Guide for Funding Opportunities

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TABLE OF CONTENT

TABLES

LIST OF ACRONYMS

AV	Aerospace Valley
BSSC	Baltic Sea and Space Cluster
CWP	Catalan Water Partnership
EIC	European Innovation Council
EMFAF	European Maritime, Fisheries and Aquaculture Fund
ERDF	European Regional Development Fund
ESA	European Space Agency
EU	European Union
MLC	Basque Mobility and Logistics Cluster
PMM-TVT	Pôle Mer Méditerranée – Toulon Var Technologies
SME	Small and Medium-sized Enterprise
TRL	Technology Readiness Level

1. Description of European programs covered by this guide

1.1. Horizon Europe

Horizon Europe[1] takes over from Horizon 2020 as the EU's key funding programme for research and innovation from 2021 to 2027. With a budget of 95.5 billion euros, the objective of the programme is to fund collaborative and thematic innovations through a 4 pillars organisation:

- Excellent science;
- Global challenges and European industrial competitiveness;
- Innovative Europe;
- Widening participation and strengthening the European research area.

This guide will focus on the 2nd and the 3rd pillars as they are those targeting companies and notably SMEs. This guide focus on 4 of the 6 clusters structuring the 2nd pillar are the target of numerous calls for projects within the GALATEA scope:

- Cluster 3: Civil security for society;
- Cluster 4: Digital, industry and space;
- Cluster 5: Climate, energy and mobility;
- Cluster 6: Food, bioeconomy, natural resources, agriculture and environment.

As for the 3rd pillar, please find more information about the European Innovation Council below.

[1] For more information, please visit the official website here or reach your National Contact Point (NCP) thanks to this link

1.2. European Innovation Council

EIC[2] is one of the 3 funding mechanism making up the 3rd pillar of Horizon Europe. It aims to support disruptive innovations until they reach the market through three schemes.

1.2.1. EIC Pathfinder

EIC Pathfinder supports multi-disciplinary research and development of breakthrough technologies thanks to:

- EIC Pathfinder Open which provides funding for projects in any field of science or technology;
- EIC Pathfinder Challenges which provides funding for specific challenges (five), including within the scope of GALATEA:
  - Clean and efficient cooling;
  - Architecture, engineering and construction digitalisation for a novel triad of design, fabrication and materials;
  - Responsible electronics.

1.2.2. EIC Transition

EIC Transition helps maturing a new technology and developing a business case to bring it to market thanks to:

- EIC Transition Open which provides funding for projects in any field of science or technology;
- EIC Transition Challenges which provides funding for specific challenges (three), including one within the scope of GALATEA:
  - Environmental intelligence.

1.2.3. EIC Accelerator

EIC Accelerator helps start-ups and SMEs to develop and scale up game changing innovation thanks to:

- EIC Accelerator Open which provides funding for projects in any field of science or technology;
- EIC Accelerator Challenges which provides funding for specific challenges (seven), including two within the scope of the GALATEA:
  - Energy storage;
  - Space technologies and services.

[2] For more information, please visit the official website here

1.3. European Regional Development Fund

European Regional Development Fund[3] aims to strengthen economic, social and territorial cohesion in the European Union by correcting imbalances between its regions. For 2021-2027, the fund has been allocated a budget of 200 billion euros to make Europe and its regions:

- More competitive and smarter, through innovation and support to small and medium-sized businesses, as well as digitisation and digital connectivity;
- Greener, low-carbon and resilient;
- More connected by enhancing mobility;
- More social, supporting effective and inclusive employment, education, skills, social inclusion and equal access to healthcare, as well as enhancing the role of culture and sustainable tourism;
- Closer to citizens, supporting locally led development and sustainable urban development across the EU.

[3] As this fund is managed at a regional level, ERDF calls are mentioned in the "National and regional opportunities" section in line with the concerned country.

1.4. European Space Agency

ESA aims to coordinate space projects carried out across the EU member states. ESA's programmes are designed to find out more about:

- Earth and its immediate space environment;
- The solar system and the universe;
- Satellite-based technologies and services.

ESA operates funding opportunities for companies and notably SMEs.

2. Summary board of Horizon Europe Cluster's call

HORIZON EUROPE – Cluster 3: Civil security for society				
ID	**Title of the call**	**Budget**	**Deadline**	**Topic**
HORIZON-CL3-2023-BM-01-01	Capabilities for border surveillance and situational awareness	EUR 7M	23/11/2023	Maritime surveillance
HORIZON-CL3-2023-BM-01-02	Identify, inspect, neutralise Unexploded Ordnance (UXO) at sea	EUR 4.9M	23/11/2023	Maritime surveillance
HORIZON-CL3-2023-BM-01-03	Beyond the state-of-the-art "biometrics on the move" for border checks	EUR 3M	23/11/2023	Maritime surveillance
HORIZON-CL3-2024-BM-01-01	Interoperability for border and maritime surveillance and situational awareness	EUR 6M	20/11/2024	Maritime surveillance
HORIZON-CL3-2024-BM-01-03	Integrated risk-based border control that mitigates public security risk, reduces false positives and strengthens privacy	EUR 6M	20/11/2024	Maritime surveillance
HORIZON-CL3-2024-BM-01-04	Detection and tracking of illegal and trafficked goods	EUR 6M	20/11/2024	Maritime surveillance
HORIZON-CL3-2024-DRS-01-04	Cost-effective sustainable technologies and crisis management strategies for RN large-scale protection of population and infrastructures after a nuclear blast or nuclear facility incident	EUR 6M	20/11/2024	Maritime surveillance

Table 1 HORIZON EUROPE – Cluster 3: Civil security for society

HORIZON EUROPE – Cluster 4: Digital, industry and space				
ID	**Title of the call**	**Budget**	**Deadline**	**Topic**
HORIZON-CL4-2023-TWIN-TRANSITION-01-02	High-precision OR complex product manufacturing – potentially including the use of photonics (Made in Europe and Photonics Partnerships) (IA)	EUR 5-6M	20/04/2023	Smart shipyard
HORIZON-CL4-2024-DIGITAL-EMERGING-01-04	Industrial leadership in AI, Data and Robotics boosting competitiveness and the green transition (AI Data and Robotics Partnership)	EUR 10M	19/03/2024	ALL
HORIZON-CL4-2024-DIGITAL-EMERGING-01-03	Novel paradigms and approaches, towards AI-powered robots– step change in functionality (AI, data and robotics partnership) (RIA)	EUR 8M	19/03/2024	Maritime surveillance

Table 2 HORIZON EUROPE – Cluster 4: Digital, industry and space

HORIZON EUROPE – Cluster 5: Climate, energy, mobility				
ID	**Title of the call**	**Budget**	**Deadline**	**Topic**
HORIZON-CL5-2023-D1-02-02	EU-China international cooperation on blue carbon	EUR 5M	18/04/2023	Maritime surveillance
HORIZON-CL5-2023-D2-02-01	Advanced materials and cells development enabling large-scale production of Gen4 solid-state batteries for mobility applications (Batt4EU Partnership)	EUR 8M	05/09/2023	Smart ship
HORIZON-CL5-2023-D2-02-03	Creating a digital passport to track battery materials, optimize battery performance and life, validate recycling, and promote a new business model based on data sharing (Batt4EU Partnership)	EUR 8M	05/09/2023	Smart ship
HORIZON-CL5-2024-D2-02-02	Post-Li-ion technologies and relevant manufacturing techniques for mobility applications (Generation 5) (Batt4EU Partnership)	EUR 5M	05/09/2024	Smart ship
HORIZON-CL5-2023-D3-02-08	Development of microalgae and/or direct solar fuel production and purification technologies for advanced aviation and /or shipping fuels	EUR 4M	05/09/2023	Smart ship
HORIZON-CL5-2023-D3-03-03	System approach for grid planning and upgrade in support of a dominant electric mobility (vehicles and vessels) using AI tools	EUR 11M	10/10/2023	Smart ship
HORIZON-CL5-2023-D5-01-11	Developing the next generation of power conversion technologies for sustainable alternative carbon neutral fuels in waterborne applications (ZEWT Partnership)	EUR 8M	20/04/2023	Smart ship

HORIZON-CL5-2023-D5-01-12	Demonstrations to accelerate the switch to safe use of new sustainable climate neutral fuels in waterborne transport (ZEWT Partnership)	EUR 8-13M	20/04/2023	Smart ship
HORIZON-CL5-2023-D5-01-13	Integrated real-time digital solutions to optimise navigation and port calls to reduce emissions from shipping (ZEWT Partnership)	EUR 7.5M	20/04/2023	Smart port Smart ship
HORIZON-CL5-2023-D5-01-14	Developing a flexible offshore supply of zero emission auxiliary power for ships moored or anchored at sea deployable before 2030 (ZEWT Partnership)	EUR 8.5M	20/04/2023	Smart ship
HORIZON-CL5-2023-D5-01-15	Reducing the environmental impact from shipyards and developing a whole life strategy to measure and minimise the non-operational environmental impacts from shipping	EUR 4.5M	20/04/2023	Smart shipyard
HORIZON-CL5-2023-D5-01-16	Developing small, flexible, zero-emission and automated vessels to support shifting cargo from road to sustainable Waterborne Transport	EUR 4.5M	20/04/2023	Smart ship
HORIZON-CL5-2023-D5-01-17	Towards the implementation of the inland navigation action programme with a focus on Green and Connected Inland Waterway Transport	EUR 1.5M	20/04/2023	Smart port Smart ship
HORIZON-CL5-2023-D5-01-18	Advanced transport emissions monitoring networks	EUR 5M	20/04/2023	Maritime surveillance
HORIZON-CL5-2024-D5-01-11	Achieving high voltage, low weight, efficient electric powertrains for sustainable waterborne transport (ZEWT Partnership)	EUR 7.5M	18/04/2024	Smart ship

HORIZON-CL5-2024-D5-01-12	Combining state-of-the-art emission reduction and efficiency improvement technologies in ship design and retrofitting for contributing to the "Fit for 55" package objective by 2030 (ZEWT Partnership)	EUR 7.5M	18/04/2024	Smart ship
HORIZON-CL5-2024-D5-01-13	Demonstration of Technologies to minimise underwater noise generated by waterborne transport (ZEWT Partnership)	EUR 6M	18/04/2024	Smart ship
HORIZON-CL5-2024-D5-01-14	Demonstrating efficient fully DC electric grids within waterborne transport for large ship applications (ZEWT Partnership)	EUR 7.5M	18/04/2024	Smart port Smart ship
HORIZON-CL5-2024-D5-01-15	Advanced digitalisation and modelling utilizing operational and other data to support zero emission waterborne transport (ZEWT Partnership)	EUR 7.7M	18/04/2024	Smart ship
HORIZON-CL5-2024-D5-01-16	Structuring the Waterborne transport sector, including through changed business and industrial models in order to achieve commercial zero-emission waterborne transport (ZEWT Partnership)	EUR 850K	18/04/2024	Smart ship
HORIZON-CL5-2024-D5-01-17	Coordinating and supporting the combined activities of member and associated states towards the objectives of the Zero Emission Waterborne Transport partnership so as to increase synergies and impact (ZEWT Partnership)	EUR 1.5M	18/04/2024	Smart ship
HORIZON-CL5-2024-D5-01-18	Assessment of air pollutant emissions from low-carbon fuels in the heavy-duty, aviation, and maritime sectors	EUR 3.5M	18/04/2024	Smart ship

HORIZON-CL5-2023-D6-01-07	Operational automation to support multimodal freight transport	EUR 4M	05/09/2023	Smart ship
HORIZON-CL5-2023-D6-01-09	Climate resilient and safe maritime ports	EUR 7M	05/09/2023	Smart port
HORIZON-CL5-2024-D6-01-06	Optimising multimodal network and traffic management, harnessing data from infrastructures, mobility of passengers and freight transport	EUR 4-5M	N/A	Smart port Smart ship
HORIZON-CL5-2024-D6-01-07	Scaling up logistics innovations supporting freight transport decarbonisation in an affordable way	EUR 10M	N/A	Smart ship
HORIZON-CL5-2024-D6-01-10	Ensuring the safety, resilience and security of waterborne digital systems	EUR 4M	N/A	Maritime surveillance

Table 3 HORIZON EUROPE – Cluster 5: Climate, energy, mobility

HORIZON EUROPE – Cluster 6: Food, bioeconomy, natural resources, agriculture and environment				
ID	**Title of the call**	**Budget**	**Deadline**	**Topic**
HORIZON-CL6-2024-BIODIV-01-1	Invasive alien species	EUR 6M	22/04/2024	Maritime surveillance
HORIZON-CL6-2024-BIODIV-01-2	Digital for nature	EUR 8M	22/04/2024	Maritime surveillance
HORIZON-CL6-2023-FARM2FORK-01-8	Using automatic species recognition and artificial intelligence to fight illegal fish discards and revolutionise fisheries control	EUR 5M	12/04/2023	Maritime surveillance
HORIZON-CL6-2024-ZEROPOLLUTION-01-3	Environmental impacts of food systems	EUR 7M	22/02/2024	Maritime surveillance
HORIZON-CL6-2023-CLIMATE-01-1	Additional activities for the European Partnership Water Security for the Planet (Water4All)	EUR 36M	12/04/2023	Maritime surveillance
HORIZON-CL6-2023-CLIMATE-01-8	Closing the research gaps on Essential Ocean Variables (EOVs) in support of global assessments	EUR 5-6M	12/04/2023	Maritime surveillance
HORIZON-CL6-2024-GOVERNANCE-01-1	Additional activities for the European Partnership for a climate neutral, sustainable and productive Blue Economy	EUR 60M	28/02/2024	ALL
HORIZON-CL6-2024-GOVERNANCE-01-6	Develop innovative applications to support the European Green Deal, building on meteorological satellite data	EUR 4M	28/02/2024	Maritime surveillance

Table 4 HORIZON EUROPE – Cluster 6: Food, bioeconomy, natural resources, agriculture and environment

HORIZON EUROPE – Mission: Adaptation to climate change				
ID	**Title of the call**	**Budget**	**Deadline**	**Topic**
HORIZON-MISS-2023-CLIMA-01-02	Testing and demonstrating transformative solutions to protect critical infrastructure from climate change, mainstreaming nature-based solutions	EUR 8-11M	20/09/2023	Smart port

Table 5 HORIZON EUROPE – Mission: Adaptation to climate change

HORIZON EUROPE – Mission: Restore our ocean and waters by 2030				
ID	**Title of the call**	**Budget**	**Deadline**	**Topic**
HORIZON-MISS-2023-OCEAN-01-01	European Blue Parks – Protection and restoration of marine habitats	EUR 8.8M	20/09/2023	Maritime surveillance
HORIZON-MISS-2023-OCEAN-01-03	Atlantic and Arctic Sea basin lighthouse – Addressing climate change and human activities threats to marine biodiversity	EUR 8M	20/09/2023	Maritime surveillance
HORIZON-MISS-2023-OCEAN-01-05	Lighthouse in the Baltic and the North Sea basins - Lighthouse in the Baltic and the North Sea basins - Green and energy-efficient small-scale fishing fleets	EUR 4M	20/09/2023	Smart ship
HORIZON-MISS-2023-OCEAN-01-08	Integration of socio-ecological models into the Digital Twin Ocean	EUR 3.3M	20/09/2023	Maritime surveillance

Table 6 HORIZON EUROPE – Mission: Restore our ocean and waters by 2030

HORIZON EUROPE – Missions' joint calls				
ID	**Title of the call**	**Budget**	**Deadline**	**Topic**
HORIZON-MISS-2023-OCEAN-SOIL-01-01	Mission Ocean and Waters and Mission A Soil Deal for Europe – Joint demonstration of approaches and solutions to address nutrient pollution in the landscape-river-sea system in the Mediterranean Sea basin	EUR 8M	20/09/2023	Maritime surveillance

Table 7 HORIZON EUROPE – Mission: Restore our ocean and waters by 2030

3. European funding

3.1. Horizon Europe

3.1.1. Cluster 3: Civil security for society

HORIZON-CL3-2023-BM-01-01: Capabilities for border surveillance and situational awareness	
Expected European contribution per project	EUR 7M
Indicative budget	EUR 7M
Type of action	Innovation Actions
Opening date	29/06/2023
Deadline	23/11/2023
Work program	**HORIZON-CL3-2023-BM-01-01**

Table 8 HORIZON-CL3-2023-BM-01-01: Capabilities for border surveillance and situational awareness

Objectives

Projects' results are expected to contribute to some or all of the following outcomes:

- Increased border surveillance capabilities, better performing and more cost-efficient, with data and fundamental rights protection by design;
- Better surveillance of border areas, supporting fight against illegal activities across external borders, as well as safety of people and operators in the border areas, including favouring border crossings through border crossing points;
- More efficient and more flexible solutions (including for relocation, reconfiguration and rapid deployment capabilities) than physical barriers to deter and monitor irregular border crossings outside border crossing points.

Main requirements

- This topic requires the active involvement, as beneficiaries, of at least 2 Border or Coast Guard Authorities from at least 2 different EU Member States or Associated countries. For these participants, applicants must fill in the table "Eligibility information about practitioners" in the application form with all the requested information, following the template provided in the submission IT tool;
- If projects use satellite-based earth observation, positioning, navigation and/or related timing data and services, beneficiaries must make use of Copernicus and/or Galileo/EGNOS (other data and services may additionally be used).

HORIZON-CL3-2023-BM-01-02: Identify, inspect, neutralise Unexploded Ordnance (UXO) at sea	
Expected European contribution per project	EUR 4.90M
Indicative budget	EUR 4.90M
Type of action	Research and Innovation Actions
Opening date	29/06/2023
Deadline	23/11/2023
Work program	**HORIZON-CL3-2023-BM-01-02**

Table 9 HORIZON-CL3-2023-BM-01-02: Identify, inspect, neutralise Unexploded Ordnance (UXO) at sea

Objectives

Projects' results are expected to contribute to some or all of the following outcomes:

- Enabling existing knowledge (mapping and integrating data from historical maps and more recent data, including reports from sea operators), comparative analysis of legislation, roles and responsibilities in Member States;
- Detecting UXO on and below the marine sediment/seabed, in order to detect also buried objects;
- Identifying, classifying, assessing (identifying chemical and material aspects; sensing levels of corrosion);
- Inspecting and handling (grab and manipulate UXO under water, from intact shells to chunks to small parts; collect and recovery);
- Neutralising and disposing (containment of chemical spill overs and possible explosions).

Main requirements

- This topic requires the active involvement, as beneficiaries, of at least 2 Border or Coast Guard Authorities from at least 2 different EU Member States or Associated countries. For these participants, applicants must fill in the table "Eligibility information about practitioners" in the application form with all the requested information, following the template provided in the submission IT tool;
- If projects use satellite-based earth observation, positioning, navigation and/or related timing data and services, beneficiaries must make use of Copernicus and/or Galileo/EGNOS (other data and services may additionally be used).

HORIZON-CL3-2023-BM-01-03: Beyond the state-of-the-art "biometrics on the move" for border checks	
Expected European contribution per project	EUR 3M
Indicative budget	EUR 6M
Type of action	Research and Innovation Actions
Opening date	29/06/2023
Deadline	23/11/2023
Work program	**HORIZON-CL3-2023-BM-01-03**

Table 10 HORIZON-CL3-2023-BM-01-03: Beyond the state-of-the-art "biometrics on the move" for border checks

Objectives

Projects' results are expected to contribute to some or all of the following outcomes:

- Updated, European-based, knowledge and development on robust biometrics technologies that could be used for recognition (identification and verification) of people crossing external EU borders, demonstrating a clear advancement beyond the current state-of-the-art;
- Maximisation of travellers' experience and of security reassurances, minimising handling of personal data and maximising accuracy, reliability and throughput of the recognition process;
- Contribution to improving the operational response capacity of the EBCG at border crossing points and to capabilities that strengthen the Schengen area, by providing security at its external borders that also reassure on maintaining the free movement within its borders.

Main requirements

- This topic requires the active involvement, as beneficiaries, of at least 2 Border or Coast Guard Authorities from at least 2 different EU Member States or Associated countries. For these participants, applicants must fill in the table "Eligibility information about practitioners" in the application form with all the requested information, following the template provided in the submission IT tool;
- If projects use satellite-based earth observation, positioning, navigation and/or related timing data and services, beneficiaries must make use of Copernicus and/or Galileo/EGNOS (other data and services may additionally be used).

HORIZON-CL3-2024-BM-01-01: Interoperability for border and maritime surveillance and situational awareness	
Expected European contribution per project	EUR 6M
Indicative budget	EUR 6M
Type of action	Innovation Actions
Opening date	27/06/2024
Deadline	20/11/2024
Work program	**HORIZON-CL3-2024-BM-01-01**

Table 11 HORIZON-CL3-2024-BM-01-01: Interoperability for border and maritime surveillance and situational awareness

Objectives

Projects' results are expected to contribute to some or all of the following outcomes:

- Increased border surveillance capability, better performing and more cost-efficient, with data and fundamental rights protection by design;
- Improved surveillance and situational awareness of sea borders, but also of maritime infrastructures as harbours and commercial and civilian maritime security, including in key areas such as the Arctic;
- Improved multi-level, multi-authority and cross-border (among Member States and Associated Countries practitioners) collaboration thanks to better interoperability of sensing, analysis and C2 systems.

Main requirements

- This topic requires the active involvement, as beneficiaries, of at least 2 Border or Coast Guard Authorities from at least 2 different EU Member States or Associated countries. For these participants, applicants must fill in the table "Eligibility information about practitioners" in the application form with all the requested information, following the template provided in the submission IT tool;
- If projects use satellite-based earth observation, positioning, navigation and/or related timing data and services, beneficiaries must make use of Copernicus and/or Galileo/EGNOS (other data and services may additionally be used).

HORIZON-CL3-2024-BM-01-3: Integrated risk-based border control that mitigates public security risk, reduces false positives and strengthens privacy	
Expected European contribution per project	EUR 6M
Indicative budget	EUR 6M
Type of action	Innovation Actions
Opening date	27/06/2024
Deadline	20/11/2024
Work program	**HORIZON-CL3-2024-BM-01-03**

Table 12 HORIZON-CL3-2024-BM-01-01: Integrated risk-based border control that mitigates public security risk, reduces false positives and strenghtens privacy

Objectives

Projects' results are expected to contribute to some or all of the following outcomes:

- Improve assisted border crossing control systems, coordinated between border, customs and security controls;
- Allocate more efficiently border check resources, maintaining security while minimising time and hassle for crossings and false positives;
- Allocate flexibly border check resources, when and where needed, depending on changing needs (for example seasonally, and/or in the case of roll-on-roll-off ferries);
- Contribute to capabilities that strengthen the Schengen area, by providing security at its external borders that also reassure on maintaining the free movement within its borders.

Main requirements

- This topic requires the active involvement, as beneficiaries, of at least 2 Border or Coast Guard Authorities from at least 2 different EU Member States or Associated countries. For these participants, applicants must fill in the table "Eligibility information about practitioners" in the application form with all the requested information, following the template provided in the submission IT tool;
- If projects use satellite-based earth observation, positioning, navigation and/or related timing data and services, beneficiaries must make use of Copernicus and/or Galileo/EGNOS (other data and services may additionally be used).

HORIZON-CL3-2024-DRS-01-04: Detection and tracking of illegal and trafficked goods	
Expected European contribution per project	EUR 6M
Indicative budget	EUR 6M
Type of action	Innovation Actions
Opening date	27/06/2024
Deadline	20/11/2024
Work program	**HORIZON-CL3-2024-BM-01-04**

Table 13 HORIZON-CL3-2024-BM-01-01: Detection and tracking of illegal and trafficked goods

Objectives

Projects' results are expected to contribute to some or all of the following outcomes:

- Develop fully automated customs control checkpoints;
- Enhancing detection capabilities for customs security, while facilitating trade.

Main requirements

- This topic requires the active involvement, as beneficiaries, of at least 2 Border or Coast Guard Authorities from at least 2 different EU Member States or Associated countries. For these participants, applicants must fill in the table "Eligibility information about practitioners" in the application form with all the requested information, following the template provided in the submission IT tool;
- If projects use satellite-based earth observation, positioning, navigation and/or related timing data and services, beneficiaries must make use of Copernicus and/or Galileo/EGNOS (other data and services may additionally be used).

HORIZON-CL3-2024-BM-01-04: Cost-effective sustainable technologies and crisis management strategies for RN large-scale protection of population and infrastructures after a nuclear blast or nuclear facility incident	
Expected European contribution per project	EUR 6M
Indicative budget	EUR 6M
Type of action	Innovation Actions
Opening date	27/06/2024
Deadline	20/11/2024
Work program	**HORIZON-CL3-2024-BM-01-04**

Table 14 HORIZON-CL3-2024-BM-01-04: Cost-effective sustainable technologies and crisis management strategies for RN large-scale protection of population and infrastructures after a nuclear blast or nuclear facility incident

Objectives

Projects' results are expected to contribute to some or all of the following outcomes:

- Develop fully automated customs control checkpoints;
- Enhancing detection capabilities for customs security, while facilitating trade.

Main requirements

- This topic requires the active involvement, as beneficiaries, of at least 2 Border or Coast Guard Authorities from at least 2 different EU Member States or Associated countries. For these participants, applicants must fill in the table "Eligibility information about practitioners" in the application form with all the requested information, following the template provided in the submission IT tool;
- If projects use satellite-based earth observation, positioning, navigation and/or related timing data and services, beneficiaries must make use of Copernicus and/or Galileo/EGNOS (other data and services may additionally be used).

3.1.2. Cluster 4: Digital, industry and space

HORIZON-CL4-2023-TWIN-TRANSITION-01-02: High-precision OR complex product manufacturing – potentially including the use of photonics (Made in Europe and Phonotics Partnerships) (IA)	
Expected European contribution per project	EUR 5-6M
Indicative budget	EUR 48M
Type of action	Innovation Actions
Opening date	08/12/2022
Deadline	20/04/2023
Work program	**HORIZON-CL4-2023-TWIN-TRANSITION-01-02**

Table 15 HORIZON-CL4-2023-TWIN-TRANSITION-01-02: High-precision OR complex product manufacturing – potentially including the use of phonotics (Made in Europe and Phonotics Partnerships) (IA)

Objectives

Manufacturing industry will benefit from the following outcomes:

- High-precision manufacturing and/or manufacturing of products with complex geometries or structures; embedded electronics, optics or photonics; surfaces and surface functionalities; and multi-process manufacturing;
- Highly resilient and flexible production lines, enabling highly customised products across a wide range of markets, and ensuring open strategic autonomy for the manufacturing industry of the Union and Associated Countries;
- Significant reductions in the use of materials, waste, defects and energy consumption, which also lead indirectly to reductions in GHG emissions;
- Fostering the competitiveness of the European manufacturing industry, in general and (*only in the relevant projects*) in the field of laser machine tools and within the laser markets in particular.

Main requirements

To ensure a balanced portfolio covering all three technology areas in the scope mentioned, grants will be awarded to applications not only in order of ranking, but also to at least two projects in each technology area, provided that the applications attain all thresholds.

HORIZON-CL4-2024-DIGITAL-EMERGING-01-04: Industrial leadership in AI, Data and Robotics boosting competitiveness and the green transition (AI Data and Robotics Partnership)	
Expected European contribution per project	EUR 10M
Indicative budget	EUR 60M
Type of action	Innovation Actions
Opening date	15/11/2023
Deadline	19/03/2024
Work program	HORIZON-CL4-2024-DIGITAL-EMERGING-01-04

Table 16 HORIZON-CL4-2024-DIGITAL-EMERGING-01-04: Industrial leadership in AI, Data and Robotics boosting competitiveness ans the green transition (AI Data and Robotics Partnership)

Objectives

Projects' results are expected to contribute to one of the two following outcomes, exclusively:

- The creation of systems to address large scale challenges using combined robotics data and AI solutions that have significant impact on the objectives of the green deal. For example, in improving domestic energy consumption or in the cleaning up of contaminated land and waterways or in accelerating the circular economy along the complete value chain through automated waste avoidance and waste processing or reuse of materials;
- The creation of systems to address large scale resource optimisation challenges using combined AI and Data solutions, that have significant impact on the objectives of the green deal, such as optimisation of any kind of resources, from production to use along the complete value chain in order to minimise waste or foster the reuse of resources or in using AI and data solutions to maximize energy efficiency, ensuring energy security.

Main requirements

- Activities are expected to start at TRL 3-5 and achieve TRL 6-7 by the end of the project;
- If projects use satellite-based earth observation, positioning, navigation and/or related timing data and services, beneficiaries must make use of Copernicus and/or Galileo/EGNOS (other data and services may additionally be used).

HORIZON-CL4-2024-DIGITAL-EMERGING-01-03: Novel paradigms and approaches, towards AI-powered robots – step change in functionality (AI, data and robotics partnership) (RIA)	
Expected European contribution per project	EUR 8M
Indicative budget	EUR 30M
Type of action	Research and Innovation Actions
Opening date	15/11/2023
Deadline	19/03/2024
Work program	**HORIZON-CL4-2024-DIGITAL-EMERGING-01-03**

Table 17 HORIZON-CL4-2024-DIGITAL-EMERGING-01-03: Novel paradigms and approaches, towards AI-powered robots – step change in functionality (AI, data and robotics partnership) (RIA)

Objectives

Projects' results are expected to contribute to all of the following primary outcomes:

- Achieve the substantial next step in the ability of robots to perform non-repetitive functional tasks in realistic settings, based on underlying robot functions (guidance, navigation, manipulation, interaction etc.), demonstrated in key high impact sectors where robotics has the potential to deliver significant economic and/or societal benefits. This next step functionality should clearly delineate from state-of-the-art solutions and can be illustrated by the following non-exhaustive examples that illustrate different types of functional ability. Proposals should address functional challenges that are of equivalent or greater complexity and/or combine different types of functions to deliver greater functional complexity;
- Step change in the enabling conditions essential for the accelerated diffusion of robots in various industries, sectors and services which can 1) handle tasks efficiently, robustly, and safely and 2) interact naturally and smoothly to support humans in their daily activities, based on a strong multidisciplinary approach, including the relevant SSH dimension;
- The development, use and exploitation of major advances in science and technology for the enhancement of European robotics, in order to maintain Europe's scientific excellence and ensure sovereignty of key technologies relevant to robotics;
- Create opportunities to affect society in the longer term by contributing to impact on major broad societal challenges.

Main requirements

- Activities are expected to start at TRL 2-3 and achieve TRL 4-5 by the end of the project;
- If projects use satellite-based earth observation, positioning, navigation and/or related timing data and services, beneficiaries must make use of Copernicus and/or Galileo/EGNOS (other data and services may additionally be used).

3.1.3. Cluster 5: Climate, energy, mobility

HORIZON-CL5-2023-D1-02-02: EU-China international cooperation on blue carbon	
Expected European contribution per project	EUR 5M
Indicative budget	EUR 5M
Type of action	Research and Innovation Actions
Opening date	13/12/2022
Deadline	18/04/2023
Work program	**HORIZON-CL5-2023-D1-02-02**

Table 18 HORIZON-CL5-2023-D1 -02-02: EU-China international cooperation on blue carbon

Objectives

Blue carbon, understood as coastal marine ecosystems such as seagrass, saltmarshes and mangroves are reported under the chapter of the IPCC inventory guidelines devoted to wetlands. The project aims to investigate this reporting and whether other ecosystems could be included.

Actions are expected to contribute to all the following outcomes:

- An understanding of how the different elements of blue carbon in coastal waters of European countries and the People's Republic of China contributes to greenhouse gases in the atmosphere;
- Better knowledge of how human activity in managing, destroying or regenerating blue carbon affects its emissions and sequestration of greenhouse gases;
- Measurement techniques for calibration, validation and monitoring blue carbon sequestration and emissions;
- A preliminary estimate of the actual and potential contribution of greenhouse gas emissions and removals by blue carbon ecosystems for the EU and the People's Republic of China.

Main requirements

- Consortia must also include as associated partners at least three independent legal entities established in China;
- Legal entities established in China can only participate as associated partners;
- Chinese participants must be awarded co-funding by MOST[4].

[4] This condition will not be fulfilled if, at the time of grant agreement signature, the Chinese participants have not concluded a grant agreement with MOST.

HORIZON-CL5-2023-D2-02-01: Advanced materials and cells development enabling large-scale production of Gen4 solid-state batteries for mobility applications (Batt4EU Partnership)	
Expected European contribution per project	EUR 8M
Indicative budget	EUR 24M
Type of action	Innovation Actions
Opening date	04/05/2023
Deadline	05/09/2023
Work program	**HORIZON-CL5-2023-D2-02-01**

Table 19 HORIZON-CL5-2023-D2-02-01: Advanced materials and cells development enabling large-scale production of Gen4 solid-state batteries for mobility applications (Batt4EU Partnership)

Objectives

Building on the results of earlier research projects on advanced solid-state materials, the objective of this topic is to demonstrate, at cell level, the scale-up of advanced solid-state materials for anodes, cathodes, electrolytes and, where applicable, separators with performances and costs compatible for mobility markets.

Projects' results are expected to contribute to all the following outcomes:

- The selection of solid-state cell components and architecture (anode; electrolyte, cathode, collector, and interfaces) meeting, by the end of the project, all performance indicators at ambient and operational temperatures necessary for mobility;
- A demonstration of the selected materials in a State-of-Art benchmark cell (at least TRL5) with at least 1 Ah capacity;
- A competitive cost level towards 75€/kWh at pack level by 2030;
- An optimised environmental footprint of cell materials in terms of carbon footprint and quantity of metals;
- Cell manufacturing processes which allow the fabrication of performant, reliable, sustainable, and affordable solid-state cells, demonstrated at industrial pilot level;
- Cell materials and designs which are compatible with a recycling process that respects the requirements as put forward in the proposed Batteries Regulation.

Main requirements

If projects use satellite-based earth observation, positioning, navigation and/or related timing data and services, beneficiaries must make use of Copernicus and/or Galileo/EGNOS (other data and services may additionally be used).

HORIZON-CL5-2023-D2-02-03: Creating a digital passport to track battery materials, optimize battery performance and life, validate recycling, and promote a new business model based on data sharing (Batt4EU Partnership)	
Expected European contribution per project	EUR 8M
Indicative budget	EUR 8M
Type of action	Innovation Actions
Opening date	04/05/2023
Deadline	05/09/2023
Work program	**HORIZON-CL5-2023-D2-02-03**

Table 20 HORIZON-CL5-2023-D2-02-03: Creating a digital passport to track battery materials, optimize battery performance and life, validate recycling, and promote a new business model based on data sharing (Batt4EU Partnership)

Objectives

Stakeholders engaged with the battery value chain need to be provided with accurate, reliable and immutable battery information e.g., related to ESGE (Environmental, Social, Governance & Economic) indicators and monitor thermal runaway at any stage of the value chain. Furthermore, the proposed Batteries Regulation[5] and future regulations will extend the due diligence to all domains of the battery value chain in the upcoming years. The EU Data Strategy is setting a clear architectural approach to federated data and is enabling a great opportunity to boost the EU dataspace on batteries.

The availability of shared, interoperable, and trusted data for improving recycling and second life application might promote new business, assuring workforce and transportation safety. Indicators such as SoH (State of Health), SoS (State of Safety), SoP (State of Power) should be calculated in accurate, reliable, immutable, and standardized way, based on historical data (usage profile, working temperatures, etc.) of the battery or cells.

Projects' results are expected to contribute to the following outcomes:

- A European economic base which is stronger, more resilient, competitive and fit for the green and digital transitions, by reducing strategic dependencies for critical raw materials by promoting resource efficiency;
- A Digital Product Passport (DPP), a proper tracking and blockchain solution, DLT (Distributed Ledger Technology)-solution or an equivalent solution that allows for built-in data authenticity verification, along the value chain, with no data duplication, avoiding data manipulation assuring privacy by design, with a low power consumption and promoting data interoperability;
- A set of transparent calculation methods for the relevant battery indicators stored in the DPP, which can be used as a base to set future standards;
- A demonstration of new business models in the different parts of the battery value chains and of circular data extraction, based on data sharing;
- The improvement of the battery transportation and workforce safety;
- A solution which has been tested throughout the entire battery value chain;

[5] COM(2020) 798 final, Proposal for a Regulation of the European Parliament and of the Council concerning batteries and waste batteries, repealing Directive 2006/66/EC and amending Regulation (EU) No 2019/1020.

- At least 2 real life pilots capable to exploit data generated by DPP and to test two of the innovative solutions proposed.

Main requirements

- If projects use satellite-based earth observation, positioning, navigation and/or related timing data and services, beneficiaries must make use of Copernicus and/or Galileo/EGNOS (other data and services may additionally be used);
- The Joint Research Centre (JRC) may participate as member of the consortium selected for funding.

HORIZON-CL5-2024-D2-02-02: Post-Li-ion technologies and relevant manufacturing techniques for mobility applications (Generation 5) (Batt4EU Partnership)	
Expected European contribution per project	EUR 5M
Indicative budget	EUR 15M
Type of action	Research and Innovation Actions
Opening date	07/05/2024
Deadline	05/09/2024
Work program	**HORIZON-CL5-2024-D2-02-02**

Table 21 HORIZON-CL5-2024D2-02-02: Post-Li-ion technologies and relevant manufacturing techniques for mobility applications (Generation 5) (Batt4EU Partnership)

Objectives

The topic aims at developing:

- Generation 5[6] technologies for mobility applications;
- The relevant manufacturing techniques which are affecting performance, safety and costs;
- Cell designs which will allow for full and easy recyclability at the end of their life.

This topic also aims at evaluating the possible manufacturing compatibility with existing lithium-ion production infrastructure.

Projects' results are expected to contribute to at least one of the following outcomes:

- Conversion systems based on metallic anodes with enhanced safety, delivering on cost, performance, sustainability and recyclability, with clear prospects for the feasibility of the scale-up of the manufacturing processes;
- Metallic anode protection and/or activation for conversion systems (polymer, ceramic and hybrid electrolytes) with increased safety, cycle life and low cost;
- Post lithium-ion cells based on cations other than lithium with long cycle-life (Sodium-ion is excluded and covered by call HORIZON-CL5-2024-D2-1-13).

Main requirements

If projects use satellite-based earth observation, positioning, navigation and/or related timing data and services, beneficiaries must make use of Copernicus and/or Galileo/EGNOS (other data and services may additionally be used.

[6] As defined in the Batteries Europe Strategic Research Agenda

HORIZON-CL5-2023-D3-02-08: Development of microalgae and/or direct solar fuel production and purification technologies for advanced aviation and/or shipping fuels	
Expected European contribution per project	EUR 4M
Indicative budget	EUR 8M
Type of action	Research and Innovation Actions
Opening date	04/05/2023
Deadline	05/09/2023
Work program	**HORIZON-CL5-2023-D3-02-08**

Table 22 HORIZON-CL5-2023-D3-02-08: Development of microalgae and/or direct solar fuel production and purification technologies for advanced aviation and/or shipping fuels

Objectives

Projects' results are expected to at least 3 of the two following outcomes:

- Availability of disruptive sustainable renewable fuel technologies in order to accelerate the replacement of fossil-based energy technologies in aviation and/or shipping;
- Reduced cost and improved efficiency of sustainable microalgae-based and/or direct solar renewable fuel technologies and their value chains;
- Increase technology leadership, competitiveness and technology export potential of European industry in possibly game-changing microalgae and/or direct solar renewable fuel technologies;
- Enhanced sustainability of aviation and/or shipping fuels, taking fully into account circular economy, social, economic and environmental aspects in line with the European Green Deal priorities;
- Reinforced European scientific basis and European export potential for renewable energy technologies through international collaborations (e.g., the AU-EU Climate Change and Sustainable Energy partnership, the missions and innovation communities of Mission Innovation 2.0);
- Increasing the European energy security and reliability by enlarging the renewable feedstock basis for aviation and maritime fuels as well as maintaining and fostering the European global leadership in affordable, secure and sustainable microalgae-based and/or direct solar fuel renewable energy technologies.

Main requirements

- Activities are expected to achieve TRL 4-5 by the end of the project;
- If projects use satellite-based earth observation, positioning, navigation and/or related timing data and services, beneficiaries must make use of Copernicus and/or Galileo/EGNOS (other data and services may additionally be used).

HORIZON-CL5-2023-D3-03-03: System approach for grid planning and upgrade in support of a dominant electric mobility (vehicles and vessels) using AI tools	
Expected European contribution per project	EUR 11M
Indicative budget	EUR 11M
Type of action	Innovation Actions
Opening date	04/05/2023
Deadline	10/10/2023
Work program	**HORIZON-CL5-2023-D3-03-03**

Table 23 HORIZON-CL5-2023-D3-03-03: System approach for grid planning and upgrade in support of a dominant electric mobility (vehicles and vessels) using AI tools

Objectives

Projects' results are expected to contribute to the following outcomes:

- AI-based prediction of most convenient locations that optimize grid resources and upgrades around recharging pools for EVs and electric HDVs;
- Developing of spatial mapping models and software tool for location decision-making with a comprehensive focus, including major highways, industrial zones (depot charging), urban nodes (e.g., for overnight charging) and less-densely populated areas;
- Simulation, analysis, design, test and demonstration of smart and bidirectional charging schemes and their integration into flexibility markets that allow to minimise the impact on grid planning and connection of high-power recharging pools for recharging EVs, and especially HDVs on more cost-intensive locations, and that ensure benefits to consumers based on smart charging energy service models;
- Exploration of the impact of different charging methods, including cable-charging, wireless charging and electric road systems covering either catenary as inductive coils embedded in the road;
- Analysis, design, testing and developing of a cyber security model that can simulate and accurately represent attack propagation from recharging infrastructure entry vectors, informing the development of efficient strategies and lines of defence to mitigate these vulnerabilities for the different relevant stakeholders.

Main requirements

- Activities are expected to achieve TRL 6-8 by the end of the project;
- If projects use satellite-based earth observation, positioning, navigation and/or related timing data and services, beneficiaries must make use of Copernicus and/or Galileo/EGNOS (other data and services may additionally be used).

HORIZON-CL5-2023-D5-01-11: Developing the next generation of power conversion technologies for sustainable alternative carbon neutral fuels in waterborne applications (ZEWT Partnership)	
Expected European contribution per project	EUR 8M
Indicative budget	EUR 16M
Type of action	Research and Innovation Actions
Opening date	13/12/2022
Deadline	20/04/2023
Work program	**HORIZON-CL5-2023-D5-01-11**

Table 24 HORIZON-CL5-2023-D5-01-11: Developing the next generation of power conversion technologies for sustainable alternative carbon neutral fuels in waterborne applications (ZEWT Partnership)

Objectives

Projects' outputs and results are expected to contribute to the following outcomes:

- Establish the basis for the on-board deployment of power conversion technologies for sustainable alternative climate neutral fuels by 2030;
- Validate the technical feasibility of the use of innovative power conversion technologies for sustainable alternative carbon neutral fuels in waterborne transport;
- Prove the scalability to power outputs significantly above 3 MW with acceptable power density and high efficiency; Validate achievement of the additional KPIs of; minimum 5 kW/m3 power density (refers to power density of the energy converter, i.e. excluding storage of fuel or liquid electrolytes); minimum 45 % total system energy efficiency including all required ancillaries with zero carbon or climate neutral operation weighted over the MARPOL Annex VI E2 or E3 cycle;
- Support regulatory development within both EU and IMO frameworks;
- Prove the safety of the proposed solutions through verifiable KPIs for the use of the fuel and power conversion system concerned;
- Validate resilience of the power system to possible fuel impurities and variability of the power required by the ship;
- Developed a realistic pathway to the wider use of power conversion system technologies in waterborne transport (e.g., Long Distance, Inland, Cruise, Ferries, Short Sea and Offshore);
- Risk assessed the power conversion system with respect to lifetime, maintenance scheme and life cycle cost as well as a life cycle GHG emissions;
- Where relevant, be coherent with the activities of the Batteries co-programmed partnership and the Clean Hydrogen Joint Undertaking.

Main requirements

- Activities are expected to achieve TRL 5 by the end of the project;
- If projects use satellite-based earth observation, positioning, navigation and/or related timing data and services, beneficiaries must make use of Copernicus and/or Galileo/EGNOS (other data and services may additionally be used).

HORIZON-CL5-2023-D5-01-12: Demonstrations to accelerate the switch to safe use of new sustainable climate neutral fuels in waterborne transport (ZEWT Partnership)	
Expected European contribution per project	EUR 8M-13M
Indicative budget	EUR 34M
Type of action	Innovation Actions
Opening date	13/12/2022
Deadline	20/04/2023
Work program	**HORIZON-CL5-2023-D5-01-12**

Table 25 HORIZON-CL5-2023-D5-01-12: Demonstrations to accelerate the switch to safe use of new sustainable climate neutral fuels in waterborne transport (ZEWT Partnership)

Objectives

Projects' outputs and results are expected to contribute to the following outcomes:

- Full scale on board operational demonstration of a sustainable climate-neutral fuel system, including fuel distribution, bunkering, fuels storage, power conversion and possible residue handling, in a realistic on-board operational environment;
- Verifiable KPIs to prove the effectiveness, viability, and impact of the demonstrated solutions;
- KPIs to be demonstrated include: ship power optimisation; bunkering specificity (equipment, safety, operations, flowrate); energy consumption efficiency in waterborne transport; reduction of the global emission of GHGs; life-cycle GHG emissions on a well-to-wake assessment basis and reduction of the air pollution emissions (notably SOx, NOx, CO, PM, black carbon) in a range of operating scenarios;
- Accelerated transition to climate-neutral or zero-emission maritime and inland ship operations, by facilitating the wider adoption of sustainable climate neutral fuels at a larger scale and for vessels requiring prolonged autonomy. Particularly focusing on fuels where significant on-board challenges remain, with consideration of the specific supply chain requirements to satisfy the needs of maritime transport and inland navigation, in particular shipping activities with frequent cargo handling operations;
- Demonstrated possibilities from smart digitalisation, to facilitate the on-board use of sustainable climate neutral waterborne fuels;
- Demonstrate achievement of the 2040 targets specified within the European Commission proposal for a Fuel EU Maritime regulation reference COM/2021/562.

Main requirements

- Activities are expected to achieve TRL 7-8 by the end of the project;
- If projects use satellite-based earth observation, positioning, navigation and/or related timing data and services, beneficiaries must make use of

Copernicus and/or Galileo/EGNOS (other data and services may additionally be used).

HORIZON-CL5-2023-D5-01-13: Integrated real-time digital solutions to optimise navigation and port calls to reduce emissions from shipping (ZEWT Partnership)	
Expected European contribution per project	EUR 7.5M
Indicative budget	EUR 15M
Type of action	Innovation Actions
Opening date	13/12/2022
Deadline	20/04/2023
Work program	**HORIZON-CL5-2023-D5-01-13**

Table 26 HORIZON-CL5-2023-D5-01-13: Integrated real-time digital solutions to optimise navigation and port calls to reduce emissions from shipping (ZEWT Partnership)

Objectives

Projects' outputs and results are expected to contribute to the following outcomes:

- Progressing beyond the state of the art, full-scale demonstration of an interoperable port call and voyage optimisation tool on existing routes and services involving at least three ports and two shipping companies and relevant stakeholders in port call operations;
- Improved operational efficiency of vessels when arriving to/departing from ports, towards elimination of waiting times during navigation and at the port. Develop and demonstrate in realistic environment, KPIS's to quantify these gains;
- Increased navigational safety through improved sea traffic management from onshore which has been assessed with respect to the status quo considering also situational awareness during port entrance, manoeuvring, berthing, departure and potentially related skills issues;
- Optimised fuel efficiency and reduced vessel emissions through voyage, waiting at anchorage and port arrival optimisation to facilitate more efficient sailing speeds. Reductions in fuel consumption of 10 to 20% with corresponding reductions in greenhouse gas emission should be demonstrated, compared to business as usual during navigation and at port and port-to-port approach;
- Enable shipping companies to quantify their fuel savings and the GHG emissions avoided as a result of the optimisation system and the real-time information shared with ports during vessel voyage;
- Development of port call optimisation standards considering the on-going standardisation initiatives by IMO/ISO groups to facilitate a secure and resilient operational, real-time digital data sharing and decision support system for port and voyage optimisation, and develop operational roadmap(s) for standard technical committees;
- Assessment and quantification of the benefits of port and navigation optimisation for different types of maritime traffic, e.g., tramp and regular services for bulk, container, passenger, cruise ships, Ro-Pax, Ro-Ro, etc;
- Adaptation to the existing and/or development of business models to prove the commercial viability of voyage and port call optimisation to facilitate take up and its wider application.

Main requirements

- Activities are expected to achieve TRL 6-8 by the end of the project;
- If projects use satellite-based earth observation, positioning, navigation and/or related timing data and services, beneficiaries must make use of Copernicus and/or Galileo/EGNOS (other data and services may additionally be used).

HORIZON-CL5-2023-D5-01-14: Developing a flexible offshore supply of zero emission auxiliary power for ships moored or anchored at sea deployable before 2030 (ZEWT Partnership)	
Expected European contribution per project	EUR 8.5M
Indicative budget	EUR 8.5M
Type of action	Innovation Actions
Opening date	13/12/2022
Deadline	20/04/2023
Work program	**HORIZON-CL5-2023-D5-01-14**

Table 27 HORIZON-CL5-2023-D5-01-14: Developing a flexible offshore supply of zero emission auxiliary power for ships moored or anchored at sea deployable before 2030 (ZEWT Partnership)

Objectives

Projects' outputs and results are expected to contribute to the following outcomes:

- In close cooperation with ship owners, operators and ports, demonstration and testing of an innovative solution to provide auxiliary power and possibly battery charging for ships moored and anchored at sea which will cut pollution and GHG's and which can be deployable before 2030;
- Developing guidelines on technical, operational and safety aspects for the provision of offshore power supply services;
- Assessing the GHG and polluting emission savings from ships moored or at anchor through verifiable KPIs;
- Assessment of the CAPEX and OPEX of the developed solution and optimisation of the concept to increase the financial viability of the developed solution.
- High-precision manufacturing and/or manufacturing of products with complex geometries or structures; embedded electronics, optics or photonics; surfaces and surface functionalities; and multi-process manufacturing;
- Highly resilient and flexible production lines, enabling highly customised products across a wide range of markets, and ensuring open strategic autonomy for the manufacturing industry of the Union and Associated Countries;
- Significant reductions in the use of materials, waste, defects and energy consumption, which also lead indirectly to reductions in GHG emissions;
- Fostering the competitiveness of the European manufacturing industry, in general and (*only in the relevant projects*) in the field of laser machine tools and within the laser markets in particular.

Main requirements

- Activities are expected to achieve TRL 6-8 by the end of the project;
- If projects use satellite-based earth observation, positioning, navigation and/or related timing data and services, beneficiaries must make use of C

HORIZON-CL5-2023-D5-01-15: Reducing the environmental impact from shipyards and developing a whole life strategy to measure and minimise the non-operational environmental impacts from shipping	
Expected European contribution per project	EUR 4.5M
Indicative budget	EUR 9M
Type of action	Innovation Actions
Opening date	13/12/2022
Deadline	20/04/2023
Work program	**HORIZON-CL5-2023-D5-01-15**

Table 28 HORIZON-CL5-2023-D5-01-15: Reducing the environmental impact from shipyards and developing a whole life strategy to measure and minimise the non-operational environmental impacts from shipping

Objectives

Projects's outputs and results are expected to contribute concretely the two following outcomes whilst supporting the overall medium and long-term impacts marked "*":

- * Reduce the non-operational environmental impacts from shipping including construction and end of life strategies;
- * Understand the most significant environmental factors in shipbuilding and throughout a ships circular life cycle including ship repair and the associated costs;
- * Enhanced environmental and personnel awareness. Development of skills for greening of shipyards to improve the environmental performance and productivity in shipbuilding and ship repair processes;
- * Enhanced circularity of waterborne transport assets through recycling and re-use of materials, parts and components;
- * In the long term, contribute to the objective of a ship environmental performance indicator of the non-operational environmental impacts from the ship which takes construction, embedded materials, capacity for repair, end of life strategies into account;
- Development of a shipyard environmental performance index (SEPI), relevant KPI's and benchmarks for shipyards through an inquiry into current shipyard processes and utilities (i.e. energy use and emissions to air, water and earth);
- Demonstration of advanced production processes which reduce the environmental impact of shipyards and assessment of the shipyards' environmental performance (SEPI) which would achieve an improvement in environmental performance utilising current benchmarks, of at least 20%;
- Development of a generic digital shipyard model encompassing shipyard processes with the associated energy use and emissions, enabling to assess and benchmark the environmental performance and cost-efficiency of shipyards and their contribution to the environmental impact assessment within the ships' Life Cycle (LC);

- Development of guidelines on technical, organisational and personnel training solutions for reducing energy use and emissions to air, water and soil and improving the environmental performance of shipyards;
- Development of a blueprint for an EU-material passport for waterborne transport assets classifying the ship circularity readiness level (CRL). In addition, a guideline for the passport maintenance throughout the ship life cycle backed by a business model for circularity and an appropriate regulatory regime in line with Regulation (EU) No. 1257/2013 on Ship Recycling (EU SRR) and coordinated with other ongoing Horizon 2020 / Horizon Europe projects.

Main requirements

- Activities are expected to achieve TRL 7-8 by the end of the project;
- If projects use satellite-based earth observation, positioning, navigation and/or related timing data and services, beneficiaries must make use of Copernicus and/or Galileo/EGNOS (other data and services may additionally be used).

HORIZON-CL5-2023-D5-01-16: Developing small, flexible, zero-emission and automated vessels to support shifting cargo from road to sustainable Waterborne Transport	
Expected European contribution per project	EUR 4.5M
Indicative budget	EUR 9M
Type of action	Innovation Actions
Opening date	13/12/2022
Deadline	20/04/2023
Work program	**HORIZON-CL5-2023-D5-01-16**

Table 29 HORIZON-CL5-2023-D5-01-16: Developing small, flexible, zero-emission and automated vessels to support shifting cargo from road to sustainable Waterborne Transport

Objectives

Projects' outputs and results are expected to contribute to the following primary outcomes:

- Development and validation of a small zero-emission automated vessel concept which can support shifting cargo from road to water. The concept will consider cargo types and navigation conditions (small waterways, bridges, locks and shallow coastal waters and estuaries);
- Quantification and assessment of the reduced costs and emissions and stronger intra- and intermodal competitiveness of waterborne transport through integration of zero emission propulsion of automated vessels and transhipment into automated transport chains, internet of things and possibly urban logistics;
- Development of business models that benefit from a high degree of automation digitalisation, considering technical, safety, security and organisational aspects and when relevant smart on demand services.

Main requirements

- Activities are expected to achieve TRL 5-6 by the end of the project;
- If projects use satellite-based earth observation, positioning, navigation and/or related timing data and services, beneficiaries must make use of Copernicus and/or Galileo/EGNOS (other data and services may additionally be used).

HORIZON-CL5-2023-D5-01-17: Towards the implementation of the inland navigation action programme with a focus on Green and Connected Inland Waterway Transport	
Expected European contribution per project	EUR 1.5M
Indicative budget	EUR 1.5M
Type of action	Coordination and Support Actions
Opening date	13/12/2022
Deadline	20/04/2023
Work program	HORIZON-CL5-2023-D5-01-17

Table 30 HORIZON-CL5-2023-D5-01-17: Towards the implementation of the inland navigation action programme with a focus on Green and Connected Inland Waterway Transport

Objectives

Projects' outputs and results are expected to contribute to the following outcomes:

- Development of inland waterway transport policies to ensure the implementation of green and digital, water protection and environmentally sound solutions;
- Identification of best practices and increase their take up and faster modernisation of the inland fleet;
- Building of a viable financial engineering instruments to support investments in zero emission, digitalised and connected vessels;
- Proposal of a European labelling system for EU waterways;
- Estimation of the potential modal shift to inland waterways transport with Impact of each Naiades III actions on modal shift;
- Provision of a knowledge exchange, discussion and promotion platform for implementing Naiades III innovative actions;
- Working together with the Waterborne Technology Platform and the inland waterway transport sector; strengthen the coordination between national, EU and industrial research across the waterborne transport sector, the wider logistics chain in cooperation with relevant international organisations so as to increase the deployment of the solutions developed and provide input towards EU R&I and deployment programmes;
- With the direct involvement of end users' improvement of the environmental performance of inland waterways and contribute to future-proof; workforce, infrastructure, digital and automation developments which are compatible with a changing climate.

Main requirements

If projects use satellite-based earth observation, positioning, navigation and/or related timing data and services, beneficiaries must make use of Copernicus and/or Galileo/EGNOS (other data and services may additionally be used).

HORIZON-CL5-2023-D5-01-18: Advanced transport emissions monitoring networks	
Expected European contribution per project	EUR 5M
Indicative budget	EUR 10M
Type of action	Innovation Actions
Opening date	13/12/2022
Deadline	20/04/2023
Work program	**HORIZON-CL5-2023-D5-01-18**

Table 31 HORIZON-CL5-2023-D5-01-18: Advanced transport emissions monitoring networks

Objectives

Projects' results are expected to contribute to all the following outcomes:

- Monitoring pollutant (including both exhaust and non-exhaust traffic related particles[7]) and noise emissions of road vehicles on specific sites in urban areas with high density traffic to feed multiple real time systems and databases for air quality and environmental noise monitoring, anti-tampering enforcement, market surveillance and policy support at local, national and EU level;
- Monitoring pollutant (including both exhaust and non-exhaust traffic related particles) and noise emissions around ports, rail stations or junctions, dry ports, and airports, allowing for instance to monitor and enforce the respect of fuel use mandates in specific protection areas, correct noise abatement procedures, aircraft type limitations, etc;
- Establishing real time maps and networks in at least eight cities with at least three traffic air quality and noise stations on each city (a minimum of 5 stations in ports and 5 stations in airports is required) capable of measuring noise and solid particle number (PN down to 10nm according to WHO recommendations) and other emerging pollutants and GHGs in addition to the currently regulated ones and the impact of nature-based solutions (such as line trees along the streets, green facades in buildings, urban parks etc.) for mitigating them;
- Supporting local, regional and national emissions and noise reduction plans (including dynamic ones based on smart traffic management systems, capable of influencing the behaviour of drivers and automated vehicles) by providing supporting real time data and integrating the impact of road, rail, port and airport traffic into the management strategy;
- Supporting health studies about the impact of ultrafine particles according to recent WHO guidance;
- Stimulate citizen awareness and engagement in the Zero Pollution strategy (also through citizen science approach);

[7] Like the brake and tyre wear emissions which are generated from non-exhaust traffic related sources such as brake, tyre, clutch and road surface wear.

- Providing recommendations concerning the use of nature-based solutions for mitigating urban air and noise pollution and contribute to the standardisation effort of sensing/monitoring technologies.

Main requirements

- Activities are expected to achieve TRL 7-8 by the end of the project;
- If projects use satellite-based earth observation, positioning, navigation and/or related timing data and services, beneficiaries must make use of Copernicus and/or Galileo/EGNOS (other data and services may additionally be used).

HORIZON-CL5-2024-D5-01-11: Achieving high voltage, low weight, efficient electric powertrains for sustainable waterborne transport (ZEWT Partnership)	
Expected European contribution per project	EUR 7.5M
Indicative budget	EUR 15M
Type of action	Research and Innovation Actions
Opening date	07/12/2023
Deadline	18/04/2024
Work program	**HORIZON-CL5-2024-D5-01-11**

Table 32 HORIZON-CL5-2024-D5-01-11: Achieving high voltage, low weight, efficient electric powertrains for sustainable waterborne transport (ZEWT Partnership)

Objectives

Projects' outputs and results are expected to contribute to the following outcomes:

- Demonstrate increased performance, efficiency, feasibility and reliability of battery installations in high voltage on board distribution systems and thereby facilitate the greater deployment of battery electric shipping;
- Development and validation of battery real-time condition monitoring systems with predictive analytics integrated algorithms;
- Demonstration of high-capacity energy storage systems above 1 MWh directly interfaced to medium voltage AC (3.3 kV or above) or DC (above 1 kV) power systems, by modular approaches;
- Demonstrate the feasibility of an innovative low weight, high-energy density battery concept in demonstrators, considering maritime and inland waterway transport applications, including demonstration of on-board battery safety;
- Efficient modular redundant conversion systems with low voltage battery modules at floating potential and insulation for cost effective integrated battery modules and conversion systems are designed;
- Evaluation of sustainable life cycle management of electrical energy storage systems.

Main requirements

- Activities are expected to achieve TRL 5 by the end of the project;
- If projects use satellite-based earth observation, positioning, navigation and/or related timing data and services, beneficiaries must make use of Copernicus and/or Galileo/EGNOS (other data and services may additionally be used).

HORIZON-CL5-2024-D5-01-12: Combining state-of-the-art emission reduction and efficiency improvement technologies in ship design and retrofitting for contribution to the "Fit for 55" package objective by 2030 (ZEWT Partnership)	
Expected European contribution per project	EUR 7.5M
Indicative budget	EUR 15M
Type of action	Innovation Actions
Opening date	07/12/2023
Deadline	18/04/2024
Work program	**HORIZON-CL5-2024-D5-01-12**

Table 33 HORIZON-CL5-2024-D5-01-12: Combining state-of-th-art emission reduction and efficiency improvement technologies in ship design and retrofitting for contributing to the "Fit for 55" package objective by 2030 (ZEWT Partnership)

Objectives

Projects' outputs and results are expected to contribute to the following outcomes:

- Development of at least three market ready vessel design solutions to address short sea shipping, inland waterway transport and high seas shipping making innovative use of combinations of close to market (TRL 7 or higher) emission reduction and efficiency improvement technologies to reduce emissions from shipping in line with the expectations within the EUs "Fit for 55" legislative package;
- Quantitative assessment of the designs towards achieving significant emissions reductions consistent with the EU's 'Fit for 55' package objectives and the IMO's Carbon Intensity Indicator through verifiable KPI's;
- Facilitation of the continuous improvement and upgrading of existing vessels to increase efficiency and reduce emissions through the measurement and bench marking of operational profiles;
- Quantification of the contribution towards cutting emissions from a range of emission reduction technologies on a life cycle basis. Including the separate and joint consideration of design and operations within relevant environments. Enable assessment of the retrofit and refurbishment options of applied emission reduction technologies;
- Support accelerated conversion of inland and maritime vessels s towards better energy efficiency and reduced emissions;
- Development of robust business models for the design concepts, to ensure a high probability of commercial European deployment and the expectation of becoming operational by 2030.

Main requirements

- Activities are expected to achieve TRL 7 by the end of the project;
- If projects use satellite-based earth observation, positioning, navigation and/or related timing data and services, beneficiaries must make use of Copernicus and/or Galileo/EGNOS (other data and services may additionally be used).

HORIZON-CL5-2024-D5-01-13: Demonstration of Technologies to minimise underwater noise generated by waterborne transport (ZEWT Partnership)	
Expected European contribution per project	EUR 6M
Indicative budget	EUR 6M
Type of action	Innovation Actions
Opening date	07/12/2023
Deadline	18/04/2024
Work program	**HORIZON-CL5-2024-D5-01-13**

Table 34 HORIZON-CL5-2024-D5-01-13: Demonstration of Technologies to minimise underwater noise generated by waterborne transport (ZEWT Partnership)

Objectives

Projects' outputs and results are expected to contribute to the following outcomes:

- Demonstration of underwater radiated noise (URN) reduction through large scale demonstrators or retrofitted ships employing URN reduction modifications and assessment through verifiable KPIs;
- Demonstration of the effectiveness, safety and cost-effectiveness of noise mitigation devices, mitigation measures and management options and assessment through verifiable KPIs;
- Development of standards for the specification of source noise levels by equipment suppliers and shipyards, which build upon the current state-of-the art;
- Increase the awareness of European ship owners of the environmental impact from underwater noise and the possibilities to reduce noise and its harm to the marine environment;
- Provide evidence to regulators concerning waterborne transport underwater noise to better take into account operational conditions and environmental impact within any forthcoming regulation.

Main requirements

- Activities are expected to achieve TRL 6-8 by the end of the project;
- If projects use satellite-based earth observation, positioning, navigation and/or related timing data and services, beneficiaries must make use of Copernicus and/or Galileo/EGNOS (other data and services may additionally be used).

HORIZON-CL5-2024-D5-01-14: Demonstrating efficient fully DC electric grids within waterborne transport for large ship applications (ZEWT Partnership)	
Expected European contribution per project	EUR 7.5M
Indicative budget	EUR 15M
Type of action	Innovation Actions
Opening date	07/12/2023
Deadline	18/04/2024
Work program	**HORIZON-CL5-2024-D5-01-14**

Table 35 HORIZON-CL5-2024-D5-01-14: Demonstrating efficient fully DC electric grids within waterborne transport for large ship applications (ZEWT Partnership)

Objectives

Projects' outputs and results are expected to contribute to the following outcomes:

- Enabling reduced emissions from waterborne transport through increased electrification including hybrid power systems;
- Demonstration of the feasibility of a secondary smart DC grid (engineering framework, distribution/protection devices);
- Demonstration of smart management and control of hybrid electric plants, combining different energy sources, including sustainable climate neutral fuels so as to minimize total lifecycle net GHG emissions;
- Development of a new configuration for the entire power generation architecture for large scale waterborne transport ready to be deployed;
- Development of new power electronic systems for AC/DC converters and DC circuit breakers within the electrical network with higher efficiency;
- Assessment of the waterborne transport emission reduction from increased electrification including hybrid power systems. Benchmarking and quantification of achieved GHG emission reduction through relevant quantifiable KPIs;
- Assessment through verifiable KPIs of the operating costs reductions and the reduction in emissions by cutting energy consumption and extending service intervals of the generator sets;
- Assessment through verifiable KPIs of the efficiency and power density improvements to reduce the overall volume and weight.

Main requirements

- Activities are expected to achieve TRL 6-8 by the end of the project;
- If projects use satellite-based earth observation, positioning, navigation and/or related timing data and services, beneficiaries must make use of Copernicus and/or Galileo/EGNOS (other data and services may additionally be used).

HORIZON-CL5-2024-D5-01-15: Advanced digitalisation and modelling utilizing operational and other data to support zero emission waterborne transport (ZEWT Partnership)	
Expected European contribution per project	EUR 7.7M
Indicative budget	EUR 7.7M
Type of action	Innovation Actions
Opening date	07/12/2023
Deadline	18/04/2024
Work program	**HORIZON-CL5-2024-D5-01-15**

Table 36 HORIZON-CL5-2024-D5-01-15: Advanced digitalisation and modelling utilizing operational and other data to support zero emission waterborne transport (ZEWT Partnership)

Objectives

Projects' outputs and results are expected to contribute to the following outcome:

- Development and demonstration of a platform for Integrated Green Vessel Digital Twins that will provide a basis to continuously improve the environmental performance of vessels over their entire life cycle;
- Improved environmental performance through verifiable KPIs;
- Proven applicability of the platform to a wide variety of vessel operations throughout the vessels' lifetime, by using model-based systems engineering, simulation and hardware in the loop approaches.

Main requirements

- Activities are expected to achieve TRL 6-7 by the end of the project;
- If projects use satellite-based earth observation, positioning, navigation and/or related timing data and services, beneficiaries must make use of Copernicus and/or Galileo/EGNOS (other data and services may additionally be used).

HORIZON-CL5-2024-D5-01-16: Structuring the Waterborne transport sector, including through changed business and industrial models in order to achieve commercial zero-emission waterborne transport (ZEWT Partnership)	
Expected European contribution per project	EUR 850K
Indicative budget	EUR 850K
Type of action	Coordination and Support Actions
Opening date	07/12/2023
Deadline	18/04/2024
Work program	**HORIZON-CL5-2024-D5-01-16**

Table 37 HORIZON-CL5-2024-D5-01-16: Structuring the Waterborne transport sector, including through changed business and industrial models in order to achieve commercial zero-emission waterborne transport (ZEWT Partnership)

Objectives

Projects' outputs and results are expected to contribute to the two following outcomes:

- A full understanding of the business model, labour, financial and commercial barriers to the take up of innovative low and/or zero emission solutions for waterborne transport, including consideration of ship financing and investment structures, charter and other contracts;
- Identification of potential solutions to overcome business model and commercial barriers to the take up of innovative low and zero emission solutions in waterborne transport;
- Understanding of the industrial capacity and how it would be scheduled to retrofit and/or replace the current European fleet to meet 2030 and 2050 emission reduction and pollution targets. Considering all vessels operating within the European region, including inland waterway transport vessels, short sea shipping services (including ferries and cargo vessels), cruise and offshore vessels;
- Increase commitment from the wider waterborne sector, including finance, contracting insurance, charterers, operators, owners, public stake holders, technology providers as well as civil society towards recognizing the importance of European waterborne transport, its environmental objectives and the consequential economic impacts.

Main requirements

If projects use satellite-based earth observation, positioning, navigation and/or related timing data and services, beneficiaries must make use of Copernicus and/or Galileo/EGNOS (other data and services may additionally be used).

HORIZON-CL5-2024-D5-01-17: Coordinating and supporting the combined activities of member and associated states towards the objectives of the Zero Emission Waterborne Transport partnership so as to increase synergies and impact (ZEWT Partnership)	
Expected European contribution per project	EUR 1.5M
Indicative budget	EUR 1.5M
Type of action	Coordination and Support Actions
Opening date	07/12/2023
Deadline	18/04/2024
Work program	HORIZON-CL5-2024-D5-01-17

Table 38 HORIZON-CL5-2024-D5-01-17: Coordinating and supporting the combined activities of member and associated states towards the objectives of the Zero Emission Waterborne Transport partnership so as to increase synergies and impact (ZEWT Partnership)

Objectives

Projects' outputs and results are expected to contribute to the following outcomes:

- Increase the impacts arising from the Zero Emission Waterborne Transport (ZEWT) European partnership towards the achievement of zero emission waterborne transport in Europe;
- Leverage the efficiency of national and EU R&I investment to accelerate the development and deployment of zero emission waterborne transport for both European and national benefit;
- Further align national programs with the activities and outcomes of the ZEWT co-programmed European Partnership;
- Establish a cooperation mechanism between EU Member States and Associated countries to jointly fund research related to the objectives of the ZEWT co-programmed European Partnership;
- Creating a critical mass and excellence in precompetitive breakthroughs related to the objectives of the ZEWT co-programmed European Partnership;
- Reinforced synergies between ZEWT actions within Horizon Europe and those of EU Member States and Associated countries within other EU programs such as the Blue Economy Partnership, European Regional Development Fund, Connecting Europe Facility, Innovation Fund and other national programmes.

Main requirements

- If projects use satellite-based earth observation, positioning, navigation and/or related timing data and services, beneficiaries must make use of Copernicus and/or Galileo/EGNOS (other data and services may additionally be used);
- To ensure appropriate impact, proposals must include National Authorities or national R&I funding bodies from at least 5 EU Member States or Associated Countries.

HORIZON-CL5-2024-D5-01-18: Assessment of air pollutant emissions from low-carbon fuels in the heavy-duty, aviation, and maritime sectors	
Expected European contribution per project	EUR 3.5M
Indicative budget	EUR 7M
Type of action	Innovation Actions
Opening date	07/12/2023
Deadline	18/04/2024
Work program	**HORIZON-CL5-2024-D5-01-18**

Table 39 HORIZON-CL5-2024-D5-01-18: Assessment of air pollutant emissions from low-carbon fuels in the heavy-duty, aviation, and maritime sectors

Objectives

To support the Zero Pollution Action Plan, project results are expected to contribute to all of the following outcomes:

- The air pollutant emissions from combustion-based heavy-duty vehicles (including Non-Road Mobile Machinery like excavators, bulldozers, harvesters etc.), aircraft and ships using alternative fuels, with a broad coverage of existing (at least in advanced prototype form) powertrains and exhaust after treatment technologies, are measured and characterised according to real-life scenarios of use;
- Emerging pollutants resulting from the use of novel low-carbon fuels are identified and quantified;
- In light of recent WHO guidelines, concentrations of ultrafine particle emissions down to at least 10nm are also measured and chemical compounds present on those particles are characterised (in particular carcinogenic compounds like aldehydes, PAHs and NPAHs);
- Air pollution exposure projections based on plausible technological trajectories are produced, up to the year 2050;
- Technology packages to mitigate the emerging forms of pollution are proposed and projections updated accordingly;
- Reliable scientific data to guide future policy and technology choices following the “do no significant harm” principle is provided;
- Guiding principles for optimized Design, Operation and Maintenance, to minimize emissions, for designers and operators.

Main requirements

- Activities are expected to achieve TRL 5-6 by the end of the project;
- If projects use satellite-based earth observation, positioning, navigation and/or related timing data and services, beneficiaries must make use of Copernicus and/or Galileo/EGNOS (other data and services may additionally be used).

HORIZON-CL5-2023-D6-01-07: Operational automation to support multimodal freight transport	
Expected European contribution per project	EUR 4M
Indicative budget	EUR 8M
Type of action	Innovation Actions
Opening date	04/05/2023
Deadline	05/09/2023
Work program	**HORIZON-CL5-2023-D6-01-07**

Table 40 HORIZON-CL5-2023-D6-01-07: Operational automation to support multimodal freight transport

Objectives

Projects are expected to contribute to all of the two following outcomes:

- Better definition of the operational automation requirements for seamless multimodal automatic freight transport;
- Clearly assessed benefits, in terms of reduced social and environmental impacts (e.g. GHG, congestion, working conditions, employment rate and safety) and reduced logistics and freight transport costs, as well as technological gaps of hubs' automation;
- Strategies to reduce the investment cost in this sector and support the implementation of automated solutions for logistics and multimodal freight transport are proposed;
- Recommendations for possible regulatory and policy actions;
- Synergies are established among rail, road, aviation, waterborne and alternative innovative modes of transport research actions on automation relevant for freight transport (e.g. links to CCAM and Zero Emission Waterborne Transport Partnerships, and EU Rail JU Flagship Areas 1, 2 and 5[8]).

Main requirements

- Activities are expected to achieve TRL 5 by the end of the project;
- If projects use satellite-based earth observation, positioning, navigation and/or related timing data and services, beneficiaries must make use of Copernicus and/or Galileo/EGNOS (other data and services may additionally be used).

[8] See draft EU-Rail Multi Annual Work programme here: https://shift2rail.org/wp-content/uploads/2021/12/20211222_mawp_v1_agreed-in-principle_clean.pdf

HORIZON-CL5-2023-D6-01-09: Climate resilient and safe maritime ports	
Expected European contribution per project	EUR 7M
Indicative budget	EUR 14M
Type of action	Innovation Actions
Opening date	04/05/2023
Deadline	05/09/2023
Work program	**HORIZON-CL5-2023-D6-01-09**

Table 41 HORIZON-CL5-2023-D6-01-09: Climate resilient and safe maritime ports

Objectives

Projects' outputs and results are expected to contribute to all of the following outcomes (with a clear baseline for each use case):

- Ensure resilience of infrastructure of seaports, connected inland waterways infrastructure, connected hinterland land infrastructure, to extreme weather events by assuring at least 80% operability during the disruptions;
- Contribute with at least 20% increase in modal shift of port hinterland connections towards zero- and low-emission transport systems;
- Ensure safe port access and port operations by avoiding extra accidents because of disruptions caused by a changing climate;
- Minimise environmental impact (e.g. emissions, soil/water pollution, degradation of ecosystems and fragmentation of habitats and biodiversity loss, as foreseen in the EU Biodiversity Strategy 2030) during construction, maintenance, operation and decommissioning of the infrastructure by going beyond the EU environmental legislation;
- Present guidelines describing measures (structural, operational and institutional) to address climate risks and hazards and provide guidance on how to screen and evaluate options.

Main requirements

- Activities are expected to achieve TRL 7 by the end of the project;
- If projects use satellite-based earth observation, positioning, navigation and/or related timing data and services, beneficiaries must make use of Copernicus and/or Galileo/EGNOS (other data and services may additionally be used).

HORIZON-CL5-2024-D6-01-06: Optimising multimodal network and traffic management, harnessing data from infrastructures, mobility of passengers and freight transport	
Expected European contribution per project	EUR 4M – 5M
Indicative budget	EUR 10M
Type of action	Innovation Actions
Opening date	N/A
Deadline	N/A
Work program	N/A

Table 42 HORIZON-CL5-2024-D6-01-06: Optimising multimodal network and traffic management, harnessing data from infrastructures, mobility of passengers and freight transport

Objectives

Projects' outputs and results are expected to contribute to at least 4 of the following outcomes:

- Optimised multimodal transport network and traffic management, for efficient door-to-door mobility of passengers and freight (from producers to last mile deliveries;
- Validated solutions for effective and secure data exchange across all modes of transport, for dynamic and responsive multimodal network and traffic management;
- Validated systems for accurate detection and resolution of network bottlenecks, improving safety, security, resilience and overall performance of the transport network, enabling pro-active mobility management;
- New tools and services for optimising mobility of passengers and freight, in cities and other areas, cutting traffic jams and improving multimodal traffic flows. The proposed solutions should demonstrate (e.g. through simulations, pilots) the potential to reduce by at least 30% the average travel delay, as well as the overall transport energy consumption and emissions of greenhouse gases and other pollutants in the network;
- Workable governance arrangements for multimodal transport network and traffic management, in view of further supporting regulatory and policy actions.

Main requirements

- Activities are expected to achieve TRL 5 by the end of the project;
- If projects use satellite-based earth observation, positioning, navigation and/or related timing data and services, beneficiaries must make use of Copernicus and/or Galileo/EGNOS (other data and services may additionally be used).

HORIZON-CL5-2024-D6-01-07: Scaling up logistics innovations supporting freight transport decarbonisation in an affordable way	
Expected European contribution per project	EUR 10M
Indicative budget	EUR 20M
Type of action	Innovation Actions
Opening date	N/A
Deadline	N/A
Work program	N/A

Table 43 HORIZON-CL5-2024-D6-01-07: Scaling up logistics innovations supporting freight transport decarbonisation in an affordable way

Objectives

Projects are expected to contribute to all of the following outcomes:

- Reduced greenhouse gas emissions by 55%[9] by 2030 in the project networks, without reducing the overall performance of the logistics supply chain and taking account of all costs and externalities;
- Gains in terms of operational efficiency and environmental impact from the implementation of the Physical Internet[10] are clearly identified, demonstrated and measured;
- Logistics concepts speeding up freight decarbonisation and adoption of zero emissions vehicles/vessels and multimodality are developed.

Main requirements

- Activities are expected to achieve TRL 7 by the end of the project;
- If projects use satellite-based earth observation, positioning, navigation and/or related timing data and services, beneficiaries must make use of Copernicus and/or Galileo/EGNOS (other data and services may additionally be used).

[9] In line with the 2030 Climate Target Plan the baseline for the greenhouse gas emissions reduction is at least 55% below 1990 levels.

[10] "The Roadmap to the Physical Internet" was developed in the frame of the EU-funded project SENSE, ref. http://www.etp-logistics.eu/wp-content/uploads/2020/11/Roadmap-to-Physical-Intenet-Executive-Version_Final.pdf

HORIZON-CL5-2024-D6-01-10: Ensuring the safety, resilience and security of waterborne digital systems	
Expected European contribution per project	EUR 4M
Indicative budget	EUR 8M
Type of action	Innovation Actions
Opening date	N/A
Deadline	N/A
Work program	N/A

Table 44 HORIZON-CL5-2024-D6-01-10: Ensuring the safety, resilience and security of waterborne digital systems

Objectives

Projects' outputs and results are expected to contribute to the following outcomes:

- Increased safety and resilience of waterborne digital systems, including system of systems and their functions and considering both malicious intervention and system failure with particular regard to the application of artificial intelligence methodologies, networks of sensors and the onshore on-board communications;
- Improved system design addressing human factors issues in the changing levels of human/automated system interactions;
- Assurance of the resilience, safety and security of waterborne digital and connected systems is undertaken based on robust methodologies to a similar standard to that applied within other sectors which apply safety critical digital technology and their application in safety critical conditions including the safety of navigation and its systems;
- Robust by design waterborne digital and connected systems for safety and resilience (incl. reliability regimes such as fail safe, fail secure, fail to operation etc., HAZOP, system of systems, security, hardware and equipment data, etc.);
- Methodologies to enable effective HAZOP analysis and validation of waterborne digital systems are developed and disseminated, increasing the use of common approaches, also when using artificial intelligence applications;
- Increased software safety (incl. functional analysis and reliability assessment);
- Increased cyber security for operation and maintenance (incl. software maintenance).

Main requirements

- Activities are expected to achieve TRL 5-6 by the end of the project;
- If projects use satellite-based earth observation, positioning, navigation and/or related timing data and services, beneficiaries must make use of Copernicus and/or Galileo/EGNOS (other data and services may additionally be used).

3.1.4. Cluster 6: Food, bioeconomy, natural resources, agriculture and environment

HORIZON-CL6-2024-BIODIV-01-1: Invasive alien species	
Expected European contribution per project	EUR 6M
Indicative budget	EUR 12M
Type of action	Innovation Actions
Opening date	17/10/2023
Deadline	22/02/2024
Work program	**HORIZON-CL6-2024-BIODIV-01-1**

Table 45 HORIZON-CL6-2024-BIODIV-01-1: Invasive alien species

Objectives

In line with the European Green Deal and in particular with the objectives of the EU biodiversity strategy for 2030, projects will contribute to the following impact of destination "Biodiversity and ecosystem services": "Understand and address direct drivers of biodiversity decline… invasive alien species…".

Projects' results are expected to contribute to all of the following outcomes:

- The establishment of alien species accidently introduced in the EU environment is minimised and where possible they are eradicated;
- Early warning systems to inform relevant stakeholders of the introduction of invasive alien species, building upon EASIN;
- The introduction of invasive alien species is effectively prevented and established ones are systemically managed;
- Public awareness, literacy and engagement, on invasive alien species monitoring and management are supported and improved;
- Pressure on species on the Red List threatened by invasive alien species is reduced, contributing to the following key commitment of the EU biodiversity strategy for 2030 "a 50% reduction in the number of Red List species threatened by invasive alien species".

Main requirements

Activities are expected to achieve TRL 6-7 by the end of the project.

HORIZON-CL6-2024-BIODIV-01-2: Digital for nature	
Expected European contribution per project	EUR 8M
Indicative budget	EUR 16M
Type of action	Innovation Actions
Opening date	17/10/2023
Deadline	22/02/2024
Work program	**HORIZON-CL6-2024-BIODIV-01-2**

Table 46 HORIZON-CL6-2024-BIODIV-01-2: Digital for nature

Objectives

In line with the European Green Deal and in particular with the objectives of the EU biodiversity strategy for 2030 projects' results will contribute to the following impacts of the destination "biodiversity and ecosystem services": "Plan, manage and expand protected areas and improve the conservation status of species and habitats based on up-to-date knowledge and solutions"; "to understand and address drivers of biodiversity decline and "mainstream biodiversity, ecosystem services, including through the development of Nature-based Solutions".

The projects' results are expected to contribute to all of the following outcomes:

- A better monitoring (in terms of the number of species and habitats, more exhaustive territory coverage, more frequent in time, more accurate and cost-effective) of biodiversity in the EU by high-throughput methods (for example environmental DNA, sound/image/spectral analysis, lidar, usage of mobile platforms, etc.), leading to a better implementation of the nature directives;
- A better understanding of the state of nature and of the drivers of biodiversity loss (linked to direct human activity, to climate change, etc…) and of the state of conservation of nature through a better usage of existing data, and through the bridging of data gaps in order to support the implementation of the EU biodiversity strategy for 2030 and therefore to reverse biodiversity loss and to restore and protect ecosystems;
- A more complete view of the state of nature and its evolution which is needed to support policy implementation and policy making, including the Member States' reporting obligations, supporting the definition and implementation of prevention and restoration measures and the monitoring of the achievement of their objectives, the extension of protected areas, the monitoring of invasive alien species, and the implementation of Nature based solutions and the assessment of their performance.

Main requirements

Activities are expected to achieve TRL 6-7 by the end of the project.

HORIZON-CL6-2023-FARM2FORK-01-8: Using automatic species recognition and artificial intelligence to fight illegal fish discards and revolutionise fisheries control	
Expected European contribution per project	EUR 5M
Indicative budget	EUR 5M
Type of action	Innovation Actions
Opening date	22/12/2022
Deadline	12/04/2023
Work program	**HORIZON-CL6-2023-FARM2FORK-01-8**

Table 47 HORIZON-CL6-2023-FARM2FORK-01-8: Using automatic species recognition and artificial intelligence to fight illegal fish discards and revolutionise fisheries control

Objectives

In line with the European Green Deal objectives, both the Farm to Fork Strategy and the Common Fisheries Policy aim to ensure that fishing and aquaculture are ecologically, economically and socially sustainable and provide a source of healthy food for EU citizens. The successful proposals should unequivocally contribute to phase out the practice of discarding unwanted fish and improving catch-reporting data by using automatic species recognition and artificial intelligence to analyse data sources, such as video footage, rapid DNA-based assays and sensor data in real-time through, for example, internet of things or similar monitoring systems. To ensure that fisheries are ecologically, economically and socially sustainable and provide a source of healthy food, the EU needs to close the possible loopholes in the legislations that could potentially allow for illegal and unsustainable fishing practices. To be successful, the EU needs to have in place a technologically advanced and effective fisheries monitoring and control system and the digitisation of fisheries is a key element (notably using techniques such as artificial intelligence, sensors and robotics). This objective will also contribute to the headline ambition "A Europe fit for the digital age".

The selected project is expected to contribute to all of the following outcomes:

- Effective methods, tools and systems for species automatic recognition, analysis of Remote Electronic Monitoring video footage, rapid DNA-based assays and sensor data in real-time, and enhanced integration of results into the reporting systems used by fishers to report catches to competent authorities;
- Enhanced capability to monitor and control illegal discarding practices at sea and increased ability by EU Member States to fully implement the Landing Obligation;
- Implementation of ad-hoc sensors for the detection of discards and take advantage of the data from the Copernicus network;
- Optimal fishing operations and fishing processing and enhanced EU ability to collect, exchange and analyse data;

- Improved monitoring capabilities, including processing activities on board fishing vessels, and ultimately support to a sustainable management of marine biological resources.

Main requirements

Activities are expected to achieve TRL 6-7 by the end of the project.

HORIZON-CL6-2024-ZEROPOLLUTION-01-3: Environmental impacts of food systems	
Expected European contribution per project	EUR 7M
Indicative budget	EUR 7M
Type of action	Innovation Actions
Opening date	17/10/2023
Deadline	22/02/2024
Work program	**HORIZON-CL6-2024-ZEROPOLLUTION-01-3**

Table 48 HORIZON-CL6-2024-ZEROPOLLUTION-01-3: Environmental impacts of food systems

Objectives

The food sector contributes to food security but is also responsible for air, water and soil pollution. It can contribute to biodiversity loss, soil erosion and climate change, and it consumes excessive amounts of natural resources, including water and energy, while a significant amount of food is wasted. In supporting the implementation of the European Green Deal, the EU zero pollution action plan, the farm to fork strategy, the European climate pact, the common agricultural policy and the common fisheries policy and the Food 2030 initiative, the successful proposal should address all of the following outcomes:

- Increased overall knowledge of the environmental and climate impacts stemming from the food systems;
- Robust evidence-based understanding of the impacts of food systems related to direct and indirect soil, water and air pollution that drive biodiversity losses, soil erosion, climate change and can negatively affect human health;
- Improved capacity to reduce the environmental and climate impacts of food systems, particularly in relation to pollution;
- Support to actors across the food systems through new available knowledge, shared existing data on environmental and climate impacts of food systems and identification of innovative solutions.

Main requirements

The proposals must use the multi-actor approach.

HORIZON-CL6-2023-CLIMATE-01-1: Additional activities for the European Partnership Water Security for the Planet (Water4All)	
Expected European contribution per project	EUR 36M
Indicative budget	EUR 36M
Type of action	Programme Cofund Actions
Opening date	22/12/2022
Deadline	12/04/2023
Work program	HORIZON-CL6-2023-CLIMATE-01-1

Table 49 HORIZON-CL6-2023-CLIMATE-01-1:Additional activities for the European Partnership Water Security for the Planet (Water4All)

Objectives

In support of the European Green Deal and EU water-related policies, the successful proposal will contribute to foster the adaptation of water resources to climate change, contributing therefore to Destination 'Land, ocean and water for climate action' impact "Advance the understanding and science, and support adaptation and resilience of natural and managed ecosystems, water and soil systems and economic sectors in the context of the changing climate", as well as preserve and restore ecosystems and biodiversity, prevent pollution in land and seas, enhance food security, foster sustainable and circular management of water resources and innovative governance.

Projects results are expected to contribute to all of the following outcomes**:**

- Increased protection of water resources and ecosystems and strengthening of biodiversity, by developing a more systemic and integrative policy which considers cross-sectoral interactions (water, biodiversity, agriculture, fisheries and aquaculture, energy, health);
- Enhanced resilience, mitigation and adaptation of water systems to climate change and multiple interacting stressors;
- Pooled resources (EU, Member States, Associated Countries, European platforms and economic sectors) and alignment within a shared and co-developed strategic research and innovation agenda (SRIA) and related implementation plans and better embedding of national and regional knowledge and innovation ecosystems within that of the EU;
- Leverage impacts of policies on the water security crisis, by upscaling projects (from research to demonstration) and supporting policy implementation based on cooperation, across stakeholders and sectors;
- Strengthened alignment between funders' programmes and timelines and knowledge transfer and addressing the lack of continuity of funding from research to implementation and difficulties in securing long-term investments;
- Greater cooperation across sectors, with multi-stakeholder engagement and empowerment, to co-develop and co-implement solutions and to drive the necessary societal transformations required for securing water for all;
- Reinforced role of the EU in the international water agenda (implementation of UN SDGs) and in strengthening water diplomacy;

- Science and evidence-based implementation of the European Green Deal and EU water related policies.

Main requirements

Applications will only be considered eligible if their content corresponds, wholly or in part, to the topic description for which it is submitted.

- Projects must focus exclusively on civil applications;
- Projects must comply with EU policy interests and priorities (environment, social, security, industrial policy, etc).

HORIZON-CL6-2023-CLIMATE-01-8: Closing the research gaps on Essential Ocean Variables (EOVs) in support of global assessments	
Expected European contribution per project	EUR 5M-6M
Indicative budget	EUR 17M
Type of action	Innovation Actions
Opening date	22/12/2022
Deadline	12/04/2023
Work program	HORIZON-CL6-2023-CLIMATE-01-8

Table 50 HORIZON-CL6-2023-CLIMATE-01-8: Closing the research gaps on Essential Ocean Variable (EOVs) in support of global assessments

Objectives

In line with the European Green Deal and, in particular with the objectives of the Climate Law, the Climate adaptation and mitigation strategies, the EU biodiversity strategy for 2030, the Nature Restoration Law, the Marine Strategy Framework Directive (MSFD), successful proposals should further the European efforts in achieving climate–neutrality by advancing the understanding and science to support adaptation and resilience of natural and managed ecosystems in the context of a changing climate and biodiversity loss and by efficiently monitoring, assessment and projections related to climate change impacts, mitigation, and adaptation potential to deliver solutions for tackling emerging threats and support decision-making at regional, European and global levels.

Successful proposal results are expected to contribute to all the following expected outcomes:

- Further developed key ocean monitoring indicators and Essential Ocean Variables (EOVs from GOOS) in compliance with international programmes (IPCC, WOA, IPBES, CMIP, CLIVAR, Ocean Health Index, UN Decade, ARGO), and the Essential Climate Variables (ECVs from GCOS) that support international global assessments and a regional approach to it overcoming current limitations and gaps;
- Further improved Earth System Models (ESMs) representing key physical, biogeochemical and biological processes in the ocean with reduced uncertainty of climate change projections at regional scales, and reduced biases (i.e. in the WCRP Coupled Model Intercomparison Project (CMIP7) models for ocean and polar regions);
- Bett Supporting the All-Atlantic Ocean Research and Innovation Alliance and Declarationer understood links between ocean physical, biogeochemical and biodiversity (including microbes and macro organisms) variability over time, and the impacts of stressors (e.g., warming, ocean deoxygenation, and acidification) including extreme events, on ocean health, GHG sources and sinks, biology and ecosystems, as well as advanced understanding and science in support of adaptation and resilience of natural and managed marine and polar ecosystems in the context of a changing climate, including its interaction with other natural or anthropogenic stressors like pollutants;

- Strengthened development of common, agreed standards for climate records content, format, quality and validation methodology;
- Enabled evidence-based decision–making (e.g., developing early warning ocean climate indicators) and sustained European leadership in ocean–climate–biodiversity nexus science EU programmes supporting e.g., Copernicus climate services, marine services, EEA / JRC reporting and complementing other relevant European programmes (e.g., science programme of the European Space Agency), as well as significant contributions made to the implementation of the European Green Deal and its climate and biodiversity objectives, the EU maritime strategy, to the development of the European Digital Twin of the Ocean[11] (to both the data and models components), and to global scientific assessments, such as the IPCC, IPBES and WOA, as well as to the UNFCCC Ocean and Climate Change Dialogue, UN Decade of Ocean Science and UN SDGs 13 and 14.

Main requirements

Applications will only be considered eligible if their content corresponds, wholly or in part, to the topic description for which it is submitted.

- Projects must focus exclusively on civil applications;
- Projects must comply with EU policy interests and priorities (environment, social, security, industrial policy, etc).

[11] European Digital Twin of the Ocean (European DTO) | European Commission (europa.eu)

HORIZON-CL6-2024-GOVERNANCE-01-1: Additional activities for the European Partnership for a climate neutral, sustainable and productive Blue Economy	
Expected European contribution per project	EUR 60M
Indicative budget	EUR 60M
Type of action	Programme Co-fund Action
Opening date	17/10/2023
Deadline	28/02/2024
Work program	**HORIZON-CL6-2024-GOVERNANCE-01-1**

Table 51 HORIZON-CL6-2024-GOVERNANCE-01-1: Additional activities for the European Partnership for a climate neutral, sustainable and productive Blue Economy

Objectives

This topic is for the continuation of the Sustainable Blue Economy Partnership (SBEP), i.e. EU contribution in WP 2023-2024.

The second instalment of the partnership is expected to contribute to expected outcomes specified in topic HORIZON-CL6-2022-GOVERNANCE-01-02: European Partnership for a climate-neutral, sustainable and productive Blue Economy, for continuation and new development of activities.

In line with the objectives of the European Green Deal and Digital Europe priorities, the successful proposal will contribute to the sustainability and resilience of the blue economy by supporting the establishment of innovative governance models. It will also contribute to strengthening the EU and international science-policy interfaces in marine- and maritime-related domains as well as the Global Earth Observation System of Systems (GEOSS) by supporting the further deployment and exploitation of Environmental Observation data and products and of digital and data technologies.

Projects' results are expected to contribute to all of the following outcomes:

- EU and national multi-level cooperation and alignment across and within regional seas of research and innovation programmes, priorities and investments are enhanced, based on established strategic research and innovation agendas and related cooperation activities, including international agreements and outreach; as well as cooperation with other Horizon Europe initiatives, European partnerships and missions;
- Europe's role in ocean science, research, social and technological developments, innovation and productivity in the marine domain is clearly strengthened by 2030 and transformative governance enables the advances of the role of Europe in business, finance and social developments in the marine/maritime domain;
- By 2030, Europe has contributed significantly and in a measurable way to the climate-neutrality of the blue economy, the European Green Deal objectives and its different strategies, including its just transition component;
- The science-based implementation of EU marine-related legislation, regulations and objectives is supported, as well as the advanced sustainability of activities, practices and existing and new products and

services of the blue economy value chains throughout European regional seas and the Atlantic;
- Transformative change is promoted and enabled through actionable science and sustainable, fair and just solutions for the blue economy and for communities, involving a participatory and multi-actor approach;
- The deployment of digital, nature-based and social innovations as well as community-led and purpose-driven technology for the blue economy is supported;
- Ocean literacy in the EU and beyond is increased;
- Sustained ocean and coastal observations and availability of FAIR data for environmental, climate and blue economy purposes are substantially increased;
- Global cooperation with key partners bordering the different EU sea basins is strengthened.

Main requirements
- Proposals focusing on one type of activity or sector are out of scope;
- The proposals must use the multi-actor approach.

HORIZON-CL6-2024-GOVERNANCE-01-6: Develop innovative applications to support the European Green Deal, building on meteorological satellite data	
Expected European contribution per project	EUR 4M
Indicative budget	EUR 8M
Type of action	Innovation Actions
Opening date	17/10/2023
Deadline	28/02/2024
Work program	**HORIZON-CL6-2024-GOVERNANCE-01-6**

Table 52 HORIZON-CL6-2024-GOVERNANCE-01-6: Develop innovative applications to support the European Green Deal, building on meteorological satellite data

Objectives

A successful proposal will be delivering new environmental information through the exploitation of Earth observations and promote application development and pre-operational European services through cloud infrastructures, supporting the GEO engagement priorities and the objectives of the European Green Deal.

They should be in line with the European strategy for data and Europe's Digital Decade, thus developing new advanced products, adding value to safety and healthy critical applications of environmental observations and contributing to a strengthened Global Earth Observation System of Systems (GEOSS) and complementing or enhancing the Copernicus services.

Proposals are expected to contribute to all of the following outcomes:

- Uptake of the newly available environmental information and data at global and regional scale delivered through the Copernicus Sentinels and the EUMETSAT "Meteosat Third Generation (MTG)" and "EUMETSAT Polar System Second Generation (EPS SG)";
- Preparation and implementation of high-quality (novel) satellite data products and applications using the next generation EUMETSAT and Copernicus instruments for the exploitation by advanced physical/chemical/biochemical models, and integrating in-situ data, to improve the implementation and operationalisation of new and advanced services and applications;
- Demonstrated use of these applications for Earth Systems predictions, long-term climate monitoring (i.e., re-analysis within the Copernicus climate services context) and disaster risk prediction and reduction (e.g., within the framework of the Copernicus Emergency Management service);
- Exploitation of the European cloud systems (e.g. Copernicus DIAS, European Open Science Cloud, European Weather Cloud) and a contribution to the Destination Earth initiative;
- Demonstrated use of satellite derived environmental information to advance and improve seamless climate-weather and environmental services in Europe, and potentially beyond.

Main requirements

Applications will only be considered eligible if their content corresponds, wholly or in part, to the topic description for which it is submitted.

- Projects must focus exclusively on civil applications;
- Projects must comply with EU policy interests and priorities (environment, social, security, industrial policy, etc.).

3.1.5. Mission: Adaptation to climate change

HORIZON-MISS-2023-CLIMA-01-02: Testing and demonstrating transformative solutions to protect critical infrastructure from climate change, mainstreaming nature-based solutions	
Expected European contribution per project	EUR 8M-11M
Indicative budget	EUR 34.81M
Type of action	Innovation Actions
Opening date	10/01/2023
Deadline	20/09/2023
Work program	**HORIZON-MISS-2023-CLIMA-01-02**

Table 53 HORIZON-MISS-2023-CLIMA-01-02: Testing and demonstrating transformative solutions to protect critical infrastructure from climate change, mainstreaming nature-based solutions

Objectives

Projects' results are expected to contribute to all of the following outcomes:

- Regions, local authorities and communities have taken the leadership and have been involved in identifying weaknesses and interlinkages between critical infrastructures[12] , and development and testing of solutions that will make their existing or new critical infrastructure more resilient to climate change, in line with the most recent guidelines for climate proofing[13];
- Nature based solutions[14] (with adequate social and environmental standards) protecting infrastructure from adverse effects of climate change have been developed, tested and brought closer to the market, increasing evidence for their viability and business potential. Green, climate neutral and zero pollution technology solutions are broadly supported and opportunities for further inter-sectorial cooperation are fostered;
- Potential economic and social losses caused by extreme weather events and interruption of service due to critical infrastructures becoming unavailable are reduced, making the economy and the society as a whole more resilient through better preparation;

[12] As defined in art. 2(a) and art. 2(b) of Directive 2008/114/EC, 'critical infrastructure' means an asset, system or part thereof located in Member States which is essential for the maintenance of vital societal functions, health, safety, security, economic or social well-being of people, and the disruption or destruction of which would have a significant impact in a Member State (or more Member States) as a result of the failure to maintain those functions

[13] "Technical guidance on the climate proofing of infrastructure in the period 2021-2027", published in OJ C373 on 16.9.21

[14] The EU Commission defines nature-based solutions as "Solutions that are inspired and supported by nature, which are cost-effective, simultaneously provide environmental, social and economic benefits and help build resilience. Such solutions bring more, and more diverse, nature and natural features and processes into cities, landscapes and seascapes, through locally adapted, resource-efficient and systemic interventions." Nature-based solutions must therefore benefit biodiversity and support the delivery of a range of ecosystem services

- Businesses, public and private actors are made more prepared to cope with the changing climate, also through climate adaptation targeted education and training, up- and re-skilling programmes;
- Prevention and management of emergency events linked to adverse climate effects is improved, thanks to “by design” integration of digital monitoring and relevant data sources in the solutions.

Main requirements
Activities are expected to achieve TRL 6-8 by the end of the project.

3.1.6. Mission: Restore our ocean and waters by 2030

HORIZON-MISS-2023-OCEAN-01-01: European Blue Parks – Protection and restoration of marine habitats	
Expected European contribution per project	EUR 8.8M
Indicative budget	EUR 8.8M
Type of action	Innovation Actions
Opening date	17/01/2023
Deadline	20/09/2023
Work program	**HORIZON-MISS-2023-OCEAN-01-01**

Table 54 HORIZON-MISS-2023-OCEAN-01-01: European Blue Parks – Protection and restoration of marin habitats

Objectives

To support the implementation of the European Green Deal, the Biodiversity Strategy and the Nature Restoration Law.

Projects' results are expected to contribute to all of the following outcomes:

- Effectively managed marine protected areas with clear science-based conservation objectives and conservation measures that contribute to the restoration and protection of marine ecosystems and support a shift towards strictly protected areas;
- Protection and restoration of marine habitats and species through strictly protected areas, in particular of seabed habitats, including to preserve their carbon sequestration capacity, ensure spill-over of fish, provide ecosystem functionality and maintain connectivity;
- Enhanced resilience and adaptation potential of coastal and marine ecosystems and improved provision of their ecosystem services, in particular in relation to climate change mitigation/adaptation and to fisheries;
- A blueprint for the designation and management of marine protected areas and/or for shifting their status from "protected" to "strictly protected" including criteria and tools for quantifying their success/ effectiveness in terms of conservation outcomes/results, a blueprint for the identification of ecological corridors as part of a blue Trans-European Nature Network;
- Active support to the Mission's Digital Ocean and Water Knowledge system through advances in biological, ecosystem and socio-economic knowledge applied to restoration;
- Reinforced EU leadership in international efforts to stop and reverse biodiversity loss, in line with the EU key priorities and international commitments.

Main requirements

Activities are expected to achieve TRL 5-7 by

HORIZON-MISS-2023-OCEAN-01-03: Atlantic and Arctic Sea basin lighthouse – Addressing climate change and human activities threats to marine biodiversity	
Expected European contribution per project	EUR 8M
Indicative budget	EUR 16M
Type of action	Innovation Actions
Opening date	17/01/2023
Deadline	20/09/2023
Work program	HORIZON-MISS-2023-OCEAN-01-03

Table 55 HORIZON-MISS-2023-OCEAN-01-03: Atlantic and Arctic Sea basin lighthouse – Addressing climate change and human activities threats to marine biodiversity

Objectives

Projects' outputs and results are expected to contribute to all of the following outcomes:

- Enhanced implementation of the Biodiversity Strategy 2030 and the EU Arctic policy;
- Technological, logistical, social and economic innovations to counteract marine biodiversity loss;
- Enhanced basin-scale cooperation in the Atlantic and Arctic, including through transition arrangements that create socially and economically sustainable propositions for local stakeholders;
- Enhanced implementation of the European Green Deal, the EU Adaptation Strategy[15], Marine Strategy framework Directive, the EU Bioeconomy Strategy as well as the Galway Statement, the Belém Statement, the OSPAR Convention[16] in connection with the implementation of EU marine environment, biodiversity and Arctic policies, the EU's International Ocean Governance Agenda, the Atlantic Action Plan 2.0 with the aim to work for the benefit of all communities of stakeholders around the Atlantic and the Arctic Action Plan enhancing collaborative efforts to address the challenges in the Arctic;
- Active support to the Mission's Digital Ocean and Water Knowledge system and knowledge cross-fertilization across EU sea basins;
- Better informed citizens and decision makers, for a better governance.

Main requirements

- Activities are expected to achieve TRL 5-7 by the end of the project;
- If projects use satellite-based earth observation, positioning, navigation and/or related timing data and services, beneficiaries must make use of Copernicus and/or Galileo/EGNOS (other data and services may additionally be used);
- In addition to the standard eligibility conditions, the consortium must carry out demonstration activities in 3 different countries of the Atlantic and

[15] COM/2021/82 final
[16] Convention for the Protection of the Marine Environment of the North-East Atlantic

Arctic basin, involving and including partners from these respective countries in the consortium.

HORIZON-MISS-2023-OCEAN-01-05: Lighthouse in the Baltic and the North Sea basins – Lighthouse in the Baltic and the North Sea basins – Green and energy-efficient small-scale fishing fleets	
Expected European contribution per project	EUR 4M
Indicative budget	EUR 12M
Type of action	Innovation Actions
Opening date	17/01/2023
Deadline	20/09/2023
Work program	HORIZON-MISS-2023-OCEAN-01-05

Table 56 HORIZON-MISS-2023-OCEAN-01-05: Lighthouse in the Baltic and the North Sea basins – Lighthouse in the Baltic and the North Sea basins – Green and energy-efficient small-scale fishing fleets

Objectives

Projects' outputs and results are expected to contribute to all of the following outcomes:

- Enhanced implementation of the European Green deal objectives and the EU Biodiversity Strategy for 2030;
- Improved understanding of technical, social, legal, regulatory and policy barriers to small-scale fisheries decarbonisation;
- Reduced fuel consumption and emissions from small-scale fishing vessels and improved energy efficiency in their range of activities, including acoustic noise reduction;
- Accelerated transition to fleets of small-scale fisheries equipped with greener and energy-efficient technologies to reduce emissions and fuel consumption;
- Increased users' choices and responsible user behaviours;
- Improved monitoring and understanding on the impact of greener and more efficient small-scale fishing fleets on the marine environment and marine biodiversity.

Main requirements

- Activities are expected to achieve TRL 4-6 by the end of the project;
- If projects use satellite-based earth observation, positioning, navigation and/or related timing data and services, beneficiaries must make use of Copernicus and/or Galileo/EGNOS (other data and services may additionally be used);
- In addition to the standard eligibility conditions, the consortium must carry out demonstration activities in 3 different countries of the Baltic and North Sea basin, involving and including partners from these respective countries in the consortium.

HORIZON-MISS-2023-OCEAN-01-08: Integration of socio-ecological models into the Digital Twin Ocean	
Expected European contribution per project	EUR 3.3M
Indicative budget	EUR 10M
Type of action	Innovation Actions
Opening date	17/01/2023
Deadline	20/09/2023
Work program	HORIZON-MISS-2023-OCEAN-01-08

Table 57 HORIZON-MISS-2023-OCEAN-01-08: Integration of socio-ecological models into the Digital Twin Ocean

Objectives

Expected outcomes should complement the capacities and uses of the European Digital Twin Ocean (EU DTO) by:

- Solutions to the challenges of marine social-ecological modelling that will allow for their seamless incorporation in the framework of the Digital Twin Ocean, taking into consideration their complex nature. Marine social-ecological models aim to integrate modelling approaches originating from different disciplines, focusing on different levels of analysis and implementing different methodological frameworks in a meaningful way. The challenges include interoperability of transdisciplinary data (ecological, social, economic, legal, etc.); integration of models with different spatial and temporal resolutions, calculation of uncertainties and more;
- Social-ecological models, developed with a multi-actor approach, that would help assess the impacts of environmental changes, human pressures and/or policy implementation on the overall ocean health, blue economy and societal prosperity;
- Improved understanding of complex social-ecological systems, aiming at better management of human activities, policy implementation, responding to societal needs (local communities, economic activities, growing resources needs…) and avoiding negative outcomes of policies such as the loss of jobs, overfishing, hypoxia, or stock collapse.

Main requirements

Activities are expected to achieve TRL 3-5 by the end of the project.

3.1.7. Missions' joint calls

HORIZON-MISS-2023-OCEAN-SOIL-01-01: Mission Ocean and Waters and Mission A Soil Deal for Europe – Joint demonstration of approaches and solutions to address nutrient pollution in the landscape-river-sea system in the Mediterranean Sea basin	
Expected European contribution per project	EUR 8M
Indicative budget	EUR 16M
Type of action	Innovation Actions
Opening date	17/01/2023
Deadline	20/09/2023
Work program	**HORIZON-MISS-2023-OCEAN-SOIL-01-01**

Table 58 HORIZON-MISS-2023-OCEAN-SOIL-01-01: Mission Ocean and Waters and Mission A Soil Deal for Europe – Joint demonstration of approaches and solutions to address nutrient pollution in the landscape-river-sea system in the Mediterranean Sea basin

Objectives

This topic contributes to the implementation of the European Green Deal, the Farm to Fork Strategy, the Biodiversity Strategy for 2030, the Soil Strategy for 2030, the Bioeconomy Strategy and the EU Action Plan: 'Towards Zero Pollution for Air, Water and Soil'. It addresses the Mission 'A Soil Deal for Europe' specific objective 4 – reduce soil pollution and enhance restoration, targets T.4.2 – reducing fertiliser use by at least 20% and T.4.3 – reduce nutrient losses by at least 50%. It relates to the Mission Ocean and waters' objective 2 – prevent, minimize and remediate pollution of marine and freshwater ecosystems, which has a focus on the Mediterranean Sea basin. 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).

Projects' results are expected to contribute to all of the following outcomes:

- Accelerated uptake of integrated innovative and reproducible approaches to prevent, minimise and remediate soil and water pollution from excess nutrients (especially nitrogen and phosphorus) in the landscape-river catchment-sea system and transition waters in the Mediterranean Sea basin;
- Accelerated uptake of integrated innovative and reproducible approaches to reduce the use of fertilisers and to prevent, minimize and remediate nutrient pollution and reduce ocean and inland water eutrophication;
- Foundations for future demonstration and upscaling activities on integrated innovative approaches to prevent, minimise and remediate soil and water pollution from excess nutrients, and to reduce the use of fertilisers, in 'associated regions';
- Empowerment of citizens to take action against pollution of soils, waters and the ocean.

Main requirements
Activities are expected to achieve TRL 6-7 by the end of the project.

3.2. European Space Agency

Space and Digital Transformation for Green Energy Utilities	
Expected European contribution per project	EUR 50K-2M
Indicative budget	N/A
Opening date	15/04/2022
Deadline	31/03/2023
Work program	**AO/1-10494**

Table 59 AO/1-10494 Space and Digital Transformation for Green Energy Utilities

Objectives

The Thematic Call for proposals targets the development of space-based services for supporting the digital transformation of the energy utilities sector and enabling the just transition to green energy across business sectors and society. This can help to support interoperability within the sector and the sector's connectivity with other sectors, especially where critical infrastructure may be used or developed.

Main requirements

- Funded participation is open to any company and/or organisation, be it as group of users, public body or non-governmental organisation, residing in any of the ESA Member States that are participating to the programme as specified in the Letter of Invitation in esa-star;
- Economic Operators, intending to respond to this Thematic Call are requested to inform their National Delegations of their intention to submit a proposal as soon as possible, prior to the submission of the Outline Proposal.

3.3. European Innovation Council (EIC)

3.3.1. EIC Pathfinder

EIC Pathfinder	
EIC Pathfinder Open budget	EUR 179.5M
EIC Pathfinder Challenges budget	EUR 163.5M
EIC Pathfinder Open dates	By 07/03/2023
EIC Pathfinder Challenges dates	From 20/06/2023 to 18/10/2023
Work program	**https://eic.ec.europa.eu/eic-funding-opportunities/eic-pathfinder_en**

Table 60 EIC Pathfinder

EIC Pathfinder Challenges – Clean and efficient cooling

Objectives

This EIC Pathfinder Challenge aims at advancing scientific knowledge and technological development of novel, clean and efficient cooling solutions that fully underpin "cold economy" vision. For this purpose, the portfolio of projects supported under this Challenge should explore the potentials of new devices, processes, components and materials for clean cooling generation, storage and/or transport, such as:

- Unconventional refrigeration technologies and systems including but not limited to functionalised Phase Change Materials (PCM), thermochemical materials, thermophotonic, elastomeric, barocaloric, magnetocaloric or thermally regenerative electrochemical cycles; new compression-expander mechanisms (i.e. electrochemical compression), use of mixed refrigerants or other novel cycles configurations;
- Computational modelling and validation of energy-intensive low-temperature heat transfer processes, materials and components including their design, manufacturing, optimisation and dynamic performance (i.e. novel heat exchangers, compressors etc.);
- Ultra-energy efficient operations and logistics along the cooling supply chain and final use, decoupling supply and demand via thermal carriers (PCMs, thermochemical materials, ice slurries, liquid air, molecular storage etc.) or systems integration, including mobile cold energy storage and associated charging solutions; interoperability of district networks, reversible heating and cooling infrastructures, or cold-to-power solutions;
- New designs and concepts for food processing and medical applications; unconventional refrigeration principles (such as thermoelectric, magnetocaloric, electrocaloric, elastomeric or barocaloric, photonic cooling conversion) or new compression-expander mechanisms (scroll, electrochemical compression), mixed refrigerants, novel cycles configurations.

Main requirements

The supported projects shall individually provide proof of concepts for unconventional approaches (at materials, component, process or device level) that can convincingly impact the energy consumption, emission reduction and cost reduction of the cooling sector. The portfolio of supported projects should contribute to one or more of the following medium to long-term impacts:

- Increase the EU technological leadership in the cooling sector and in strategic productive fields strongly linked to cold production (such as food);
- Improve building comfort and health in living environment;
- Increase operational security of server and computing facilities;
- Reduce carbon footprint of energy systems and address climate change mitigation;
- Address climate change adaptation (in particular in semi-desert areas) and food security, including possibilities of international outreach;

- Reduce EU dependency from, and diversify EU sourcing of, critical materials supply.

EIC Pathfinder Challenges – Architecture, Engineering and Construction digitalisation for a novel triad of design, fabrication, and materials

Objectives

Projects are expected to target organisations and collaborative endeavours that develop ways to incorporate the digitalised triad of design, fabrication and materials in the reduction of embodied CO2 emissions, following principles aligned with key EU initiatives such as the European Green Deal or the New European Bauhaus. In this instance, ideas that are primarily centred on operational carbon emissions and/or operational energy efficiency are not in scope of this Challenge. However, it is important to highlight that innovations envisioning reductions of embodied CO2 emissions shall be at least as effective in reducing operational carbon emissions as the technologies they substitute by the time of market adoption. Also, projects should consider for the future commercial adoption, the issues of compliance with relevant standards of building operational performance.

Main requirements

- Projects must clearly achieve a proof of principle and validate the scientific basis of the breakthrough technology. The development and expression of techno-economic views on geometric and economic scalability of the technology itself, coupled with an entrepreneurial path towards commercialisation and future adoption by the AEC value chain are strongly encouraged;
- Proposals are expected to demonstrate interdisciplinary and collaborative processes to create critical interactions between disciplines, economic sectors, and other partners with relevant skills as appropriate. The overall goal is to support the formation of new partnerships with innovative approaches and unique solutions that foster new R&I communities and ecosystems to nurture long term changes in the AEC sector;
- Expected adjacent impacts of this AEC Pathfinder Challenge are also to inspire an ambition for the AEC sector to create higher quality jobs in a more progressive and appealing business culture that is ready to deliver a transformation of the built environment in line with the European Green Deal and the New European Bauhaus.

EIC Pathfinder Challenges – Responsible electronics

Objectives

The specific objectives of this Challenge are to support the scientific community in reaching breakthroughs in development/discovery of:

- Advanced electronic materials for unconventional devices:
  - Small-molecule and polymeric organic materials;
  - Solution-processable inorganic materials;
  - Hybrid organic-inorganic materials;
  - Polymer-matrix nano-composite materials;
  - Bio-based and nature-inspired materials;
  - For the manufacturing of n- and p-semiconductors, dielectrics, conductors, including transparent conductors, particularly those suitable to make functional inks, passivation / encapsulation / packaging materials, flexible / stretchable substrates, etc.
- Advanced processes:
  - Production methods based on solution processing such as blade coating, slot die coating, spray coating, screen printing, inkjet printing, offset, gravure and flexo-printing;
  - Other techniques particularly suitable for sheet-to-sheet or roll-to-roll manufacturing.
- Unconventional applications including e-textile/e-skin:
  - Backplane and logic circuits;
  - Microprocessors (4-8 bits);
  - Sensors;
  - Displays;
  - Power supplies;
  - Wireless transmitters/receivers, etc.

Main requirements

- Projects with multidisciplinary and cross-sectorial approaches, looking for inspiration, ideas and knowledge in a broad range of disciplines are particularly welcome;
- The safe and sustainable use of non-critical raw materials or the full recycle/reuse of them is mandatory;
- All projects are expected to conduct a full life cycle analysis of the proposed solutions and they shall apply or identify a methodology to measure the environmental and/or carbon footprint of the proof of principle/s that will be developed during the project;
- Applicants should ensure that the proposed method / technology / material/s is not harmful to the natural ecosystems. Packaging and durability should be taken into consideration.

3.3.2. EIC Transition

EIC Transition	
EIC Transition Open budget	EUR 67.86M
EIC Transition Challenges budget	EUR 60.5M
EIC Transition Open dates	By 01/03/2023
EIC Transition Challenges dates	12/04/2023 – 27/09/2023
Work program	**https://eic.ec.europa.eu/eic-funding-opportunities/eic-transition_en**

Table 61 EIC Transition

EIC Transition Challenges – Environmental intelligence

Objectives

Proposals submitted to this Challenge should focus on demonstrating novel devices, sensors or technologies that have a clear and quantifiable advantage compared with existing alternatives for similar class of problems or applications:

- Materials, processes, and systems – such as chemical, biological, and physical technologies-solutions, including bio-inspired and nature-based – aimed at detecting/monitoring, preventing, reducing, or eliminating environmental recalcitrant and/or emerging contaminants present in air, soil, or hydrosphere;
- Technologies that, without using critical raw materials52 or ensuring their full reuse and/or recycling (sorting and refining), will enable the onset of synergies between sensors and artificial intelligence, at the interface of environment/sustainability and data science, so allowing the implementation of environmental monitoring and/or remediation actions;
- Solutions that detect, combine, analyse, and interpret data (environmental intelligence) including signals of ecosystem stress caused by a broad range of factors (water scarcity, habitat disruption, global warming, etc.), also coming from different sources – in situ (biological, chemical, or physical sensors) or remotely (satellite);
- Technologies with minimised carbon footprint, measured through a full lifecycle analysis, in order to ultimately protect/clean the environment from contaminations and to avoid the exposure of people to contaminants as well as to mitigate or reverse the effects of climate change.

Main requirements

The expected outcomes and impacts of this Challenge are:

- Reduction of environmental pollution through technologies demonstrated by means of safe and sustainable pilot-scale prototypes able to perform environmental monitoring and/or remediation actions;
- Enabling an evidence-based environmental policy as well as improving and simplifying the environmental policy making through environmental intelligence;
- Promotion of the development of an EU “environmental monitoring/ remediation-based” economy;
- An exploitation strategy (including the formal IP protection) and a credible business model for the deployment and use of the novel device, sensor or technology in the relevant environment.

3.3.3. EIC Accelerator

EIC Accelerator	
EIC Accelerator Open budget	EUR 612.98M
EIC Accelerator Challenges budget	EUR 524.73M
EIC Accelerator Open dates	Continuous
EIC Accelerator Challenges dates	06/07/2023 – 10/04/2023
Work program	**https://eic.ec.europa.eu/eic-funding-opportunities/eic-accelerator-0_en**

Table 62 EIC Accelerator

EIC Accelerator Challenges – Energy storage

Objectives

This challenge targets:

- Technologies to store electric and/or thermal energy at low cost, high density, high charging/discharging efficiency and enhanced durability without the use of critical raw materials (CRM) or demonstrating the full re-use or recycle of CRM;
- Broad range of technological approaches (chemical, electrical, electrochemical, mechanical, thermal, combined) for energy storage at different scales, duration and uses, including their hybridization;
- Technologies that, without using CRM, embrace circular and life cycle thinking approach;
- The smart operation and control of storage assets their integration with demand response strategies, predictive maintenance, load forecasting and decentralised renewable energy technologies, and novel business models (storage as service) to increase energy systems flexibility and facilitate the integration of energy storage.

Main requirements

The possibility to store electrical or thermal energy at low cost, high density, high charging/discharging efficiency and for different duration (from short to long) must:

- Enable a strong penetration of intermittent renewable energy resources by addressing the spatial and temporal mismatches between generation and demand;
- Set up decarbonised, interconnected, sector-coupled and flexible energy systems;
- Increase Europe's energy independence from unreliable suppliers.

EIC Accelerator Challenges – Space technologies and services

Objectives

This challenge aims to encourage the emergence of innovative, interoperable, scalable, and autonomous "customer-driven" innovative space technologies through:

- The inspection of spacecraft in orbit, to augment satellite capabilities and resilience;
- The development of autonomous and in-space collision avoidance capabilities (use of AI/ML for collision avoidance manoeuvres, space debris positioning data, etc) and develop in-space mobility propulsion capabilities;
- The collection of space debris with a view for recycling, recovering and transforming purposes (microgravity platform);
- The maturation of spacecraft in orbit self-assembly with different applications (in-orbit, cis-lunar exploration, Earth observation, space debris inspection, space situational awareness etc);
- The design and construction of a R&I low Earth orbit unmanned platform assembled in orbit and the hosting of in-orbit microgravity experiments or collect/re-use space debris considering and make use of a sustainable, modular concept for the platform and its operation;
- The scaling up of disruptive innovations for space situational awareness, in-space logistics, EO, navigation, SATCOM and others.

Main requirements

The innovative space technologies and services projects must:

- Increase EU servicing and re-use/recover capability for servicing EU space infrastructure, while contributing to the management and reduction of space debris;
- Set up timely and cost-effective in orbit satellite servicing, ADR, EOL and Space Traffic Management services;
- Develop innovative propulsion solutions for in-space mobility or spacecraft;
- Establish innovative technologies for space transportation, EO, navigation, SATCOM, space science, SSA.

4. Summary board of national and regional opportunities

FRANCE					
Name of the region	**Name of the program**	**ID and title of the call**	**Budget**	**Opening date**	**Deadline**
ALL	ANR/AID	Extension des zones conflictuelles : Fonds marins et Espace	N/A	28/02/2023	17/04/2023
ALL	Destination France	Port de plaisance d'avenir	EUR 20M	On-going	15/04/2023
ALL	FEAMPA	Décarbonation des navires de pêche et aquacoles	N/A	15/02/2023	15/06/2023
ALL	Fonds Energie CMA CGM	Décarbonation de la filière maritime française	EUR 200M	30/01/2023	N/A
ALL	France 2030	Concours d'innovation -I-Nov 11ème vague	EUR 1M-5M	09/01/2023	11/04/2023
ALL	France 2030	CORIMER 2023	EUR 4M-5M	14/11/2022	02/06/2023
ALL	France 2030	DEMIBac	EUR 610M	On-going	17/04/2023
ALL	France 2030	Développement et industrialisation de constellations de satellites et de leurs technologies habilitantes	N/A	06/10/2022	12/09/2023
ALL	France 2030	I-Démo 2ème vague	EUR 4M	10/05/2022	20/06/2023

ALL	France 2030	Première usine	EUR 5M	19/01/2022	15/12/2026
Nouvelle-Aquitaine	Région Nouvelle-Aquitaine	Aide au conseil en innovation	N/A	Continuous	Continuous
Nouvelle-Aquitaine	Région Nouvelle-Aquitaine	Energies renouvelables : technologies et vecteurs énergétiques innovants	N/A	01/01/2023	31/12/2024
Nouvelle-Aquitaine	Région Nouvelle-Aquitaine	Innovation Start-up	N/A	Continuous	Continuous
Nouvelle-Aquitaine	Région Start-up	Innovations technologiques pour l'énergie à bord des bateaux	N/A	01/07/2022	30/06/2023
Occitanie	France 2030	Projets collaboratifs – I-Démo régionalisé	EUR 1M-4M	20/06/2022	31/12/2025
Occitanie	France 2030	Projets d'innovation	EUR 75K-500K	29/06/2022	2025
Occitanie	Plan littoral 21	Avenir Littoral 2023	EUR 600K	16/02/2023	13/04/2023
PACA	ERDF	Accélérer la transition juste des Bouches-du-Rhône	EUR 142M	13/02/2023	09/05/2023
PACA	PIA 4	Projets collaboratifs de Recherche & Développement - I-Démo régionalisé	EUR 500K-4M	On-going	31/12/2025
PACA	PIA 4	Projets d'accompagnement et transformation des filières	EUR 5M	On-going	31/12/2025

PACA	PIA 4	Projets d'innovation	EUR 75K-500K	On-going	31/12/2025

Table 63 France

GREECE					
Name of the region	**Name of the program**	**ID and title of the call**	**Budget**	**Opening date**	**Deadline**
ALL	NSRF, Competitiveness 2021-2027	Action “Research - Innovate 2021-2027"	EUR 300M	N/A	N/A
ALL	NSRF, Competitiveness 2021-2027	Action “Digital Transformation for SMEs”	EUR 300M	23/02/2023	Until all budget is exhausted
ALL	NSRF, Competitiveness 2021-2027	Action “Green Transition for SMEs”	EUR 700M	N/A	N/A

Table 64 Greece

POLAND					
Name of the region	**Name of the program**	**ID and title of the call**	**Budget**	**Opening date**	**Deadline**
ALL	IPCEI	1.1 FENG	PLN 4.45G	07/02/2023	12/04/2023
ALL	IPCEI	1.1 FENG	PLN 890M	30/07/2023	15/04/2023
ALL	IPCEI	1.1 FENG	PLN 890M	09/08/2023	31/10/2023
ALL	IPCEI	1.1 FENG	PLN 220M	10/05/2023	31/08/2023
ALL	IPCEI	1.1 FENG	PLN 220M	06/06/2023	31/08/2023
ALL	IPCEI	1.1 FENG	PLN 1.335G	10/05/2023	31/08/2023
ALL	IPCEI	2.10 FENG	EUR 168M	15/03/2023	14/04/2023

Table 65 Poland

ROMANIA					
Name of the region	**Name of the program**	**ID and title of the call**	**Budget**	**Opening date**	**Deadline**
ALL	National Recovery and Resilience Plan*	Green Tranzition	EUR 15.31G	N/A	N/A
ALL	National Recovery and Resilience Plan*	Digital Transformation	EUR 1.88G	N/A	N/A
ALL	National Recovery and Resilience Plan*	Intelligent, sustainable and favourable growth	EUR 3.02G	N/A	N/A
ALL	National Recovery and Resilience Plan*	Social and Territorial Cohesion	EUR 2.55G	N/A	N/A
ALL	National Recovery and Resilience Plan*	Politics for the new generation	EUR 3.61G	N/A	N/A
ALL	Smart Growth, Digitization and Financial Instruments Program**	Supporting and promoting an attractive and competitive CDI system in Romania	EUR 1.36M	N/A	N/A
ALL	Smart Growth, Digitization and Financial Instruments Program**	Digitization in central public administration and the business environment	EUR 811M	N/A	N/A
ALL	Northwest Regional Program		EUR 1.43G	N/A	N/A

Table 66 Romania

SPAIN					
Name of the region	**Name of the program**	**ID and title of the call**	**Budget**	**Opening date**	**Deadline**
ALL	AEI	Agrupaciones Empresariales Innovadoras spring and summer 2023	EUR 50M	April 2023	May 2023
ALL	CDTI	Ayudas PYMES Sello de Excelencia	EUR 30M	November 2023	November 2023
ALL	CDTI	CIEN (Convocatoria proyectos Estratégicos CIEN del Centro para el Desarrollo Tecnológico Industrial)	N/A	2023	2023
ALL	CDTI	Consorcios de I+D Transferencia Cervera	N/A	2023	2023
ALL	CDTI	Misiones Ciencia e Innovación	EUR 125M	June 2023	September 2023
ALL	CDTI	Proyectos de innovación CDTI	EUR 175K (per project)	All year	N/A
ALL	CDTI	Proyectos de Investigación y Desarrollo	N/A	2023	2023
ALL	MINTECO	Programa de Apoyo a los DIH	EUR 16.6M	2023	2023
ALL	PERTE Agroalimentario	N/A	EUR 510K	On-going	Until 2023

ALL	PERTE Digitalización del ciclo agua	N/A	EUR 1.5M	On-going	N/A
ALL	PERTE Economía Circular	N/A	EUR 1.529M	On-going	N/A
ALL	Plan nacional de adaptación al cambio climático	Fundación Biodiversidad	N/A	On-going	March 2023
Basque Country	Elkarlanean	Inter-company collaboration	EUR 60K	March 2023	April 2023
Basque Country	Gauzatu	N/A	EUR 28M	29/12/2022	17/04/2023
Basque Country	Hazitek	N/A	EUR 95M	February 2023	April 2023
Basque Country	Sakondu	N/A	EUR 800K	May 2023	September 2023
Basque Country	Zabaldu	N/A	EUR 2.5M	May 2023	September 2023
Catalonia	ARC	Foment de l'Economía Circular	EUR 1.3M	2023	2023

Table 67 Spain

5. National and regional funding

5.1. France

5.1.1. National opportunities

ANR/AID – Extension des zones conflictuelles : Fonds marins et Espace	
Expected contribution per project	N/A
Indicative budget	N/A
Opening date	28/02/2023
Deadline	17/04/2023
Work program	https://anr.fr/fr/detail/call/extension-des-zones-conflictuelles-fonds-marins-et-espace-appel-a-manifestation-dinteret-2023/

Table 68 ANR/AID – Extension des zones conflictuelles : Fonds marins et Espace

Objectives
This call aims to develop means of actions combining detection, surveillance, protection, resilience and intervention in order to secure sovereign capabilities control of these complex areas.

Main requirements
Being a French public research actors or a private partner (with at least one establishment in France).

Sectors targeted by the call
Actions supported must contribute to:

- Control the seabed environment;
- Control the space environment.

DESTINATION FRANCE – Port de plaisance d'avenir	
Expected contribution per project	EUR 300K (minimum)
Indicative budget	EUR 20M
Opening date	On-going
Deadline	15/04/2023
Work program	**https://www.cerema.fr/fr/destination-france/port-plaisance-avenir**

Table 69 DESTINATION FRANCE – Port de plaisance d'avenir

Objectives
This call aims to support actions contributing to the greening and ecological transition of ports while strengthening the attractiveness for tourism (through smart services to facilitate their arrival at the port and make their stay easier and more enjoyable).

Main requirements
- Being related to the yachting activity of a seaport and located within the port area;
- Prove an environmental performance.

Sectors targeted by the call
Actions supported must contribute to:
- Accelerate the ecological transition of ports;
- Develop a smart port area.

EMFAF – Décarbonation des navires de pêche et aquacoles	
Expected contribution per project	N/A
Indicative budget	N/A
Opening date	15/02/2023
Deadline	15/06/2023
Work program	https://www.bretagne.bzh/aides/fiches/decarbonation-des-navires-de-peche-et-aquacoles-ami-national/

Table 70 EMFAF – Décarbonation des navires de pêche et aquacoles

Objectives
This call for expressions of interest aims to identify initiatives underway at national level, contributing to the decarbonisation of fishing and aquaculture vessel propulsion. The projects identified will help determine the framework of a future call for projects on this theme in 2023.

Main requirements
- Being supported by a national level lead partner;
- Being located in a continental region;
- Involve a consortium located in at least two regions.

Sectors targeted by the call
Actions supported must contribute to:
- Substitute a "clean" energy source;
- Decarbonise the propulsion of fishing and aquaculture vessels.

FONDS ENERGIE CMA CGM – Décarbonation de la filière maritime française	
Expected contribution per project	N/A
Indicative budget	EUR 200M
Opening date	30/01/2023
Deadline	Until all funding is exhausted
Work program	https://www.cmacgm-group.com/fr/actualites-media/lancement-appel-a-projets-de-200-millions-euros-pour-accelerer-la-decarbonation-de-la-filiere-maritime-francaise

Table 71 FONDS ENERGIE CMA CGM – Décarbonation de la filière maritime française

Objectives

The aim of this call for projects is to support start-ups and companies developing concrete solutions to accelerate the decarbonisation of the French maritime sector, all sectors included. This call for projects is in line with the more general strategy of the CMA CGM Group's Energy Fund, which aims to accelerate the energy transition in order to achieve Net Zero Carbon by 2050.

Main requirements

- Being a French startup or company;
- Concrete impact for the decarbonisation of the French maritime sector;
- Maturity of the project;
- Economic feasibility.

Sectors targeted by the call

Actions supported must fall under the scope of:

- Freight transport;
- Tourism and cruising;
- Fishing and seafood;
- Infrastructures;
- Naval and nautical industries;
- Renewable energies.

FRANCE 2030 – Concours d'innovation – i-Nov 11ème vague	
Expected contribution per project	EUR 1M-5M
Indicative budget	N/A
Opening date	09/01/2023
Deadline	11/04/2023
Work program	https://www.bpifrance.fr/nos-appels-a-projets-concours/appel-a-projets-concours-dinnovation-i-nov

Table 72 FRANCE 2030 – Concours d'innovation i-Nove 11ème vague

Objectives
This call for projects aims to support the accelerated emergence of companies leaders in their field and with the potential to become global players.
It selects innovation projects with potential for the French economy and accelerating the development and marketing of innovative solutions and technologies.

Main requirements
- Being carried by a single SME;
- Have an innovative character and added value of the project;
- Have an economic impact;
- Prove an environmental performance.

Sectors targeted by the call
Actions supported must fall under the scope of:
- Digital;
- Health;
- Transport, mobility, cities and sustainable buildings;
- Energy, resources and natural environments.

FRANCE 2030 – CORIMER 2023	
Expected contribution per project	➢ EUR 4M for R&D projects; ➢ EUR 5M for investment projects.
Indicative budget	N/A
Opening date	14/11/2022
Deadline	02/06/2023
Work program	**https://www.bpifrance.fr/nos-appels-a-projets-concours/appel-a-manifestation-dinterets-corimer-2023**

Table 73 FRANCE 2030 – CORIMER 2023

Objectives

This call aims to consolidate the technological lead of the marine industry in terms of ecological transition and enable this industry to develop an increasingly efficient, innovative and competitive offer.

Main requirements

- Be aimed at developing one or more products, processes or services highly innovative and not available on the market;
- Prove an environmental performance.

Sectors targeted by the call

Actions supported must fall under the scope of:

- Smart Yard;
- Green Ship;
- Smart Ship;
- Next-Gen Offshore Industry.

FRANCE 2030 – DEMIBac : Démonstration et appropriation par les industriels de production bas carbone	
Expected contribution per project	EUR 1.5M (minimum)
Indicative budget	EUR 610M
Opening date	On-going
Deadline	17/04/2023
Work program	https://agirpourlatransition.ademe.fr/entreprises/aides-financieres/20220203/developpement-briques-technologiques-demonstrateurs-realisations

Table 74 FRANCE 2030 – DEMIBac : Démonstrations et appropriation par les industriels de production bas carbone

Objectives

The "DEMIBac" call for projects supports innovation through 2 components:

- Remove the last technological barriers, prove the economic viability of the innovation and its suitability for the market, demonstrate its environmental added value, its societal appropriation and finally verify its replicability;
- Support and finance the final stages of development on the client site, including the additional costs associated with taking technical and economic risks and validating the viability of the solution and its operational aspects in real-life situations.

Main requirements

- Being academics or industrialists in the supply chain;
- Have a company as the project leader with a maximum of 5 partners;
- Projects related to the 2nd component must imply 1 end-user and 1 technology developer in their consortium

Sectors targeted by the call

Actions supported must contribute to:

- The energy efficiency of equipment and processes;
- The decarbonisation of the heat/energy mix, for industrial uses.

FRANCE 2030 – Développment et industrialisation de constellations de satellites et de leurs technologies habilitantes	
Expected contribution per project	EUR 2M (minimum)
Indicative budget	N/A
Opening date	06/10/2022
Deadline	12/09/2023
Work program	https://www.bpifrance.fr/nos-appels-a-projets-concours/appel-a-projets-spatial-developpement-et-industrialisation-de-constellations-de-satellites-et-de-leurs-technologies-habilitantes

Table 75 FRANCE 2030 – Développement et industrialisation de constellations de satellites et de leurs technologies habilitantes

Objectives
This call aims to develop, test and industrialise the ground and flight segments of satellite constellations and their enabling technologies

Main requirements
- Being collaborative or single-partner;
- Being young in relation to the sector;
- Being likely to experience very strong growth;
- Carry out a deeply innovative project.

Sectors targeted by the call
Actions supported must contribute to:
- Develop new satellite constellation components, systems and subsystems;
- Industrialise new satellite constellation components, systems and subsystems.

FRANCE 2030 – I-Démo 2ème vague	
Expected contribution per project	EUR 4M (minimum)
Indicative budget	N/A
Opening date	10/05/2022
Deadline	20/06/2023
Work program	https://www.bpifrance.fr/nos-appels-a-projets-concours/appel-a-projets-i-demo

Table 76 FRANCE 2030 – I-Démo 2ème vague

Objectives
This scheme supports the development of highly innovative products, services or industrial demonstrators with high added value, in order to strengthen the French scientific and technological base.

Main requirements
- Have a total expenditure of more than 4 million euros;
- Being carried out by a single company registered in France;
- Being carried out by a consortium that brings together industrial and research partners and, if possible, one or more end users of the solution;
- Collaborative projects must involve at least one SME or ETI, up to a maximum of 6 partners.

Sectors targeted by the call
Actions supported must contribute to:
- Develop industrial and service companies in buoyant markets;
- Create value and competitiveness for the French economy;
- The energy, ecological and digital transitions.

FRANCE 2030 – Première usine	
Expected contribution per project	EUR 5M (minimum)
Indicative budget	N/A
Opening date	19/01/2022
Deadline	15/12/2026
Work program	**https://www.bpifrance.fr/nos-appels-a-projets-concours/appel-a-projets-france-2030-premiere-usine**

Table 77 FRANCE 2030 – Première usine

Objectives
Accelerate the emergence of successful first industrialisation by industrial start-ups or innovative SMEs.

Main requirements
- Have a total expenditure of more than 5 million euros;
- Being carried out by a single company registered in France;
- Being an SME or a TNE with innovation and hypergrowth characteristics;
- Being carried out by an ad hoc structure, as long as it concerns the development of pooled industrial capacities for one or more start-ups and SMEs.

Sectors targeted by the call
Actions supported must fall under the scope of:
- Setting up pilot and/or industrial production sites to commercialise innovative products;
- Pooling of pre-industrial capacities in favour of start-ups.

5.1.2. Opportunities in Nouvelle-Aquitaine

REGION NOUVELLE-AQUITAINE – Aide au conseil en innovation	
Expected contribution per project	EUR 200K (maximum)
Indicative budget	N/A
Opening date	Continuous
Deadline	Continuous
Work program	https://les-aides.nouvelle-aquitaine.fr/economie-et-emploi/aide-au-conseil-en-innovation?recherche=innovation

Table 78 REGION NOUVELLE-AQUITAINE – Aide au conseil en innovation

Objectives
The objective of the support is to promote innovation as an effective lever for creating business and jobs, improving the quality of life of individuals and society. Innovation is understood here in its broadest sense: as a new process, process, use or new product implemented in the economic, social or societal and environmental fields. Innovations are therefore of all kinds, of all intensity (breakthrough, incremental or assembly innovation).

Main requirements
Being an SME or an association.

Sectors targeted by the call
Actions supported must fall under the scope of:

- Technical feasibility;
- Technology transfer services;
- Management;
- Preliminary studies;
- Technological assistance;
- Training;
- Industrial property;
- Design.

REGION NOUVELLE-AQUITAINE – Energies renouvelables : technologies et vecteurs énergétiques innovants	
Expected contribution per project	N/A
Indicative budget	N/A
Opening date	16/02/2023
Deadline	13/04/2023
Work program	https://les-aides.nouvelle-aquitaine.fr/transition-energetique-et-ecologique/energies-renouvelables-technologies-et-vecteurs-energetiques-innovants?recherche=maritime

Table 79 REGION NOUVELLE-AQUITAINE – Energies renouvelables : technologies et vecteurs énergétiques innovants

Objectives
This call aims to facilitate the setting up, throughout the region, of development sites for renewable energies new technologies, resulting from R&D:

- First industrial sites (with real production size);
- Demonstration platforms for the targeted technological bricks (pre-industrialized prototype, reduced scale).

Main requirements
Can benefit from the call for projects (non-exhaustive list):

- The industrial consortia of the technological sectors concerned;
- Innovative equipment manufacturers (particularly regional ones) with the capacity to initiate projects and co-invest;
- Renewable energy developers;
- Energy companies and traders of energy vectors or associated services
- Local energy distribution companies;
- Local authorities wishing to innovate in the field of renewable energies;
- CO^2-emitting companies concerned with reducing their climate impact.

Sectors targeted by the call
Actions supported must fall under the scope of:

- The production and use of "green" gases;
- The production and use of 2nd and 3rd generation fuels for clean road, aeronautical or maritime mobility;
- The sustainable capture and economic recovery of fatal CO2 or bioCO2.

REGION NOUVELLE-AQUITAINE – Innovation Start-up	
Expected contribution per project	EUR 3M (maximum)
Indicative budget	N/A
Opening date	Continuous
Deadline	Continuous
Work program	https://les-aides.nouvelle-aquitaine.fr/economie-et-emploi/innovation-start?recherche=innovation

Table 80 REGION NOUVELLE-AQUITAINE – Innovation Start-up

Objectives

- Stimulate new actions to move to an acceleration phase in the emergence and growth of innovative start-ups;
- Supporting start-up projects from the incubation phase to the deployment phase, including the intermediate seed stage.

Main requirements

Innovative companies established in Nouvelle-Aquitaine:

- Registered for a maximum of 5 years;
- Which aim to develop a product and/or service based on a technological or non-technological innovation;
- Whose business model presents a risk;
- And have not yet distributed profits.

Sectors targeted by the call

N/A

REGION START-UP – Innovations technologiques pour l'énergie à bord des bateaux	
Expected contribution per project	N/A
Indicative budget	N/A
Opening date	01/07/2022
Deadline	30/06/2023
Work program	https://les-aides.nouvelle-aquitaine.fr/economie-et-emploi/innovations-technologiques-pour-lenergie-bord-des-bateaux?recherche=innovation

Table 81 REGION START-UP – Innovations technologiques pour l'énergie à bord des bateaux

Objectives
This call for projects aims to accelerate energy innovation on board ships, in line with the objectives of the Neo Terra roadmap for ecological and energy transition, and with the Regional Economic Development Plan for Innovation and Internationalization (SRDEII).

Main requirements
Consortia of actors, which can bring together:

- One or more companies, technology transfer centers, research laboratories, associations or public authorities located in the Nouvelle-Aquitaine region;
- Allowing a reduction in energy impact thanks to a breakthrough innovation close to the market in terms of maturity;
- Having economic benefits for the territory.

Sectors targeted by the call
Actions supported must contribute to:

- Encourage technological innovation and interaction between the marine and marine industries and energy storage;
- Enable a reduction in the energy impact of the nautical-naval sector.

5.1.3. Opportunities in Occitanie

FRANCE 2030 – I-Démo régionalisé	
Expected contribution per project	N/A
Indicative budget	EUR 30M
Opening date	20/06/2022
Deadline	31/12/2025
Work program	**https://hubentreprendre.laregion.fr/financement/aap-i-demo-regionalise**

Table 82 FRANCE 2030 – I-Démo régionalisé

Objectives
The program's ambition is to:
- Fostering growth and competitiveness;
- Strengthen the market positions of industrial and service players;
- Encourage collaboration between companies and research organisations.

Main requirements
- Being a consortium of partners made up of at least 2 companies, including one SME or ETI, and at least one research partner;
- Maximum of 5 partners;
- Only one company as the consortium leader;
- Being linked to the Occitanie region either by the impact of the project or by the location of at least one of the partners.

Sectors targeted by the call
Actions supported must fall under the scope of:
- Healthy, sustainable and territorialized food;
- Water: economy and controlled management, uses and risks;
- Coastal and marine economy;
- Health, well-being & ageing well;
- Intelligent and sustainable mobility (autonomous vehicle, aeronautics, space, automobile, rail);
- Intelligent and sustainable materials and associated processes;
- Energy transition of territories and regional economy;
- Big data, AI and cybersecurity.

FRANCE 2030 – Projets d'innovation	
Expected contribution per project	EUR 75k-500k
Indicative budget	EUR 40M
Opening date	29/06/2022
Deadline	2025
Work program	**https://hubentreprendre.laregion.fr/financement/france-2030-regionalise-aap-projets-dinnovation**

Table 83 FRANCE 2030 – Projets d'innovation

Objectives
The program's ambition is to promote the marketing of innovative products and services with high added value within the framework of State/Region co-financing within the Programme des Investissements d'Avenir (PIA).

Main requirements
- Being an SME or an ETI located in the Occitanie region;
- Being eligible for state aid.

Sectors targeted by the call
Actions supported must fall under the scope of:
- Healthy, sustainable and territorialized food;
- Water: economy and controlled management, uses and risks;
- Coastal and marine economy;
- Health, well-being & ageing well;
- Intelligent and sustainable mobility (autonomous vehicle, aeronautics, space, automobile, rail);
- Intelligent and sustainable materials and associated processes;
- Energy transition of territories and regional economy;
- Big data, AI and cybersecurity.

PLAN LITTORAL 21 –Avenir littoral 2023	
Expected contribution per project	N/A
Indicative budget	EUR 600K
Opening date	16/02/2023
Deadline	13/04/2023
Work program	https://www.polemermediterranee.com/Actualites/Appel-a-projets/Lancement-de-la-5e-edition-de-l-appel-a-projets-Avenir-Littoral-en-Occitanie

Table 84 PLAN LITTORAL 21 – Avenir littoral 2023

Objectives
The program's ambition is to support the development of concrete and innovative solutions to the challenges of global warming, preservation of biodiversity and demographic pressure.

Main requirements
- Being a company based based in Occitanie or being a French/European company wishing to establish itself there by developing sustainable partnerships;
- Being led by a company and organised as a consortium (industrial, scientific, association) or solely as a subcontractor.

Sectors targeted by the call
Actions supported must contribute to:
- Support for the sustainable transition of the fisheries sector (valorisation of marine bioresources and their co-products, decarbonisation of fleets, etc);
- Support for the sustainable transition of the aquaculture sector and the development of new markets.

5.1.4. Opportunities in Région Sud Provence-Alpes-Côte d'Azur

FEDER – Accélérer la transition juste des Bouches-du-Rhône	
Expected contribution per project	N/A
Indicative budget	EUR 30M
Opening date	20/06/2022
Deadline	31/12/2025
Work program	https://hubentreprendre.laregion.fr/financement/aap-i-demo-regionalise

Table 85 FEDER – Accélérer la transition juste des Bouches-du-Rhône

Objectives
This call aims to support:

- The transformation of the productive system in the high carbon intensity sectors impacted by the transition in order to maintain jobs while significantly reducing greenhouse gas emissions;
- The diversification of the territorial economy by relying on sectors with a high potential for diversification and sustainable development with the aim of creating high added value jobs.

Main requirements

- Being an SME, a research establishment or any public organisation;
- Have a direct impact on the Bouches-du-Rhône department no matter the location of the project leader's head office.

Sectors targeted by the call
Actions supported must contribute to:

- Support the sustainable transition of the fisheries sector (valorisation of marine bioresources and their co-products, decarbonisation of fleets, etc);
- Support the sustainable transition of the aquaculture sector and the development of new markets.

PIA 4 – Projets collaboratifs de Recherche & Développement – I-Démo régionalisé	
Expected contribution per project	➢ EUR 500K-4M for intra-regional projects; ➢ EUR 1M-4M for inter-regional projects.
Indicative budget	N/A
Opening date	On-going
Deadline	31/12/2025 or until all funding is exhausted
Work program	http://innovationavenir-provencealpescotedazur.fr/Projets-I-Demo-Regionalise

Table 86 PIA 4 – Accélérer la transition juste des Bouches-du-Rhône

Objectives
This action aims to strengthen the positions of industrial and service players in buoyant markets in order to consolidate or create a fabric of sustainable and durable collaborative industrial relations between large, medium and small companies.

Main requirements
- Being led by a company carrying out R&D work;
- Maximum of 5 partners within each consortium;
- For intra-regional projects: at least two regional companies including one SME and a regional research institution;
- Carry out a mission of general interest.

Sectors targeted by the call
Actions supported must fall under the scope of:
- Naturalness;
- Energy transition;
- Ecological transition;
- Aerospace, security, defence;
- Smart, communicating and secure technologies;
- Optics, photonics;
- Green chemistry and advanced materials;
- Tourism, culture, sport;
- Health and silver economy;
- Blue economy.

PIA 4 – Projets d'accompagnement et transformation des filières	
Expected contribution per project	EUR 400K-5M
Indicative budget	N/A
Opening date	On-going
Deadline	31/12/2025 or until all funding is exhausted
Work program	**http://innovationavenir-provencealpescotedazur.fr/Projets-Filieres**

Table 87 PIA 4 – Projets d'accompagnement et transformation des filières

Objectives
Support will be targeted at SMEs and TSEs engaged in research, development and innovation (including non-technological innovation) to promote their growth and competitiveness.

Main requirements
- Being a company, a research establishment, a structure federating several companies located in the Provence-Alpes-Côte d'Azur region;
- Have an important stake in terms of industrialisation, activity and employment prospects;
- Demonstrate a real commitment to the energy transition and sustainable development.

Sectors targeted by the call
Actions supported must fall under the scope of:
- Naturalness;
- Tourism, culture, sport;
- Health and silver economy;
- Blue economy;
- Smart, communicating and secure technologies;
- Aerospace, security and defence;
- Optics-phonics;
- Green chemistry and advanced materials;
- Ecological transition;
- Energy transition.

PIA 4 – Projets d'innovation	
Expected contribution per project	➢ EUR 75K-200K for projects in the "feasibility" phase; ➢ EUR 75K-500K for projects in the "development and pre-industrialisation" phase.
Indicative budget	N/A
Opening date	On-going
Deadline	12/31/2025 or until all funding is exhausted
Work program	**http://innovationavenir-provencealpescotedazur.fr/Projets-d-Innovation**

Table 88 PIA 4 – Projets d'innovation

Objectives
Support will be targeted at SMEs and TSEs engaged in research, development and innovation (including non-technological innovation) to promote their growth and competitiveness.

Main requirements
- Being an SME located in the Provence-Alpes-Côte d'Azur region;
- Have a breakthrough and innovative character;
- Have economic, social and environmental benefits.

Sectors targeted by the call
Actions supported must fall under the scope of:
- Naturalness;
- Tourism, culture, sport;
- Health and silver economy;
- Blue economy;
- Smart, communicating and secure technologies;
- Aerospace, security and defence;
- Optics-phonics;
- Green chemistry and advanced materials;
- Ecological transition;
- Energy transition.

5.2. GREECE

5.2.1. National opportunities

NSRF, Competitiveness 2021-2027 – Pre-publication of the Action "Research – Innovate 2021-2027"	
Expected contribution per project	➢ EUR 60M for Research & Development by enterprises; ➢ EUR 180M for Collaboration projects by enterprises and research organisations; ➢ EUR 39M for Utilization of research results; ➢ EUR 21M for Seal of excellence for businesses.
Indicative budget	EUR 300M
Opening date	On-going
Deadline	N/A
Work program	http://21-27.antagonistikotita.gr/prodimosiefsi-tis-drasis-erevno-kainotomo-2021-2027/

Table 89 NSRF, Competitiveness 2021-2027 – Pre-publication of the Action "Research – Innovate 2021-2027"

Objectives

- To strengthen Research and Innovation to place innovation at the heart of a sustainable and resilient recovery from the pandemic;
- To accelerate the practical and digital transition and ensure the technological development of Greece.

Main requirements

- Enterprises and other entities linked to enterprises;
- Research organisations and other related entities linked to research organisations.

To participate, enterprises must be legally incorporated and operate in Greece or another European Union Member State either as legal entities or as individual companies.

Sectors targeted by the call

Actions supported must fall within one of the four interventions:

- Research and Development by Enterprises;
- Business partnerships with research organisations;
- Exploitation of research results;
- Label of excellence for enterprises.

NSRF, Competitiveness 2021-2027 – Pre-publication of the Action "Digital Transformation for SMEs"	
Expected contribution per project	➢ EUR 18K-30K for Basic digital transformation for SMEs; ➢ EUR 50K-650K for Advanced digital transformation for SMEs; ➢ EUR 200K-1.2M for Cutting-edge digital transformation for SMEs.
Indicative budget	EUR 300M
Opening date	23/02/2023
Deadline	Until budget is exhausted
Work program	http://21-27.antagonistikotita.gr/desmi-draseon-psifiakos-metaschimatismos-mme-2/

Table 90 NSRF, Competitiveness 2021-2027 – Pre-publication of the Action "Digital Transformation for SMEs"

Objectives
This call aims to close the gap in the adoption and integration of modern digital technologies by Greek companies in their production activities.

Main requirements
Potential beneficiaries for all three types of actions are microenterprises, small enterprises and medium-sized enterprises while the indicative eligible costs are:

- Equipment costs;
- Software costs;
- External services related to digital transformation.

Sectors targeted by the call
Actions supported must fall under the scope of:

- Basic digital transformation of SMEs;
- Advanced digital transformation for SMEs;
- Cutting-edge digital transformation for SMEs.

NSRF, Competitiveness 2021-2027 – Pre-publication of the Action "Green Transition for SMEs"	
Expected contribution per project	➢ EUR 200K-1M for Green transition for SMEs; ➢ 30K-200K for Green productive investment.
Indicative budget	EUR 700M
Opening date	N/A
Deadline	N/A
Work program	http://21-27.antagonistikotita.gr/prodimosiefsi-desmis-draseon-prasini-metavasi-mme/

Table 91 NSRF, Competitiveness 2021-2027 – Pre-publication of the Action "Green Transition for SMEs"

Objectives
This call aims to upgrade the country's small and medium-sized enterprises by supporting their costs in:

- Buildings;
- Installations and surrounding space;
- Equipment;
- Product certification;
- Marketing;
- Energy efficiency improvement;
- Energy savings.

Main requirements
The submission of an application for funding is allowed either only in "Action 1 - "Green Transformation of SMEs" or only in "Action 2 - "Green Productive Investment of SMEs".

Sectors targeted by the call
Actions supported must fall under the scope of:

- Green transition of SMEs;
- Green productive investment.

5.3. POLAND

5.3.1. National opportunities

Important Projects of Common European Interest (IPCEI) – 1.1 Feng	
Expected contribution per project	N/A
Indicative budget	EUR 4.4G
Opening date	07/02/2023
Deadline	31/10/2023
Work program	**FENG 1.1 - Ścieżka SMART : granty.pl**

Table 92 Important Projects of Common European Interest (IPCEI) – 1.1 Feng

Objectives
Support for complex projects enterprises and their consortia within implementation of the R&D&I process. Complex projects meet the needs of entrepreneurs' scope: R&D works, implementation of innovations, development R&D infrastructure, internationalization, development competencies of employees and managers enterprise, digitization and greening activities of enterprises.

Main requirements
- Being an enterprise (SMEs and consortia of entrepreneurs or entrepreneurs with research or NGOs);
- Fall within the thematic scope of "IPCEI EuBatIn - European Battery Innovation" and at least one National Smart Specialization.

Sectors targeted by the call
Actions supported must fall under the scope of:
- Research & Development;
- Innovation and investment.

Important Projects of Common European Interest (IPCEI) – 2.10 Feng	
Expected contribution per project	N/A
Indicative budget	PLN 593M
Opening date	15/03/2023
Deadline	14/04/2023
Work program	**FENG 2.10 - IPCEI : granty.pl**

Table 93 Important Projects of Common European Interest (IPCEI) – 2.10 Feng

Objectives

The purpose of the call for proposals is to finance projects of Polish enterprises participating in the implementation of Important Projects of Common European Interest (so-called IPCEI projects).

Main requirements

- Being an entrepreneur (large companies and small and medium enterprises - SMEs);
- Fall within the thematic scope of "IPCEI EuBatIn - European Battery Innovation" and at least one National Smart Specialization.

Sectors targeted by the call

Actions supported must contribute to:

- The extension of pilot installations;
- The development of completely new apparatus and devices.

5.4. ROMANIA

5.4.1. National opportunities

National Recovery and Resilience Plan	
Expected contribution per project	N/A
Indicative budget	EUR 29.18G
Opening date	N/A
Deadline	N/A
Work program	**https://proiecte.pnrr.gov.ro/#/home**

Table 94 National Recovery and Resilience Plan

Objectives
The financing provided by the Recovery and Resilience Facility will support the implementation by 2026 of crucial investments and reform measures put forward by Romania to emerge stronger from COVID-19 pandemic. The Romanian plan forms part of an unprecedented coordinated EU response to COVID-19 crisis, to address common European challenges by embracing the green and digital transitions, to strengthen economic and social resilience and the cohesion of the Single Market.

Main requirements
The application criteria for each area under the programme are not yet defined.

Sectors targeted by the call
Actions supported must fall under the scope of:

- Sustainability of public finances and the pension system;
- Healthcare;
- Public administration;
- Business environment;
- Education;
- Green and digital transition.

SMART GROWTH, DIGITIZATION AND FINANCIAL INSTRUMENTS PROGRAM – Priority 1: Supporting and promoting an attractive and competitive CDI system in Romania	
Expected contribution per project	N/A
Indicative budget	EUR 1.36G
Opening date	N/A
Deadline	N/A
Work program	https://oportunitati-ue.gov.ro/program-operational-crestere-inteligenta-digitalizare-si-instrumente-financiare/

Table 95 SMART GROWTH DIGITIZATION AND FINANCIAL INSTRUMENTS PROGRAM – Priority 1: Supporting and promoting an attractive and competitive CDI system in Romania

Objectives

- Development and strengthening of research and innovation capacities and the adoption of advanced technologies;
- Strengthening the sustainable growth and competitiveness of SMEs and creating jobs in SMEs, including through productive investments;
- Developing skills for smart specialisation, industrial transition and entrepreneurship.

Main requirements

- Being an SME, a public research organisation or a consurtium;
- Carry out research and innovation activities;
- Develop activities and specialised services for start-up and scale-up support organisations.

Sectors targeted by the call

Actions supported must fall under the scope of:

- Research & Development;
- Innovation and digitalisation.

SMART GROWTH, DIGITIZATION AND FINANCIAL INSTRUMENTS PROGRAM – Priority 2: Digitization in central public administration and the business environment	
Expected contribution per project	N/A
Indicative budget	EUR 811M
Opening date	N/A
Deadline	N/A
Work program	https://oportunitati-ue.gov.ro/program-operational-crestere-inteligenta-digitalizare-si-instrumente-financiare/

Table 96 SMART GROWTH DIGITIZATION AND FINANCIAL INSTRUMENTS PROGRAM – Priority 2: Digitization in central public administration and the business environment

Objectives

- Development and strengthening of research and innovation capacities and the adoption of advanced technologies;
- Harnessing the benefits of digitization for citizens, businesses, research organisations and public authorities.

Main requirements

- Being an SME in the IT&C sector, a public administration or a European Digital Innovation Hub;
- Develop new services/applications/products;
- Benefit citizens and businesses.

Sectors targeted by the call

Actions supported must fall under the scope of:

- Research & Development;
- Innovation and digitalisation.

Northwest Regional Program	
Expected contribution per project	N/A
Indicative budget	EUR 1.43G
Opening date	N/A
Deadline	N/A
Work program	**https://proiecte.pnrr.gov.ro/#/home**

Table 97 Northwest Regional Program

Objectives
The purpose of the "North-West Regional Program 2021-2027" is to contribute to sustainable development, to capitalising on the natural, material and human resources of the North-West Development Region, for the purpose of sustained, constant development that will make it one of the most dynamic European regions so that by 2030 there is a network of interconnected and innovative localities that use technology to facilitate sustainable development.

Main requirements
The application criteria for each area under the programme are not yet defined.

Sectors targeted by the call
Actions supported must fall under the scope of:

- Green transition;
- Digital transformation;
- Smart, sustainable and inclusive growth;
- Social and territorial cohesion;
- Health and economic, social and institutional resilience;
- Policies for the new generation.

5.5. SPAIN

5.5.1. National opportunities

AGRUPACIONES EMPRESARIALES INNOVADORAS (AEI) – Spring and summer 2023	
Expected contribution per project	N/A
Indicative budget	EUR 50M
Opening date	➢ 1st call: spring; ➢ 2nd call: summer.
Deadline	N/A
Work program	https://www.mincotur.gob.es

Table 98 AGRUPACIONES EMPRESARIALES INNOVADORAS (AEI) – Spring and summer 2023

Objectives

Improving the competitiveness of small and medium-sized enterprises. It subsidies projects and actions aimed at the implementation and development of the coordination and management structures of "incipient" innovative agents; the carrying out of technical feasibility studies either individually by the innovative business group or through collaboration between several innovative business groups; and the development of innovative Digital Technologies projects through collaboration between several innovative business groups.

Main requirements

- Being a company and/or a public or private research center involved in a process of collaborative exchange;
- Execute joint projects of an innovative nature.

This list is a non-exhaustive one and the requirements mentioned may be different according to the type of grant they refer to.

Sectors targeted by the call

Actions must contribute to:

- Support the operation of innovative business groups;
- Technical feasibility studies;
- Digital technology projects.

CDTI – Ayudas a PYMES Sello de Excelencia	
Expected contribution per project	EUR 2.5M (maximum)
Indicative budget	EUR 30M
Opening date	November 2023
Deadline	November 2023
Work program	**https://www.cdti.es**

Table 99 CDTI – Ayudas a PYMES Sello de Excelencia

Objectives

Support for R&D projects carried out by SMEs, which have obtained a Seal of Excellence in the call of the EIC Accelerator instrument, in order to:

- Enable beneficiary companies to validate their technology in relevant environments;
- Refine the business model;
- Strengthen the structure for subsequent scaling up.

Main requirements

- SMEs validly constituted at the time of submission of the application for aid under this call for proposals;
- They must have their tax domicile in Spanish territory;
- They must have obtained the Stamp of Excellence in the first or second call of the "Accelerator" instrument of the European Innovation Council included in the EIC Work Program for 2023.

Sectors targeted by the call

Actions supported must fall under the scope of:

- Research & Development (TRL level 5 to 8);
- Deployment activities (TRL level 9).

Proyectos Estratégicos CIEN del Centro para el Desarrollo Tecnológico Industrial (CIEN)	
Expected contribution per project	EUR 4.5M-20M
Indicative budget	N/A
Opening date	Continuous
Deadline	Continuous
Work program	**https://www.cdti.es**

Table 100 Proyectos Estratégicos CIEN del Centro para el Desarollo Tecnológico Industrial (CIEN)

Objectives

The main objective of this topic is to finance R&D projects, developed in effective collaboration by business groups and aimed at carrying out planned research in strategic areas for the future and with potential international projection.

Main requirements

- Being a business consortium from 3 to 8 companies;
- At least 2 companies must be autonomous and one must be an SME;
- The leader must be a large or medium-sized company.

Sectors targeted by the call

Actions supported must fall under the scope of:

- Research & Development;
- Business collaboration;
- Internationalisation.

Consorcios de I+D Transferencia Cervera (Red Cervera)	
Expected contribution per project	EUR 175K
Indicative budget	N/A
Opening date	Continuous
Deadline	Continuous
Work program	**https://www.cdti.es**

Table 101 Consorcios de I+D Transferencia Cervera (Red Cervera)

Objectives

To support individual R&D projects developed by companies that collaborate with state-level Technology Centres in the Cervera priority technologies.

Main requirements

- Carry out a research and business development project;
- Demonstrate a differential technological aspect over the existing technologies in the market.

Sectors targeted by the call

Actions supported must fall under the scope of:

- Research & Development;
- Business collaboration.

Misiones Ciencia e Innovación	
Expected contribution per project	➢ EUR 4M-15M for large companies; ➢ EUR 1.5M-3M for SMEs
Indicative budget	EUR 125M
Opening date	June 2023
Deadline	September 2023
Work program	**https://www.cdti.es**

Table 102 Misiones Ciencia e Innovación

Objectives

The objective is to fund pre-competitive research projects, led by companies that pursue relevant research that proposes solutions to cross-cutting and strategic challenges of Spanish society, improve the knowledge and technology base on which Spanish companies rely to compete, while stimulating public-private cooperation. The program seeks to address four defined challenges:

- Fight against climate change;
- Promotion of energy transition;
- Sustainability and reinforcement of actions in support of the circular economy;
- Development of technologies that contribute to the next industrial revolution.

Main requirements

Being a consortium (8 members maximum) either of:

- Large companies including at least one SME;
- SMEs led by a medium-sized company.

Sectors targeted by the call

Actions supported must fall under the scope of:

- Climate change;
- Energy transition;
- Circular economy;
- Next industrial revolution.

Proyectos de innovación CDTI	
Expected contribution per project	EUR 175K-400K
Indicative budget	N/A
Opening date	Continuous
Deadline	Continuous
Work program	**https://www.cdti.es**

Table 103 Proyectos de innovación CDTI

Objectives

To support projects very close to the market, with medium/low technological risk and short payback periods, improving the competitiveness of the company through the incorporation of emerging technologies.

Main requirements

Being a large Spanish company.

Sectors targeted by the call

Actions supported must fall under the scope of:

- Emerging technologies;
- Process improvement;
- Supply method.

Proyectos de Investigación y Desarrollo (PID)	
Expected contribution per project	EUR 175K-250K
Indicative budget	EUR 5M
Opening date	Continuous
Deadline	Continuous
Work program	**https://www.cdti.es**

Table 104 Proyectos de Investigación y Desarrollo

Objectives

R&D projects are projects aimed at the creation and/or significant improvement of a productive process, product or service that can include both industrial research activities and experimental development.

Main requirements

Carry out an innovative project.

Sectors targeted by the call

Actions must contribute to:

- The creation of a production process, product or service;
- The significant improvement of a production process, product or service.

MINTECO – Programa de Apoyo a los Digital Innovation Hubs (PADIH)	
Expected contribution per project	EUR 30K (maximum)
Indicative budget	EUR 16.6M
Opening date	Continuous
Deadline	Continuous
Work program	**https://www.boe.es**

Table 105 Programa de Apoyo a los Digital Innovation Hubs (PADIH)

Objectives
The main objective of this topic is to elaborate specialized technical consulting services that facilitate the adoption of disruptive digitization solutions by its beneficiaries.

Main requirements
- Being entities with their own legal personality that are part of Spanish digital innovation centres that have been selected by the Commission;
- Being part of the European EDIH network.

Sectors targeted by the call
N/A

5.5.2. Opportunities in the Basque Country

ELKARLANEAN – Inter-company collaboration	
Expected contribution per project	EUR 6K-60K
Indicative budget	N/A
Opening date	March 2023
Deadline	April 2023
Work program	**https://www.bizkaia.eus/es**

Table 106 ELKARLANEAN – Inter-company collaboration

Objectives

The program aims to develop the inter-company collaboration through two types of projects:

- Collaborative innovation projects consistent with the companies' business strategies;
- The analysis of the feasibility of business opportunities identified between several companies that may subsequently lead to innovation projects.

Main requirements

- Being a company whose activity is within the sectors of Industry, Construction, Transport, Services related to industry, Tourism and Wholesale Trade;
- To have its registered office and tax domicile in Bizkaia;
- To have at least one production or high added value center in Bizkaia;
- To have a workforce of between 5 and 100 people in full-time annual equivalents.

Sectors targeted by the call

Actions supported must fall under the scope of:

- Innovation projects;
- Technical, economic and legal feasibility.

Gauzatu	
Expected contribution per project	EUR 200K-1.5M
Indicative budget	EUR 28M
Opening date	29/12/2022
Deadline	17/04/2023
Work program	**https://www.spri.eus/es**

Table 107 Gauzatu

Objectives

This program supports the promotion of Industrial SMEs or those related to Industry and having a Technological and/or Innovative Base, with the aim of increasing their impact on the technological development and innovation taking place in the Basque Country. In this way, the aim is to increase the competitiveness of the economic fabric, boosting productivity and job creation in Basque companies.

Main requirements

- Being located in the Basque country;
- To have an impact on the employment there.

Sectors targeted by the call

Actions supported must contribute to:

- Increase the productive capabilities of the company;
- Increase the competitive capabilities of the company;
- Increase the technological capabilities of the company.

Hazitek	
Expected contribution per project	➢ EUR 100K minimum for a competitive R&D project; ➢ EUR 4M minimum for a strategic R&D project.
Indicative budget	EUR 95M
Opening date	February 2023
Deadline	April 2023
Work program	**https://www.spri.eus/es**

Table 108 Hazitek

Objectives
Support for Industrial Research or Experimental Development projects, both competitive and strategic, in the business sector of the Basque Country and in the areas of specialisation of the Basque Country 2030 Science, Technology and Innovation Plan through 2 different lines of support:

- Competitive R&D projects (**eligible** for Galatea projects): aimed at both the development of new products, processes and services and the launch of New Science and Technology Based Companies (NSTBC);
- Strategic R&D projects (**non-eligible** for Galatea projects): arising from business leadership and taking advantage of the scientific and technological capabilities of the Basque Country.

Main requirements
Being a Basque company (large or SMEs), business group or association.

Sectors targeted by the call
Actions supported must fall under the scope of:

- Industrial Research;
- Experimental Development.

Sakondu	
Expected contribution per project	N/A
Indicative budget	EUR 800K
Opening date	May 2023
Deadline	September 2023
Work program	**https://www.spri.eus/es**

Table 109 Sakondu

Objectives
The SAKONDU program aims to help companies with little internationalisation to increase their presence abroad and promote sustainable development throughout the internationalisation process.

Main requirements
Being a Basque SMEs with less than 50% of exports.

Sectors targeted by the call
Actions supported must contribute to:

- Initiate or consolidate international strategy;
- Adapt products and services to global markets;
- Promotional actions and market research.

Zabaldu	
Expected contribution per project	N/A
Indicative budget	EUR 2.5M
Opening date	May 2023
Deadline	September 2023
Work program	**https://www.spri.eus/es**

Table 110 Zabaldu

Objectives
The ZABALDU program is aimed at helping highly internationalized Basque companies to penetrate markets in which they have little or no presence (turnover of less than 25% of total exports in 2021). Its ultimate objective is to promote the improvement of the competitiveness of companies, through the deepening of their international activity, and from a more inclusive and sustainable perspective, integrating sustainability in the business model, as well as in its internationalisation strategy.

Main requirements
Being a Basque SMEs with more than 50% of exports and less than 25% of export in the target market.

Sectors targeted by the call
Actions supported must fall under the scope of:

- Specialised advice on internationalisation;
- Consolidation of the international strategy.

5.5.3. Opportunities in Catalonia

ARC – Foment de l'Economía Circular	
Expected contribution per project	N/A
Indicative budget	EUR 1.3M
Opening date	Continuous
Deadline	Continuous
Work program	**https://residus.gencat.cat/ca**

Table 111 ARC – Foment de l'Economía Circular

Objectives
Promote projects to speed up the transition to a circular economy in Catalonia, improve the efficiency in the use of material resources and disrupt the global economic development of the consumption of resources.

Main requirements
Beneficiary companies, as long as they

- To have at least one operating establishment located in Catalonia;
- Carry out the project's main actions in Catalonia;
- To have direct benefits in the territorial scope of Catalonia.

Sectors targeted by the call
N/A

6. Clusters presentation

6.1. Aerospace Valley

Created in 2005, with today 828 members from both industry, including over 550 SMEs, and academia, Aerospace Valley is the most significant innovation competitiveness cluster in France in the field of Aeronautics, Space and Unmanned Systems, in Nouvelle-Aquitaine and Occitanie regions. With its ecosystems of excellence – Embedded and Communicating Systems, Structures, Materials and Mechanical Systems, Propulsion and Embedded Energy, Data Engineering and Artificial Intelligence, Industry of the Future, Aerospace Valley drives a supportive, competitive and attractive community, aimed at fostering innovation in view of growth. With 146,000 industrial employees, Aerospace Valley represents around 1/3 of the French aerospace workforce. Similarly, 8,500 researchers and scientists are active within the Aerospace Valley territory, thus representing 45% of French national R&D potential in the aerospace sector. As of October 2019, Aerospace Valley has obtained funding for 619 R&D projects representing an accumulated value of 1.6 billion Euro covering most scientific and technical fields related to the sectors of aerospace. Within the framework of the general French "*pôle de compétitivité*" program, which aims at stimulating employment by fostering local and regional competencies in technical and economic areas, Aerospace Valley strives to create an ambitious 35-40,000 new jobs by the horizon year 2025. Since December 2020, the *Institut Aéronautique et Spatial* (IAS), aerospace industry agency for international professional training, has merged with Aerospace Valley. Thanks to its network of more than 130 academic, industrial and institutional experts, the IAS has accompanied more than 3,800 professionals (airlines, aeronautical and space industrials, space agencies, civil aviation authorities, armed forces, universities, laboratories or research centers) in more than 100 countries, proposing tailor-made training solutions and support services, in France and abroad.

6.2. Baltic Sea and Space Cluster

The BSSC cluster is a key cluster in Central and Eastern Europe and the Baltic Sea region, it is also recognized in the maritime industry on a global scale, as evidenced by contacts with clusters in Asia, South Africa and the United States. The BSSC cluster is an active member of the European Network of Maritime Clusters, and the United Nations Global Compact whose cooperation is coordinated by the European Cluster Collaboration Platform.
The aim of the Cluster is to support innovation and development in the field of research, entrepreneurship, administration, and local government related to the Baltic Sea Region and the world ocean along with land and water facilities along the course of the Vistula and Oder rivers, economic and social ties of Pomerania and Poland with the countries of the Baltic Sea Region and fulfilling the role of the coordinating institution through:

- Creating a network of cooperation between enterprises, local government, universities, and business environment institutions;
- Increasing the innovative and integration capacity of maritime economy enterprises and the Vistula catchment area, supporting the construction and innovative development and competitive cluster;
- Creating conditions for effective commercialization of research results of universities and research and development units;
- Consultancy for enterprises, development of innovative technologies, support for economic initiatives;
- Development of professional qualifications and skills of working people to meet the needs of the regional economy;
- Participation in European and global organizations, especially in the organization of European clusters;
- Participation in the implementation of the priorities and activities of the European Union Strategy for the Baltic Sea Region in the area of the cluster's operation;
- Developing the economic and logistic potential of the 6th Pan-European Transport Corridor through cooperation with interested local government and economic associations, in particular with the Association of Amber Motorway Cities based in Gdynia;
- Participation in the International Economic Forum organized by the city of Gdynia;
- Co-creation of Polish maritime policy;
- Conducting information, educational, and lobbying activities in order to create the Pomeranian Voivodeship as an attractive one for investors;
- Ensuring the transfer of knowledge between Cluster Members.

6.3. CLUJ-IT

Cluj IT cluster has a unique particularity being one of the largest and oldest clusters in the country and at the same time the only one with 12 public universities members and 2 national research centers. As an active promoter of innovation, Cluj IT has recognized the importance of IT industry collaboration with the academic and research environment and other stakeholders along the industry's value chain and it provides a platform where cooperation and innovation are drivers of a planned change, which is to move companies from an industry based mainly on outsourcing to proprietary products (and services).
Cluj IT's strategic activities are driven by the needs and directions identified from within the cluster ecosystem and supported through strategic collaborations and transnational and cross-sectoral projects. At the ecosystem level, Cluj IT focuses its activities on 6 directions corresponding to the 6 internal groups: WG Data Intelligence, WG Brained City, WG Internationalisation, WG Learning and Development, WG Digital Health, WG Cybersecurity & Blockchain.
For the past 10 years Cluj IT Cluster has directed its focus and activities to supporting the ecosystem in its journey on becoming more resilient and more sustainable. In this regard, the cluster channelled its capability and actively contributed in developing new mechanisms and instruments by being part of strong European funded projects, but not limited to (8 projects in implementation at the moment).

6.4. CORALLIA

Corallia is an incubator, youth entrepreneurship accelerator and multi-Cluster facilitator that implements targeted interventions focusing on the management of Clusters, Incubators and Entrepreneurship Programmes.
Driven by the vision to establish the brand name "Innovation Designed in Greece", Corallia implements since 2005 targeted interventions of sustainable innovation ecosystems such as Clusters, Incubators & Entrepreneurship Programs playing a key role in the development of the Greek startup ecosystem.
In specific, it implements the most prominent accelerator in Greece in cooperation with Eurobank, the egg (enter-grow-go), the STARTAB Programme in partnership with Prince's Trust, the ESA BIC Greece Programme and many open innovation events (CASSINI Hackathon, ActInSpace, Copernicus hackathons). Corallia has also coordinated three highly specialised technology clusters with > 175 members, the gi-Cluster (Digital Creative Industries Technologies & Applications), mi-Cluster (Nano / Microelectronics Systems & Applications) & si-Cluster (Space Technologies & Applications). In addition, it manages the operation of the Innohub Business Innovation Center in Athens.
Corallia constantly pursues and establishes strategic European and global collaborations with the ultimate goal to facilitate SMEs' internationalisation in their target markets and nurture cross-sectoral innovation through the development of new industrial competitive value-chains in key sectors of the Greek economy. Some indicative collaborations are: Innorbit, UFO, GALATEA, GALACTICA, NEPTUNE, INCluSilver, FabSpace, S3FOOD, SPACE2WAVES, SURE5.0, CREATHRIV-EU, INTRANSIT, METASTARS…

6.5. CATALAN WATER PARTNERSHIP

The Catalan Water Partnership (CWP) is the Cluster of the sustainable use of water of Catalonia (Spain). The CWP was launched in 2008, as a nonprofit business-oriented strategic association. The CWP's mission is to improve the competitiveness of its members, while facilitates business opportunities, internationalization and cross sector cooperation with other sectors with an intensive use of water (agriculture, industry, tourism, etc).

The CWP promotes projects and multilevel collaborations, for developing innovative & sustainable solutions for the global water needs, in Catalonia, Spain and in any part of the world. The R&D projects promoted by CWP are aligned with the national and European innovation strategies and especially focused on the implementation of sustainable and circular economy solutions as well as to facilitate the implementation of digital and industry 4.0 technologies in the sector. For all of this, CWP is continuously looking for establishing strategic alliances with companies and centers of knowledge from any part of the world, to identify opportunities that bring its members to a worldwide advanced position in the global market.

The CWP involves more than 120 private and public partners of different profiles (consultancies, centers of knowledge, equipment manufacturers, SMEs, municipalities, engineering and other entities), that are representatives of the overall value chain of the water sector. CWP is part of the Catalonia Clusters program of the Catalonia Government, recognized as an Innovative Business Group (AEI) by the Spanish Ministry of Industry, Energy and Tourism, is part of the Spanish Technological Water Platform (PTEA) and participates in the European Water Partnership. At European level, the CWP has the Gold Label accreditation of European Cluster Management Excellence. It is also part of FENAEIC, Water Europe and the European ECCP cluster platform.

6.6. EURECAT

EUT R&D, innovation and training activities span from Industrial Technologies (metallic, plastic and composite materials, manufacturing processes, autonomous and professional robotics, functional printing and fabrics, simulations, sustainability and Chemistry) to Digital Technologies (Digital Humanities, Big Data Analytics, IT Security and Applied Artificial Intelligence, e-health, data mining and multimedia technologies) Sustainability (Water, Air, Soil, Waste, Energy, Batteries and Environmental Impact) and Biotech (Omic science and Nutrition & health). Additionally, EUT has been accepted by the European Commission as a KETs (Key Enabling Technologies) Technology Centre to collaborate with SMEs on close-to-market research and innovation activities.
In GALATEA, EUT provides his climate, water and blue economy expertise in terms of digitalization and industry 4.0. In this regards, EUT role is to give advice and support to SMEs in the elaboration of technologies susceptible of being exploited and promoted in the following areas: (i) Smart Ports and Logistics; (ii) Smart Ships; (iii) Smart Shipyard; and (iv) Maritime Surveillance. This service includes the promotion of novel technologies such as artificial intelligence applied to the process optimization, machine learning algorithms for risk assessment, novel digital systems for the port transition to industry 4.0, etc. Main services that EUT could offer are related to: (i) consultancy digital services for SMEs and authorities; (ii) public programs funding opportunities; and (iii) support in the elaboration of business plans in terms of digitalization.

6.7. BASQUE MOBILITY AND LOGISTICS CLUSTER

Since 2005 the Basque Mobility and Logistics Cluster works in the fields of people mobility, freight logistics and related industry developing transport products, solutions, services and specific technologies (ITS –Intelligent Transport Systems) which make mobility safe, efficient, sustainable and technologically advanced.
The Cluster works in the areas of innovation, internationalisation, cooperation and promotion. Its mission is to drive the development and strengthening of companies and associated stakeholders by boosting innovation, internationalisation, sectoral cooperation and fostering synergies with other sectors. The objective is to offer a broad concept of Mobility and Logistics, facilitate dynamic cooperation between stakeholders, enhance competitiveness, offer a differential value proposition, and interact with the other sectors.
The Cluster seeks to consolidate its position as the cluster organisation of excellence, by promoting the efficient and sustainable competitive improvement of the sector in the Basque Country, by supporting the development of Basque strategic sectors and by contributing to a better quality of life for society.
The activity of its 111 members reaches 15% of the Basque Country's GDP, with an investment of 3.3% allocated to R&D.

6.8. PÔLE MER MÉDITERRANÉE

Certified as a global competitiveness cluster in 2005, Pôle Mer Méditerranée, based in south of France, brings together and supports start-ups, SMEs, large groups, research, and training organisations around six areas of the Blue Economy with high innovation potential:

1. Maritime defence, security, and safety;
2. Naval and yachting;
3. Marine energy and mining resources;
4. Marine biological resources;
5. Coastline and marine environment;
6. Ports, infrastructures and logistics.

In SUD Provence-Alpes-Côte d'Azur, Occitanie and Corsica regions, Pôle Mer Méditerranée gathers and important and strong network of more than 470 members, around maritime and coastal themes with high societal and environmental challenges. It promotes the emergence and development of innovative collaborative projects and supports its members in the growth of their businesses.