrid-Electric Regional aircraft (HER) with a targeted fuel burn reduction of minimum 50% at aircraft level.

The reference HER aircraft shall have a seating capacity up to 100 passengers in a standard configuration, with a sizing mission of around 1000 km and a typical sector distance flown of a round 400-500 km.

- Any deviation from these references as a result of different configuration effects (e.g., for technical feasibility, project viability reasons, or for optimizing the project outcome) should be identified and substantiated.

- The electrical distribution performance requirements shall be dependent on the targeted HE aircraft architecture configuration(s) including the selected hybrid-electric propulsion system, which both will be delivered by one or more separate projects launched under Clean Aviation.

The scope of this topic is to deliver an advanced electrical distribution concept including all relevant key enabling technologies at TRL 5 at system level at project completion, compatible with HER aircraft concept(s) selected at the end of 2025.

The project may explore different configurations, which shall be described in detail (justification, targeted advantages, anticipated drawbacks, anticipated challenges, possible adaptations, risks, etc.) and compared in terms of potential and the most promising option selected.

New hybrid-electric propulsion concepts and the associated introduction of their electrical architecture and technologies require innovative and disruptive solutions to reduce the electrical distribution network weight and volume while complying with functional and safety requirements. Depending on the sizing and degree of hybridization, total power of the hybrid-electric propulsion concept is expected to range from 4 to 10 MW. Any single electrical channel shall manage an electric power (for propulsive system and other systems) of 500 kW - 1 MW minimum with a specific power management to address safety and certification requirements. All these conditions have important implications at the aircraft level:

- The electrical distribution system must be robust with respect to the different adverse physical phenomena associated with severe environmental conditions (such as partial discharges, arcing and lightning effects at high voltages and low pressures or in non-pressurized areas).

- New electrical energy storage devices (batteries and/or fuel cells) will raise new challenges to the aircraft electrical systems in terms of networking, safety and performance. Transitioning to high voltage electrical network will require in particular new solutions and approaches.

- The electrical control system must be able to respond to the aircraft mission profile needs and performance, including power up and down of systems and propulsion. The aggregated energy management system must be optimized in terms of sizing and operation in order to achieve reduced weight and fuel consumption in regard of the defined flight mission, while addressing situations involving power reduction / shedding, requiring system flexibility, reconfiguration capability and proper handling of any failure modes.

Life cycle aspects should be considered in the overall environmental impact.

Further Information:

<https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/horizon-ju-clean-aviation-2022-01-her-03;callCode=null;freeTextSearchKeyword=;matchWholeText=true;typeCodes=;typeCodes=1;statusCodes=31094502;programmePeriod=2021%20-%202027;programCcm2Id=43108390;programDivisionCode=null;focusAreaCode=null;destination=null;mission=null;geographicalZonesCode=null;programmeDivisionProspect=null;startDateLte=null;startDateGte=null;crossCuttingPriorityCode=null;cpvCode=null;performanceOfDelivery=null;sortQuery=startDate;orderBy=asc;onlyTenders=false;topicListKey=topicSearchTablePageState>

15. /HORIZON EUROPE/ Ultra Performance Wing for Short and Short-medium Range Aircraft, deadline 23. June 2022 17:00 Brussels time

With the greater attention to environmental aspects (even with stringent regulations) and higher market demand, the mid-2030s are expected to see the entry of a new generation of SR/SMR aircraft (with a capacity of up to 250 seats) aiming towards sustainable climate-neutral flight. While hybrid/electric energy architectures are considered to pave the way towards climate-neutral aviation on routes shorter than 1000 km, aircraft for classical short and medium-range distances, i.e. from 1000 km up to 3700 km, will rely on ultra-efficient aircraft designs and ultra-efficient thermal energy-based propulsion technologies using sustainable drop-in and non-drop-in fuels.

With its large impact on aircraft's total drag and weight, developing an ultra-high performance wing is a key element for the successful realization of the SR/SMR aircraft with a targeted fuel burn reduction of minimum 30% at aircraft level.

- The assumptions relative to the aircraft operating envelope, to the flight mission profile, to the aircraft range, to the aircraft cruise speed, to the aircraft seating capacities and to the main aircraft sizing parameters in general, shall be fully consistent with those applicable in the SR/SMR aircraft architectures.
- Consistent wing system requirements shall be derived accordingly from the SR/SMR aircraft architectures. Any deviation from these references as a result of different configuration effects (e.g., for technical feasibility, project viability reasons, or for optimizing the project outcome) should be identified and substantiated.

Novel ultra-performing technologies will bring challenges and opportunities to minimize drag, optimize flight control devices, high lift and control surfaces, and reduce weight and noise, as well as in system integration (e.g. wing-pylon-engine and wing-fuselage integration) and the overall aircraft integration. Therefore, these technologies need to be developed and validated in close connection with solutions and choices adopted at aircraft, system and component level, taking into account constraints, requirements and interdependencies.

The future potential use of hydrogen as energy source requires the development and demonstration of compatible technologies and sub-systems that will have an impact on the wing system, as well as on the aircraft architecture. Inputs from relevant hydrogen technology developments (e.g. H₂ distribution system), as well as from the propulsion system and fuselage characteristics will be delivered by separate projects launched under the Clean Aviation programme.

The project shall also investigate the impact and features of the proposed concept(s) on operations and systems (e.g. Flight Control Systems, anti-icing) including maintenance, repair, availability, fault tolerance, reliability, and safety. Life cycle aspects should be considered in the overall environmental impact. A quantitative and qualitative estimation of future potential performance, identifying issues and potential solutions should be provided.

Proposed designs will build on, adapt, complement and add to CS-25 and any other relevant regulations to highlight any gaps and maximize the impact potential, and to enable new certification standards, while maintaining or enhancing safety levels. The project shall propose a qualification and certification plan suitable to SR/SMR aircraft and it shall support to Clean Aviation initiatives to define new certification or qualification rules as well as new standardisation efforts concerning the areas of the project and others related to them. Any specific safety or certification issue should be highlighted.

Each project is encouraged to exploit the involvement and expertise of EASA to de-risk and secure the certification of novel wing technologies.

Further Information:

<https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/horizon-ju-clean-aviation-2022-01-smr-02;callCode=null;freeTextSearchKeyword=;matchWholeText=true;typeCodes=e;typeCodes=1;statusCodes=31094502;programmePeriod=2021%20-%202027;programCcm2Id=43108390;programDivisionCode=null;focusAreaCode=null;destination=null;mission=null;geographicalZonesCode=null;programmeDivisionProspect=null;startDateLte=null;startDateGte=null;crossCuttingPriorityCode=null;cpvCode=null;performanceOfDelivery=null;sortQuery=startDate;orderBy=asc;onlyTenders=false;topicListKey=topicSearch;topicListKey=topicSearch>

16. /HORIZON EUROPE/ Integration of biodiversity monitoring data into the Digital Twin Ocean, deadline: 27. September 2022 17:00 Brussels time

Proposals should expand the collection of ocean datasets related to biodiversity (species, habitats, ecological interactions, human activities, and their impacts), possibly using the cascading grant scheme, putting in place agreements with owners of previously inaccessible or neglected data including biodiversity, fisheries, international programmes (e.g.: ICOS, OBIS, MBON, ARGOS, (marine GEO BON), Nature Directives and MSFD reports, citizen science, national monitoring programmes, as well as ocean weather data, observations related to blue carbon, etc. Proposals should collect, process or reformat as necessary, and feed existing ocean and future datasets into the DTO infrastructure.

Proposals should address all activities and tasks as described below, in cooperation and complementarity with the linked actions and other relevant actions.

- Increasing flow of relevant biodiversity data based on literature, evaluations of EU regulations and results of relevant EU projects and studies and data collected by industry for regulatory purposes (Environmental Impact Assessment Directives):

- Identify existing, but restricted or hard to access, data on marine biodiversity and pressures;

- List and assess efforts to define biodiversity monitoring priorities, their effectiveness and their follow-up;

- Assess the impact of missing data on the ability of digital solutions (biodiversity / ecosystem models and applications) to represent reality and forecast future scenarios;

- Unlock existing identified barriers and opportunities to ensure a sustained access to new sources of biodiversity data and its further integration and use specially in the mission and EU policies implementation;

- Assess innovative cost-effective technologies (e.g. High-throughput DNA sequencing), automatic recognition of electromagnetic or acoustic images) for large scale monitoring of biodiversity changes in key habitats. This is not aiming in developing new technologies or testing sensors, but assessing the potential of cost-effective technologies to provide large scale monitoring, by test casing them and achieving substantial data contributions.

- Development of the biodiversity digital component and its integration in the DTO architecture:

- Consolidate data standards, near-real time data quality control procedures, communication protocols between data centres for instant data access, create new standards if necessary;

- Place agreements with data owners to Integrate more biodiversity data sources into the DTO architecture and environment with focus on data that presently are not available under FAIR principles identified in point 1.

- Extract and harmonise those data to feed the DTO data repository and allowing the flow of data to continue and remain sustained after the end of the project;

- Develop to the extent possible data models to facilitate their future automatic integration/assimilation, allowing the flow of data to continue and remain sustained after the end of the project;

- Develop and improve the data ingestion and assimilation mechanisms to feed into biodiversity/ecosystem models.

- Case-studies:

- Demonstrate the end-to-end approach for biodiversity monitoring based on the digital environment provided by the DTO and the proposed biodiversity data sources by:

- Integrating and assimilating new data sources into existing models and artificial intelligence algorithms, assessing the outcomes, and implementing required quality control. It should help assess the overall easiness, identify levels of improvement, etc. and map the additional biodiversity data needs to be prioritised. The end-to-end approach could address fishing practices to reduce by-catches or habitat damage, adaptation to climate change, species migrations, impact of human activities (e.g.: tourism, transportation, renewable energy, etc.), development and monitoring of marine protected areas, adapting human activities to migrations of cetaceans and birds, etc.

- Develop digital tools and services (e.g. through AI, socio-ecological modelling, etc.) to support policy-making and to be integrated in DTO environment.

- Open calls (cascading grants to data holders (international networks, citizen science networks, universities & under specific conditions- favouring providers from data-poor regions, covering important data gaps) to facilitate sustained and long-term ingestion of locked data (indicate conditions).
- Define performance indicators to measure the success of the project and define achievable targets regarding increasing biodiversity data flows into the DTO by 2030.

Further Information:

<https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/horizon-miss-2022-ocean-01-07;callCode=null;freeTextSearchKeyword=;matchWholeText=true;typeCodes=1;statusCodes=1;statusCodes=31094502;programmePeriod=2021%20-%202027;programCcm2Id=43108390;programDivisionCode=null;focusAreaCode=null;destination=null;mission=null;geographicalZonesCode=null;programmeDivisionProspect=null;startDateLte=null;startDateGte=null;crossCuttingPriorityCode=null;cpvCode=null;performanceOfDelivery=null;sortQuery=startDate;orderBy=asc;onlyTenders=false;topicListKey=topicSearchTablePageState>

17. /HORIZON EUROPE/ User driven applications and tools for regional and local authorities, and other end users focusing on climate impacts, data and knowledge, deadline: 27. September 2022 17:00 Brussels time

This topic relates to the Mission's first and second objective: i) preparing and planning for climate resilience and the need for a better understanding of climate change related risks and ii) supporting at least 150 European regions and communities in developing their vision of a climate-resilient future and innovation pathways to reach it.

The successful proposal will develop new technologies addressing access to key climate data and information services; such technologies will use improved user-defined and user-friendly tools tailored to regional and community level applications for adaptation to climate change able to build climate resilience in all sectors/services involved; the focus will be on case-specific climatological and physical conditions critical for the areas mentioned in the Mission Implementation Plan.

Therefore, proposals should address all of the following:

- Set forth improved user-defined data manipulation tools that can be used, reused and further developed, thereby contributing to an ecosystem of readily available tools and integrated information services. The tools developed should be designed as a component of decision support tool for public authorities integrating socio-economic aspects and allowing them to assess risk-reduction benefits of various adaptation solutions across several regions.
- Consider impacts of climate change on key community systems highlighted in the Mission Implementation Plan, across several climate regions and how their functioning might be affected by climate change induced risks.
- Develop a gap-analysis of accessibility, usability, customization and adaptability of existing European relevant information (including climate, socio-economic, demographic information) services with respect to user needs at regional and community levels. Prepare and implement training and capacity building, adapted for non-experts local end-users (beyond the 5 regions where the tools are demonstrated) to support them in using or tailoring the tools developed by the project.
- Identify data availability and data accessibility gaps, and overcome barriers and limitations of existing approaches. In particular, proposals are encouraged to take into account:
 - Consistency in the definition of climate risk indicators in view of the Mission objectives and projects addressing climate change risks;
 - Socio-economic data at the local level and integrating it to the tools and services developed or improved for regional and local end-users;
 - The experience from the Sectoral Information System demonstrators of the Copernicus Climate Change Service and from relevant Horizon 2020 projects;

- Access to EU digital infrastructures;
 - Destination Earth, European Open Science Cloud, Copernicus DIAS and GEOSS.
 - Address the provision of user-relevant climate change indicators linked to socio-economic and demographic data to public authorities and Mission end users.
 - Factor in the effect of multiple hazards (including complex, cascading and compound disasters) in support of the activities set out in the topic focused on the "Development of climate change risk assessments in European regions and communities based on a transparent and harmonised Climate Risk Assessment approach (HORIZON-MISS-2021-CLIMA-02-01)."
 - Give due regard to the Commission technical guidance on the climate proofing of infrastructure in the period 2021-2027, notably as regards climate resilience, the climate vulnerability and risk assessment, as well as the identification, economic and technical appraisal, and implementation of relevant adaptation measures.
 - Provide coordination between the targeted regions/communities with respect to their climate data needs, to identify overlaps, synergies and cost-sharing opportunities.
 - Ensure the solutions' long-term viability through integration within the toolbox of the Climate Data Store and/or other operationally supported technical infrastructures.
 - Discuss with and engage local communities and all relevant stakeholders (e.g., experts, policy-makers etc.) in a given region, in knowledge-sharing and production, testing the technology itself and making sure all knowledge, relevant to climate resilience, is represented. Priority should be given to regions or communities with high vulnerability], limited resources and/or low adaptive capacity to climate change impacts. Demand for this type of services could be higher than what can be supplied within the limits of this action. Therefore proposals to this call should present the process and criteria how the target regions and communities are identified. These criteria will ensure that a variety of locations are represented, in as many countries as possible, reflecting the diversity in climatic risks in Europe, as well as differences in socio-economic and demographic conditions, and in approaches to mitigating such risks. Such criteria should also take into account the characteristics of the populations concerned and the vulnerability of the locations, as well as the priority attributed by national and regional governments. Consultation of national and regional governments in selecting the regions and communities is recommended (for example, by providing a letter of support by the relevant authorities as an annex to the proposal).
- Dedicated activities should be included for facilitating replication in further regions/communities. In line with the overall principles of the Mission, proposals should take in full consideration the local dimension of climate change and climate adaptation strategies, clarify how they would ensure a meaningful engagement with local communities as well as stakeholders to ensure, among others, the mobilization of local knowledge, and outline how they would contribute to achieving a just transition to climate resilience
- This topic requires the effective contribution of Social Science and Humanities (SSH) disciplines and the involvement of SSH experts, institutions as well as the inclusion of relevant SSH expertise, in order to produce meaningful and significant effects enhancing the societal impact of the related research activities. The European Commission intends to establish a network and coordination activities amongst all the projects funded for the implementation of the Climate adaptation Mission, under the Horizon 2020 European Green Deal call and under Horizon Europe relevant for adaptation, and that will be coordinated by the soon to be established Mission Implementation Platform. These networking and joint activities could, for example, involve the participation in joint workshops, the exchange of knowledge, the development and adoption of best practices, or joint communication activities. The project under this topic will be requested to contribute to this effort. Applicants should acknowledge this request and already account for these obligations in their proposal, making adequate provisions in terms of resources and budget to engage and collaborate with the Mission governance.
- Further Information:

<https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/horizon-miss-2022-clima-01-01;callCode=null;freeTextSearchKeyword=;matchWholeText=true;typeCodes=1;statusCodes=1;statusCodes=31094502;programmePeriod=2021%20-%202027;programCcm2Id=43108390;programDivisionCode=null;focusAreaCode=null;destination=null;mission=null;geographicalZonesCode=null;programmeDivisionProspect=null;startDateLte=null;startDateGte=null;crossCuttingPriorityCode=null;cpvCode=null;performanceOfDelivery=null;sortQuery=startDate;orderBy=asc;onlyTenders=false;topicListKey=topicSearchTablePageState>

18. /HORIZON EUROPE/ Unlocking of financial resources for investments into climate resilience, deadline 27. September 2022 17:00 Brussels time

This topic contributes to the three objective of the Mission and corresponds to one of the thematic research and innovation areas described in the Mission Implementation Plan aiming to mobilise and improve the articulation of funding and financing from various public and private sources at different levels (EU, national, regional and local).

This topic is expected to support regions and communities participating in the Mission with developing investment strategies, including identifying, innovating and, to the extent possible testing, solutions that help to mobilise financing and resources, throughout their transformational journey to climate resilience. The applied research and the experimentation with innovative solutions as further outlined below should be at the centre of the project.

The mobilisation of significant financial resources is key in addressing the climate resilience challenge. The economic case for investing in climate adaptation is powerful, with cost-benefit ratios ranging from 1:2 to 1:10 whereas early action on adaptation brings a "triple dividend" of avoided losses, economic and socio-environmental benefits. Yet, the investment gap in climate adaptation, with investment needs in the EU estimated to range between EUR 35 billion and 500 billion annually, is reportedly one of the most important barriers to further progress towards climate resilience. Reasons for this include large upfront costs, difficulties with internalising benefits and insufficient incentives to attract private investors under the existing market architecture where short-term mind-set makes investing for the future difficult, as well as a lack of capacity to identify, combine, apply for and negotiate the various financing streams at local and regional levels.

To address these challenges, the proposal is expected to:

- Provide direct pragmatic, hands-on advisory support to the regions and communities on how to mobilise, access and combine in practice various financing sources for climate resilience.
- Undertake research and test innovative financing solutions using the activities ongoing in the regions and communities as case studies to better understand their success factors and boundary conditions and to explore and experiment with new innovative ways of mobilising and financing for climate resilience, feeding this information back to all regions and communities.
- While undertaking the above, to ensure synergies between the Mission and other relevant programmes and initiatives engaged in mobilisation and articulation of finances for climate resilience transformations at local, national, and European level and to share relevant knowledge and experience made in the Mission more broadly.

Regarding the provision of direct support to the regions and communities, and the Mission's aim to help facilitate the translation of adaptation strategies into investments on the ground, the proposal should cover a broad range of financing approaches, mechanisms and initiatives, from different governmental levels and private sources, covering as much as possible all innovation areas of the Mission, including but not limited to:

- Develop, for and with at least 20 EU regions or communities, innovative investment strategies covering identification of a potential project pipeline, financial, economic, legal and governance analysis and design of the process to launch investments;

- Provide hands-on technical and financial expertise, inspired by best practices across Europe to deliver at least 10 credible and scalable investment plans, from the above 20 regions or communities;
- Build the capacity of at least 20 public authority staff (one in each of the regions or communities) to design, develop and implement bankable projects on climate resilience, and provide them with the necessary tools (e.g. models, data), knowledge and networking opportunities;
- Hold at least 4 webinars addressed to regions and communities all over Europe (as many as possible should participate), on how to design bankable projects and to identify, apply for and negotiate various financing streams, and provide them with tools, networking and knowledge transfer.

Regarding the undertaking of research and testing of innovative solutions, the proposal should use the opportunities offered by the Mission's endeavour and its activities ongoing in the regions and communities as test bed and should use activities related to the mobilisation of resources across the Mission's geographical scope as case-studies to:

- Understand how best to employ the various approaches of financing in different geographical, cultural, social, political, economic, and environmental contexts.
- Identify barriers to the mobilisation of financing for climate resilience, carry out research into those and develop recommendations on how best to address them.
- To the extent possible, test and experiment with innovative finance solutions.
- Explore mechanisms that would accelerate the transformation of the economic system and financial sector to internalise and reward climate resilient investments. This should involve cooperation with the financial sector.
- Test the above (recommendations to address barriers, mechanisms and integration of the macroeconomic impacts into models and tools) with at least 3 banks/financial services providers over at least 3 regions or communities, and explore innovative credit/financial scoring with the aim of integrating climate resilience perspective into assessment criteria.

Regarding the synergies between the Mission and other relevant initiatives aiming at the mobilisation of finances and resources for climate adaptation and resilience, the proposal should:

- Establish links and build on the various other relevant programmes and initiatives, such as the EU taxonomy for sustainable activities and the European Cities Facility (EUFCF).
- Build synergies in particular with the EIB's announced Climate Adaptation Investment Advisory platform (ADAPT) that is to provide advisory services that have the potential to strengthen climate resilience of cities, infrastructure networks, coastal areas and river basins, farming practices and other vulnerable activities.
- Support the Mission Implementation Platform in making accessible the different potential funding sources for climate resilience related activities and possible financial designs for climate resilience portfolios.
- Learn from and complement the efforts of the projects related to the Mission funded under the Green Deal Call and the call HORIZON-MISS-2021-CLIMA-01, as well as to relevant projects and structures of other Missions, such as the NetZeroCities project and the Cities Mission Platform.

The main sources of funding to be considered in the context of this topic include (i) governmental sources, mostly grants including EU funding instruments, national, regional and local budgets; (ii) banks and other financial institutions providing loans and guarantees, either directly or in partnership with local retail banks; and (iii) private stakeholders, including foundations, real estate developers, companies, individuals (e.g. via crowdfunding or as house owners).

In line with the overall principles of the Mission, proposals should take in full consideration the local dimension of climate change and climate adaptation strategies, clarify how they would ensure a meaningful engagement with local communities as well as stakeholders to ensure, among others, the mobilization of local knowledge, and outline how they would contribute to achieving a just transition to climate resilience.

Proposals should include a process and criteria for how to identify the regions and communities most relevant to become test beds for the proposed solutions, starting from those where Mission relevant activities are already ongoing. Priority should be given to regions or communities with high vulnerability, limited resources and/or low adaptive capacity to climate change impacts. These criteria will ensure that a variety of locations are represented, in as many countries as possible, reflecting the diversity in climatic

risks in Europe, as well as differences in socio-economic and demographic conditions, and in approaches to mitigating such risks. Such criteria should also take into account the characteristics of the populations concerned and the vulnerability of the locations, as well as the priority attributed by the national and regional governments. Consultation of national and/or regional governments in selecting the regions and communities is recommended (for example, by providing a letter of support by the relevant authorities as an annex to the proposal).

The European Commission intends to establish a network and coordination activities amongst all the projects funded for the implementation of the Climate adaptation Mission, under the Horizon 2020 European Green Deal call and under Horizon Europe relevant for adaptation, and that will be coordinated by the soon to be established Mission Implementation Platform. These networking and joint activities could, for example, involve the participation in joint workshops, the exchange of knowledge, the development and adoption of best practices, or joint communication activities. The project under this topic will be requested to contribute to this effort. Applicants should acknowledge this request and already account for these obligations in their proposal, making adequate provisions in terms of resources and budget to engage and collaborate with the Mission governance.

Further Information:

<https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/horizon-miss-2022-clima-01-02;callCode=null;freeTextSearchKeyword=;matchWholeText=true;typeCodes=1;statusCodes=1;statusCodes=31094502;programmePeriod=2021%20-%202027;programCcm2Id=43108390;programDivisionCode=null;focusAreaCode=null;destination=null;mission=null;geographicalZonesCode=null;programmeDivisionProspect=null;startDateLte=null;startDateGte=null;crossCuttingPriorityCode=null;cpvCode=null;performanceOfDelivery=null;sortQuery=startDate;orderBy=asc;onlyTenders=false;topicListKey=topicSearchTablePageSearchTablePageState>

19. /HORIZON EUROPE/ European Blue Parks - Protection and restoration solutions for degraded coastal and marine habitats. Deadline: 27. September 2022 17:00 Brusseltime

Proposals under this topic will address the degradation of coastal and marine habitats, including degraded seabed habitats and will develop and demonstrate protection and restoration solutions to upgrade and enhance the EU's blue natural capital.

Innovation actions have to show the potential to be up-scaled and reproduced at European level and beyond.

Proposals are expected to duly address the connection between marine ecosystems, including seabed habitats, and their biodiversity. Nevertheless, in exceptional cases, proposals may address either specific vulnerable species or habitats that are under strong pressures or that have the most potential to capture and store carbon. Proposals should be site-specific and the scale and range of the sites for demonstration activities has to be ecologically relevant and impactful and show a significant replication potential.

When identifying and restoring degraded areas, particular attention needs to be paid to ensuring that ecosystem services these areas can provide, are resilient to climate change.

The proposals should also address the creation and long term maintenance of adequate conditions for habitats and/or for the movement of species and more generally, for increasing nature's capacity to adapt to climate change.

The proposed innovation actions for the Blue Parks will seek the most effective and efficient protection and restoration measures, tailored to the specific biogeographical area or marine region. Activities leading to the creation of protected areas should concentrate on areas of high biodiversity value or potential and be consistent with the EU Guidance to Member States on the designation of additional protected or strictly protected areas.

Proposals must cover a wide range of ecosystem functions and services using a coherent and systemic approach and avoid the risk of trade-offs of focusing on one or very few ecosystem services at the expense of others. In this respect, seabed protection and restoration should be integrated, including

preservation of seabed carbon sequestration capacity.

The involvement of national and local authorities and coastal communities will be required in order to ensure that the solutions designed are best suited, co-created and with the necessary ownership for their successful implementation. Citizen engagement is a pillar concept for the Mission and a key element in relation to conservation and restoration actions. Activities should, therefore, use innovative co-creation management practices and awareness-raising actions to promote a proactive involvement of local communities including land and sea use planners, Marine Protected Area managers, and other stakeholders, in order to allowing for co-creation of solutions. Awareness raising actions to inspire and generate co-ownership for protection of local habitat and biodiversity should be included as well as partnerships and coalitions with existing initiatives. Proposals could include blue reforestation activities with suitable aquatic plants in degraded habitats. Citizen engagement related activities should also be gender-responsive and socially inclusive.

Proposals are expected to contribute to the implementation of the existing legislation, notably in relation to Marine Protected Areas, identifying limiting factors and gaps as well as recommendations addressing environmental or anthropogenic pressures.

Proposals should build links with the Mission implementation monitoring system that will be part of the Mission Implementation Support Platform and with the Blue Parks technical support platform for reporting, monitoring and coordination of all relevant implementation activities. In this regard, projects should cooperate closely with projects funded under Mission Ocean topic HORIZON-MISS-2021-OCEAN-02-01: European Blue Parks.

Proposals will build upon existing knowledge systems and upon the Mission Digital and Water Knowledge system for access to data, monitoring and forecasts and knowledge dissemination. The proposals should also build on research and innovation developed in the frame of related projects in the current and previous EU framework programmes, such as but not limited to Horizon 2020, LIFE, EMFF/EMFAF and national and regional programmes as well as the activities of the Sustainable Blue Economy Partnership and the Biodiversa+ Partnership.

Further Information:

<https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/horizon-miss-2022-ocean-01-01;callCode=null;freeTextSearchKeyword=;matchWholeText=true;typeCodes=1;statusCodes=1;statusCodes=31094502;programmePeriod=2021%20-%202027;programCcm2Id=43108390;programDivisionCode=null;focusAreaCode=null;destination=null;mission=null;geographicalZonesCode=null;programmeDivisionProspectionProspect=null;startDateLte=null;startDateGte=null;crossCuttingPriorityCode=null;cpvCode=null;performanceOfDelivery=null;sortQuery=startDate;orderBy=asc;onlyTenders=false;topicListKey=topicSearchTablePageState>

20. /HORIZON EUROPE/ Network for innovative solutions for the future democracy, deadline: 21. September 2022 17:00 Brussels time

Creating a network for researchers, policy makers and civil society organisations to collaborate together to formulate policy recommendations and to create knowledge-sharing opportunities is a necessary tool to strengthen and renew European democracy. EU bodies and services active in the field of research and innovation on and support for democracy should be associated to the network to avoid overlaps with other EU studies and initiatives and to facilitate the relevance of the activities and outputs of the network for EU policy development.

The basis of such a system is a strong network, with a commons-based approach, and a focus on policy support, which sparks cooperation across levels of the executive and legislative structures, democratic theorists, empirical researchers and practitioners. Such a system should produce strong network effects, through outreach with relevant EU-funded projects, and other relevant projects at the national, regional, and local levels.

The challenge is to ensure that the most adapted policy actions and public sector innovations are recommended to European policy makers, in order to strengthen and renew their democratic practices to meet current challenges.

Proposals should establish an innovative network of democracy research organisations and practitioners of democratic innovation, which will:

- Connect the dots of the current fragmented landscape of research, platforms, databases, knowledge repositories and research infrastructures into new models and practices of democracy and suggested paths for innovation of democratic practices, assessing their impact to ensure a match with the needs of policy makers and facilitate broad dissemination of these models.
- Produce policy recommendations to strengthen and renew democracy in all governance levels and democratic debate in Europe, drawing on the existing body of knowledge. These recommendations must be accessible, publicly available, and well disseminated including through a central open access repository.
- Analyse ex post the dynamics and patterns in terms of citizen participation in the Conference on the Future of Europe and evaluate how they could translate into an infrastructure for inclusive participatory and deliberative democracy in the EU24.
- Help policy makers in the EU and Associated Countries to design civic participation strategies for relevant policy areas, in conjunction with the European Commission's Competence Centre on Participatory and Deliberative Democracy.
- Organise 2 retreats per year for policy makers from EU Member States and Associated Countries and EU institutions, targeting high-level officials, to learn and exchange from experts and peers on democratic strengthening and renewal, and encourage exchange on emerging or persisting challenges and threats to democracy, participation and civic engagement.
- Design capacity building activities on inclusive participatory and deliberative forms of democracy at different governance levels, including training and knowledge sharing.

Proposals should also contribute to raise awareness of potential policy actions that they recommend to strengthen and renew democracy at all levels of the government and legislative bodies in Europe, through information and dissemination activities. When developing the activities, proposals should build on and further develop existing knowledge, activities, networks and structures, notably the ones funded by the European Union. Such activities, networks and structures may also draw on the ones developed in the course of the Conference on the Future of Europe but should not be limited to these.

Furthermore, proposals should establish links to and seek synergies with closely related actions, such as relevant R&I actions funded by Horizon Europe or Horizon 2020. Proposals are also invited to build links with global communities addressing democracy.

Further Information:

<https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-detail/s/horizon-cl2-2022-democracy-02-01;callCode=null;freeTextSearchKeyword=%20HORIZON-CL2-2022-DEMOCRACY-02-01;matchWholeText=true;typeCodes=1;statusCodes=31094502,31094501,31094503;programmePeriod=2021%20-%202027;programCcm2Id=43108390;programDivisionCode=null;focusAreaCode=null;destination=null;mission=null;geographicalZonesCode=null;programmeDivisionProspect=null;startDateLte=null;startDateGte=null;crossCuttingPriorityCode=null;cpvCode=null;performanceOfDelivery=null;sortQuery=startDate;orderBy=asc;onlyTenders=false;topicListKey=topicSearchTablePageState>

21. /HORIZON EUROPE/ A culture and creativity driven Europe an innovation ecosystem - a collaborative platform, deadline: 21. September 2022 17:00 Brussels time

The goal is to facilitate the establishment of a culture and creativity driven European innovation ecosystem, with the cultural and creative industries (CCIs) at its heart. Such a system should contribute decisively to Europe's future prosperity, wellbeing, social and cultural cohesion as well as environmental sustainability.

The CCIs are in themselves an important source of growth and job creation in the EU economy, as well as a strong contributor to exports. Many European CCIs can be considered global leaders, such as in fashion, high-end and luxury goods, design, games or publishing, among others, while in other CCIs the EU punches below its weight. The European tangible and intangible cultural heritage and arts constitute an important source of competitiveness for the sector.

Thus, favourable conditions for the competitiveness of European CCIs exist. With the right policy actions, the European CCIs should be able to flourish. If mobilised to form the heart of an emerging culture and creativity driven innovation ecosystem, thriving European CCIs can be the foundation of a unique and lasting source of competitive advantage, prosperity, wellbeing and sustainability for Europe.

The basis of such an ecosystem is strong networks, with a focus on R&I, that foment cooperation across the CCIs and between the CCIs and other economic sectors. Such a system will probably experience strong network effects, therefore interoperability and scale are important aspects at this stage.

The collaborative platform to be established should be the basis to build a strong CCI innovation ecosystem with all actors working together, also becoming active participants in EU R&I activities.

The challenge is to contribute to the development of a dynamic culture and creativity driven innovation ecosystem in Europe. Proposals should show how projects will:

- Establish a strong, inclusive and representative network of and for the CCIs with a focus on research and innovation. The network should extend across CCI sectors at EU level, and establish connections to other important economic sectors. It should be an inclusive platform, which taps into the business potential of all CCI actors while supporting the green and digital transitions. The network should have the capacity to strengthen the innovation ecosystem, by facilitating cooperation, mutual learning and capacity building within R&I for and with the CCIs. Important aspects of the network include interoperability and scale. A collaborative platform should be used to this end.

- Contribute to the design and prioritisation of EU policy actions, particularly R&I policy actions, that will create favourable conditions for the growth of a dynamic and wellfunctioning CCI-driven innovation ecosystem. This should include at least the following:

- Assess needs for future R&I actions for the CCIs, and set up a priority list per sector and company size.

- Map the needs of the CCIs in terms of technology investment, skills, policy and regulation, etc. to allow them to contribute to the EU's 2030 Green Deal goals as well as to the digital transition. Assess these needs at national & European levels and provide recommendations for EU level action.

- Identify and propose key policy actions, including suitable regulatory innovation frameworks, needed to foment the creation of a culture and creativity driven European innovation ecosystem.

Proposals should also show how projects will contribute to raise awareness of the social, economic and job creation capacity of the CCIs, for example by means of demonstrations of innovations or novelties, along with other information and dissemination activities.

When developing the activities, projects should, where possible, link to, build on and further develop existing knowledge, activities, networks and structures, notably the ones funded by the European Union or developed by the CCIs. Such activities, networks and structures may include initiatives funded by Creative Europe, Digital Europe or platforms such as "Creatives Unite".

Furthermore, proposals should show how projects will establish links to and seek synergies with closely related actions, such as relevant R&I actions funded by Horizon Europe or Horizon 2020. In particular, projects should establish links with the upcoming Knowledge and Innovation Community on cultural and creative sectors and industries.

Further Information:

<https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-detail/s/horizon-cl2-2022-heritage-02-01;callCode=null;freeTextSearchKeyword=HORIZON-CL2-2022-HERITAGE-02-01;match02-01;matchWholeText=true;typeCodes=1;statusCodes=31094502,31094501,31094503;programmePeriod=2021%201%20-%202027;programCcm2Id=43108390;programDivisionCode=null;focusAreaCode=null;destination=null;mission;mission=null;geographicalZonesCode=null;programmeDivisionProspect=null;startDateLte=null;startDateGte=null;dateGte=null;crossCuttingPriorityCode=null;cpvCode=null;performanceOfDelivery=null;sortQuery=startDate;orderByDate;orderBy=asc;onlyTenders=false;topicListKey=topicSearchTablePageState>

22. /HORIZON EUROPE/ Knowledge platform and network for social impact assessment of green transition policies, deadline: 21. September 2022 17:00 Brussels time

Fairness is one of the key objectives of the European Green Deal, as well as a precondition for the green transition to gather the necessary support from businesses and citizens. Yet, there is a lack of common culture, practices, and agreed indicators or methodologies on how to best assess the social and distributional impacts of the transition (including on disadvantaged groups). To address this, the Commission recently put forward a proposal for a Council Recommendation addressing the social and labour aspects of a just transition towards climate neutrality, accompanying the Fit for 55 package.

Proposals under this topic should:

- Contribute towards setting up a knowledge platform and network building on existing evidence from assessments of social and distributional impacts of the green transition in general, and of climate action, climate change policies and environmental policies more specifically.
- Propose theoretically founded practical and operational definitions of social impacts and develop social impact assessments/evaluations (covering at least employment, economic, distributional, generational, education, health, quality of life, gender and accessibility aspects) that are well suited to measure impacts of fair green transition policies both ex ante and ex post within and across countries.

The proposed platform should take stock of the existing methodologies to carry out social impact assessments and/or impact evaluations, and come forward with suitable, practical and easy to use, possibly new methodologies and indicators for such assessments and evaluations, which would inform policymakers and help them to gauge the effects of green transition policies (such as those inspired by the European Green Deal and the Fit for 55 package or those funded by the Just Transition Fund and the European Social Fund+). The proposed methodologies and indicators should cover relevant ranges of outcome variables, including financial and non-financial costs and benefits associated with different policies or policy options, as well as distributional (regressive or progressive) impacts and perceptions of fairness and impacts on different regions.

Proposals should also identify shortcomings regarding statistical data and methods for measuring and assessing environmental and social sustainability and societal value when appropriate in cooperation with Eurostat and national statistical institutes, relevant international organisations, networks and social research infrastructures, especially the European Social Survey. Awareness raising programmes for general public, national authorities and high interest target groups should be considered.

Furthermore, proposals should build a network of stakeholders from different contexts, including, but not limited to, researchers, policy makers (at both EU and national level), social partners and civil society.

These should contribute to the activities of the project and collectively cover social themes, impact assessment and impact evaluation expertise, and knowledge of climate, energy and environmental policies. Such a network should include entities from at least 10 different EU Member States or Associated Countries representing different geographical areas, welfare models and/or transition challenges.

Further Information:

<https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-detail/s/horizon-cl2-2022-transformations-02-01;callCode=null;freeTextSearchKeyword=HORIZON-CL2-2022-TRANSFORMATIONS-02-01;matchWholeText=true;typeCodes=1;statusCodes=31094502,31094501,31094503;programmePeriod=2021%20-%202027;programCcm2Id=43108390;programDivisionCode=null;focusAreaCode=null;destination=null;mission=null;geographicalZonesCode=null;programmeDivisionProspect=null;startDateLte=null;startDateGte=null;crossCuttingPriorityCode=null;cpvCode=null;performanceOfDelivery=null;sortQuery=startDate;orderBy=asc;onlyTenders=false;topicListKey=topicSearchTablePageState>

23. /HORIZON EUROPE/ Prevent and eliminate litter, plastics and microplastics: Innovative solutions for waste-free European rivers, deadline: 27. September 2022 17:00 Brussels time

In line with the EU Towards Zero Pollution Action Plan for Air, Water and Soil, proposals should demonstrate scalable breakthrough innovations (technological, business, social and governance) to prevent and minimize pollution from litter, plastics and microplastics in European rivers.

Following the zero pollution hierarchy, proposals under this topic are expected to identify a set of innovative, cost-effective and sustainable solutions to be tested, validated and demonstrated to prevent and minimise pollution from litter, plastics and microplastics in major European rivers that flow out into the European seas and in their catchment areas, taking into consideration land-river interactions through measures, such as:

- Upstream prevention of pollution from litter, plastics and microplastics;
- Substitutes or alternative less polluting substances and materials for the most prevalent litter, plastics and microplastics found in rivers;
- Solutions to prevent or eliminate litter, plastics and microplastics from rivers.

The project will select and test at least five innovative and cost-effective solutions developed under EU, national, regional programmes or privately funded, for preventing and/or eliminating litter, plastics and microplastics from rivers for their effectiveness in preventing and eliminating this pollution in European rivers and for their scalability in other areas. The five solutions will include both solutions preventing as well as solutions eliminating litter, plastics and microplastics from rivers. At least 2 solutions should focus on elimination of microplastics from rivers.

Selected solutions for pollution prevention, elimination and remediation should not increase the level of anthropogenic underwater noise and air pollution. The selected solutions should be in line with the EU taxonomy regulation and delegated acts.

To address the impact-driven approach of the Mission and the nature of Innovation Actions, proposals are expected to work with and engage at least 5 'associated regions' to showcase the feasibility, replicability and scale up of the solutions developed within the projects in other areas. 'Associated regions' are understood as areas with ecosystems that can benefit from the demonstration activities (e.g. neighbouring regions and/or regions in a different sea basin) and/or less-developed regions, with the need to build capacity to implement the innovative solutions for waste-free rivers in the associated regions, addressing possible barriers and showing the feasibility of implementing innovative solutions. Proposals should ensure that the associated regions are located in Member States/Associated countries other than those that are part of the project consortium. An "associated region" shall benefit from the Financial Support to Third Parties provided under this topic within the duration of the project only once. The involvement of "associated regions" that have not yet participated in Mission projects is encouraged. The partners will proactively reach out to the associated regions to enable them to follow closely the project and its demonstration activities. The projects should continuously share their outcomes and knowledge with those 'associated regions' and provide them with technical assistance to build capacity and to implement in their territory that contribute to achieving the Mission objectives. The technical assistance to the 'associated regions' should include the provision of technical advisory services necessary to the prepare roadmaps, plans and projects for waste-free rivers in the associated regions addressing possible barriers and showing the feasibility of implementing innovative solutions.

The maximum amount of Financial Support to Third Parties is EUR 100,000 per 'associated region' for the entire duration of the action. Proposals should outline the selection process of the third parties to which financial support would be granted based on principles of transparency, objectivity and fairness.

'Associated regions' are understood as areas with ecosystems that can benefit from the scale up activities (e.g. neighbouring regions and/or regions in a different sea basin) and/or less-developed regions, with the need to build capacity to implement the innovative solutions to prevent, eliminate and remediate pollution in the associated regions addressing possible barriers and showing the feasibility of implementing innovative solutions.

The project funded under this topic will address all following issues:

- build links with other Mission activities and other relevant activities within the lighthouse and its area to maximize synergies, as well as with the European Blue Parks, other Mission lighthouses;
- build links with the Mission implementation monitoring system that will be part of the Mission Implementation Support Platform and with the Mediterranean sea basin lighthouse support facility and platform, for reporting, monitoring and coordination of all relevant implementation activities in the lighthouse area as well as with the Blue Parks technical support platform;
- support the Ocean and water knowledge system, in particular by contributing to monitoring, modelling and knowledge creation and data.

Proposals should build on research and innovation developed in the frame of related projects in the current and previous EU framework programmes, such as but not limited to Horizon 2020, including the activities funded under the Green Deal 2020 call, LIFE and national and regional programmes on European rivers, as well as the activities of the European Rivers Network.

Further Information:

<https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/horizon-miss-2022-ocean-01-04;callCode=null;freeTextSearchKeyword=;matchWholeText=true;typeCodes=1;statusCodes=1;statusCodes=31094502;programmePeriod=2021%20-%202027;programCcm2Id=43108390;programDivisionCode=null;focusAreaCode=null;destination=null;mission=null;geographicalZonesCode=null;programmeDivisionProspectionProspect=null;startDateLte=null;startDateGte=null;crossCuttingPriorityCode=null;cpvCode=null;performanceOfDelivery=null;sortQuery=startDate;orderBy=asc;onlyTenders=false;topicListKey=topicSearchTablePageSearchTablePageState>

24. /HORIZON EUROPE/ Danube river basin lighthouse - Protection and restoration of wetlands, flood plains, coastal wetlands and salt marshes and their biodiversity, deadline: 27. September 2022 17:00 Brussels time

Wetlands are ecosystems that are flooded by water, either permanently, for years or decades or seasonally (for weeks or months).

In the Danube river basin area and the Danube river delta more than 70% of its wetlands, flood plains, coastal wetlands such as salt marshes have been lost and/or disconnected and the remaining wetlands are under pressure from human activities, such as discharges of sewage and waste water, drainage for agricultural use and pollution. Yet, wetlands are among the most productive ecosystems and they are important hotspots of biodiversity. They provide key ecosystem services, such as water retention and purification, serve as a buffer in case of floods and droughts, remove excess nutrients and reduce of eutrophication as well as contribute to the management of riverine sediments. They have also a potential as carbon sinks reducing the input of greenhouse gas emissions in the future.

The proposals will focus on demonstration of active and passive restoration of wetlands, flood plains, coastal wetlands such as salt marshes including in the transitional waters of the Danube river delta at a large scale. The demonstration activities will combine measures to restore and protect wetlands, flood plains or coastal wetlands such as salt marshes, measures to re-connect wetlands, improvement of protection of communities against floods using nature based solutions involving wetlands, flood plains, coastal wetlands (e.g.: salt marshes) and mitigation of impacts of droughts on these ecosystems and on connected riverine ecosystems, together with reduction of impacts of pollution, in particular from adjacent agricultural and industrial activities and urban pollution in particular from discharges of waste waters. The demonstration activities should entail a holistic approach of returning the ecosystem to the conditions prior to its disturbance, including where appropriate, re-introduction of species, restoration of lateral connectivity to a river, removal of pressures as well as a long-term protection and monitoring. Proposals must:

- Carry out demonstration activities in 3 different Member States and/or Associated Countries of the Danube river basin, involving and including in the consortium entities from these three countries;

- Identify areas and locations where the solutions are replicable and draw up an action plan and roadmap to replicate and scale up the ecosystem and biodiversity restoration solutions and actions.

The projects will include monitoring of carbon sequestration capacity of the wetlands, coastal wetlands such as salt marshes covered by the projects and of the impacts of changes in the climate system on this capacity as well as assessment of the impact of different ecosystem management methods and human activities in these ecosystems on their carbon sequestration capacity. The projects will also include monitoring of the resilience of the habitats targeted (e.g.: extreme events such as floods, droughts, storms) and improved delivery of a range of ecosystem services.

To address the impact-driven approach of the Mission and the nature of Innovation Actions, proposals are expected to work with and engage at least 5 'associated regions' to showcase the feasibility, replicability and scale up of the solutions developed within the projects in other areas. 'Associated regions' are understood as areas with ecosystems that can benefit from the demonstration activities (e.g. neighboring regions and/or regions in a different sea basin) and/or less-developed regions, with the need to build capacity to implement the innovative solutions to restore freshwater ecosystems. The proposals should ensure that the associated regions are located in Member States/Associated countries other than those that are part of the project consortium. An "associated region" shall benefit from the Financial Support to Third Parties provided under this topic only once. The involvement of "associated regions" that have not yet participated in Mission projects is encouraged. The partners will proactively reach out to the associated regions to enable them to follow closely the project and its demonstration activities. The projects should continuously share their outcomes and knowledge with those 'associated regions' and provide them with technical assistance to build capacity and to implement wetlands, flood plains coastal wetlands such as salt marshes restoration and protection solutions in their territory that contribute to achieving the Mission objectives.

The technical assistance to the 'associated regions' should include the provision of technical advisory services necessary to the prepare roadmaps, plans and projects to restore and protect wetlands, flood plains and/or coastal wetlands such as salt marshes, including a reduction of human pressures on these ecosystems and pollution in the associated regions restoring the continuity, natural free-flow and hydro morphology of the river by addressing possible barriers and showing the feasibility of implementing innovative solutions. The projects should support data and knowledge sharing through and as well benefit from the Ocean and Water Knowledge System to foster cross-regions, pan-European approaches.

The maximum amount of Financial Support to Third Parties is EUR 100,000 per 'associated region' for the entire duration of the action. Proposals should outline the selection process of the third parties to which financial support would be granted based on principles of transparency, objectivity and fairness.

The proposals are expected to integrate actions to support the social and economic transitions towards sustainable, inclusive and long-term management of the restored and protected ecosystems, including natural, social, economic and cultural elements and business models for generating revenue from the restored and protected ecosystems and involve for that purpose local business communities, in particular SMEs, investors and other business stakeholders.

Training and communication activities towards stakeholders, including regional and local authorities from the 'associated regions' should be included in each proposal. Local actors, including where appropriate, the European Volunteer Corps and Mission Citizen Assemblies, should be involved in the demonstration of ecosystem restoration and protection activities and any actions for social and economic transitions towards sustainable inclusive and long-term management of the restored ecosystems, like citizen science.

Further Information:

<https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/horizon-miss-2022-ocean-01-02;callCode=null;freeTextSearchKeyword=;matchWholeText=true;typeCodes=1;statusCodes=1;statusCodes=31094502;programmePeriod=2021%20-%202027;programCcm2Id=43108390;programDivisionCode=null;focusAreaCode=null;destination=null;mission=null;geographicalZonesCode=null;programmeDivisionProspectionProspect=null;startDateLte=null;startDateGte=null;crossCuttingPriorityCode=null;cpvCode=null;performanceOfDelivery=null;sortQuery=startDate;orderBy=asc;onlyTenders=false;topicListKey=topicSearchTablePageSearchTablePageState>

25. /HORIZON EUROPE/ Marine litter and pollution - Smart and low environmental impact fishing gears, deadline: 27. September 2022 17:00 Brussels time

Proposals under this topic are expected to identify a set of suitable innovative smart and sustainable solutions to be tested, validated and demonstrated in real conditions, to address negative impacts of fishing gears on marine life and habitats and promote long-term sustainability in our ocean and seas. Interdisciplinary approaches and close cooperation between researchers, fishing industry, fisheries managers and other stakeholders will be fundamental to the development, introduction and acceptance of innovative, smart and sustainable fishing technologies.

Proposals are expected to address one of the following issues:

- Circular aspects: design cost-effective and sustainable fishing gears applying a life-cycle approach, using environmentally-friendly materials (e.g. recycled, recyclable, biodegradable, durable, upgradable) and including recycling and reusing opportunities of end-of-life gears and recovered ghost gears;
- Environmental impacts: reducing harmful impacts of fishing gears on marine fauna, habitats and seabed: e.g. minimizing pollution including from hazardous chemicals and microplastics; reducing negative effects on sensitive and endangered species by reducing bycatches and ghost fishing and through improving mapping, tracking and recovery of abandoned, lost or otherwise discarded fishing gears. All proposals should also take into account selectivity requirements of the fishing gears. In addition, all proposals should address emission reduction objectives, including energy efficiency and resources consumption in gear manufacturing process and in fishing operations.

Each project will test in real conditions at least three sustainable, cost-effective and innovative solutions developed under EU, national, regional programmes or privately funded, for sustainable and low-impact fishing gears (e.g.: Horizon Europe and Horizon 2020; LIFE, the EU Maritime, Fishery and Aquaculture Fund - EMFAF and its predecessor) as well as outcomes of EU funded projects (e.g.: NetTag; Oceanets, Bluenet, marGnet, Biogeras). These three solutions will either address environmental impacts of fishing gears or the circular aspects of fishing gears and use of sustainable materials.

Awareness raising actions should be included to provide users of fishing gear containing plastic proper information about, for example, the availability of re-usable alternatives and re-use systems, appropriate waste management options available and best practices, as well as about the plastic content in fishing gear.

The projects funded under this topic will address all following issues:

- build links with other Mission activities and other relevant activities within the lighthouse and its area to maximize synergies, as well as with the European Blue Parks, other Mission lighthouses;
- build links with the Mission implementation monitoring system that will be part of the Mission Implementation Support Platform and with the sea and river basin lighthouse support facilities and platforms, for reporting, monitoring and coordination of all relevant implementation activities in the lighthouse area as well as with the Blue Parks technical support platform;
- support the Ocean and water knowledge system, in particular by contributing to monitoring, modelling and knowledge creation and data.

SMEs, early-stage business and scale-ups involved in Mission projects entailing innovative, scalable and sustainable business ventures from traditional and emerging blue economy sectors are invited to join the BlueInvest community and benefit from the BlueInvest Fund.

Further Information:

<https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/horizon-miss-2022-ocean-01-05;callCode=null;freeTextSearchKeyword=;matchWholeText=true;typeCodes=1;statusCodes=1;statusCodes=31094502;programmePeriod=2021%20-%202027;programCcm2Id=43108390;programDivisionCode=null;focusAreaCode=null;destination=null;mission=null;geographicalZonesCode=null;programmeDivisionProspect=null;startDateLte=null;startDateGte=null;crossCuttingPriorityCode=null;cpvCode=null;performanceOfDelivery=null;sortQuery=startDate;orderBy=asc;onlyTenders=false;topicListKey=topicSearchTablePageState>

26. /HORIZON EUROPE/ Testing and demonstrating transformative solutions on climate resilience, mainstreaming nature based solutions in the systemic transformation, deadline: 27. September 2022 17:00 Brussels time

This topic relates to the Mission's second objective, aiming to mobilise at least 150 regions in testing the solutions most locally needed to build climate resilience.

The proposal should develop and test innovative solutions, combining technological and social innovation, leading to an increase of the resilience and adaptation capacity to climate change in the involved regions and communities, assuring that nature based solutions are explored as priority and at the very heart of the development whenever possible.

In line with the Mission Implementation Plan and also with the new EU Climate Adaptation Strategy, implementing nature-based solutions on a larger scale would increase climate resilience. Blue-green (as opposed to grey) infrastructures represent multipurpose, "no regret" solutions, which simultaneously provide environmental, social and economic benefits and help build climate resilience. The Strategy also underlines that to improve their uptake, their benefits need to be better quantified and communicated. Their essential role for sustaining healthy water, oceans and soils was recognised, together with their potential to reduce costs, provide climate-resilient services, and improve compliance with Water Framework Directive requirement for good ecological status, if they were to play a bigger role in land-use management and infrastructure planning.

As climate impacts, adaptive capacities and disaster risk reduction capabilities differ greatly across regions, the proposed scientific development and innovation should address specific needs identified at regional and local scale with tailor-made responses and measures, fully acknowledging place-based governance, socio-economic and identity characteristics and other place-based data.

In line with the Mission objective to build systemic climate resilience, the proposal should address the multi-risks locally identified as climate vulnerability, addressing in a systemic approach one or more of the systems identified as key for climate resilience building in the Mission Implementation Plan Mission. For example, the proposed systemic solution could include one or more of the following:

- restoration of ecosystems and the establishment of ecological corridors, taking into account also the benefits and trade-offs for biodiversity, in particular in relation to soil and coastal erosion;
- solutions to better manage water scarcity and mitigate the impacts of droughts or to better manage water flooding, such as greening of infrastructures, tree planting, increasing of permeable green surfaces, or river deculverting in cities, peatland, wetland and floodplain restoration;
- solutions for a more climate resilient agriculture, fisheries, aquaculture and forestry as well as climate resilient food systems, such as culture rotation, silvo-pasture and other agroecology approaches in farmland, in particular in relation to droughts and water multi-usage and management;
- solutions for building and/or managing new critical infrastructure and/or upgrading existing ones through green/blue/hybrid infrastructure, in particular in relation to climate-proofing it towards extreme events;
- climate-proofing the development of incentive schemes fostering efficient use and allocation of water and solutions to reduce the vulnerability to water-related risks;

- regeneration of public spaces to create climate resilient neighbourhoods, in particular in relation to heat-waves and flooding events and their potential risks for human health and well-being;
- inclusion of digital solutions and services to better predict, monitor and report on climate events, in particular towards vulnerable and marginalised populations;
- economic analysis and business models to support decisions making, in particular in relation on investments balance between reducing risks through building climate resilience and improving climate risk preparedness and climate emergency management.

Under the Mission approach, collaborations to develop and test effective solutions between regions/communities facing similar challenges are highly encouraged. To this purpose, the proposals should include at least 5 regions/communities, collaborating in addressing the common climate change related to the challenges identified, creating a common place to test and deploy the most suitable solutions and to exchange best practices. These 5 minimum regions must be located in at least 3 different EU Member States or Horizon Europe associated countries, with at least 1 of the proposed demonstrations taking place in region covered under the EU Cohesion Programme.

The proposals should clearly identify the biogeographical area, as defined by the EEA, for which the proposed solution is relevant and should explore possible reapplication to other regions, starting from those located in the same biogeographical areas. To support a large impact, the proposed solutions should be widely re-applicable. To this purpose, identification and inclusion of at least three "replicating" regions/communities, interested in reapplying the lessons learnt in their territories is strongly encouraged, including the consortium providing support for the technical exchanges and the knowledge uptake in the "replicating" regions.

In addition to the local/regional authorities owning the climate challenge, the consortium may include other type of partners, such as private or public research organisations and enterprises, to ensure that all needed capabilities are available to develop and implement real life actions.

In line with the overall principles of the Mission, proposals should take in full consideration the local dimension of climate change and climate adaptation strategies, clarify how they would ensure a meaningful engagement with local communities as well as stakeholders to ensure, among others, the mobilization of local knowledge, and outline how they would contribute to achieving a just transition to climate resilience.

Proposals should build (when relevant) upon previous developed or existing knowledge and adaptation solutions, designed and developed from previous projects, including from beyond EU, addressing climate change adaptation and funded by European and National programmes, in particular the European Union Framework programmes for Research and Innovation (such as Horizon 2020 and Horizon Europe under their different pillars and clusters), as well as the LIFE programme. Moreover, proposals should look into opportunities to scale up the solutions demonstrated and to foster their broad deployment across in Europe through the LIFE programme, and its integrated projects in particular, and through the ERDF programmes, also leveraging the opportunities provided by the Seal of Excellence labeling.

Proposals should include a mechanism and the resources to establish operational links with the Climate-ADAPT platform (run by the European Environment Agency (EEA) together with DG CLIMA) that will act as a central element for the monitoring, support and visualisation of the Mission progress in European Regions. To this purpose, projects will feed their results to the Climate-ADAPT and EEA assessments.

Projects funded under this topic are strongly encouraged to participate in networking and joint activities with other projects funded under other topics in the Mission Climate Adaptation as well as in other relevant Missions, as appropriate. These networking and joint activities could, for example, involve the participation in joint workshops, the exchange of knowledge, the development and adoption of best practices, or joint communication activities. To this extent, proposals should provide for dedicated activities and earmark appropriate resources.

The European Commission intends to establish a network and coordination activities amongst all the projects funded for the implementation of the Climate adaptation Mission, under the Horizon 2020 European Green Deal call and under Horizon Europe, and that will be coordinated by the soon to be established Mission Implementation Platform. The projects under this topic will be requested to contribute to this effort. Applicants should acknowledge this request and already account for these

obligations in their proposal, making adequate provisions in terms of resources and budget to engage and collaborate with the Mission governance.

To ensure a balanced portfolio covering the different climate risks as identified in the Mission Implementation Plan and to maximize the footprint across all the different biogeographical areas, grants will be awarded to applications not only in order of ranking but selecting the highest ranked proposals for each biogeographical area, provided that the applications attain all thresholds. To this purpose, the biogeographical area focus of each of proposal should also be specified in the free keywords section of the proposal.

Further Information:

<https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/horizon-miss-2022-clima-01-06;callCode=null;freeTextSearchKeyword=;matchWholeText=true;typeCodes=1;statusCodes=1;statusCodes=31094502;programmePeriod=2021%20-%202027;programCcm2Id=43108390;programDivisionCode=null;focusAreaCode=null;destination=null;mission=null;geographicalZonesCode=null;programmeDivisionProspectionProspect=null;startDateLte=null;startDateGte=null;crossCuttingPriorityCode=null;cpvCode=null;performanceOfDelivery=null;sortQuery=startDate;orderBy=asc;onlyTenders=false;topicListKey=topicSearchTablePageSearchTablePageState>

27. /HORIZON EUROPE/ A European Social Innovation Catalyst Fund to Advance EU Mission Objectives by Replicating and Scaling-up Existing, Demonstrably Successful Social Innovations, deadline: 21. September 2022 17:00 Brussels time

Social innovation concerns the development of new products, methods, and services for and with society involving not only citizens, but also public authorities, business and industry, and academia--i.e., the four constituencies of the "Quadruple Helix"--in their design, development, and execution. Social innovation engages and empowers citizens, enhances the resilience of communities, increases the relevance, acceptance and uptake of innovation, and helps foster lasting changes in social practices, therefore acting as a system changer. It thus helps answering societal and environmental challenges, connecting society with innovation.

EU Framework Programmes for Research and Innovation provide many examples of existing, demonstrably successful social innovations in very diverse thematic areas. Quantitative and/or qualitative indicators demonstrating success may include, e.g., reductions in energy costs expressed in EUR, Joules, or kWh, reductions in greenhouse gas emissions or increases in greenhouse gas capture in t(CO₂eq), adoption of climate-related emergency plans or climate-resilient cropping systems, or number of jobs secured by a reskilling programme in areas traditionally depending on fossil fuel exploitation for employment; increases in fish population/school sizes, reductions in counts of microplastic particulates in water samples, area of coral reef restored in square kilometers, number of clean-up campaigns and cleaned-up areas in square kilometers; number of fatal cancers prevented, additional years of quality life or reduction in disability-adjusted life year (DALYs) in years; number of users switching to carbon-neutral modes of transportation or number of climate-neutral buildings; surfaces of rehabilitated soils in hectares, or increases in counts of species/individual of a given fungus, plant, animal, etc. species. Yet, the development of synergies with other public or private funding schemes may lead to the selection of social innovations elaborated independently.

The call targets

- for the consortium that will manage the project, a diverse assemblages of actors of social innovation, i.e., public authorities, academia, business, citizens and citizens' organizations;
- for the creation of the fund, national research and innovation funding agencies, philanthropists, and other public or private investors; and
- for the replication of social innovations, as beneficiaries of third party financing through open calls, social innovators, social enterprises, companies working for reaching social impact and/or with a specific

consideration of social impact, etc.

Further Information:

<https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/horizon-miss-2022-socialcat-01-01;callCode=null;freeTextSearchKeyword=;matchWholeText=true;typeCodes=1;statusCodes=1;statusCodes=31094502;programmePeriod=2021%20-%202027;programCcm2Id=43108390;programDivisionCode=null;focusAreaCode=null;destination=null;mission=null;geographicalZonesCode=null;programmeDivisionProspect=null;startDateLte=null;startDateGte=null;crossCuttingPriorityCode=null;cpvCode=null;performanceOfDelivery=null;sortQuery=startDate;orderBy=asc;onlyTenders=false;topicListKey=topicSearchTablePageState>

28. /HORIZON EUROPE/ Building the mission's knowledge repository and advancing the European Soil Observatory, deadline: 27. September 2022 17:00 Brussels time

Data and knowledge on soils are widely distributed and generally not sufficiently structured, which hampers their discovery and usability. A particular difficulty is the integration of outputs and results from research projects that would support a holistic understanding of soil health challenges and potential solutions or allow for the re-use of available knowledge and data for various purposes (e.g. follow-up research, practical applications).

To address this bottleneck, proposals should:

- Develop a strategy, standardised methods and recommendations for the collection, processing, visualisation and exploitation of soil data and knowledge resulting in particular from R&I projects. Data and information gathered should take into account representation from all types of soils, geographic regions and land uses in Europe. Attention should be given to issues of compatibility and interoperability with relevant existing databases and knowledge repositories (e.g. including data from long-term experiments, modelling and monitoring) as well as with services from digital infrastructures, platforms and services.
- Develop and test a prototype for a long-term knowledge and data repository, taking due account of the requirements emerging from the evolution of the EUSO. The repository developed under the project should be open-access, user-friendly and allow to integrate knowledge from research projects and harmonised scientific data from different sources and technologies including in-situ and remote measurements (e.g. from earth observation). The repository is expected to become later part of the EUSO.
- Explore and take advantage of the potential of artificial intelligence (AI) and machine learning to process and use information and data while enhancing their FAIRness (findability, accessibility, interoperability and re-usability) and turning them into relevant, open and accessible knowledge to support potential users.
- Provide examples for practice-oriented "user cases" to show how potential users (e.g. researchers, land managers, businesses or public authorities, decision-makers) can capitalise on and re-use existing information and data from the knowledge repository.

Activities should be implemented in close cooperation with the European Commission's Joint Research Centre (JRC) and the EUSO, also in view of ensuring the longevity, sustainability and interoperability of data, knowledge and services. The proposals shall include dedicated tasks and allocate appropriate resources for this coordination.

Proposals should take due account of on-going developments with regard to knowledge, information and data management in areas relevant to the Soil Deal mission. This includes EU R&I Horizon Europe tools for data collection and storage, Open Science and FAIR principles, IPR and data ownership issues as well as the INSPIRE GEO portal and the EU Destination Earth (DestinE) initiative and its data lake concept. To this end, proposals should set out a clear plan on how to collaborate with other relevant projects and initiatives.

Further Information:

<https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/horizon-miss-2022-soil-01-01;callCode=null;freeTextSearchKeyword=;matchWholeText=true;typeCodes=1;statusCodes=1;statusCodes=31094502;programmePeriod=2021%20-%202027;programCcm2Id=43108390;programDivisionCode=null;focusAreaCode=null;destination=null;mission=null;geographicalZonesCode=null;programmeDivisionProspectonProspect=null;startDateLte=null;startDateGte=null;crossCuttingPriorityCode=null;cpvCode=null;performanceOfDelivery=null;sortQuery=startDate;orderBy=asc;onlyTenders=false;topicListKey=topicSearchTablePageSearchTablePageState>

29. /HORIZON EUROPE/ Monitoring, reporting and verification of soil carbon and greenhouse gases balance, deadline: 27. September 2022 17:00 Brussels time

The success of carbon farming in Europe will be judged on the quantity and longevity of the sequestration of carbon in plants and soils (by enhancing carbon capture and/or reducing the release of carbon to the atmosphere). To upscale carbon farming successfully, and to establish long-term business perspectives, it will be essential to standardise methodologies and rules for monitoring, reporting and verifying (MRV) the gains or losses in the carbon sequestered. Currently, private schemes apply very different benchmarks and rules to the carbon credits placed on the voluntary markets. Without a high degree of transparency, environmental integrity, and methodology standardisation buyers will be hesitant about the quality of the offered carbon farming credits. Furthermore, land managers will find it difficult to estimate their potential revenues and policy makers will be reluctant to allow the use of such credits for compliance in the regulatory framework. In consequence, it will be challenging to develop a successful market.

Carbon accumulation and storage in soil and biomass is the result of the interaction of several biotic and abiotic factors. The development and use of biogeochemical models permits a better scientific understanding of soil response to specific or alternative management decisions, together with the impact of climatic variations.

It would be important to carry out complete balances of greenhouse gases (GHG), not only CO₂, to verify that the increase in carbon storage or the decrease in CO₂ emissions are not offset by an increase in emissions of other GHG (N₂O for example). Interdependence of biogeochemical cycles should be considered, at minimum the coupling of C and N cycles.

Proposals should address various (as many as possible) types of the following land cover or land uses, particularly agricultural lands, in the EU and Associated Countries: agricultural croplands (both conventional and organic), grasslands and pasture land (both intensive, organic and semi-natural/low inputs rangelands), agroforestry and regenerative managed land, and paludiculture; forest lands (including afforested and deforested land); historical (drained, exploited) peatlands; managed wetlands; peri-urban areas subject to conversion.

Proposals should therefore look to a range (as wide as possible) of climatic/biogeographical regions in the EU and Associated Countries. Proposals should favour a landscape approach to their framing and analysis. In addition, proposals should address the largest geographical area possible.

Proposed activities should:

- Refine and develop procedures for, and execute, direct on-field measurements and estimation of carbon and GHG accumulation and fluxes exchange in soil and biomass, reflecting the specificities of the different ecosystems, climates and land uses. Special attention should be drawn to the integration of existing databases, the application of digital technologies (including Artificial Intelligence) and the combination of remote sensing with in-situ monitoring. Links to the EU Soil Observatory (by incorporating the data from on-field measurements), the LUCAS Soil module and the European-wide Integrated Carbon Observation System (ICOS) GHG standardised data should be considered.

- Develop (biogeochemical) process models incorporating new and diverse data streams (e.g. on nutrient cycles, from earth observation systems, drones and precision agriculture) to provide higher temporal and spatial resolution on the biological, chemical and physical drivers of fluxes, accumulation and storage of soil organic carbon and matter.

- At a landscape level, assess the effect of, and the soil's capacity for, the implementation of different carbon-capture practices on land (e.g. subsoil carbon storage). Results should be geographically explicit (at sub-landscape, e.g. farm holding level), for example, on (short-term) carbon accumulation, as well as on its vulnerability related to natural and human disturbances, for the landscape object (land use or land cover) subject to the research work.

- Develop, standardise and demonstrate methodologies and rules for cost-effective monitoring, reporting and verifying the gains or losses in carbon sequestered in soil and through carbon farming at sub-landscape (e.g., farm holding level). Indicators should include soil carbon stability and permanence considerations.

- Assess the economic and social impacts of carbon farming on the local (landscape level) rural economy. Identify effective means for ensuring access to financial support (incl. small-scale and remote farmers, gender considerations, etc.). Provide information on which management options are economically viable and have optimal potential for soil organic carbon formation. Results could lead to decision-supporting tools for policy makers and land managers, to support participative policy design and impact for carbon accumulation as well as to better quantify the effects of climate change on soil organic carbon (and possibly on soil fertility).

All activities should include or take into account the impacts of climate change, whenever relevant.

Further Information:

<https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/horizon-miss-2022-soil-01-05;callCode=null;freeTextSearchKeyword=;matchWholeText=true;typeCodes=1;statusCodes=1;statusCodes=31094502;programmePeriod=2021%20-%202027;programCcm2Id=43108390;programDivisionCode=null;focusAreaCode=null;destination=null;mission=null;geographicalZonesCode=null;programmeDivisionProspectonProspect=null;startDateLte=null;startDateGte=null;crossCuttingPriorityCode=null;cpvCode=null;performanceOfDelivery=null;sortQuery=startDate;orderBy=asc;onlyTenders=false;topicListKey=topicSearchTablePageSearchTablePageState>

30. /HORIZON EUROPE/ Network on carbon farming for agricultural and forest soils, deadline: 27. September 2022 17:00 Brussels time

The success of carbon farming in Europe will be judged on the quantity and longevity of the sequestration of carbon in plants and soils (by enhancing carbon capture and/or reducing the release of carbon to the atmosphere). To upscale carbon farming successfully and to establish long-term business perspectives, it will be essential to standardise the methodologies and rules for monitoring, reporting and verifying (MRV) the gains or losses in carbon sequestered. Currently, private schemes apply very different benchmarks and rules to the carbon credits placed on the voluntary markets. Without a high degree of transparency, environmental integrity, and methodology standardisation, buyers will be hesitant about the quality of the offered carbon farming credits. Land managers will also find it difficult to estimate their potential revenues and policy makers will be reluctant to allow the use of such credits for compliance into the regulatory framework. Thus it will be challenging to develop a successful market.

Proposed activities should:

- Build and coordinate a network of key stakeholders drawn from European research facilities, systems developers, solution providers, land advisors and managers and others, involved in soil and biomass programmes linked to carbon sequestration, in particular at the landscape scale level.

- Develop a platform for knowledge sharing, exchange of experiences, mutual learning, best practices and support facilitating the development (design, implementation and evaluation) of result-based carbon farming schemes.

- Underpin the establishment of data collection networks (such as carbon flux measurements stations, ground sampling campaigns, etc.), promoting the practice of data sharing and standardisation, retrieval and aggregation of information.

- Identify gaps and opportunities at the landscape level in ecosystem monitoring and soil carbon flux mitigation practices, leveraging EU level geographically-explicit monitoring systems and solutions. A substantial part of the resources of the project should be dedicated to co-creating solutions, enhance communication and engage with stakeholders, thereby ensuring co-ownership of solutions and supporting the interest, knowledge and uptake of carbon farming.

Special attention should be given to the promotion and integration of existing databases and datasets, the application of digital technologies, and the combination of Earth observation techniques (drones, airborne, satellite based) with in-situ monitoring for the enhancement of robustness and provision of timely, accurate estimates.

Further Information:

<https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/horizon-miss-2022-soil-01-06;callCode=null;freeTextSearchKeyword=;matchWholeText=true;typeCodes=1;statusCodes=1;statusCodes=31094502;programmePeriod=2021%20-%202027;programCcm2Id=43108390;programDivisionCode=null;focusAreaCode=null;destination=null;mission=null;geographicalZonesCode=null;programmeDivisionProspectonProspect=null;startDateLte=null;startDateGte=null;crossCuttingPriorityCode=null;cpvCode=null;performanceOfDelivery=null;sortQuery=startDate;orderBy=asc;onlyTenders=false;topicListKey=topicSearchTablePageState>

31. /HORIZON EUROPE/ Foster soil education across society, deadline: 27. September 2022 17:00 Brussels time

As highlighted in the EU Soil Strategy for 2030 and in the implementation plan of Mission 'A Soil Deal for Europe', soil is a scarce and non-renewable resource which is vital to ensure life on Earth. However, the value of soil is not fully recognised in society. Individuals are often unaware of the relevance of soil in their daily lives and of the pressures that human activities pose on soil health. To improve society's understanding of soils and incentivise behavioural change, there is a need to embed soil related subjects more firmly into the various levels of education and link enhanced information on soils with people's values. Activities under this topic will foster soil education in schools, universities and professional education in EU Member States and Associated Countries.

Projects are expected to:

- Provide an overview of the current level of soil related knowledge (including on soils' vital functions) and the educational needs amongst pupils (primary and secondary levels), students (tertiary level), and society overall across the EU and Associated Countries.

- Develop courses/modules for soil education in primary and secondary schools as well as in universities (building particularly on EJP Soil relevant results) and in professional/technical training by developing and testing pedagogical techniques for effective knowledge flows. Work should make use a variety of learning tools (including e-learning content) and carry-out activities targeted at different age groups and types of learning.

- Identify, further develop, and demonstrate/pilot exemplary sustainable practices on soil related educational settings (e.g. vegetable gardens, composting activities, etc.), in rural, peri-urban and urban areas. Examples identified should be geographically balanced and draw on experiences from a wide number of EU Member States and Associated Countries, ideally targeting at least half the number of EU Member States.

- Disseminate and make widely available educational and training material gathered and developed throughout the project. Information and material shall be oriented to different target groups and available in numerous European languages, making use of advanced tools, channels and network for education and communication (e.g. School Education Gateway, EU Academy, Education for Climate platform). In addition, communication campaigns should be implemented to give visibility to the project, the Mission objectives and the importance of soil and its manifold functions.

- Enhance knowledge exchange and peer-to-peer learning amongst the different target groups (e.g. school pupils and university students including beneficiaries of relevant Marie Skłodowska-Curie Actions, teachers, professors, trainers, and organisations) through existing networks (e.g. EIT graduates) and empower them to act on fostering strong links with the Education for Climate Coalition to co-create concrete education solutions;

- Engage with public authorities and institutions responsible for primary, secondary and tertiary education on the findings resulting from the work undertaken in view of promoting their uptake. This should include the preparation of targeted recommendations for policy makers and the organisation of events such as a conference at EU level and a series of national conferences to exchange on the results.

Proposals should apply a multi-actor approach where soil experts, behavioural scientists, specialists in pedagogy, in education, and in communication are working closely together with teachers, professors and students in synergy with the Education for Climate Coalition and relevant initiatives of National Coalitions. In addition, consortia should tap into the expertise of organisations and institutions with experience in citizen science and in running science shops.

Potentially, the project financed under this topic could also cooperate with Living Labs and lighthouses that will be created in future calls under the Mission 'A Soil Deal for Europe'.

Further Information:

<https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/horizon-miss-2022-soil-01-07;callCode=null;freeTextSearchKeyword=;matchWholeText=true;typeCodes=1;statusCodes=1;statusCodes=31094502;programmePeriod=2021%20-%202027;programCcm2Id=43108390;programDivisionCode=null;focusAreaCode=null;destination=null;mission=null;geographicalZonesCode=null;programDivisionProspectonProspect=null;startDateLte=null;startDateGte=null;crossCuttingPriorityCode=null;cpvCode=null;performanceOfDelivery=null;sortQuery=startDate;orderBy=asc;onlyTenders=false;topicListKey=topicSearchTablePageState>

32. /HORIZON EUROPE/ Mediterranean sea basin lighthouse - Actions to prevent, minimise and remediate chemical pollution, deadline: 27. September 2022 17:00 Brussels time

In line with the EU Zero Pollution Action Plan for Air, Water and Soil, proposals should demonstrate scalable breakthrough innovations (technological, business, social and governance) to prevent and minimize marine and freshwater pollution from chemical pollutants. Following the zero pollution hierarchy, proposals should focus on demonstrating replicable solutions to prevent and minimize pollution in the Mediterranean Sea including its major river catchment areas and taking into consideration land-sea interactions through measures, such as:

- Upstream prevention of pollution from chemicals;
- Substitutes or alternative less polluting substances and materials for the most prevalent chemical pollutants found in freshwater and at sea.

Proposed solutions for pollution prevention, elimination and remediation should not increase the level of anthropogenic underwater noise and air emissions.

Proposed solutions should be in line with the EU taxonomy regulation and delegated acts.

Proposals must:

- Carry out demonstration activities in 3 different Member States and/or Associated Countries of the Mediterranean sea basin, involving and including in the consortium entities from these three countries;
- Identify areas and locations where the solutions are replicable and draw up an action plan and roadmap to replicate and scale up the pollution solutions and actions.

To address the impact-driven approach of the Mission and the nature of Innovation Actions, proposals are expected to work with and engage at least 5 'associated regions' to showcase the feasibility, replicability and scale up of the solutions developed within the projects in other areas. 'Associated regions' are

understood as areas with ecosystems that can benefit from the demonstration activities (e.g. neighbouring regions and/or regions in a different sea basin) and/or less-developed regions, with the need to build capacity to implement the innovative solutions to prevent, eliminate and remediate pollution to prevent, eliminate and remediate pollution in the associated regions addressing possible barriers and showing the feasibility of implementing innovative solutions.

The proposals should ensure that the associated regions are located in Member States/Associated countries other than those that are part of the project consortium. An "associated region" shall benefit from the Financial Support to Third Parties provided under this topic only once. The involvement of "associated regions" that have not yet participated in Mission projects is encouraged. The partners will proactively reach out to the associated regions to enable them to follow closely the project and its demonstration activities. The projects should continuously share their outcomes and knowledge with those 'associated regions' and provide them with technical assistance to build capacity and to implement in their territory that contribute to achieving the Mission objectives. The technical assistance to the 'associated regions' should include the provision of technical advisory services necessary to the prepare roadmaps, plans and projects to prevent, eliminate and remediate pollution from chemicals in the associated regions addressing possible barriers and showing the feasibility of implementing innovative solutions.

The maximum amount of Financial Support to Third Parties is EUR 100,000 per 'associated region' for the entire duration of the action. Proposals should outline the selection process of third parties to which financial support would be granted based on principles of transparency, objectivity and fairness.

Proposals should build on research and innovation developed in the frame of related projects in the current and previous EU framework programmes, such as but not limited to Horizon 2020, including the activities funded under the Green Deal 2020 call, LIFE and national and regional programmes in the Mediterranean sea basin as well as on the future focus and activities of the Sustainable Blue Economy Partnership, the sea basin initiative WestMed and the macroregional strategy EUSAIR, with thematic networks, the implementation of the Union for the Mediterranean Ministerial Declaration on Sustainable Blue Economy as well as projects and actions funded under the PRIMA Partnership.

Further Information:

<https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/horizon-miss-2022-ocean-01-03;callCode=null;freeTextSearchKeyword=;matchWholeText=true;typeCodes=1;status=1;statusCodes=31094502;programmePeriod=2021%20-%202027;programCcm2Id=43108390;programDivisionCode=null;focusAreaCode=null;destination=null;mission=null;geographicalZonesCode=null;programmeDivisionProspectionProspect=null;startDateLte=null;startDateGte=null;crossCuttingPriorityCode=null;cpvCode=null;performanceOfDelivery=null;sortQuery=startDate;orderBy=asc;onlyTenders=false;topicListKey=topicSearchTablePageState>

33. /HORIZON EUROPE/ Mission Climate adaptation and Mission Ocean and waters - Joint demonstration for coastal resilience in the Arctic and Atlantic sea basin, deadline: 27. September 2022 17:00 Brussels time

This topic relates to the Adaptation to Climate Change Mission's third objective, aiming to support at least 75 full scale deep demonstrations of climate resilience and to Mission Ocean, and waters' objective 1 aiming at protection and restoration of marine and freshwater ecosystems and biodiversity. It also contributes to the objectives of the Marine Strategy Framework Directive (MSFD) and the Water Framework Directive (WFD) - including in terms of Good Environmental Status and restoration of aquatic ecosystems - and the Marine Spatial Planning Directive (MSPD).

Proposals should demonstrate solutions to build resilience to climate change in coastal areas in the Atlantic and Arctic sea basin, through the deployment of nature-based solutions, including nature-based infrastructures. Thus, proposals under this joint Missions topic should identify and demonstrate solutions

that contribute to the objectives of both Missions at once.

Proposals under this topic must deploy full-scale demonstrations of innovative solutions with concrete measurable impacts leading to a measurable increase of the resilience and adaptation capacity of the regions involved, whilst contributing to climate change mitigation and biodiversity conservation. Proposals should focus on demonstration activities for the restoration of marine and coastal ecosystems through nature-based solutions/infrastructures that boost coastal resilience, such as oyster reefs, kelp forests, seagrass, coastal wetlands and salt marshes. The proposals should also explore different pressures and climate change adaptation needs in a systemic way, such as the soil erosion and its impact on coastal areas resulting in marine ecosystem pressures. Combination of nature-based measures with hybrid solutions and relevant Blue-Green engineering may be considered, provided these combined solutions are sustainable and integrated in coastal resilience planning and decision-making processes and provide adequate social and environmental safeguards.

Citizen engagement is a key concept for the Missions. The proposals should involve local actors, communities and citizens in actively shaping solutions for marine ecosystem restoration and protection and holistic socio-ecological management of restored and valuable ecosystems, including where appropriate European volunteer/solidarity corps and citizens science activities in the restoration activities. As the regions and communities need to undergo significant transformation to become climate-proof, measures need to be co-owned and respond to local needs and shared sustainability visions. The involvement of local authorities and local communities, including indigenous peoples, is required in order to ensure that the solutions designed are best suited, co-created and with the necessary ownership. Activities should, therefore, promote the involvement of local communities in order to hear from them the impact of intended actions, and to co-create measures that meet the Missions' aims while taking local communities' needs and values on board.

Proposals may involve coastal communities particularly vulnerable to the risks of extreme weather events, sea level rise, permafrost and/or ice melting. Islands and the EU Outermost Regions urgently needing restoration measures to adapt to climate change thus ensuring their population safety and climate-proof and weather resilient infrastructure may be covered by proposals.

Proposals should:

- Carry out demonstration activities in 5 different regions belonging to the Atlantic and/or Arctic sea basin, involving and including in the consortium entities from these three countries;
- Involve at least 10 'associated regions' as third parties to showcase the feasibility, replicability and scale up of the solutions developed. The consortium will proactively reach out to the "associated regions" to enable them to follow closely the project and its demonstration activities, proving knowledge transfer to them and with technical assistance to build capacity and to implement coastal resilience solutions in their territories;
- Identify further areas and locations where the solutions are replicable and draw up an action plan and roadmap to replicate and scale up the ecosystem and biodiversity restoration solutions and actions.

As a mechanism to provide knowledge transfer and technical assistance to the "associated regions", the selected projects will be able to provide support to third parties in the form of grants. The maximum amount of the envisaged Financial Support to Third Parties is EUR 100,000 per third party for the entire duration of the action. Proposals should outline the selection process of the third parties to which financial support would be granted based on principles of transparency, objectivity and fairness. Proposals should (when relevant) build upon existing knowledge and solutions and support the upscaling of successful pilots, including from beyond the EU, designed and developed in the frame of projects funded by current and previous European and national programmes, in particular the European Union framework programmes for Research and Innovation (such as Horizon 2020, and the All-Atlantic Ocean Research Alliance), as well as the LIFE programme, Erasmus+, the national and regional programmes in the Atlantic/Arctic basins, such as INTERREG and European Maritime and Fisheries Fund, as well as the activities of the Sustainable Blue Economy Partnership and the Atlantic Action Plan 2.0.

Further Information:

<https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/horizon-miss-2022-oceanclima-01-01;callCode=null;freeTextSearchKeyword=;matchWholeText=true;typeCodes=1;statusCodes=1;statusCodes=31094502;programmePeriod=2021%20-%202027;programCcm2Id=43108390;programDivisionCode=null;focusAreaCode=null;destination=null;mission=null;geographicalZonesCode=null;programmeDivisionProspect=null;startDateLte=null;startDateGte=null;crossCuttingPriorityCode=null;cpvCode=null;performanceOfDelivery=null;sortQuery=startDate;orderBy=asc;onlyTenders=false;topicListKey=topicSearchTablePageState>

34. /HORIZON EUROPE/ Best practices on and piloting insurance solutions for climate adaptation in EU regions and communities, deadline: 27. September 2022 17:00 Brussels time

This topic relates to all three objectives of the strategy, and is part of the key enabling conditions described in the Mission Implementation Plan, to test novel insurance solutions, insurance products and risk-transfer mechanisms. The applied research and the experimentation with innovative solutions as further outlined below under points 1 and 2 should be at the centre of the project.

Insurance is a key tool to compensate for losses after extreme climate events, yet its use in the climate adaptation domain is limited at the moment for a variety of reasons. Recent studies show that between 1980-2019, direct economic losses in EU-27 from climate-related events totalled at least EUR 419 billion. Only 35% of these losses were insured on average across the EU.

Proposals should address both the following aspects:

1. Best practices and filling the gaps on insurance coverage for climate adaptation

The proposal should address barriers to the use of insurance for climate adaptation, and improve the insurance cover in regions and communities.

Therefore, proposals should:

- Prepare a collection of weather and climate risk insurance products and best practices that could be included to existing products or replicated as new products in EU regions and communities
- Develop and implement mechanisms to collect and share comprehensive and harmonized data on climate-related risk and losses. Such mechanisms and data should be integrated with the Risk Data Hub
- Develop guidance capturing best practice on insurance pricing encouraging users to invest in adaptation and ensuring affordable insurance cover
- Feed into the deliberations of the Climate Resilience dialogue making available draft deliverables, as relevant.
- Provide direct support to at least three regions by:
 - Sharing relevant state-of-the-art knowledge, best practices and emerging innovations on insurance solutions,
 - Presenting advice on insurance gaps to be addresses by public budgets in the regions, and
 - Providing guidance and support regarding the type of insurance product that would best address the climate risks the region or community is and will face; look for actual products for these regions.

2. Trialing and experimentation of insurance solutions in EU regions and communities

As climate impacts become more severe and frequent European regions and communities need to lead by example by procuring insurance solutions to transfer risks and compensate for loses. The proposal should build on the guidance developed under the first element and start piloting insurance solutions that can increase Europe's resilience and preparedness to face unavoidable consequences of climate change.

The proposals should:

- Develop a pilot of innovative insurance solutions in at least three regions or communities (vulnerable to different climate risks and located in different geographical areas) to address their climate risks. Such

solutions could be new ones or from improving existing ones.

- Inform their plans with the guidance and recommendations from the deliverables under point 1.
- Demonstrate sustainability of the solutions piloted beyond the life of the project.

The project should work closely and establish synergies with other projects within the Mission and other relevant initiatives in the domain of climate adaptation insurance, such as the Climate Resilience dialogue, work being done by the European Insurance and Occupational Pensions Authority (EIOPA), relevant Horizon 2020 projects.

The consortia should include as associated partners at least one insurance and/or re-insurance company in order to pilot the proposed actions. Furthermore, this topic requires the effective contribution of SSH disciplines and the involvement of SSH experts, institutions as well as the inclusion of relevant SSH expertise, in order to produce meaningful and significant effects enhancing the societal impact of the related research activities.

In line with the overall principles of the Mission, proposals should take in full consideration the local dimension of climate change and climate adaptation strategies, clarify how they would ensure a meaningful engagement with local communities as well as stakeholders to ensure, among others, the mobilization of local knowledge, and outline how they would contribute to achieving a just transition to climate resilience.

Further Information:

<https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/horizon-miss-2022-clima-01-03;callCode=null;freeTextSearchKeyword=;matchWholeText=true;typeCodes=1;statusCodes=1;statusCodes=31094502;programmePeriod=2021%20-%202027;programCcm2Id=43108390;programDivisionCode=null;focusAreaCode=null;destination=null;mission=null;geographicalZonesCode=null;programmeDivisionProspect=null;startDateLte=null;startDateGte=null;crossCuttingPriorityCode=null;cpvCode=null;performanceOfDelivery=null;sortQuery=startDate;orderBy=asc;onlyTenders=false;topicListKey=topicSearchTablePageState>

35. /HORIZON EUROPE/ Lighthouse in the Baltic and the North Sea basins - bringing sustainable algae-based products and solutions to the market, deadline: 27. September 2022 17:00 Brussels time

Proposals are expected to show the way for innovative and sustainable algae-based solutions and products for uses such as human consumption, animal feed, pharmaceutical applications, waste water treatment, innovative, circular and sustainable textiles applications or applications for agriculture to the market. Algae-based products and solutions for energy applications are excluded from the scope of the topic.

The projects will address all following issues:

- Develop and demonstrate innovative and sustainable algae-based applications and assess their sustainability and circularity along the whole value chain;
- Identify technological, regulatory, economic and other barriers to bring algae-based products or solutions into the market and propose measures to overcome them, including where suitable through the use of regulatory sandboxes;
- Develop and test commercialisation strategy for algae-based innovative products or solutions for applications for human consumption, animal feed, pharmaceutical applications, water treatment, innovative, circular and sustainable textiles applications and for agriculture;
- Address cost-efficiency and cost reduction for algae transformation and processing;
- Bring together relevant actors and fora to establish an integrated, dynamic and circular industrial ecosystem around innovative algae-based products or solutions, involving when relevant, cluster organisations of industrial clusters/ecosystems and/or smart specialisation regions.

Interdisciplinary approaches and close cooperation between researchers, academia, algae aquaculture industry, and industries developing innovative and sustainable algae-based solutions and products, as well with users and consumers of those products and solutions will be fundamental to the development, introduction and acceptance of these products in the market.

Proposals should build on research and innovation projects' results in the current and previous EU framework programmes, such as but not limited to Horizon 2020, LIFE, EMFF and its continuation the European Maritime, Fisheries and Aquaculture Fund, the Knowledge Innovation Community on food, and other EU funding streams as well as national, regional and cross-border programmes in the Baltic and North sea basins and the activities of the Sustainable Blue Economy Partnership.

Proposals need to build in capacity to reach local/regional and national systems of multi-stakeholders and to enhance their interconnections at basin scale. Multi stakeholder engagements will require active participation from academia to research performing organisations, from citizens to civil society, from young innovators to start-ups, SMEs and other businesses.

Projects funded under this topic will:

- o build links with other Mission activities and other relevant activities within the lighthouse and its area to maximize synergies, as well as with the other Mission lighthouses;
- o build links with the Mission implementation monitoring system that will be part of the Mission Implementation Support Platform and with the Baltic and North sea basin lighthouse support facility and platform, for reporting, monitoring and coordination of all relevant implementation activities in the lighthouse area;
- o support the Ocean and water knowledge system, in particular by contributing to monitoring, modelling and knowledge creation and data

A strong communication component and an active involvement of stakeholders, including from the aquaculture and algae industry, relevant business organisations, consumers and users and NGOs, in a co-creation approach is essential for the uptake of the produced outputs. Training and education activities should be included. Market analysis and commercialisation strategies (customer identification, distribution, branding etc.) will be essential.

Further Information:

<https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/horizon-miss-2022-ocean-01-06;callCode=null;freeTextSearchKeyword=;matchWholeText=true;typeCodes=1;statusCodes=1;statusCodes=31094502;programmePeriod=2021%20-%202027;programCcm2Id=43108390;programDivisionCode=null;focusAreaCode=null;destination=null;mission=null;geographicalZonesCode=null;programmeDivisionProspectionProspect=null;startDateLte=null;startDateGte=null;crossCuttingPriorityCode=null;cpvCode=null;performanceOfDelivery=null;sortQuery=startDate;orderBy=asc;onlyTenders=false;topicListKey=topicSearchTablePageState>

36. /HORIZON EUROPE/ Student and school activities for the promotion of education on 'blue' sustainability and the protection of marine and freshwater ecosystems, deadline: 27. September 2022 17:00 Brussels time

Previous studies and pilot projects indicate that youth and school mobilisation and engagement and ocean and water literacy activities need to be linked with clearly defined goals and be focused on concrete actions and projects. Mission "Restore our ocean and waters by 2030" offers the opportunity to develop and implement projects by the students themselves, with the support and contribution of their schools, teachers and wider community, based on the established principles and practices of ocean literacy and the general framework on education for sustainability. These projects are expected to contribute, beyond being a pre-requisite for accreditation under the Network of European Blue Schools, to the implementation of Mission objectives.

Proposals under this topic will address the following:

- In cooperation with the Network of European Blue Schools established under the EU4Ocean coalition, expand and broaden the ocean and water literacy programmes for primary and secondary schools within the European Union and in the Associated Countries to allow them to become agents for change and sustainability of the ocean, seas and waters;
- Expand the Network of European Blue Schools further to all European Union Member States and to any Associated Countries, coastal or landlocked, and increase links between the established Blue Schools and other primary and secondary schools invite other primary and secondary schools aspiring to become accredited members of the European Network of Blue Schools through the development of common activities (i.e.: twinning projects, etc.) and through the sharing of their experiences;
- Promote the Mission, its objectives and activities in primary and secondary schools in the European Union and Associated Countries; promote methodologies of Open Schooling, engaging with the community and communication of project results, as important aspects of citizens participation and promotion of Mission objectives;
- Develop a pipeline of student and school projects implementing the Mission objectives and engaging and mobilising students, teachers and schools for the Mission and monitoring the progress of their implementation;
- Provide technical assistance and expertise for the proposed projects implementing the Mission objectives and expand ocean and water literacy and education for ocean and water sustainability;
- Highlight the contribution of student and school projects to achieving the Mission objectives through dissemination campaigns;

To address the impact-driven approach of the Mission, should include at least three calls for students and school projects, which will be supported through grants to third parties under this topic. The selection process for these student and school projects will be based on principles of transparency, fairness and objectivity, and will take into account the processes and requirements for schools accreditation as members of the Network of European Blue Schools. The student and school projects that should benefit from the financial support to third parties under this topic will demonstrate and cover the following elements:

- Demonstrably and measurably contribute to the implementation of the Mission objectives and targets set out in the Mission Implementation Plan, among others through development and implementation of innovative solutions and products contributing to those objectives;
- Entail strong and innovative ocean and water literacy activities aimed at students, teachers and parents of the school(s) concerned and promote methodologies of Open Schooling, engaging with the community and communication of project results;
- Be accredited members of the European network of Blue schools at the time of application for the financial support for third parties under this topic or demonstrate how they intend to meet the pre-requisites to become accredited members of the Network of European Blue Schools in order to receive the European Blue School accreditation by the time of the completion of the project with respect to which they are applying for a financial support to third parties under this topic.
- Entail a proposal for cooperation and/or twinning with other schools, in particular with the Network of European Blue Schools and those aspiring to become accredited members of the Network of European Blue School;
- Entail commitment to a Climate Pact Pledge leading to decarbonisation or at least carbon neutrality of the project and of the proposed school activities.

Further Information:

<https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/horizon-miss-2022-ocean-01-08;callCode=null;freeTextSearchKeyword=;matchWholeText=true;typeCodes=1;statusCodes=1;statusCodes=31094502;programmePeriod=2021%20-%202027;programCcm2Id=43108390;programDivisionCode=null;focusAreaCode=null;destination=null;mission=null;geographicalZonesCode=null;programmeDivisionProspectionProspect=null;startDateLte=null;startDateGte=null;crossCuttingPriorityCode=null;cpvCode=null;performanceOfDelivery=null;sortQuery=startDate;orderBy=asc;onlyTenders=false;topicListKey=topicSearchTablePageState>

37. /HORIZON EUROPE/ Towards local community-driven business models: regenerative ocean farming, deadline: 27. September 2022 17:00 Brussels time

This topic aims at supporting the development of sustainable locally-led initiatives for regenerative ocean farming, accelerating their uptake, anticipating and planning necessary future investments. Activities will focus on assessing the technical and operational feasibility as well as the economic viability of site-specific community-driven regenerative ocean farming initiatives.

The "community-driven" approach under this topic puts strong emphasis on skills and capacity of coastal communities and relevant actors to manage the natural resources they depend upon in a sustainable way, as well as on the establishment of partnerships and cooperation to build local expertise and enhance knowledge that will support the community. This, in turn, will contribute to preserve and protect marine and coastal habitats, build climate change resilience, develop livelihood opportunities and stimulate investments.

Activities under this topic will, therefore, contribute to the achievement of Mission Objective 3 "Making the blue economy sustainable, carbon neutral and circular" by fostering technological, socio-economic and human-centric transformations in "blue" sectors in Europe whilst protecting and preserving blue natural capital (Mission Objective 1).

Regenerative ocean farming is a form of mariculture that involves restoration and regeneration of seaweed forest habitats and/or other marine habitats in nearshore or offshore ocean environment, following sustainable mariculture principles such as marine permaculture, with zero feeds and fertilisers inputs in the system, with the effect of sequestration of carbon and nutrients and restoration of coastal and marine ecosystems.

Regenerative ocean farming may include seaweed and/or combinations of seaweed, shellfish and/or other low trophic organisms.

Proposals will address all key issues concerning the technical, organisational, financial, environmental and socio-economic feasibility of new community-driven regenerative ocean farming initiatives in at least three sites, each located in a different Mission sea basin and will:

- demonstrate the technical and operational feasibility of site-specific regenerative ocean farming, with a focus on innovation and on sustainable and low impact harvesting methods and technologies;
- demonstrate the social and economic viability and relevance of regenerative ocean farming for related local communities;
- identify challenges and barriers, including legislative, regulatory and standard related issues, to the implementation of regenerative ocean farming and propose possible solutions;
- assess the site-specific socio-economic impact of community-driven regenerative ocean farming;
- assess market potential along the value chain and identify possible end-users/applications;
- assess the capacity of related ecosystem services to generate socio-economic value;
- develop and implement training and skill development actions involving local communities.

In addition to environmental and climate-related impact, sustainability issues (e.g.: resources and energy use) should be integrated in the plans of the regenerative ocean farming initiatives. The integration of the gender dimension is to be considered.

Projects should actively involve local stakeholders along the value chain, such as fishermen, SMEs and start-ups and relevant commercial actors, marine planners, coastal area inhabitants, local governments, indigenous groups, NGOs. Close cooperation with research organisations and academia is expected to provide sound scientific evidence as well as the implementation of open innovation approaches.

Further Information:

<https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/horizon-miss-2022-ocean-01-10;callCode=null;freeTextSearchKeyword=;matchWholeText=true;typeCodes=1;statusCodes=1;statusCodes=31094502;programmePeriod=2021%20-%202027;programCcm2Id=43108390;programDivisionCode=null;focusAreaCode=null;destination=null;mission=null;geographicalZonesCode=null;programmeDivisionProspect=null;startDateLte=null;startDateGte=null;crossCuttingPriorityCode=null;cpvCode=null;performanceOfDelivery=null;sortQuery=startDate;orderBy=asc;onlyTenders=false;topicListKey=topicSearchTablePageState>

38. /HORIZON EUROPE/ Citizen science for soil health, deadline: 27. September 2022 17:00 Brussels time

Citizen science is an important vehicle in bringing science to the people and promoting the goal of universal and equal access to scientific data and information. For example, there is a tremendous potential to foster education and learning opportunities through the involvement of students in real world issues. Citizen science also engages society at large in key policy developments through direct participation to assess impacts. Crowdsourced data is being used, for example, by UN agencies for humanitarian activities and citizen scientists are providing data relevant to monitoring the sustainable development goals (SDGs).

Citizen science projects amplify scientific research and support scientists to accomplish their research objectives. Citizen science data are used extensively in a range of environmental studies such as in the areas of above-ground biodiversity and water pollution. In relation to soils however, citizen science has received less attention. Yet, it has huge potential to raise awareness on the importance of soils, gather a wide range of site-specific data and thereby complement "formal" soil sampling programmes and existing data sets.

The engagement of citizens, including land managers in soil mapping and soil monitoring provides novel opportunities, also through the use of digital technologies. Main challenges however remain the integration of data from citizen science with data from professional observations due to issues of quality control, methodologies and potential observer bias.

Proposed activities should:

- Develop a strategy for the standardised collection, processing and visualisation of soil health data that are submitted by citizens directly from the field. Attention should be given to issues of location, characterisation and harmonisation of measurements and observations as well as the quality, compatibility and interoperability of data from citizens with related established databases (e.g. national monitoring programmes, earth observation systems and long-term experiments). Consideration should be given to potential privacy aspects.
- Formulate recommendations, guidelines, protocols and field guides to gather data and observations by the public in a more systematic way.
- Demonstrate and test user-friendly tools for the assessment of soil health related issues by soil users and the wider community (i.e. considering physical, chemical and biological properties) considering the language diversity of the EU.
- Propose and test methods for quality control of citizen science data as well as for the integration of heterogeneous data from citizen science activities.
- Run citizen science initiatives, ideally concurrently in all Member States, contributing to enhanced soil sampling, mapping, reporting and the understanding of pressures affecting soil health. Initiatives should address as a minimum the areas of soil biodiversity and soil pollution. Activities should encourage broad participation of citizen groups across Europe, especially young people, with a genuine interest in environmental issues, soil and land management.
- Create a prototype for a long-term repository of data resulting from the citizen science initiatives implemented under the project. The repository should display information in all official EU languages and take due account of the requirements emerging from the evolution of the European Soil Observatory

(EUSO) as an eventual host of the repository. The repository should be user-friendly and be capable of integrating data from different in-situ sources and technologies. Tools should be put in place to ensure quality control and assess possible systematic discrepancies during the collection of the data. It should support the findability, accessibility, interoperability and re-usability of data while turning them into relevant, open and accessible knowledge for potential users including decision makers. Data uploaded to repository should be supported by metadata.

- Develop case studies demonstrating how the collected data can be used e.g. by farmers, other land managers, scientists, businesses, educators or institutions responsible for soil management.
- Provide training and build capacities for soil related citizen science initiatives.

Further Information:

<https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/horizon-miss-2022-soil-01-09;callCode=null;freeTextSearchKeyword=;matchWholeText=true;typeCodes=1;statusCodes=1;statusCodes=31094502;programmePeriod=2021%20-%202027;programCcm2Id=43108390;programDivisionCode=null;focusAreaCode=null;destination=null;mission=null;geographicalZonesCode=null;programmeDivisionProspectonProspect=null;startDateLte=null;startDateGte=null;crossCuttingPriorityCode=null;cpvCode=null;performanceOfDelivery=null;sortQuery=startDate;orderBy=asc;onlyTenders=false;topicListKey=topicSearchTablePageState>

39. /HORIZON EUROPE/ MSCA Doctoral Networks 2022, deadline: 15. November 2022 17:00 Brussels time

MSCA Doctoral Networks will implement doctoral programmes, by partnerships of universities, research institutions and research infrastructures, businesses including SMEs, and other socio-economic actors from different countries across Europe and beyond. MSCA Doctoral Networks are indeed open to the participation of organisations from third countries, in view of fostering strategic international partnerships for the training and exchange of researchers.

These doctoral programmes will respond to well-identified needs in various R&I areas, expose the researchers to the academic and non-academic sectors, and offer training in research-related, as well as transferable skills and competences relevant for innovation and long-term employability (e.g. entrepreneurship, commercialisation of results, Intellectual Property Rights, communication). Proposals for doctoral networks can reflect existing or planned research partnerships among the participating organisations.

The selection procedure for doctoral candidates must be open, transparent and merit-based, in line with the Code of Conduct for the Recruitment of Researchers. The vacancy notice (to be widely advertised internationally, including on the EURAXESS website) must include the gross salary (not including employer's social contributions) offered to the researcher.

MSCA Doctoral Networks are encouraged to lead to Industrial or Joint Doctorates.

Industrial Doctorates:

Through Industrial Doctorates, doctoral candidates will step outside academia and develop skills in industry and business by being jointly supervised by academic and non-academic organisations, both of which can be established in the same EU Member State or Horizon Europe Associated Country.

Joint Doctorates:

Joint Doctorates represent a highly integrated type of international, inter-sectoral and multi/interdisciplinary collaboration in doctoral training. They lead to the delivery of joint, double or multiple doctoral degrees recognised in at least two EU Member States or Horizon Europe Associated Countries.

Supervisory Board:

Each MSCA Doctoral Network should have a clearly identified supervisory board co-ordinating network-wide training, research and in particular supervision activities in line with the MSCA Guidelines for supervision, while establishing continuous communication and exchange of best practice among the

participating organisations to maximise the benefits of the partnership.

Training activities:

MSCA Doctoral Networks should exploit complementarities between participating organisations and foster sharing of knowledge and networking activities for example through the organisation of workshops and conferences. Proposed training activities should respond to well identified needs in various R&I areas, with appropriate references to inter- and multidisciplinary fields and follow the EU Principles for Innovative Doctoral Training. They should be primarily focused on developing new scientific knowledge through original research on personalised projects.

Inter-sectoral secondments of researchers to other participating organisations, including in third countries, are encouraged when relevant, feasible and beneficial for the researchers and in line with the project objectives. This will increase the employability of the researchers outside academia.

Doctoral Networks should develop substantial training modules, including digital ones, addressing key transferable skills and competences common to all fields and fostering the culture of Open Science, innovation and entrepreneurship. In particular, Doctoral Networks should adequately prepare doctoral candidates for increased research collaboration and information-sharing made possible by new (digital) technologies (e.g. collaborative tools, opening access to publications and to research data, FAIR data management, public engagement and citizen science, etc.).

Supervision:

Particular attention is paid to the quality of supervision and mentoring arrangements as well as career guidance. Joint supervision of the researchers is mandatory for Industrial and Joint Doctorates.

Career Development Plan:

A Career Development Plan must be established jointly by the supervisor and each recruited doctoral candidate. In case of joint supervision, such a plan should be established involving all supervisors. In addition to research objectives, this plan comprises the researcher's training and career needs, including training on transferable skills, teaching, planning for publications and participation in conferences and events aiming at opening science and research to citizens. The plan, established at the beginning of the recruitment, should be revised (and updated where needed) within 18 months.

Further Information:

<https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/horizon-msca-2022-dn-01-01;callCode=null;freeTextSearchKeyword=;matchWholeText=true;typeCodes=1;statusCodes=31094502;programmePeriod=2021%20-%202027;programCcm2Id=43108390;programDivisionCode=null;focusAreaCode=null;destination=null;mission=null;geographicalZonesCode=null;programmeDivisionProspect=null;Prospect=null;startDateLte=null;startDateGte=null;crossCuttingPriorityCode=null;cpvCode=null;performanceOfDelivery=null;sortQuery=startDate;orderBy=asc;onlyTenders=false;topicListKey=topicSearchTablePageState>

40. /HORIZON EUROPE/ Towards a European e-DNA library of marine and freshwater species, deadline: 27. September 2022 17:00 Brussels time

Genomic techniques represent a major source of innovation in marine monitoring techniques. They offer the potential to provide accurate, real time and cost-efficient monitoring and observation of the marine environment and its biological diversity that can be used for policy making and policy implementation, such as in the case of status assessment requirements.

This topic aims at coordinating and networking ongoing activities at EU level, assessing the needs and requirements for establishing an EU e-DNA repository/library of marine and freshwater species and developing plans for its efficient data curation and storage to ensure the provision of accurate time series, data standards and harmonisation for marine biodiversity monitoring and observation.

Interdisciplinary by nature, proposals should integrate in the consortium relevant scientific expertise (e.g.: in marine monitoring and observation, genomics, blue biotechnology, marine biology and ecology, big data analysis, machine learning methods) as well as European Research Infrastructures and relevant end

users, such as environmental agencies, regional convention programmes, institutes in charge of the implementation of the Marine Strategy Framework Directive, national and regional authorities. Use cases are expected to demonstrate the value of establishing an e-DNA library of marine and freshwater species at EU level and their contribution to EU biodiversity strategies. Proposals are expected to link with the Digital Ocean and Water Knowledge System (Digital Twin ocean) to address how to digitally record and manage EU e-DNA data and meta-data through appropriate standards, formats, data policy that facilitate open data and knowledge sharing for further use for biodiversity monitoring and modelling. Cooperation, networking and exchange of information is also expected with projects funded under Cluster 6 topic HORIZON-CL6-2021-BIODIV-01-03 (Understanding and valuing coastal and marine biodiversity and ecosystems services), in particular its workstream on genomics and taxonomic technologies for the inventory and fast identification of marine species, topic HORIZON-CL6-2021-BIODIV-01-01 (European participation in global biodiversity genomics endeavours aimed at identifying all biodiversity on Earth) as well as any other relevant projects focusing in this area. Further Information:

<https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/horizon-miss-2022-ocean-01-09;callCode=null;freeTextSearchKeyword=;matchWholeText=true;typeCodes=1;statusCodes=1;statusCodes=31094502;programmePeriod=2021%20-%202027;programCcm2Id=43108390;programDivisionCode=null;focusAreaCode=null;destination=null;mission=null;geographicalZonesCode=null;programmeDivisionProspect=null;startDateLte=null;startDateGte=null;crossCuttingPriorityCode=null;cpvCode=null;performanceOfDelivery=null;sortQuery=startDate;orderBy=asc;onlyTenders=false;topicListKey=topicSearchTablePageSearchTablePageState>

41. /HORIZON EUROPE/ Improving food systems sustainability and soil health with food processing residues, deadline: 27. September 2022 17:00 Brussels time

The predominantly linear economic models of food production are unsustainable and heavily rely on finite and scarce resources, such as phosphorus and water. In spite of recent achievements in resource efficiency gain, the food production and processing industry still requires large volumes of clean water; while also contributing to the discharge of nutrients and organic matter into publicly owned streams and waterbodies. Those nutrients and organic matter can be valorised and used as soil improvers, instead of being wasted. Food systems actors need to recognise that the re-use of water and food by-products is key to achieve circularity in the industry and contribute to soil health.

Circularity is a key component of the European Green Deal, especially the Circular Economy Action Plan, the Farm to Fork and the Bioeconomy strategies, and the supporting FOOD 2030 research and innovation policy. Circularity will allow to reverse the trends of unsustainability and provides opportunities to transform by-products into valuable resources for soils, while taking into account the current legislation on animal by-products and fertilizers. An untapped opportunity lies in the valorisation of food waste streams containing nutrients and organic matter that can contribute to soil health, fertility and restoration while considering the food waste hierarchy. The food waste hierarchy focuses on prevention actions, followed by reuse and recycling pathways, and should guide the development of strategies that tackle food processing residues for soil improvement, when those residues cannot be used for other higher value uses (e.g., re-use for animal feed or use as by-products).

Proposed activities should:

- Develop high quality standardized processes and strategies for the re-use of food processing residues streams for soil improvers production, which would be in compliance with EU regulatory requirements.
- Assess existing best practices (e.g., from H2020 projects and EIT Food initiatives such as Regenerative Agriculture) identifying key economic, environmental and social factors that enable/hinder the replicability/scalability of using food waste streams as soil improvers (e.g., food by-products collection and treatment, bio-waste composting) and addresses the challenge of soil health in a holistic way, from farm to fork, involving multiple stakeholders (e.g., farmers, food industries) as well as by engaging ordinary

citizens in defining their matters of concerns and co-creating solutions.

- Elaborate a list of actions and priorities to overcome efficiently potential challenges and trade-offs (e.g., potential biological or chemical risks, storage, transport, lack of awareness of circular potential), and outline innovative techniques by which food waste can be transformed into a safe valuable input for soil amelioration, while reducing the loss of nutrients in nature.
- While taking into account current EU regulatory frameworks and the role of different actors, set up an evaluation framework for the design, implementation and monitoring of the performance of actions and strategies that will lead to an optimised use of food processing waste streams, including the best way for applying each type of these residues into the soil.
- Identify public and private funding streams that can be used to support circular bioeconomy projects and initiatives that boost nutrient use for soil health.
- Create societal awareness by bringing together public authorities, the private sector, educators, researchers, media, NGO and citizens to foster circularity of the food system to develop activities targeted to different actors.
- Implement a participatory and multi-actor approach by engaging a wide range of food system actors to co-create research and improve co-ownership of results.

The proposed activities should take into account animal health legislation in order to prevent animal and public health risks.

Proposals should demonstrate a route towards open access, longevity, sustainability and interoperability of knowledge and outputs through close collaboration with the EU Soil Observatory and other projects to be funded under the mission.

Further Information:

<https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/horizon-miss-2022-soil-01-02;callCode=null;freeTextSearchKeyword=;matchWholeText=true;typeCodes=1;statusCodes=1;statusCodes=31094502;programmePeriod=2021%20-%202027;programCcm2Id=43108390;programDivisionCode=null;focusAreaCode=null;destination=null;mission=null;geographicalZonesCode=null;programmeDivisionProspectonProspect=null;startDateLte=null;startDateGte=null;crossCuttingPriorityCode=null;cpvCode=null;performanceOfDelivery=null;sortQuery=startDate;orderBy=asc;onlyTenders=false;topicListKey=topicSearchTablePageState>

42. /HORIZON EUROPE/ Soil biodiversity and its contribution to ecosystem services, deadline: 27. September 2022 17:00 Brussels time

Soils underpin the delivery of a range of ecosystem services which are essential for the environmental, social and economic wellbeing of people. Many of these services such as the production of biomass for food and other uses, removal of pollutants, support of above-ground biodiversity (e.g. farmland birds), provision of soil structure, nutrient cycling and carbon storage depend on the activities of a fascinating and complex network of soil organisms such as insects, invertebrates, bacterial and fungal organisms. While our knowledge about individual components of soil biodiversity has significantly increased, the links between soil biodiversity, the multifunctionality of soils and the delivery of ecosystem services needs to be further explored. Furthermore, there is still a need to better understand the overall organisation of soil organisms (e.g. in terms of abundance, species richness, relationships of interdependence, evolution through time and community structure) and how pressures and drivers (including their interactions) resulting from different forms of land use and climate change affect the composition, functions, resilience and adaptation capacities of soil biota and their capacity to support multiple ecosystem services (ES).

Proposed activities should:

- Provide a comprehensive view of the composition, functions, and dynamics of the network of soil-living communities (e.g. species distribution, abundance, ecological interactions and belowground-aboveground relationship) under different types and intensities of land use in agricultural, forest, (semi-) natural and urban areas.

- Establish the links between soil biodiversity, soil functions and ecosystem services taking into account potential trade-offs between different ES.
- Propose indicators for capturing and measuring soil biodiversity (beyond red list species) and the provision of ES and demonstrate practical approaches for the use of these indicators by land managers and policy-decision makers.
- Identify drivers and pressures (including their interactions) of soil biodiversity in different types of land use and explore their effects on soil community composition and functioning and how ES provision is altered and hampered as a consequence of these pressures. Due attention should be given to under-studied pressures and drivers, as justified by proposals.
- Provide a framework to assess and value the contribution of soil biodiversity to ES in economic terms, building on existing work including the one undertaken under the initiative "Mapping and Assessment of Ecosystem Services" (MAES).
- Translate the knowledge created into practical applications for land managers and policy-decision makers to increase the uptake of practices that promote soil biodiversity and optimise its contribution to soil functions ES.

In carrying out activities, proposals should consider various land uses such as urban, agriculture, forest, (semi)-natural, wetlands, drylands, industrial and mining, and highlight those types of soils where previous research has shown significant knowledge gaps. With regard to agriculture, work should draw on sustainable practices, applied across a range of farming systems and benefit both conventional and organic farming. Activities should be carried across a range of climatic/biogeographical regions in the EU and Associated Countries and take into account different spatial scales (e.g. field, landscape). Transdisciplinary approaches should be applied and include social sciences and humanities. The project should follow a multi-actor approach.

Activities should be undertaken in close cooperation with the European Commission's Joint Research Centre (JRC) and the European Environment Agency (EEA). The cooperation with the JRC is particularly relevant in view of further developing the LUCAS Soil survey and the Soil Health Dashboard under the European Soil Observatory (EUSO). Proposals should demonstrate a route towards open access, longevity, sustainability and interoperability of knowledge and outputs through close collaboration with the EUSO and other projects to be funded under the Soil Deal mission.

Projects funded under this topic should also take into account major R&I initiatives such as the European Joint Programme EJP Soil, the European Biodiversity Partnership Biodiversa+, the Global Soil Partnership, the Global Soil Biodiversity Initiative SoilBON, EuropaBON and other projects working on soil biodiversity. To this end proposals should foresee dedicated tasks and allocate appropriate resources.

Further Information:

<https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/horizon-miss-2022-soil-01-03;callCode=null;freeTextSearchKeyword=;matchWholeText=true;typeCodes=1;statusCodes=1;statusCodes=31094502;programmePeriod=2021%20-%202027;programCcm2Id=43108390;programDivisionCode=null;focusAreaCode=null;destination=null;mission=null;geographicalZonesCode=null;programmeDivisionProspect-onProspect=null;startDateLte=null;startDateGte=null;crossCuttingPriorityCode=null;cpvCode=null;performanceOfDelivery=null;sortQuery=startDate;orderBy=asc;onlyTenders=false;topicListKey=topicSearchTablePageSearchTablePageState>

43. /HORIZON EUROPE/ Boost the sponge function of landscape as a way to improve climate-resilience to water management challenges, deadline: 27. September 2022 17:00 Brussels time

This topic contributes to the second objective of the Mission on Adaptation to Climate Change (as well as the Mission 'Restore our Ocean and Waters by 2030' as well as the Mission 'A soil deal for Europe') and corresponds to one of the thematic research areas described in the Climate Adaptation Mission

Implementation Plan. It is to support knowledge dissemination amongst regions and communities and to test solutions that help the management of areas (both land-use, soil, ground water and surface water), in particular in facing present and future extreme weather events, through developing integrated approach to increase the sponge functioning of areas by the restoration of natural retention functions of the soil, ground water and small tributaries of surface water systems in river basins, with special attention to the potential of natural and semi-natural habitats restoration and enlargement.

When the natural sponge function of an area is efficient, water falling down as precipitation will have the opportunity to infiltrate the soil, where it is stored and filtered at the same time. It can either percolate to the deeper ground water, slowly released to the surrounding small streams and/or serve as a source for the vegetation at that location. The whole system of soil, water and vegetation (ecosystem) will buffer the release of water during intensive rainfall on one hand and will serve as a source of fresh, clean water in times of drought. Both soil, water and air quality as well as biodiversity will benefit from it. Providing better water and soil management will be beneficial for both rural and urban areas, and many sectors depending on enough clean surface and ground water such as drinking water production, agriculture, forestry, transport, tourism and leisure, etcetera.

Changes in the way land is managed can address interconnected issues like flooding, drought, wildfires, human health, and regional temperature shifts, all aspects related to building climate resilience.

Effectively increasing or restoring the natural water retention function of the landscape, both through improving the way soil, ground water, surface water and ecosystems are managed, will generate many ecosystem services for a relative low price, bringing benefits to a whole array of different functions. This adding up of services by restoration of the natural retention function of the landscape, brings a benefit which is (much) larger than the costs of restoration in combination with the cost of coping with the present and future damages caused by extreme climate events such as extreme droughts and intensive rainfall, either long term or through cloud-bursts. Investing in restoration of the sponge function of the landscape can save farmers, municipalities, insurers, and tax payers substantial amounts of money, while reducing risk, and providing multiple benefits (such as flood and drought resilience, reduced erosion, increase biodiversity, moderation of local temperatures, while also improving availability of clean water and improve local economies).

The proposals should address all the following aspects:

- To collect the best available knowledge, including local knowledge, and where appropriate 'traditional knowledge', and define the best approaches on possible ways, positive impacts and challenges, strengths and weaknesses, in improving the sponge functioning of landscape as a way to improve its ability to contribute to water management, in particular in facing extreme events. The review of existing knowledge should also include experiences matured in different parts of Europe and from Horizon 2020 projects.
 - To undertake research and test innovative solutions using the activities ongoing in the regions and communities as case studies, to better understand their success factors and to explore and experiment new innovative ways of improving water retention capacity through nature-based solutions, in comparison to alternative solutions, such as those including gray infrastructure. Opportunities offered by passive management of land as low-cost approach should be also considered and included.
 - To ensure synergies between the Adaptation Mission and other relevant programmes and initiatives, in supporting building climate resilience to cope with extreme weather events at local, regional, national, and European level and to share relevant knowledge and experience developed in the Mission more broadly.
- The European Commission intends to establish a network and coordination activities amongst all the projects funded for the implementation of the Climate adaptation Mission, under the Horizon 2020 European Green Deal call and under Horizon Europe relevant for adaptation, and that will be coordinated by the soon to be established Mission Implementation Platform. Projects funded under this topic are strongly encouraged to participate in networking and joint activities with other projects funded under other topics in the Mission Climate Adaptation as well as in other Missions, namely the Soil Mission and Ocean and Waters Mission, as appropriate. These networking and joint activities could, for example, involve the participation in joint workshops, the exchange of knowledge, the development and adoption of best practices, or joint communication activities. To this extent, proposals should provide for dedicated activities and earmark appropriate resources.

Further Information:

<https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/horizon-miss-2022-clima-01-05;callCode=null;freeTextSearchKeyword=;matchWholeText=true;typeCodes=1;statusCodes=1;statusCodes=31094502;programmePeriod=2021%20-%202027;programCcm2Id=43108390;programDivisionCode=null;focusAreaCode=null;destination=null;mission=null;geographicalZonesCode=null;programmeDivisionProspect=null;startDateLte=null;startDateGte=null;crossCuttingPriorityCode=null;cpvCode=null;performanceOfDelivery=null;sortQuery=startDate;orderBy=asc;onlyTenders=false;topicListKey=topicSearchTablePageState>

44. /HORIZON EUROPE/ Integration of biodiversity monitoring data into the Digital Twin Ocean, deadline: 27. September 2022 17:00 Brussels time

Proposals should expand the collection of ocean datasets related to biodiversity (species, habitats, ecological interactions, human activities, and their impacts), possibly using the cascading grant scheme, putting in place agreements with owners of previously inaccessible or neglected data including biodiversity, fisheries, international programmes (e.g.: ICOS, OBIS, MBON, ARGOS, (marine GEO BON), Nature Directives and MSFD reports, citizen science, national monitoring programmes, as well as ocean weather data, observations related to blue carbon, etc. Proposals should collect, process or reformat as necessary, and feed existing ocean and future datasets into the DTO infrastructure.

Proposals should address all activities and tasks as described below, in cooperation and complementarity with the linked actions and other relevant actions.

1. Increasing flow of relevant biodiversity data based on literature, evaluations of EU regulations and results of relevant EU projects and studies and data collected by industry for regulatory purposes (Environmental Impact Assessment Directives):

- Identify existing, but restricted or hard to access, data on marine biodiversity and pressures;
- List and assess efforts to define biodiversity monitoring priorities, their effectiveness and their follow-up;
- Assess the impact of missing data on the ability of digital solutions (biodiversity / ecosystem models and applications) to represent reality and forecast future scenarios ;
- Unlock existing identified barriers and opportunities to ensure a sustained access to new sources of biodiversity data and its further integration and use specially in the mission and EU policies implementation;
- Assess innovative cost-effective technologies (e.g. High-throughput DNA sequencing), automatic recognition of electromagnetic or acoustic images) for large scale monitoring of biodiversity changes in key habitats. This is not aiming in developing new technologies or testing sensors, but assessing the potential of cost-effective technologies to provide large scale monitoring, by test casing them and achieving substantial data contributions.

2. Development of the biodiversity digital component and its integration in the DTO architecture:

- Consolidate data standards, near-real time data quality control procedures, communication protocols between data centres for instant data access, create new standards if necessary;
- Place agreements with data owners to Integrate more biodiversity data sources into the DTO architecture and environment with focus on data that presently are not available under FAIR principles identified in point 1.
- Extract and harmonise those data to feed the DTO data repository and allowing the flow of data to continue and remain sustained after the end of the project;
- Develop to the extent possible data models to facilitate their future automatic integration/assimilation, allowing the flow of data to continue and remain sustained after the end of the project;
- Develop and improve the data ingestion and assimilation mechanisms to feed into biodiversity/ecosystem models.

3. Case-studies:

- Demonstrate the end-to-end approach for biodiversity monitoring based on the digital environment provided by the DTO and the proposed biodiversity data sources by:
 - Integrating and assimilating new data sources into existing models and artificial intelligence algorithms, assessing the outcomes, and implementing required quality control. It should help assess the overall easiness, identify levels of improvement, etc. and map the additional biodiversity data needs to be prioritised. The end-to-end approach could address fishing practices to reduce by-catches or habitat damage, adaptation to climate change, species migrations, impact of human activities (e.g.: tourism, transportation, renewable energy, etc.), development and monitoring of marine protected areas, adapting human activities to migrations of cetaceans and birds, etc.
 - Develop digital tools and services (e.g. through AI, socio-ecological modelling, etc.) to support policy-making and to be integrated in DTO environment.
 - Open calls (cascading grants to data holders (international networks, citizen science networks, universities -under specific conditions- favouring providers from data-poor regions, covering important data gaps) to facilitate sustained and long-term ingestion of locked data (indicate conditions).
4. Define performance indicators to measure the success of the project and define achievable targets regarding increasing biodiversity data flows into the DTO by 2030.

Further Information:

<https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/horizon-miss-2022-ocean-01-07;callCode=null;freeTextSearchKeyword=;matchWholeText=true;typeCodes=1;statusCodes=1;statusCodes=31094502;programmePeriod=2021%20-%202027;programCcm2Id=43108390;programDivisionCode=null;focusAreaCode=null;destination=null;mission=null;geographicalZonesCode=null;programmeDivisionProspectionProspect=null;startDateLte=null;startDateGte=null;crossCuttingPriorityCode=null;cpvCode=null;performanceOfDelivery=null;sortQuery=startDate;orderBy=asc;onlyTenders=false;topicListKey=topicSearchTablePageState>

45. /HORIZON EUROPE/ Transformation of regional economic systems for climate resilience and sustainability, deadline: 27. September 2022 17:00 Brussels time

This topic contributes to the three objective of the Mission and correspond to one of the thematic research areas described in the Mission Implementation Plan[1]. It is to support regions and communities participating in the Mission in all steps of their transformational journey to climate resilience with finding, innovating, and testing solutions that help their economic systems to become sustainable and climate resilient. The applied research and the experimentation with innovative solutions as further outlined below should be at the centre of the project.

Climate change affects macroeconomic outcomes, financial markets and institutions primarily through physical risks (gradual warming and extreme events) and transition risks. Possible channels of impact of climate change on the European economy include, for example, decline in agricultural productivity and yields, lower labour productivity due to extreme heatwaves and lower human capital accumulation due to increased health issues and mortality, new or increased occupational health and safety risks to workers, disruption to transport and production chains, or changes in sectoral composition of labour markets leading to higher structural unemployment.[2]

The transformation of economic systems towards climate resilience will have to find pathways to climate resilience and sustainability for all relevant sectors that are affected by climate change, including climate-resilient business models, value chains, up-skilling and re-skilling dynamics, and always considering at the heart of the debate the acceptance of the innovations to be implemented by the society. These pathways should be aligned with the regions' smart specialisation strategies and integrated in the overall climate adaptation strategy of regions.

The support that the projects are to provide the regions and communities should include the following main aspects (further detailed below):

- To provide direct support to the regions and communities sharing relevant state-of-the-art knowledge, best practices and emerging innovations and solutions relevant to the transformation of all regional economic systems that are affected by climate change in the regional economic systems to become climate resilient.
- To undertake research and test innovative solutions, not only technically but also socially feasible, using the activities ongoing in the regions and communities as case studies to better understand their success factors and to explore and experiment with new innovative ways of preparing regional economic systems and their industries to become climate resilient and sustainable, building strengths on consumer protection and to feed this information back to all regions and communities.
- While undertaking the above, ensure synergies between the Mission and other relevant programmes and initiatives supporting transformations of economic systems to sustainability and resilience at local, national, and European level and to share relevant knowledge and experience made in the Mission more broadly.

Regarding the provision of direct support to the regions and communities, the proposal should cover a broad range of approaches, mechanisms and initiatives to prepare the economic systems across the production and consumption to become climate resilience, including but not limited to:

- support at least 20 regions or communities in the development of pathways for the transformation of all relevant sectors of their economic system that are affected by climate change;
- support to building public-private cooperation in the relevant industry helping them to transition to become at the same time resilient to climate change and compliant with the Sustainable Finance Taxonomy;
- improve skills intelligence to ensure up-to-date information on the skills needed to support the transformation to climate resilience, e.g. by developing a skills forecasting system, and fostering skills strategies aligning efforts across employment, consumption, education, research, industry and regional development policies;
- inform about alternative ways to more resilient regional and local economies, such as the approach of community wealth building that emphasise more democratic ownership of the economy at local level, e.g., by developing local industrial strategies which stimulate co-operatives and social businesses or the creation of regional investment vehicles and holding companies;

Regarding the undertaking of research and test innovative solutions, the proposal should consider as test beds the opportunities offered by regions and communities already engaged in the Mission's endeavour and expand from there to address activities related to the transformation of economic systems across the Mission's geographical scope as case-studies to:

- understand how best to employ the various approaches and mechanisms in different cultural, social, political, economic and environmental contexts;
- test and experiment with innovative approaches encouraging place-based industrial innovation and experimentation allowing at least 20 regions or communities to develop and test new solutions (including with SMEs and consumers where relevant), drawing on their local characteristics, strengths and specialisms;
- establish a continuous monitoring and data gathering on what goes well and what goes wrong, which local initiatives are not successful and how to re-orient them;
- improve measurement, modelling and policy tools to capture synergies between the circular economy and climate change adaptation;
- design and test short courses to reskill workers and master courses to train experts towards emerging jobs and new skills requirements related to the transition to climate resilience;

Regarding the synergies between the Mission and other relevant initiatives supporting transformations of economic systems to sustainability and resilience at local, national, and European level the proposal should describe:

- how it would bring to bear the different elements of the various other relevant programmes and initiatives within the context of the Mission, e.g., cohesion policy, regional smart specialisation strategies and ERDF funds, the New Industrial Strategy, the New Skills Agenda and ESF+ funds, the Circular Economy Action Plan, the Farm to Fork Strategy and the EU taxonomy for sustainable activities;

- how it would feed back the experience and lessons learnt within the Mission back to the other relevant programmes and initiatives.

Proposals should include a process and criteria to identify the regions and communities most relevant to become test beds for the proposed solutions, starting from those where Mission relevant activities are already ongoing. Priority should be given to regions or communities with high vulnerability, limited resources and/or low adaptive capacity to climate change impacts. Proposals should present the process and criteria to target regions and communities selected. These criteria will ensure that a variety of locations are represented, in as many countries as possible, reflecting the diversity in climatic risks in Europe, as well as differences in socio-economic and demographic conditions, and in approaches to mitigating such risks. Such criteria should also take into account the characteristics of the populations concerned and the vulnerability of the locations, as well as the priority attributed by the national and regional governments. Consultation of national and/or regional governments in selecting the regions and communities is recommended (for example, by providing a letter of support by the relevant authorities as an annex to the proposal).

Further Information:

<https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/horizon-miss-2022-clima-01-04;callCode=null;freeTextSearchKeyword=;matchWholeText=true;typeCodes=1;statusCodes=1;statusCodes=31094502;programmePeriod=2021%20-%202027;programCcm2Id=43108390;programDivisionCode=null;focusAreaCode=null;destination=null;mission=null;geographicalZonesCode=null;programmeDivisionProspectionProspect=null;startDateLte=null;startDateGte=null;crossCuttingPriorityCode=null;cpvCode=null;performanceOfDelivery=null;sortQuery=startDate;orderBy=asc;onlyTenders=false;topicListKey=topicSearchTablePageSearchTablePageState>

46. /HORIZON EUROPE/ Remediation strategies, methods and financial models for decontamination and reuse of land in urban and rural areas, deadline: 27. September 2022 17:00 Brussels time

Soil contamination is widely acknowledged as a severe hazard to humans as well as to soil health, affecting the ability of soils to provide ecosystem services including the provision of safe and sufficient food, clean water or habitats for biodiversity. There is a need to better understand the precise sources (both point source and diffuse pollution) and the status of soil pollution as well as its effects on soil health, the environment, and its socio-economy consequences as a basis for more effective and wide-spread remediation of soils. Given the diversity of situations regarding the type and severity of pollution as well as an incomplete view on the scale of polluted soils, effective strategies need to be in place that allow to prioritise investments, identify the most appropriate methods and financial strategies for decontamination and prepare the ground for concrete actions.

Proposed activities should:

- Provide an overview of the state-of-play of the various types of soil pollution in Europe across the different land uses in urban and rural areas. Work should build on publicly available national contamination maps (e.g. in GIS format) to develop interactive, combined soil pollution maps that allow amongst others the identification of particular pollution hotspots.
- Identify, quantify and characterise sources, pathways, receptors and risks of soil pollution in urban and rural areas.
- Develop comprehensive strategies for soil restoration targeting various types of soil contamination and land uses. These strategies shall consider main areas of pollution (hotspots) and propose priorities for actions based on a site-specific risk-based approach.
- Identify and further develop methods, tools and approaches for the monitoring and remediation of polluted soils, giving due consideration to Nature Based Solutions (NBS) and bioremediation techniques (including biotechnologies) while considering their level of development (TRL) and cost-effectiveness.

- Develop financial and spatial planning models (taking into account social criteria) which promote the reuse of land and support the private and public sector in their decision-making for soil restoration and decontamination, in particular in areas with high investment needs.
- Enhance the capacity for outlook and foresight reporting on soil pollution and the development of an EU priority list for contaminants of major and/or emerging concern that pose significant risks for European soil quality, and for which vigilance and priority action at European and national level is needed.
- Explore the potential for decontamination and reuse of former mining sites to support the regions most negatively affected by the green transition through synergies with the polluter pays' principle and the Just Transition Fund (JTF).

In implementing the work, due account should be taken of soil contamination in urban, peri-urban and rural areas.

Proposals should demonstrate a route towards open access, longevity, sustainability and interoperability of knowledge and outputs through close collaboration with the JRC's EU Soil Observatory.

Proposals should include dedicated tasks and appropriate resources for coordination measures and joint activities with other relevant projects funded under Horizon 2020, Horizon Europe and the Research Fund for Coal and Steel, and in particular with other projects funded under this topic. Potentially, projects financed under this topic could cooperate with future Living Labs created under the Mission 'A Soil Deal for Europe' and working in the area of soil remediation.

Further Information:

<https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/horizon-miss-2022-soil-01-04;callCode=null;freeTextSearchKeyword=;matchWholeText=true;typeCodes=1;statusCodes=1;statusCodes=31094502;programmePeriod=2021%20-%202027;programCcm2Id=43108390;programDivisionCode=null;focusAreaCode=null;destination=null;mission=null;geographicalZonesCode=null;programmeDivisionProspect=onProspect=null;startDateLte=null;startDateGte=null;crossCuttingPriorityCode=null;cpvCode=null;performanceOfDelivery=null;sortQuery=startDate;orderBy=asc;onlyTenders=false;topicListKey=topicSearchTablePageState>

47. /HORIZON EUROPE/ Innovations for soil improvement from bio-waste, deadline: 27. September 2022 17:00 Brussels time

Bio-waste is a potential valuable resource to improve soil fertility. Fostering the production of soil improvers and optimizing bio-waste recycling can help maximise the uptake of circular innovations for sustainable soil products and services, in line with the new Circular Economy Action Plan and Waste Framework Directive. As a result, new business opportunities will be created, while increasing the availability in the market of soil improvers derived from circular production systems. Projects should support the achievement of the sustainable development goals (SDGs), in particular SDG 11 'Sustainable Cities and Communities', whenever relevant.

Proposed activities should:

- Develop and pilot innovations to support large-scale product validation and market replication of soil improvers from bio-waste that allow a major step increase in technological maturity of products and or services (Technology Readiness Levels 7-8).
- Develop and pilot appropriate business models that consider different market outlets and marketing strategies for the proposed innovations while significantly decreasing bio-waste incinerated or destined for landfills.
- Demonstrate the safety of soil improvers, and their production phase, in accordance with relevant EU regulatory frameworks related to their placing on the market and generate data to support improved social and environmental performance.
- Analyse vulnerabilities, dependencies, and need for critical infrastructure that may hinder the upscaling of production and marketing of soil improvers from bio-waste.

- Monitor the pre-market processes (i.e., design, production, testing, etc.) to demonstrate upscaling feasibility and economic profit.

- Implement a multi-actor approach by involving a large number of stakeholders (e.g., SMEs, city councils, research centres, civil society) to improve upscaling capacity.

Proposal should consider the bio-waste hierarchy - a priority order in waste prevention and management legislation and policy, which starts with prevention actions, followed by reuse and recycling pathways. This hierarchy should guide the development of strategies that tackle bio-waste for soil improvement.

Proposals should demonstrate a route towards open access, longevity, sustainability and interoperability of knowledge and outputs through close collaboration with the EUSO and other projects and initiatives to be funded under the mission.

Further Information:

<https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/horizon-miss-2022-soil-01-10;callCode=null;freeTextSearchKeyword=;matchWholeText=true;typeCodes=1;statusCodes=1;statusCodes=31094502;programmePeriod=2021%20-%202027;programCcm2Id=43108390;programDivisionCode=null;focusAreaCode=null;destination=null;mission=null;geographicalZonesCode=null;programmeDivisionProspect-onProspect=null;startDateLte=null;startDateGte=null;crossCuttingPriorityCode=null;cpvCode=null;performanceOfDelivery=null;sortQuery=startDate;orderBy=asc;onlyTenders=false;topicListKey=topicSearchTablePageSearchTablePageState>

48. /HORIZON EUROPE/ MSCA Postdoctoral Fellowship 2022, deadline: 14. September 2022 17:00 Brussels time

Fellowships will be provided to excellent researchers, undertaking international mobility either to or between EU Member States or Horizon Europe Associated Countries, as well as to non-associated Third Countries. Applications will be made jointly by the researcher and a beneficiary in the academic or non-academic sector.

Postdoctoral Fellowships either can take place in Europe (i.e. in an EU Member State or a Horizon Europe Associated Country) or in a Third Country not associated to Horizon Europe:

- European Postdoctoral Fellowships are open to researchers of any nationality who wish to engage in R&I projects by either coming to Europe from any country in the world or moving within Europe. The standard duration of these fellowships must be between 12 and 24 months.

- Global Postdoctoral Fellowships are open to European nationals or long-term residents^[1] who wish to engage in R&I projects with organisations outside EU Member States and Horizon Europe Associated Countries. These fellowships require an outgoing phase of minimum 12 and maximum 24 months in a non-associated Third Country, and a mandatory 12-month return phase to a host organisation based in an EU Member State or a Horizon Europe Associated Country.

Specific eligibility conditions apply to MSCA Postdoctoral Fellowships in the research areas covered by the Euratom Research and Training Programme 2021-2025.

Secondments:

Researchers receiving a Postdoctoral Fellowship may opt to include a secondment phase, within the overall duration of their fellowship in any country worldwide. The secondment phase can be a single period or be divided into shorter mobility periods.

For European Postdoctoral Fellowships, secondments cannot exceed one third of the requested duration of the action (excluding from the duration of the action any additional period for a non-academic placement) and should be in line with the project objectives, adding significant value and impact to the fellowship.

For Global Postdoctoral Fellowships, optional secondments are permitted for up to one third of the outgoing phase. A maximum of three months can be spent at the start of the project at the beneficiary (or associated partners linked to the beneficiary), allowing the researcher to spend time there before going to the associated partner in the Third Country. This period of maximum three months will be considered as

part of the outgoing phase.

Secondments cannot take place during the mandatory twelve-month return period to the host organisation in an EU Member State or Horizon Europe Associated Country.

Placements in the non-academic sector:

Postdoctoral Fellowships can provide an additional period of up to six months to support researchers seeking a placement at the end of the project to work on R&I projects in an organisation from the non-academic sector established in an EU Member State or Horizon Europe Associated Country. While this possibility is also available to fellows recruited in the non-academic sector, such a placement must be implemented at a different non-academic host organisation established in an EU Member State or Horizon Europe Associated Country. The request for such a placement must be an integral part of the proposal, explaining the added-value for the project and for the career development of the researcher, and will be subject to evaluation. It must be substantiated by a letter of commitment from the European non-academic organisation where the placement takes place. This incentive aims at promoting career moves between sectors and organisations and thereby stimulate innovation and knowledge transfer while expanding career opportunities for researchers.

If the placement does not meet the requirements (missing letter of commitment or taking place in an academic organisation or in a Third Country), the proposal will be evaluated without taking into account the placement. This might affect the final score.

Training activities:

The training activities implemented under the Postdoctoral Fellowships should include training for key transferable skills, foster innovation and entrepreneurship, (e.g. commercialisation of results, Intellectual Property Rights, communication, public engagement and citizen science) and promote Open Science practices (open access to publications and to research data, FAIR data management, etc.).

Career Development Plan:

In order to equip MSCA postdoctoral fellows with skills that enhance and expand their career opportunities inside and outside academia, a Career Development Plan should be established jointly by the supervisor(s) and the researcher. In addition to research objectives, this plan should comprise the researcher's training and career needs, including training on transferable skills, teaching, planning for publications and participation in conferences and events aiming at opening science and research to citizens. The Plan will have to be submitted as a project deliverable at the beginning of the action and can be updated when needed.

Euratom:

Aiming to enhance nuclear expertise and excellence as well as synergies between Programmes, organisations active in nuclear research established in one of EU Member States or countries associated to the Euratom Research and Training programme 2021-2025, are eligible to participate. MSCA Postdoctoral Fellowships in this area of research will be supported by the Euratom Research and Training Programme 2021-2025 through an indicative annual financial contribution of EUR 1 million to the MSCA Postdoctoral Fellowships call.

ERA Fellowships:

The ERA Fellowships implemented through Work Programme Annex 11, Widening Participation and Strengthening the European Research Area, provide specific support to researchers to undertake their fellowship in a widening country.

Further Information:

<https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/horizon-msca-2022-pf-01-01;callCode=null;freeTextSearchKeyword=;matchWholeText=true;typeCodes=1;statusCodes=31094502;programmePeriod=2021%20-%202027;programCcm2Id=43108390;programDivisionCode=null;focusAreaCode=null;destination=null;mission=null;geographicalZonesCode=null;programmeDivisionProspect=null;Prospect=null;startDateLte=null;startDateGte=null;crossCuttingPriorityCode=null;cpvCode=null;performanceOfDelivery=null;sortQuery=startDate;orderBy=asc;onlyTenders=false;topicListKey=topicSearchTablePageState>

49. /AvH/ Humboldt-Forschungsstipendium für Postdocs und erfahrene Wissenschaftler*innen

Das Humboldt-Forschungsstipendium für Forschende aller Nationen und Fachgebiete: Wir unterstützen Sie - Postdoktorand*innen sowie erfahrene Wissenschaftler*innen - bei Ihren Forschungsvorhaben in Deutschland.

Mit dem Humboldt-Forschungsstipendium fördert die Alexander von Humboldt-Stiftung überdurchschnittlich qualifizierte Forschende aus der ganzen Welt. Profitieren Sie als Stipendiat*in von der individuellen Betreuung durch die Humboldt-Stiftung und unseren vielfältigen Förderleistungen. Für die kommenden Auswahlsitzungen erwarten wir eine Erfolgsrate von ca. 20-25%.

Das Humboldt-Forschungsstipendium ermöglicht es Ihnen in verschiedenen Stadien Ihrer Laufbahn, Ihr persönliches Forschungsvorhaben durchzuführen - in Kooperation mit Gastgeber*innen einer Forschungseinrichtung Ihrer Wahl in Deutschland. Die Gastgeber*innen können einen Forschungskostenzuschuss beantragen.

Nutzen Sie für den erfolgreichen Einstieg in Ihre wissenschaftliche Laufbahn die Forschungsförderung in Deutschland. Mit dem Humboldt-Forschungsstipendium für Postdoktorand*innen können Sie Ihr Forschungsvorhaben in Deutschland verwirklichen. Das monatliche Stipendium beträgt 2.670 Euro. Es kann für eine Dauer zwischen 6 und 24 Monaten beantragt werden.

Auch wenn Sie in Ihrer wissenschaftlichen Karriere bereits weiter fortgeschritten sind, steht Ihnen die Forschungsförderung in Deutschland offen. Mit dem Humboldt-Forschungsstipendium für erfahrene Wissenschaftler*innen können Sie Ihr Forschungsvorhaben in Deutschland verwirklichen. Das monatliche Stipendium beträgt 3.170 Euro. Es kann für eine Dauer zwischen 6 und 18 Monaten beantragt und auf bis zu drei Aufenthalte innerhalb von drei Jahren aufgeteilt werden.

Neben dem Stipendienbetrag erhalten Sie während Ihrer Förderung eine persönliche Betreuung. Den Beginn Ihres Stipendiums bestimmen Sie dann ganz flexibel selbst. Schon im Vorfeld Ihres Forschungsstipendiums können Sie - und auch Ihr*e Ehepartner*in - einen Intensivsprachkurs besuchen. Weitere finanzielle Unterstützung - Familienzulagen für Kinder und Ehepartner*in, Beihilfen zu einer Krankenvollversicherung, Reisekostenzuschüsse etc. - ist möglich.

Weitere Informationen:

<https://www.humboldt-foundation.de/bewerben/foerderprogramme/humboldt-forschungsstipendium#h1268>

50. /JSPS/ Postdoctoral Fellowships for Research in Japan - Short-term Program, deadline: 30. September 2022

The program provides PhD students or PhD researchers in the Europe and North America with opportunities to conduct collaborative research under the guidance of their hosts in universities and other Japanese institutions for a relatively short period of time. A person who has never engaged in research at universities etc. in Japan would be most preferable.

Fields of Research: All fields of the humanities, social sciences and natural sciences.

Duration of fellowships: 1 to 12 months

Candidate (Invited Overseas Researcher) Eligibility:

- Be a citizen or permanent resident of an eligible country stipulated in the below (*). Also eligible are persons who have been engaged in research continuously for a period of at least three years at a university or research institution in an eligible country. Such persons must be from a country that has diplomatic relations with Japan or from Taiwan or Palestine, have conducted research continuously for three or more years before the time their application was submitted, and must possess an excellent research record. (*) Eligible countries are the US, Canada, European Union countries, UK, Switzerland,

Norway and Russia.

- Candidates must have obtained their doctoral degree at a university outside Japan within six years of the date the fellowship goes into effect, or must be currently enrolled in a doctoral course at a university outside Japan, and scheduled to receive a Ph.D. within two years from the time that their research starts in Japan.

Applicant (Host Researcher) Eligibility:

The applicant (host researcher) must, in principle, be a researcher who is employed full-time at a university or research institution as specified in Article 2* of the Procedure for the Handling of Grants-in-Aid for Scientific Research (Kakenhi), issued by the Ministry of Education, Culture, Sports, Science and Technology (MEXT). Such persons must be eligible to apply for a KAKENHI grant-in-aid.

However, there are cases when a researcher not employed in a full-time position may be eligible. Such persons must be eligible to apply for a KAKENHI grant-in-aid and his/her affiliated institution must judge them able to implement the project and to provide an appropriate research environment (e.g., laboratory, space, facilities and personnel) for it.

Each applicant (host researcher) can submit up to three applications. If more than one candidate (invited overseas researcher) applies as candidates for the fellowship, priorities should be given to them.

*Eligible host institutions specified under the above MEXT Procedure are as follows:

- Universities and inter-university research institutes
- MEXT-affiliated institutions engaged in research
- Colleges of technology
- Institutions designated by the Minister of MEXT

Term of Award:

- Airfare: A round-trip air ticket (based on JSPS's regulations. See the "Program Guidelines".)
- Maintenance Allowance:
 - For PhD holders: ¥362,000 per month
 - For non-PhD holders at the time research starts in Japan: ¥200,000 per month
- Miscellaneous: A settling-in allowance of ¥200,000 (only applicable for Fellows with 3 or more months of tenure), Overseas travel insurance, etc.

Further Information:

<https://www.jsps.go.jp/english/e-oubei-s/index.html>

51. /DAAD/ JSPS Forschungskurzstipendien für Doktoranden und Postdoktoranden nach Japan, Frist: 31. Juli 2022

Ziel des Programms ist es, in Zusammenarbeit mit der Japan Society for the Promotion of Science (JSPS) hochqualifizierten promovierten deutschen Nachwuchswissenschaftlerinnen und -wissenschaftlern sowie Promovierenden einen kurzfristigen Forschungsaufenthalt an Universitäten und ausgewählten Forschungseinrichtungen in Japan zu ermöglichen.

Bewerben können sich Postdoktorandinnen und -doktoranden sowie Promovierende aller Fachrichtungen.

Gefördert werden Forschungsvorhaben an Universitäten und ausgewählten Forschungseinrichtungen in Japan

Nicht gefördert werden Aufenthalte zur Verbesserung der Sprachkenntnisse oder zur Durchführung landeskundlicher Studien.

Dieses Stipendium hat eine Dauer von

- 1 bis 12 Monaten für Promovierende
- 1 bis 6 Monaten für Postdoktorandinnen und -doktoranden

Das Stipendium ist nicht verlängerbar.

Das Stipendium der JSPS umfasst folgende Leistungen

- Hin- und Rückflugticket



- eine monatliche Stipendienrate für Promovierende von ca. 200.000 Yen
- eine monatliche Stipendienrate für Postdoktorandinnen und -doktoranden von ca. 362.000 Yen
- Reisekrankenversicherung
- für Aufenthalte von drei Monaten und mehr wird eine Startpauschale von ca. 200.000 Yen gewährt
- die Förderung kann nur in Modulen von vollen Monaten gewährt werden.

Weitere Informationen:

daad.de/go/stipd10000361

52. /Sonstige/ Contact Research Funding Advice of the Otto von Guericke University Magdeburg

For questions about funding opportunities, specific calls for proposals, help with submitting applications and project support, please contact the department for Research Funding Advice/EU-University Network of Otto von Guericke University Magdeburg. Information on current events, funding structures and contact online at:

<https://www.ovgu.de/en/ContactResearchFundingAdvice>

<https://www.euhoerschulnetz-sachsen-anhalt.de/en/>
