



Infos day Horizon Europe

Atelier : Appels Twin transition, Resilience & Digital emerging 2024



Cluster 4

19/04/2023

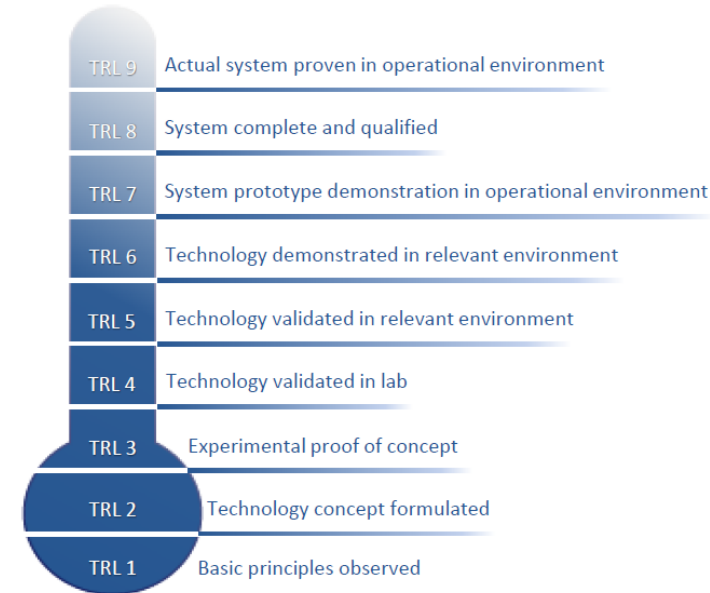
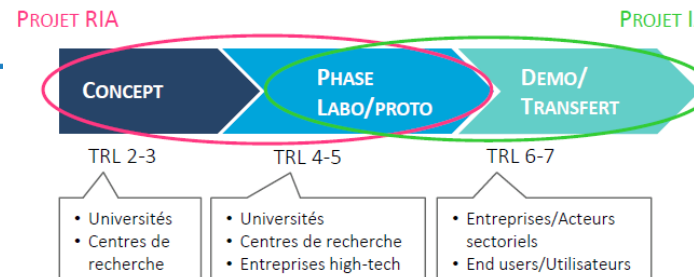


Légende

| | |
|------------------------------------|---|
| RIA RESEARCH & INNOVATION ACTIONS | 100% FUNDING |
| IA INNOVATION ACTIONS | 70% FUNDING: ENTREPRISES |
| | 100% FUNDING - NON PROFIT ORGANISATIONS |
| CSA COORDINATION & SUPPORT ACTIONS | 100% FUNDING |

• ECHELLE DE TRL

- Maturité technologie
- 1 projet / 1 techno = 1 degré de TRL
- 1 techno = plusieurs briques techno
 - 1 brique = 1 degré de TRL



RIA → **TYPE D'ACTION**



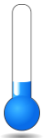
6 M€ → **BUDGET / PROJET**



29.09.21 → **DEADLINE**



4 → **NB PROJETS FINANCÉS**



3-5 → **TRL TECHNOLOGY EDGINESS LEVEL**



HORIZON EUROPE

**BUDGET =
€95,5 BILLION**

SPECIFIC PROGRAMME IMPLEMENTING HORIZON EUROPE & EIT*

Exclusive focus on civil applications



Pillar I EXCELLENT SCIENCE

European Research Council

Marie Skłodowska-Curie

Research Infrastructures



Pillar II GLOBAL CHALLENGES & EUROPEAN INDUSTRIAL COMPETITIVENESS

Clusters

- Health
- ~~Culture, Creativity & Inclusive Society~~
- Civil Security for Society
- Digital, Industry & Space
- Climate, Energy & Mobility
- Food, Bioeconomy, Natural Resources, Agriculture & Environment

Joint Research Centre

+

MISSIONS



Pillar III INNOVATIVE EUROPE

European Innovation Council

European innovation ecosystems

European Institute of Innovation & Technology*

WIDENING PARTICIPATION AND STRENGTHENING THE EUROPEAN RESEARCH AREA

Widening participation & spreading excellence

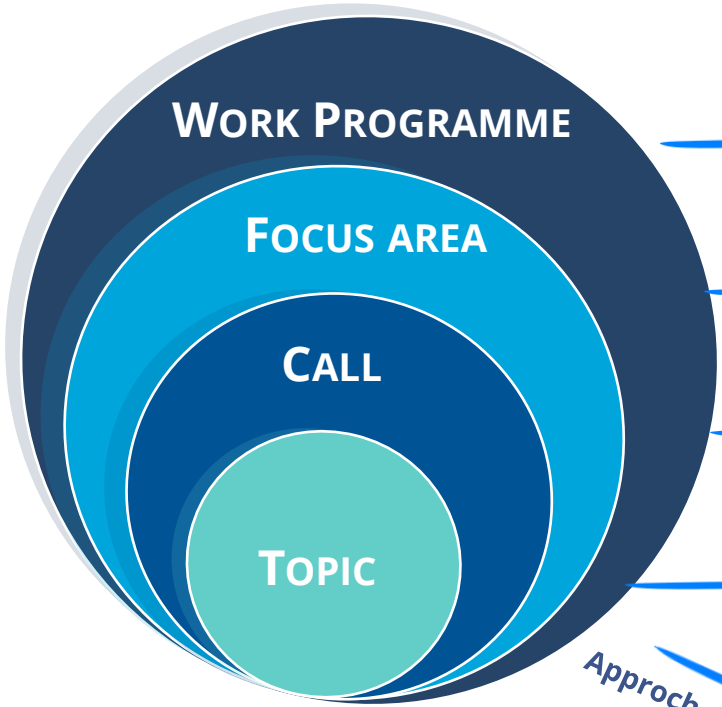
Reforming & Enhancing the European R&I system

**PURPOSE: REACH
OBJECTIVES OF EUROPEAN
GREEN DEAL**

| | |
|--|--|
| EU POLICY PRIORITIES | Overall priorities of the European Union (Green Deal, Fit for the Digital Age,...) |
| KEY STRATEGIC ORIENTATIONS | Set of strategic objectives within the EC policy priorities where R&I investments are expected to make a difference |
| IMPACT AREAS | Group of expected impacts highlighting the most important transformation to be fostered through R&I |
| EXPECTED IMPACTS = DESTINATIONS | Wider long term effects on society (including the environment), the economy and science, enabled by the outcomes of R&I investments (long term). It refers to the specific contribution of the project to the work programme expected impacts described in the destination. Impacts generally occur some time after the end of the project. |
| EXPECTED OUTCOMES = TOPICS | The expected effects, over the medium term, of projects supported under a given topic. The results of a project should contribute to these outcomes, fostered in particular by the dissemination and exploitation measures. This may include the uptake, diffusion, deployment, and/or use of the project's results by direct target groups. Outcomes generally occur during or shortly after the end of the project. |
| PROJECT RESULTS | What is generated during the project implementation. This may include, for example, know-how, innovative solutions, algorithms, proof of feasibility, new business models, policy recommendations, guidelines, prototypes, demonstrators, databases and datasets, trained researchers, new infrastructures, networks, etc. Most project results (inventions, scientific works, etc.) are 'Intellectual Property', which may, if appropriate, be protected by formal 'Intellectual Property Rights' |

Lecture d'un topic

HORIZON-CL4-2022-DIGITAL-EMERGING-02-06



- EU policy priorities: Cadre légal et financier
- Destination : Stratégie Européenne (ex: Green Deal) à long terme
- Outcome : Impacte du projet à moyen terme
- Scope : livrable du projet à court terme

Approche Top-down



RESILIENT VALUE CHAINS

► Advanced materials, safe and sustainable by design, improving the resilience of EU market

| Topics | Type of Action | Budgets (EUR million) | Expected EU contribution per project (EUR million) | Indicative number of projects expected to be funded |
|---|----------------|-----------------------|--|---|
| | | 2024 | | |
| Opening: 19 Sep 2023 Deadline(s): 7 Feb 2024 | | | | |
| HORIZON-CL4-2024-RESILIENCE-01-24 | IA | 59.00 | 12.00 to 15.00 | 4 |
| HORIZON-CL4-2024-RESILIENCE-01-36* | IA | 31.00 | 6.00 to 8.00 | 4 |
| HORIZON-CL4-2024-RESILIENCE-01-41 | CSA | 10.00 | Around 5.00 | 2 |

Materials2030 Roadmap will play a decisive and enabling role in the twin green and digital transition to address societal needs and challenges under a long-term perspective. A systematic approach focus on faster, scalable and efficient responses, interoperability, critical raw mitigation solution-oriented advanced materials.

* Two stage : 7Feb/ 24 Sep 2024

RESILIENT VALUE CHAINS

- Advanced materials, safe and sustainable by design, improving the resilience of EU market

| Topics | Synergie | Implementation | Modèle de financement |
|--|---|---|-----------------------|
| HORIZON-CL4-2024-RESILIENCE-01-24 | HORIZON-CL4-2021-RESILIENCE-01-08 ; HORIZON-CL6-2023-ZEROPOLLUTION | at least one industrial application and a business case | Regular |
| HORIZON-CL4-2024-RESILIENCE-01-36 | Cluster 1 and cluster 6 and national/regional initiatives | blind evaluation pilot | Lump Sum |
| HORIZON-CL4-2024-RESILIENCE-01-41 | | Max granted amount/third party : 50 K | Lump Sum |

Proposals should build on or seek collaboration with existing projects and develop synergies with other relevant European, national or regional initiatives, funding programs and platforms.



HORIZON-CL4-2024-RESILIENCE-01-24: Development of safe and sustainable by design alternatives (IA)

Scope

Proposals should develop one or more new chemical substances or materials to replace existing substances of concern with surfactant, flame retardant or plasticising functionalities for a chosen application. The selected industrial application(s) should be in areas where substitution with safer and more sustainable solutions is not yet in place, or in progress.

Expected outcomes

Projects are expected to contribute to all the following outcomes:

- Industry will be able to test and demonstrate the applicability of the Safe and Sustainable by Design framework and have access to safer and more sustainable innovative alternatives of chemicals and materials with reduced substitution barriers (e.g., performance, cost and supply demand);
- The proof of concept of developing new Safe and Sustainable by Design chemicals or materials will bring evidence for new skills needed to apply the Safe and Sustainable by Design framework;
- Identify the substitution barriers for the selected applications and propose a driving mechanism for a maximal substitution in the targeted value chains while contributing to a decrease of greenhouse gas emissions ;
- Communication actions to all stakeholders and specifically citizens about the benefits of the developed Safe and Sustainable by Design chemicals and materials.

IA



12 – 15M€



7 FEB 2024



4 PROJETS



4→7





HORIZON-CL4-2024-RESILIENCE-01-36: Advanced biomaterials for the Health Care

Scope

Proposals should address **at least four** of the following activities:

- Fast development of new advanced novel injectable biomaterials, digital tools such as modelling, simulation and characterisation techniques;
- Advanced biocompatible materials that can be printed or injected for fast growing medical application market where 4D materials changing their 3D structures after external impact (thermic, electric, mechanical/radiation);
- New engineering with functional characteristics beyond bio-compatibility, and properties used to control the physiological environment;
- Biomaterials with antibacterial properties contributing to the widespread bottleneck of antimicrobial resistance;
- scaling of injectable hydrogels, including those made of nanocomposite, natural and synthetic polymer-based biomaterials, bone cements, bio-ceramics and electronics;
- Design for circularity via naturally body bio-degradable or bio-absorbable biomaterials;

Expected outcomes

Projects are expected to contribute to all the following outcomes:

- Easy deliverability into the body, increased implantation precision, controllable release of therapeutic agents, antimicrobial properties and the possibility of monitoring or stimulating biological events.
- Develop the swiftly growing innovation market of medical applications (ie: non-invasive surgical procedures), which is dependent on advanced biocompatible materials that can be printed or injected,

IA



6 - 8M€

7Feb/ 24 Sep
2024

4 PROJETS



3→6





HORIZON-CL4-2024-RESILIENCE-01-41: 'Innovate to transform' support for SME's sustainability transition

Scope

Dedicated innovation and capacity building support provided to SMEs, to transform their business models and increase their resilience consisting of an assessment of SMEs' innovation and sustainability practices. Based on recommendations, SMEs could receive advisory services according to their level of preparedness (on proof of concept, investment readiness, intellectual property, technology transfer, adaptation to standards, adaptation to environmental rules, design management, skill development, partner search, etc), and financial support in the form of "Third party financing".

Expected outcomes

Projects are expected to contribute to all the following outcomes:

- Support objectives of the European Green Deal and of the EU SME Strategy for a sustainable and digital Europe;
- Increased resilience of SMEs, by fostering technological and social innovation in SMEs to support their transition to more sustainable business models and more resource-efficient and circular processes and infrastructures;
- Increased competitive sustainability of SMEs through the uptake of advanced technologies;
- Stronger innovation support ecosystems supporting the green, social and economic transition of SMEs, by leveraging synergies between existing EU networks and SME support initiatives.

CSA



~5 M€



7 FEB 2024



2 PROJETS



N/A



TWIN GREEN AND DIGITAL TRANSITION

► Manufacturing Industry&Clean Steel ►►►

| Topics | Type of Action | Budgets (EUR million) | Expected EU contribution per project (EUR million) | Indicative number of projects expected to be funded |
|--|----------------|-----------------------|--|---|
| | | 2024 | | |
| Opening: 19 Sep 2023 Deadline(s): 07 Feb 2024 | | | | |
| HORIZON-CL4-2024-TWIN-TRANSITION-01-01* | RIA | 25.00 | 4.00 to 5.00 | 5 |
| HORIZON-CL4-2024-TWIN-TRANSITION-01-03 | RIA | 35.00 | 5.00 to 7.00 | 5 |
| HORIZON-CL4-2024-TWIN-TRANSITION-01-05 | RIA | 36.00 | 4.00 to 6.00 | 6 |
| HORIZON-CL4-2024-TWIN-TRANSITION-01-44 | IA | 10.00 | 3.00 to 5.00 | 2 |
| HORIZON-CL4-2024-TWIN-TRANSITION-01-46 | RIA | 20.00 | 3.00 to 5.00 | 4 |
| HORIZON-CL4-2024-TWIN-TRANSITION-01-12* | RIA | 12.00 | 5.00 to 6.00 | 2 |

Products and related value chains need to be made circular, carbon-neutral and regenerative – in other words, industry has to make positive contributions to the environment and to society, and offer a negative carbon footprint for future products. Manufacturing is expected to be a key driver in this transformation of industry. Related to the objectives for energy-intensive industries in general, the steel industry will be enabled to will reduce its GHG emissions to the Fit for 55 targets, in particular contributing to fulfilling the new obligations foreseen in the revised ETS Directive; and take new pathways towards Circular Economy concepts.

TWIN GREEN AND DIGITAL TRANSITION

► Manufacturing Industry: Made in Europe&Clean Steel

| Topics | Synergie | Implementation | Modèle de financement |
|---|---|---|-----------------------|
| HORIZON-CL4-2024-TWIN-TRANSITION-01-01 | EIT Manufacturing, Partnership Circular Bio-based Europe (CBE), Cluster 6, national or regional initiatives | 1 business case, blind evaluation pilot | Lump Sum |
| HORIZON-CL4-2024-TWIN-TRANSITION-01-03 | | at least two use cases, 1 business case | Lump Sum |
| HORIZON-CL4-2024-TWIN-TRANSITION-01-05 | HORIZON-CL4-2023-RESILIENCE-01-39, Digital Europe programme, EIT Manufacturing, Japan, S. Korea, US, Canada, and Australia. | 1 business case | Regular |
| HORIZON-CL4-2024-TWIN-TRANSITION-01-44 | | | Lump Sum |
| HORIZON-CL4-2024-TWIN-TRANSITION-01-46 | | | Lump Sum |
| HORIZON-CL4-2024-TWIN-TRANSITION-01-12 | national or regional initiatives, New European Bauhaus. | blind evaluation pilot | Lump Sum |

Proposals should build on or seek collaboration with existing projects and develop synergies with other relevant European, national or regional initiatives, funding programs and platforms.



HORIZON-CL4-2024-TWIN-TRANSITION-01-01: Bio-intelligent manufacturing industries (Made in Europe Partnership)

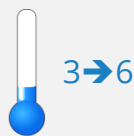
RIA



4 -5M€

7 FÉVRIER & 24
SEPTEMBRE 2024

5 PROJETS



Scope

The biological transformation of industry via the integration of bio-intelligent structures, processes, organisms or materials into technology, is a pioneering frontier that the industry of the Union and Associated Countries can harness to enhance circularity and sustainability.

Expected outcomes

Projects are expected to contribute to the following outcomes:

- Access to bio-intelligent production technologies and architecture. Bio-inspired manufacturing processes (biomimicry, biomimetics) aiming at optimising a manufacturing system through a convergence and the integration of technical and biological processes.;
- Expanding opportunities of bio-intelligent and bio-based materials by substituting fossil-based raw materials and limiting the release of microplastics;
- Substitution of raw materials by bio-based materials, or implementation of bio-based or bio-intelligent manufacturing operations, and business models leading to regenerative production.

*The focus of this topic is on manufacturing.
The development of materials beyond the manufacturing context is excluded.*





HORIZON-CL4-2024-TWIN-TRANSITION-01-03: Manufacturing as a Service: Technologies for customised, flexible, and decentralised production on demand (Made in Europe Partnership)

Scope

MaaS is a distributed system of production in which resources (including data and software) are offered as services, allowing manufacturers to access distributed providers to implement their manufacturing processes. The servitisation of manufacturing resources contributes significantly to production flexibility and responsiveness, enabling production on demand for many product categories.

Expected outcomes

Proposals submitted under this topic should include a realistic business case and exploitation strategy:

- Easy access to flexible and decentralised manufacturing and remanufacturing capacities, especially for SMEs enabling them to use more sustainable and circular facilities;
- Automation, emerging and digital technologies for the servitisation of manufacturing assets assuring optimal performance, fast reconfiguration and upgrade, remote monitoring and predictive maintenance via trusted, secure and interoperable cross-company data exchange;
- Improved value chain integration through the availability of technologies and models for securely exchanging and leveraging life-cycle data of servitised manufacturing assets in view of the reuse or recycle of assets, components, and materials.

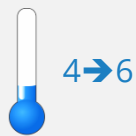
RIA



5-7M€

7 FÉVRIER
2024

5 PROJETS



4→6





HORIZON-CL4-2024-TWIN-TRANSITION-01-05: Technologies/solutions to support circularity for manufacturing (Made in Europe Partnership)

Scope

Manufacturing plays a key role in achieving the twin transition goal through enhancing circularity, facilitating decarbonisation whilst enhancing competitiveness. There is a need to build trust by ensuring data exchange and interoperability across industry sectors and relevant stakeholders, while also focusing on aspects like data quality, cybersecurity, reliability, and accessibility.

Expected outcomes

Proposals should cover all of the following aspects:

- Assessing the environmental impact of their products, including the flow of products after their use to reduce product and raw material waste with the support of digital technologies;
- Achieving a considerable net reduction of the ecological impact through the use of innovative modelling and simulation software that allow transport and manufacture monitoring;
- Facilitating the development and uptake of digital tools/platforms such as the EU Digital Product Passport, to increase traceability and characterisation of materials and products including environmental footprint and quality;
- Removing barriers in the uptake of the digital tools from the market will be addressed and the workforce will be empowered through new skills.

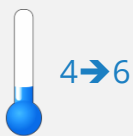
RIA



4 - 6M€

7 FÉVRIER
2024

6 PROJETS



4→6



HORIZON-CL4-2024-TWIN-TRANSITION-01-44: Digital transformation and ensuring a better use of industrial data, which can optimise steel supply chains (Clean Steel Partnership)

Scope

Digitalisation and social aspects are both addressed in the Building Block (BB) because of their strong role of enabling the carbon neutral transition.

Expected outcomes

Projects are expected to contribute to one or more of the following outcomes:

- Increasing awareness and effectivity leading to total safety of steel manufacturing processes and CO₂ reduction through digital transition;
- Extension of inline and real-time tools to monitor and control sustainability of the running process conditions, to set up countermeasures to stay into the optimal process window;
- Enhancement of the in-line classification of feedstock and intermediate products through the continuous analysis of composition and off-gas, bulk properties, temperature and energy forecasting by applying soft sensor approaches considering the assembly of novel sensors, specific models, and advanced data and real-time process control ;
- Application of digital technologies (statistical analysis, machine learning (ML) algorithms, or artificial intelligence (AI)) to develop traceability and decision-supported planning and process monitoring tools operable in offline or online modes;

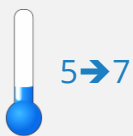
IA



3 - 5M€

7 FÉVRIER
2024

2 PROJETS



HORIZON-CL4-2024-TWIN-TRANSITION-01-46: CO₂-neutral steel production with hydrogen, secondary carbon carriers and electricity OR innovative steel applications for low CO₂ emissions (Clean Steel Partnership)

Scope

Proposals should aim at **one of the following two aspects**, corresponding respectively to :

- Metal reduction processes using hydrogen, renewable electricity, and/or secondary carbon carriers, and/or to replace fossil fuels and reductants in steelmaking and in downstream processing in steel plants.
- Provide concepts addressing the modifications of the existing and new installations for steel production (Blast furnace–basic oxygen furnace (BF-BOF), Electric arc furnace (EAF); Direct reduced iron (DRI) process: Alternative reduction processes, Heating and treatment of semi-finished products)
- Internal and external flows of energy and materials to re-use e.g., metallurgical gases (internal re-cycling) and to upgrade them with new sources, e.g., by replacement of fossil carbon, both as reducing agent, and heat sources with hydrogen and alternative carbon sources;
- Consider the integrated preparation (reforming, separation, heating, compression) of external carbon-lean gases or internally recycled CO/CO₂ streams for efficient use as reducing agent, but not limited to or for use in heating process.
- Conception and production of clean steel (low CO₂ emissions) for use in established markets in harsh environments
- High level of yield strength, high level of fatigue, high resistance to pressure, heat, wear, cyclic loads, crash and to severe corrosion conditions;
- Provide analytical research infrastructures and low-quality materials usage and their influence on the product quality;
- Demonstrate the CO₂ reduction potential by conception along the advanced / breakthrough manufacturing routes

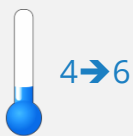
RIA



3 - 5M€


7 FÉVRIER
2024


4 PROJETS



4 → 6

HORIZON-CL4-2024-TWIN-TRANSITION-01-46: CO2-neutral steel production with hydrogen, secondary carbon carriers and electricity OR innovative steel applications for low CO2 emissions (Clean Steel Partnership)

Expected outcomes

Projects outcomes will contributing to at least **one or more of the first aspects and two of the second aspect**

- Enhance CO2-neutral steel production with hydrogen, secondary carbon carriers and electricity;
 - use of secondary carbon sources, including waste and residues of biological origin in steelmaking processes to target improved sustainability
 - reduction of fossil carbon-related emissions combined with improvements in the materials and energy flows to reduce steelwork and energy consumption ;
 - Reduction of carbon footprint with use of low-CO2 coupled with hydrogen and/or electrical heating steel for rolling, shaping, and heat treatment;
 - Identify and analyse the amount of European existing technologies that could be efficiently retrofitted to CO2 neutral solutions
- Contribute to innovative steel applications for low CO2 emissions.
 - New or modified alloying concepts, downstream processing and manufacturing processes for new clean steel grades (high temperature processes, high-strength, high-pressure resistant, creep resistant, oxidation resistant, low-quality input materials , etc)
 - Manufacture steels with improved life cycle contributions to CO2 emissions reduction;
 - Advanced grades of steel for use in the railway's systems of high-speed trains;
 - Clean steel grades with improved in-use properties obtained by controlling the application properties

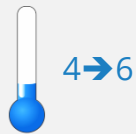
RIA



3 - 5M€


7 FÉVRIER
2024


4 PROJETS



4➔6



HORIZON-CL4-2024-TWIN-TRANSITION-01-12: Enhanced assessment, intervention and repair of civil engineering infrastructure (RIA)

Scope

Regular maintenance and repair of civil engineering infrastructure extends their service life, which in turn reduces the need for their demolition and replacement and the related negative economic, environmental and climate impacts. However, it can be difficult and cumbersome to identify and address maintenance or repair needs, especially in locations that are difficult to access such as large or tall structures, deep shafts, or where elements are hidden from view. Intervention for maintenance and repair can also involve unnecessary risks to health and safety of workers.

Expected outcomes

Projects outcomes will contributing to the following two aspects

- Extension of the service life of civil engineering infrastructure, which reduces the need to replace infrastructure, and ultimately in an overall lower CO-2 footprint for such infrastructure
- Faster and more accurate detection and analysis of maintenance and repair needs in existing infrastructure
- Reduction in time between the occurrence of infrastructure maintenance and repair-related problems and the on-site intervention
- Reduced risks to health and safety of workers in carrying out tasks linked to infrastructure maintenance and repair
- Cost savings in terms of both operational costs and deferred or avoided capital investment costs

RIA



5 - 6M€



7 FÉVRIER
2024



2 PROJETS



→6



Wallonie
recherche
SPW



19/04/2023

Atelier : Appels Twin transition, Resilience& Digital emerging 2024

TWIN GREEN AND DIGITAL TRANSITION

► Energy Intensive, circularity and zero pollution in process Industries

| Topics | Type of Action | Budgets (EUR million) | Expected EU contribution per project (EUR million) | Indicative number of projects expected to be funded |
|--|----------------|-----------------------|--|---|
| | | 2024 | | |
| Opening: 07 May 2024 Deadline(s): 07 Feb 2024 | | | | |
| HORIZON-CL4-2024-TWIN-TRANSITION-01-32 | IA | 30.00 | 10.00 to 15.00 | 2 |
| HORIZON-CL4-2024-TWIN-TRANSITION-01-34 | RIA | 20.00 | 8.00 to 10.00 | 2 |
| HORIZON-CL4-2024-TWIN-TRANSITION-01-35 | IA | 30.00 | 10.00 to 15.00 | 2 |
| HORIZON-CL4-2024-TWIN-TRANSITION-01-41 | RIA | 30.00 | 1à.00 to 12.00 | 3 |

Energy-intensive industries need to embrace the circular economy and restorative feedback loops, not as an afterthought but as a key pillar of the design of entire value chains. The Chemicals Strategy for Sustainability, which aims to better protect citizens and the environment whilst boosting the innovation for safe and sustainable chemicals. Related to those objectives, the steel industry will also be enabled to reduce its GHG emissions to the Fit for 55 targets.

TWIN GREEN AND DIGITAL TRANSITION

► Energy Intensive, circularity and zero pollution in process Industries

| Topics | Synergie | Implementation | Modèle de financement |
|---|--|---|-----------------------|
| HORIZON-CL4-2024-TWIN-TRANSITION-01-32 | national or regional initiatives, | 1 business case | Regular |
| HORIZON-CL4-2024-TWIN-TRANSITION-01-34 | Clean Hydrogen JU | 1 business case | Regular |
| HORIZON-CL4-2024-TWIN-TRANSITION-01-35 | HORIZON-CL5-2024-D3-02-11, national or regional initiatives, | 1 business case, At least one use case | Regular |
| HORIZON-CL4-2024-TWIN-TRANSITION-01-41 | national or regional initiatives, | 1 business case | Lump Sum |

Proposals should build on or seek collaboration with existing projects and develop synergies with other relevant European, national or regional initiatives, funding programs and platforms.



HORIZON-CL4-2024-TWIN-TRANSITION-01-32: Optimisation of thermal energy flows in the process industry (Processes4Planet partnership) (IA)

Scope

The topic focuses on highly process-integrated technologies that allow heat recovery and use of high temperature installations. Heat storage, when needed, should be intermediary only.

- Demonstrate the efficient integration and adaptation of heat exchanger or heat pumps into high temperature processes and equipment taking energy from air, warm materials or liquid flows;
- Use high safety standard technologies and fluids with low environmental impact. Consider, where necessary, the use of advanced materials in the process development;

Expected outcomes

Projects are expected to contribute to the following outcomes:

- Energy intensive industries will be enabled to increase their energy efficiency through optimisation of thermal energy flows between processes, minimizing losses and using all levels of energy;
- Demonstrate highly process-integrated solutions that offer better opportunities to increase energy efficiency and reduce investment cost of high temperature installations;
- Demonstrate a substantial increase in flexibility of the processes;
- Contribute to achieving EU Climate neutrality goal and becoming independent from fossil fuel and fossil fuel imports as put forward in the REPowerEU Plan;

RIA



10 - 15M€

7 FÉVRIER
2024

2 PROJETS



5→7





HORIZON-CL4-2024-TWIN-TRANSITION-01-34: Renewable hydrogen used as feedstock in innovative production routes (Processes4Planet Partnership)

Scope

Hydrogen produced from renewable energy sources does not lead to direct carbon dioxide emissions when used and it can offer solutions to decrease GHG emissions in industrial processes. Currently, hydrogen is largely used in industrial sectors used as a chemical feedstock in low-carbon. Hydrogen could be used as reducing agent in the production and recovery of metals, biogenic and circular carbon optimisation or in new process routes.

Expected outcomes

Projects are expected to contribute to the following outcomes:

- Enable the technical and economic feasibility of innovative production routes using hydrogen as feedstock demonstrated and validated at suitable scale against current state of art of industrial processes;
- Enable the efficient use and integration of hydrogen as a feedstock in innovative industry processes (downstream and upstream);
- Support the increased utilisation of renewable energy sources combined with digital technologies in the process industries, thereby contributing to the independency on fossil fuel;
- Contribute to EU Climate neutrality goals by proving the effectiveness of the GHG emission avoidance in the targeted process;
- Support Mission Innovation 2.0 NZEID on 'Net-zero Industries' and its ambition via networking and dissemination activities.

RIA



8 - 10M€

7 FÉVRIER
2024

2 PROJETS



4 → 6





HORIZON-CL4-2024-TWIN-TRANSITION-01-35: Turning CO2 emissions from the process industry to feedstock (Processes4Planet partnership)

IA (60%)



10 - 15M€



7 FÉVRIER
2024



2 PROJETS



5→7

Scope

Demonstration of the economic viability of the efficient capture and utilisation of CO/CO2 streams from point sources converting the streams into added value chemicals and materials in near to production size systems. The technologies proposed should support cross-sectorial concepts and sector integration.

Expected outcomes

Projects are expected to contribute to the following outcomes:

- Master the capture, purification and conversion of CO/CO2 from process industry point sources and utilization of renewable energy at reasonable costs ;
- Showcase the system effectiveness for the GHG emission avoidance in the process industries as well as the scalability and the cost efficiency of the proposed concept. Include techno-economic analysis, including social and environmental impact;
- Enable the economic viability of the entire unit to compete with the existing state of the art production of the same or equivalent products at cost efficient environmentally friendly level ;
- Prove the efficient integration for the overall CCU process and use of renewable energy sources, and where relevant account for their intermittency and the possibility to offer demand-response flexibility;



HORIZON-CL4-2024-TWIN-TRANSITION-01-41: Breakthroughs to improve process industry resource efficiency (Processes4Planet partnership)

Scope

To reach ambitious targets regarding resource efficiency, disruptive process technologies must be developed in addition to process efficiency options for existing technologies and advanced materials innovation. The proposals should include energy efficiency, techno-economic, life-cycle assessments considering the overall process, plus societal and environmental impact and the effects on the workplaces.

Expected outcomes

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

- Achieve a step change in the process industry's green transformation by improving by at least 30 % the industrial processes resource efficiency compared to the state of the art
- Enable the techno-economic feasibility of novel technologies and processes, demonstrated and validated at suitable scale against current industrial processes to produce the same products, eventually with advanced material and driven AI;
- Overall positive environmental and if relevant health and safety impact demonstrated;
- Enable the increase of the competitiveness and resilience of the European process industry include energy efficiency, possible societal and environmental impact and life-cycle assessments.

RIA



10 - 12M€

7 FÉVRIER
2024

2 PROJETS



4 → 6

Digital and emerging technologies for competitiveness and fit for the Green Deal

► European Innovation Leadership in Photonics, Quantum and 2D based material

| Topics | Type of Action | Budgets (EUR million) | Expected EU contribution per project (EUR million) | Indicative number of projects expected to be funded |
|--|----------------|-----------------------|--|---|
| | | 2024 | | |
| Opening: 15 Nov 2023 Deadline(s): 19 Mar 2024 | | | | |
| HORIZON-CL4-2024-DIGITAL-EMERGING-01-31 | RIA | 33.00 | Around 33.00 | 1 |
| HORIZON-CL4-2024-DIGITAL-EMERGING-01-45 | RIA | 15.00 | Around 5.00 | 3 |
| HORIZON-CL4-2024-DIGITAL-EMERGING-01-54 | RIA | 18.00 | 3.00 to 5.00 | 4 |
| HORIZON-CL4-2024-DIGITAL-EMERGING-01-55 | IA | 15.00 | 15.00 | 1 |

Quantum Technologies Flagship objectifs are to further develop quantum technologies and their applications in the areas of quantum computing, simulation, sensing and communication, in order to strengthen European technological sovereignty in this strategic field (plus photonics and graphene flagship) and achieve first-mover industry leadership, capitalising on Europe's established excellence in quantum science and technology.

Digital and emerging technologies for competitiveness and fit for the Green Deal

► European Innovation Leadership in Photonics, Quantum and 2D based material

| Topics | Synergie | Implementation | Modèle de financement |
|--|--|--|-----------------------|
| HORIZON-CL4-2024-DIGITAL-EMERGING-01-31 | Key Digital technology JU, Graphene Flagship initiative | 1 business case | Regular |
| HORIZON-CL4-2024-DIGITAL-EMERGING-01-45 | legal entities established in Member States, Iceland and Norway , Israel. HORIZON-CL4-2021-DIGITALEMERGING-02-22. Quantum Technologies Flagship initiative | | Regular |
| HORIZON-CL4-2024-DIGITAL-EMERGING-01-54 | | 1 business case | Regular |
| HORIZON-CL4-2024-DIGITAL-EMERGING-01-55 | | 1 business case; individual support cases at final TRL > +2 | Regular |

Proposals should build on or seek collaboration with existing projects and develop synergies with other relevant European, national or regional initiatives, funding programs and platforms.



HORIZON-CL4-2024-DIGITAL-EMERGING-01-31: Pilot line(s) for 2D materials-based devices

Scope

Proposals shall continue the efforts started in the 2D experimental Pilot Line of the Graphene Flagship and build on the IP developed therein, to establish a 2DM pilot line(s), where European companies, research centres and academic institutions, can produce on a pilot scale novel electronic and/or photonic devices and systems integrating 2DM.

Expected outcomes

Projects are expected to contribute to the following outcomes:

- Broadly accessible pilot line(s) fostering the creation of electronic and photonic devices and systems (co-)integrating two-Dimensional Materials (2DM);
 - Reliability and packaging requirements;
 - Implementing multiple wafer runs or other offering to best cover business opportunities;
- Significant progress towards the adoption of the 2DM in the silicon and semi-conductor arena by allowing the production of new (co-)integrated devices and systems in a quality controlled way.
 - assess their performance and their ability to cover the device requirements of the targeted applications.
 - Process characterisation and monitoring to control and guarantee quality of relevant device parameters
 - modules to contact the 2D devices with the periphery, optimized planarization strategies and packaging services

RIA



~33 M€



19 MARS 2024



1 PROJET



3➔6

Wallonie
recherche
SPW



HORIZON-CL4-2024-DIGITAL-EMERGING-01-45: Quantum sensing and metrology for market uptake

Scope

Contribute to mature quantum sensing technologies and single or network-operating devices in different application sectors (transportation, precise localisation and timing, navigation, metrology, health, biology, security, telecommunications, Radio Frequency sensing and processing, imaging and recognition, radars energy, electronics industry, construction, mining, prospection, aerospace, materials, automotive, energy transformation etc), with the goal of establishing a reliable, efficient supply chain including first standardisation and calibration efforts for rapid market uptake.

Expected outcomes

Projects are expected to contribute to the following outcomes:

- demonstrate advanced prototypes of such sensing technologies that provide an unprecedented level of precision and stability, miniaturised, integrated, transportable;
- Activities and actors from metrology institutes that would provide measurement methods and/or standards (quality assurance methods and standardisation);
- strategies such as validation and benchmarking to other technologies in order to clearly identify quantum advantage;
- achieve the projects objectives, activities could also address more fundamental research issues;
- cooperation with complementary projects launched in the pilot capabilities to lower the threshold for industry via the transfer infrastructure provided by application labs, testbeds, fabrication and pilot line facilities

IA



4-5M€



19 MARS 2024



3 PROJETS



4→7





HORIZON-CL4-2024-DIGITAL-EMERGING-01-54: Smart photonics for joint communication & sensing and access everywhere (Photonics Partnership)

Scope

Proposals should address at least one of the following activity areas:

- Light-based solutions to let the communication network sense, while transporting data (enhance security/resilience of network, network resources more energy efficient, warn/protect against natural disasters, monitor the infrastructure)
- Light-based solutions to bring internet everywhere in one system (fiber to home – antenna-telemetry using coherent passive optical networks, free space optics, Lifi or optical beamforming and steering)

Expected outcomes

Projects are expected to contribute to the following outcomes:

- Sensors/probes to monitor the quality of the communication network and of photonic signals transported in the communication network;
- Methods to use the network as large-scale distributed sensor;
- Development of foundational optical technologies, systems and networks that provide the future access infrastructure

RIA



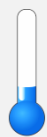
3-5M€



19 MARS 2024



4 PROJETS



2➔5



Wallonie
recherche
SPW





HORIZON-CL4-2024-DIGITAL-EMERGING-01-55: Photonics Innovation Factory for Europe (Photonics Partnership)

IA



~15M€



28 MARS 2023



2 PROJETS



2/5 → 4/7

Scope

Provide a virtual factory with a flexible and open structure to help speeding up the deployment of proven photonics technologies within European industry in order to increase its global competitiveness, with an emphasis on technological sovereignty and resilience while also fostering strong new enterprise business growth. Users and early adopters may start individual support cases at different levels of technology readiness depending on their needs and increase it by at least 2.

Expected outcomes

Projects are expected to contribute to the following outcomes:

- Substantially improved penetration of core photonics technologies into multiple end-user application domains and industry sectors (mainly SMEs and start-ups);
- Creation of a sustainable streamlined ecosystem for photonics innovation in Europe providing European Cross-Border Added Value with a high leveraging effect on investments made at national and regional level in photonics;
- Create pathways from initial concept through production, employing scalable manufacturing methods connected to pilot lines and pre-series production facilities appropriate to the market



NOS SERVICES



Informer



Accompagner



Connecter

What's next?

[Site Internet NCP Wallonie](#)



APPELS À PROPOSITIONS

| Liste des appels Energy 2022-2023 | | | | |
|--|---|------------|---|--------------------------------------|
| Topic ID | Topic + lien web | Deadline | Origin | NCP |
| Destination 3 – Sustainable, secure and competitive energy supply | | | | |
| Global leadership in renewable energy | | | | |
| HORIZON-CL5-2022-D3-02-01 | Digital solutions for defining synergies in international renewable energy value chains | 27-oct.-22 | Cluster 5: Climate, Energy and Mobility | Thomas Chauvaux |
| HORIZON-CL5-2022-D3-02-02 | AU-EU Energy System Modelling | 27-oct.-22 | Cluster 5: Climate, Energy and Mobility | Jean-Jacques Lemaire |
| HORIZON-CL5-2022-D3-02-03 | Innovative renewable energy carrier production for heating from renewable energies | 27-oct.-22 | Cluster 5: Climate, Energy and Mobility | Mathias LUCAS |
| HORIZON-CL5-2022-D3-02-04 | Technological interfaces between solar fuel technologies and other renewables | 27-oct.-22 | Cluster 5: Climate, Energy and Mobility | Mathias LUCAS |
| HORIZON-CL5-2022-D3-02-05 | Renewable energy carriers from variable renewable electricity surplus and carbon emission | 27-oct.-22 | Cluster 5: Climate, Energy and Mobility | Mathias LUCAS |
| HORIZON-CL5-2022-D3-02-06 | Direct renewable energy integration into process energy demands of the chemical industry | 27-oct.-22 | Cluster 5: Climate, Energy and Mobility | Mathias LUCAS |
| HORIZON-CL5-2022-D3-02-07 | Renewable energy incorporation in agriculture and forestry | 27-oct.-22 | Cluster 5: Climate, Energy and Mobility | Mathias LUCAS |
| HORIZON-CL5-2022-D3-02-08 | Demonstration of complete value chains for advanced biofuel and non-biological renewable | 27-oct.-22 | Cluster 5: Climate, Energy and Mobility | Mathias LUCAS |



Industry ▾

Mobility ▾

Space ▾

Energy ▾

Climate, Envi ▾

EIC ▾

EIE ▾

EU Missions ▾



Explorer

What's next?

FICHE DU NCP WALLONIE « ONE PAGE EXPERTISE DESCRIPTION »

Données administratives

Topic Identifié

Contribution **CONCRÈTE** au projet /
Valeur ajoutée


ONE PAGE EXPERTISE DESCRIPTION

The aim of this document is to introduce your organisation to potential project leaders. Since there are hundreds of such descriptions circulating throughout Europe, please keep it short, concise and precise so potential project coordinators can quickly assess if your contribution would be useful. This document does not aim to provide an extensive overview of your activities, but to show in a few words your added value relevant to a specific topic or group of topics. **Please fill in one form per field or research/expertise.**

INFORMATION ABOUT THE EXPERT

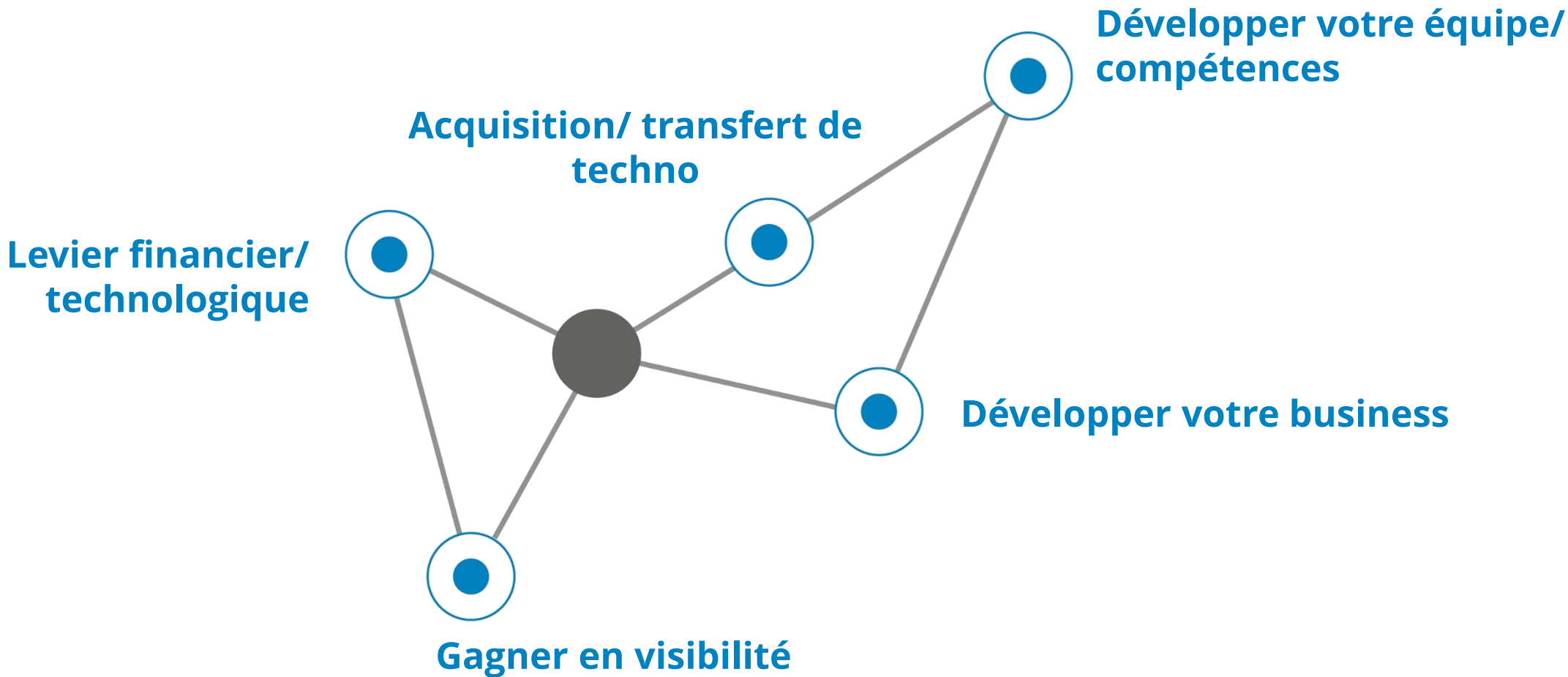
| | |
|---------------------|--|
| ORGANISATION | |
| ADDRESS | |
| TYPE OF PARTNER | SME, University, Research Centre, Large Company, Public Administration, Association, other |
| WEBSITE | |
| CONTACT PERSON | |
| EMAIL | |
| TELEPHONE | |
| POSITION | |
| DATE OF PUBLICATION | |

EXPERTISE OVERVIEW

| |
|--|
| TOPIC(S) OF INTEREST: Topic(s) code and title – maximum 3 different topics |
| HEADLINE: 1 line general description of your general expertise |

| |
|--|
| POTENTIAL CONTRIBUTION: Please describe here the specific knowledge, technology or other contribution that your organisation could provide to add value to a project. You are encouraged to include references to relevant publications, patents or former projects, <i>in particular European projects (FP7, H2020 or others)</i> . Please take into account that this document will be the base to convince a key player to invite you in his consortium: <ul style="list-style-type: none"> highlight your strengths be persuasive |
|--|

CONCLUSION





Merci pour votre attention

Retrouvez-nous sur ncpwallonie.be





HORIZON-CL4-2024-DIGITAL-EMERGING-01-34: Synergy with national and regional initiatives in Europe (CSA)

CSA



3-4 M€



19 MARS 2024



1 PROJET



N/A

Scope

Proposals should support the coordination between relevant national and regional public authorities funding research and innovation in 2DM-based technologies. This coordination should allow them to work synergistically with the goal to strengthen and complement the EU funded activities in the domain.

Expected outcomes

Projects are expected to contribute to the following outcomes:

- Well-coordinated European, national and regional initiatives in the field of graphene and two-dimensional materials (2DM);
 - Supporting the national and regional actors to organise joint calls for proposals between their respective programmes and initiatives for supporting in Europe
- Further development of a strong European innovation ecosystem in 2DM-based technologies.
 - Analysing gaps and overlaps and contributing to topics that could be included in national/regional research agendas in the field