APRE
Agenzia per la Promozione della Ricerca Europea

I temi Digital, Industry and Space oltre il Cluster 4

Diego Coglitore –Team Tematico Cluster 4

cluster4@apre.it

25/01/2023

National Contact Points – NCPs
WHO WE ARE

The NCPs are support structures that have become an essential component in the implementation of the Framework Programmes.

THE NCP KEY TASK IS TO SUPPORT APPLICANTS WHO WISH TO PARTICIPATE IN HORIZON EUROPE

The NCPs are nominated at national level and act in close cooperation with the EU Commission and with national partners and clients.

National Contact Points – NCPs
WHAT WE OFFER

The NCPs provide information and advice to potential applicants and beneficiaries, through the project life cycle, in their own language, in a personalized manner that would be impossible for the Commission and its Agencies acting alone.

Information and awareness raising

Assisting, advising, training

Signposting and cooperation

National Contact Points – NCPs
THE NCPs NETWORKs

CLUSTER4
DIGITAL · INDUSTRY · SPACE

The NCPs networks in CLUSTER4

Due to the complexity of Cluster 4, the European Commission funded three NCP network projects for each of the three Cluster 4 thematic areas as a continuation of respective NCP networks in Horizon 2020. The three networks will promote events, services and tools for the digital, industry and space thematic areas and will foster the circulation of knowledge, good practices and available opportunities among Cluster 4 research and innovation communities

IDEAL-IST

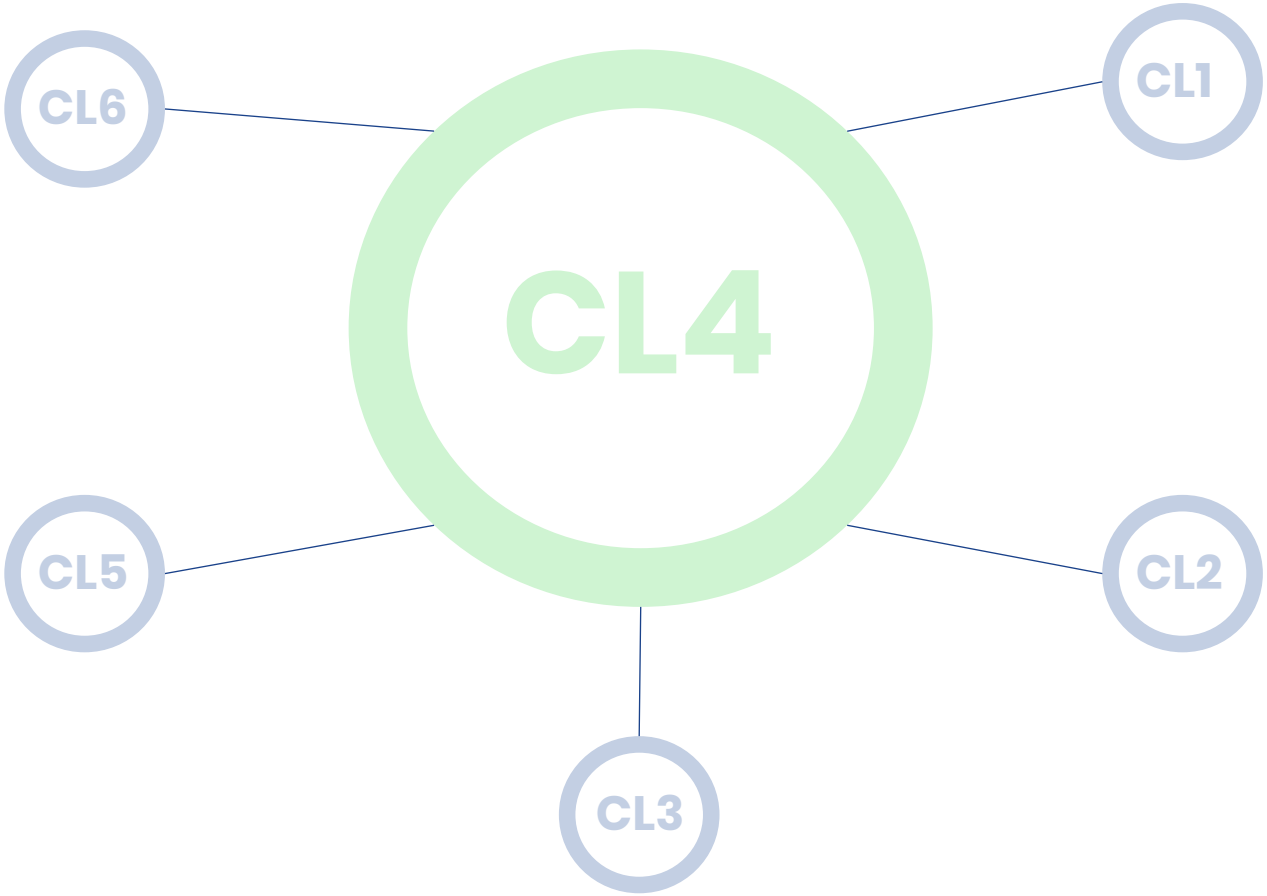
NCP4 INDUSTRY

COSMOS
SPACE | NCP NETWORK

Summary

- **Il Cluster 4 oltre il Cluster 4**
- **Le opportunità per i proponenti del Cluster 4 negli altri cluster**
- **Digital Europe in pillole**
- **Partenariati**

Il Cluster 4 oltre il Cluster 4



Artificial Intelligence

Robotics

Data

Photonics

NEB

Advanced Materials

Manufacturing

Construction

Process Industry

Raw Materials

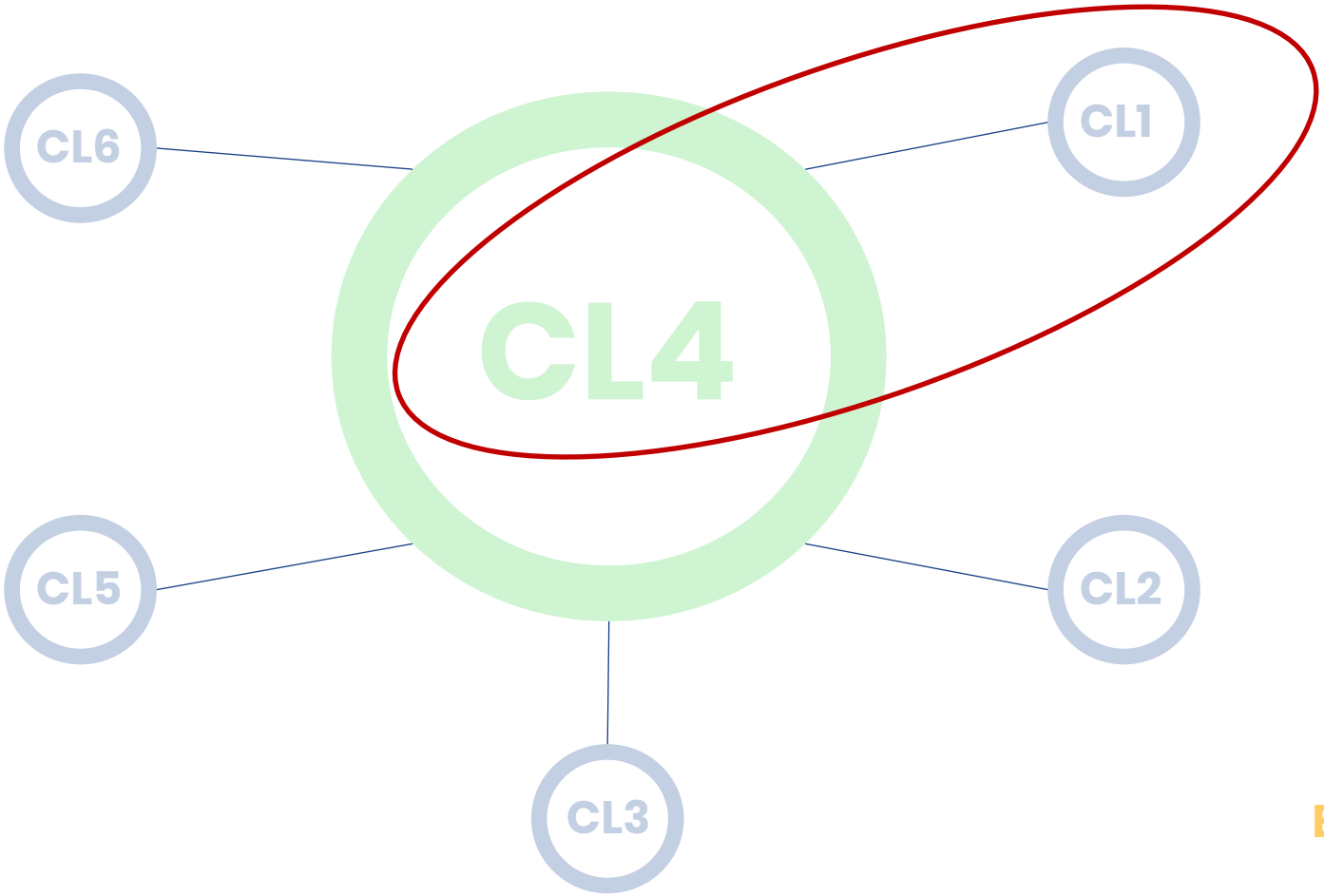
Galileo

Copernicus

Production

Earth Observation

Il Cluster 4 nelle call del Cluster 1



Artificial Intelligence

Robotics

Data

Photonics

NEB

Advanced Materials

Manufacturing

Construction

Process Industry

Raw Materials

Galileo/EGNOS

Copernicus

Production

Earth Observation

HORIZON-HLTH-2023-DISEASE-03-04: Pandemic preparedness and response: Broad spectrum anti-viral therapeutics for infectious diseases with epidemic potential

CL4 Keyword: Artificial Intelligence

RIA – 7-8mln (50mln) – 13 Apr 2023

Proposals should develop and advance broad-spectrum anti-viral compounds and develop novel approaches to the development of such compounds, which target viruses with high epidemic or pandemic potential for the EU, such as those included in the list of priority diseases of the World Health Organization (WHO), with particular attention to those meeting the criteria identified by the Health Emergency Preparedness and Response Authority (HERA)

Proposals should address all of the following areas:

- Preclinical work and proof-of-concept/first-in-human studies and early safety and efficacy trials for testing new or improved anti-viral therapeutics, with a clear regulatory and clinical pathway. Phase IIb/III phase trials will not be supported.
- Innovative delivery systems and suitable safety profiles for broad use should be considered when possible. Attention should be paid to critical social factors such as sex, gender, age, socio-economic factors, ethnicity/migration, and disability.
- Application of novel approaches and widely applicable workflows (e.g. artificial intelligence) for rapid and reliable identification of broad-spectrum anti-viral therapeutics.

HORIZON-HLTH-2023-TOOL-05-04: Better integration and use of health-related realworld and research data, including genomics, for improved clinical outcomes

CL4 Keyword: Artificial Intelligence, Data

RIA –8-10mln (35mln) – 13 Apr 2023

This topic aims to support proposals focusing on the integration of health data from multiple sources (e.g. electronic health records, genomics, medical imaging, laboratory and diagnostic results, pathogen data, public health registries and other clinical research data) by linking real world and clinical research data. The data integration should be exemplified in several usecases, i.e. well-justified groups of diseases (excluding cancer), within and/or across medical domains, and pave the way towards improved health outcomes. At least one of those use cases should build on the use of whole genome sequence data.

The proposals should address all of the following activities:

- Identification of the barriers to health data integration and access as needed for the selected use cases, and of specific existing tools, technological solutions and coordination and standardisation agreements addressing those barriers.

- New approaches to assemble large, easily findable and lawfully accessible high-quality datasets integrating multiple types of health data leading to improved clinical outcomes (e.g. new care solutions, personalised disease management, advanced diagnostic tools), taking into account data FAIRification and inter-operability needs.

- New techniques, support tools, mechanisms and modalities to enable GDPR compliant access to sensitive personal data, including genomics, allowing for their re-use across borders and integration of different types of data relevant to human health. Legal and ethical frameworks should duly consider the heterogeneity in national and sectorial rules and procedures for data access and re-use.

- Data management approaches for cross-border distributed data storage and processing, enabling remote collaboration, electronic consent management, data provenance tracking, and scalability of data management resources, ensuring data privacy and security, and resulting in robust support to advanced, innovative clinical workflows. Joint data governance is expected to be piloted among several clinical centres across Europe.

- Development of a data analytics platform applying distributed learning and artificial intelligence approaches to query and aggregate efficiently, effectively and securely data from multiple sources for multiple use cases (groups of diseases), to monitor patients' health status, analyse causal inference, support diagnosis and health policymakers, and establish recommendations for patients and other stakeholders.

HORIZON-HLTH-2024-TOOL-11-02: Bio-printing of living cells for regenerative medicine

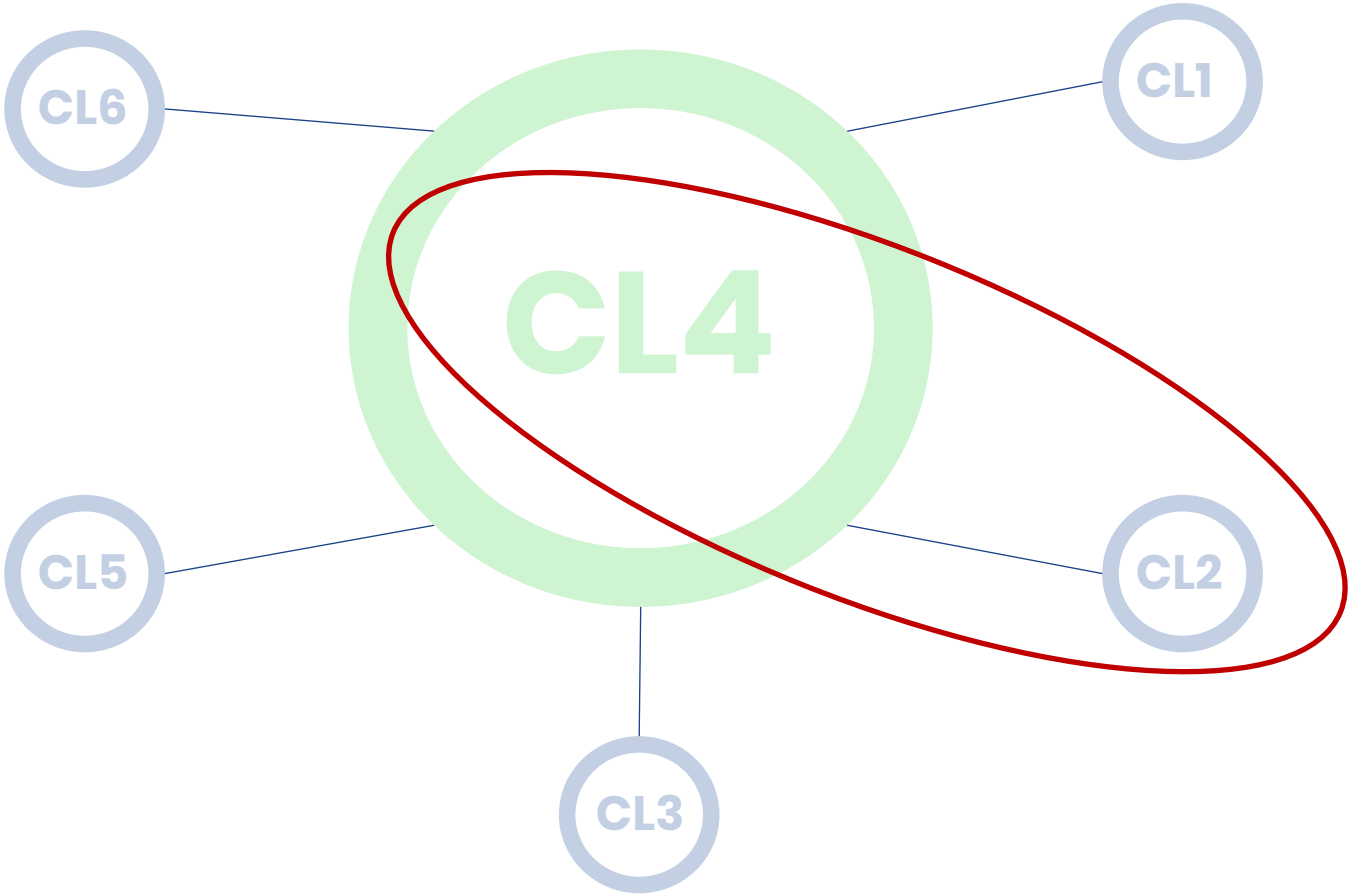
CL4 Keyword: Manufacturing

RIA – 6-8mln (25mln) – 11 Apr 2024

Researchers should work in multidisciplinary teams with engineers, biomedical scientists, cell biologists and medical doctors and proposals should address most of the following activities:

- Design the best bio-printing strategy for at least one type of tissue thanks to a better understanding of the interconnections of the different cell types inside the chosen tissue or organ
- Develop or improve existing equipment able to print bio-constructs with higher resolution in a shorter time using various biomaterials and different cell types
- Cover all steps of the bio-printing suite, including cell collection, cell differentiation and expansion, imaging, modelling, bio-ink formulation, actual bio-printing, nutrient supply, process monitoring and cell-construct delivery at target site
- Scale-up the chosen bio-printing technology to a GMP-conform manufacturing process
- Combine different bio-printing technologies in order to obtain fully functional synthetic constructs of complex tissues or organs.

Il Cluster 4 nelle call del Cluster 2



Artificial Intelligence

Robotics

Data

Photonics

NEB

Advanced Materials

Manufacturing

Construction

Process Industry

Raw Materials

Galileo/EGNOS

Copernicus

Production

Earth Observation

HORIZON-CL2-2024-TRANSFORMATIONS-01-06: Beyond the horizon: A human friendly deployment of artificial intelligence and related technologies

CL4 Keyword: Artificial Intelligence

RIA – 2-3mln (10mln) – 7 Feb 2024

The proposal should cover all the following aspects:

- Decisive contributions to develop a sound European capacity building on the future and long term human and societal implications of AI
- A solid scientific approach, providing an in-depth analysis of successful existing deployment of AI and the impact they have on European economy and society.
- Scenario based analysis of future and long term potential benefits to citizens and societies, as well as an analysis of related challenges and threats.
- Based on this, proposals for development and deployment of AI, should ensure a broad support and appropriate involvement of other relevant AI initiatives, taking into account guiding ethics principles and the current development of the AI Act.
- Proposals need to take a multi-disciplinary and cross-sectorial approach

HORIZON-CL2-2024-HERITAGE-01-01: New European Bauhaus – Innovative solutions for greener and fairer ways of life through arts and culture, architecture and design for all

CL4 Keyword: New European Bauhaus, renewable materials

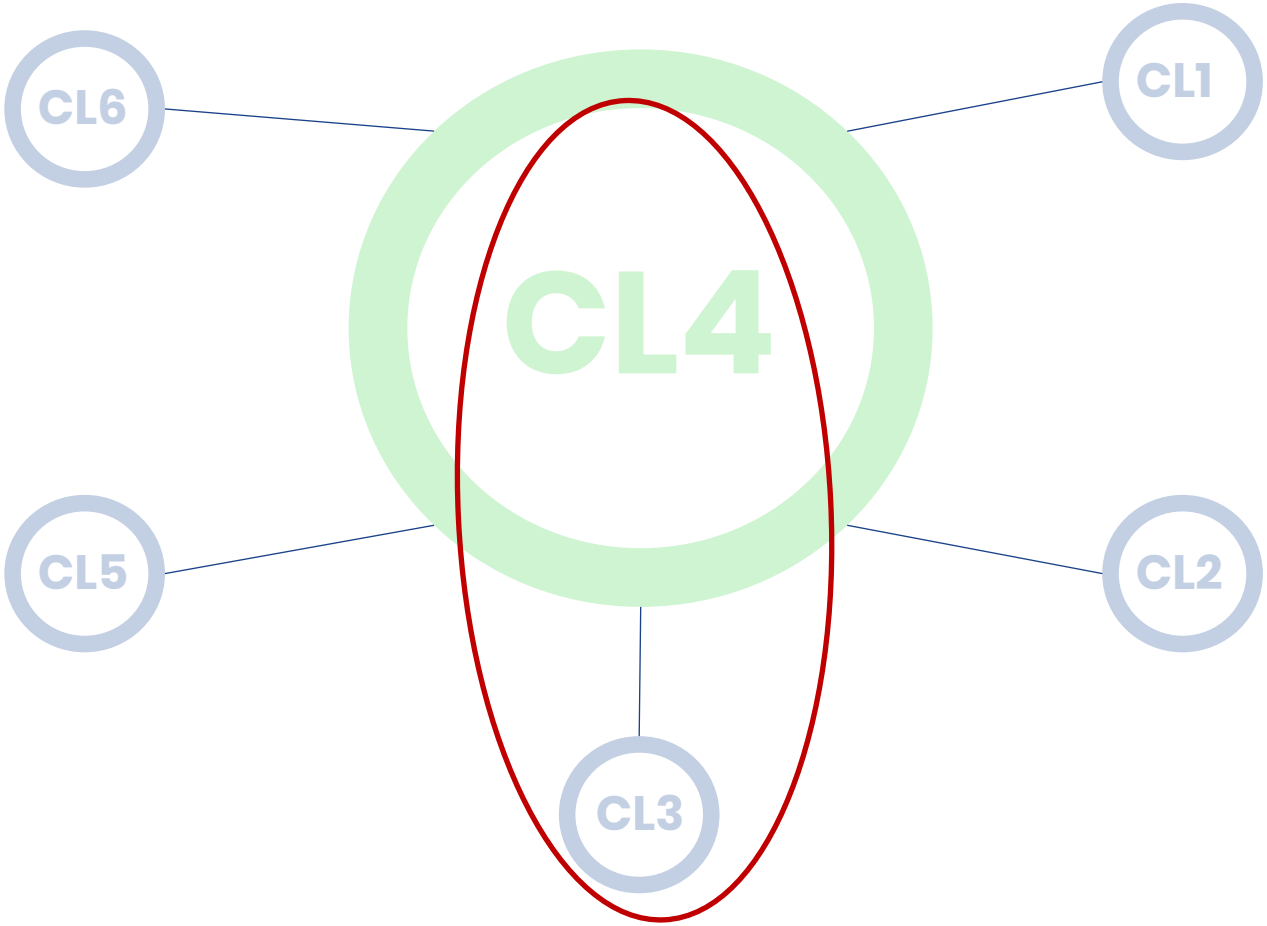
IA – 3-5mln (16mln) – 7 Feb 2024

Proposals should test, demonstrate and refine innovative solutions to achieve strategic investments in cultural heritage and the CCIs in the spirit of the New European Bauhaus initiative and search for links with the ESFRI Research Infrastructures in the Social and Cultural Innovation.

Proposals should tackle at least one of the thematic axes of the New European Bauhaus. They should include an ambitious and credible executive plan that:

- Identifies and analyses the challenges and resources of the targeted spaces in terms of the three core values of New European Bauhaus.
- Proposes a set of strategies and methodologies to address the challenges identified, considering the wide variety of actors involved.
- Foresees the development and implementation of an ambitious, quality co-design process, based on citizens' and stakeholders' participation, inter-disciplinary, and multilevel collaboration.
- Use of renewable materials (e.g. nature-based materials produced sustainably) with a circular economy mind-set.
- Role of arts, design and quality architecture, in line with quality principles to leverage the full potential of cultural heritage and cultural landscapes
- Synergies between crafts and new industrial techniques that can also help revitalising traditional skills

Il Cluster 4 nelle call del Cluster 3



Artificial Intelligence

Robotics

Data

Photonics

NEB

Advanced Materials

Manufacturing

Construction

Process Industry

Raw Materials

Galileo/EGNOS

Copernicus

Production

Earth Observation

HORIZON-CL3-2023-DRS-01-04: Robotics: Autonomous or semi-autonomous UGV systems to supplement skills for use in hazardous environments

CL4 Keyword: Robotics

RIA – 6mln (6mln) – 23 Nov 2023

The scope of this topic is not only to develop new robotic solutions for specific tasks but addresses also more holistically the surrounding environment and factors that impact civil protection on a larger scale (urbanisation, ageing, climate change, increased complexity in the area of critical infrastructure protection etc.)

- Broad acceptance of autonomous systems by first responders and affected people in civil protection;
- Higher safety and security standards for operational forces working in hazardous environments;
- Get ahead of future shortcomings of trained first responder personnel by increasing first responder efficiency (less personnel do more work in shorter time);
- Increased ability to conduct on-scene operations remotely without endangering first responders;
- European robotics industry is strengthened through engagement in the civil protection research as well as an economic and political advantage through building up know-how for innovative technologies;
- Reduction of false positive redouts from various sensors carried by robots.

HORIZON-CL3-2023-CS-01-03: Security of robust AI systems

CL4 Keyword: Artificial Intelligence

RIA – 4-6mln (12mln) – 23 Nov 2023

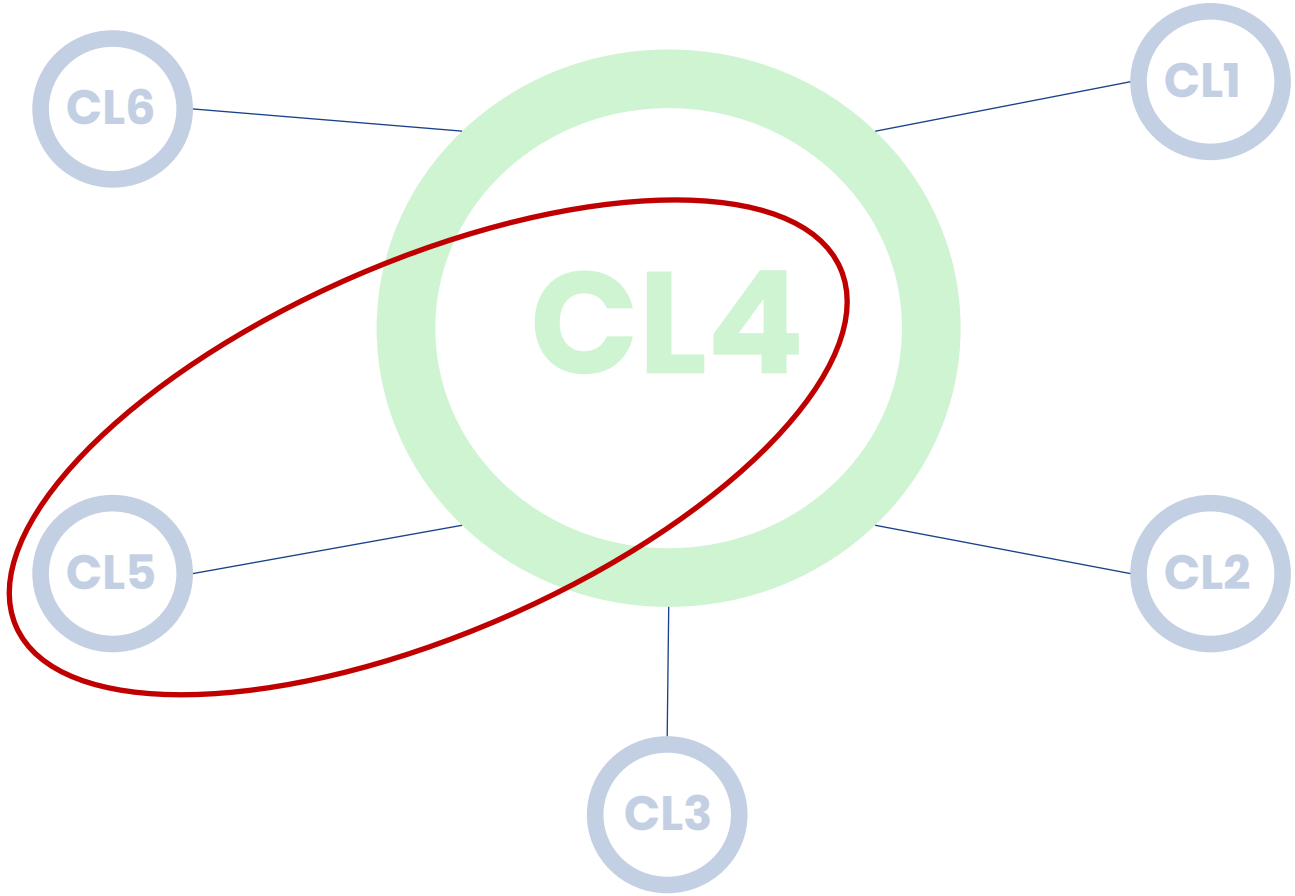
Proposals received under this topic will address the security of AI systems, in the line with the following considerations.

The availability of very large amounts of data, together with advances in computing capacity, has allowed the development of powerful Artificial Intelligence applications (in particular Machine Learning and Deep Learning). At the same time, concerns have been raised over the security, robustness of the AI algorithms (including AI at the edge), including the risks of adversarial machine learning and data poisoning.

Thus, it is important to promote security-compliant AI algorithms, leading to possible certification schemes in the future.

Proposals should demonstrate awareness of the EU approach on Artificial Intelligence64, such as the proposed Artificial Intelligence Act. The identification and analysis of potential regulatory aspects and barriers for the developed technologies/solutions is encouraged, where relevant.

Il Cluster 4 nelle call del Cluster 5



Artificial Intelligence

Robotics

Data

Photonics

NEB

Advanced Materials

Manufacturing

Construction

Process Industry

Raw Materials

Galileo/EGNOS

Copernicus

Production

Earth Observation

HORIZON-CL5-2023-D3-02-03: Industrial manufacturing for lower-cost solar thermal components and systems

CL4 Keyword: Manufacturing

IA – 3mln (6mln) – 5 Sept 2023

Support will be given to innovative solutions to manufacture components and/or subsystems and/or systems for solar thermal applications.

The manufacturing solutions should increase the production output and reduce the cost vis-à-vis current production lines. The solutions should integrate quality controls and be flexible enough to adapt to various solar thermal applications.

The proposal should assess and optimize the requirements in terms of materials needed to produce the components and/or sub-systems and/or systems. Applicants are encouraged to consider a ‘circularity by design’ approach.

HORIZON-CL5-2024-D4-02-02: Robotics and other automated solutions for construction, renovation and maintenance in a sustainable built environment

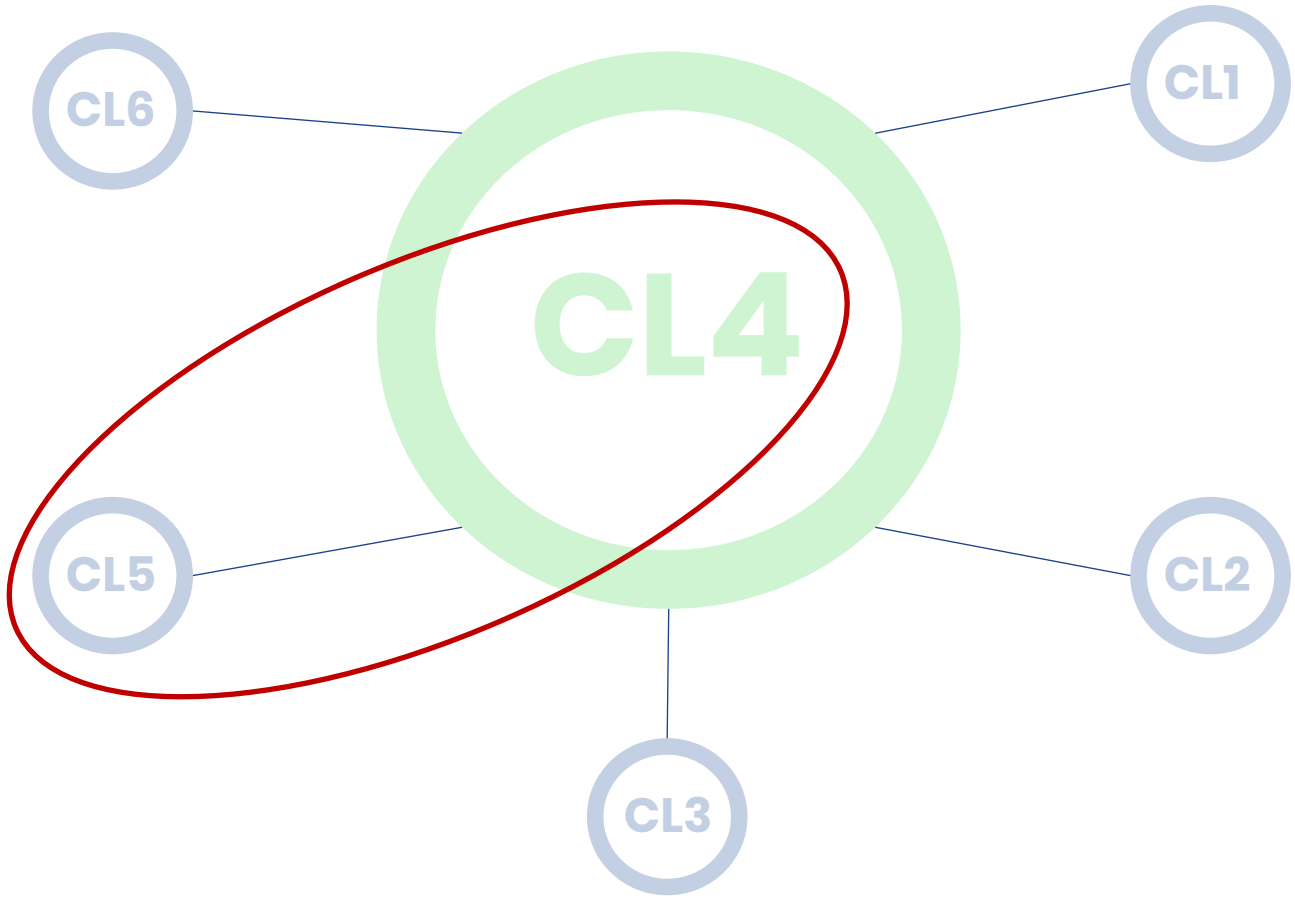
CL4 Keyword: Robotics, Construction

RIA – 4mln (8mln) – 5 Sept 2024

Proposals are expected to address all of the following:

- Investigate the use of robotic systems (including those used for 3D printing) and automation for construction and deep renovation
- Explore the potential for lower construction costs through automation and robotics resulting from increased speed, improved resource efficiency and avoidance of errors.
- Develop robotic and automated design and construction techniques that increase energy efficiency and reduce greenhouse gas emissions from construction and renovation works on-site.
- Develop approaches that use digitally assisted design to improve resource efficiency and safety, reduce waste, and reduce construction time.
- Investigate the use of automated technologies for surveying, inspection and monitoring of the site.
- Investigate the use of automated support to augment workers' capability and safety (e.g., lift robots, exoskeletons, automated construction site monitoring, use of augmented and virtual reality).
- Test and validate the prototyped solutions in at least three prototypes

Il Cluster 4 nelle call del Cluster 6



Artificial Intelligence

Robotics

Data

Photonics

NEB

Advanced Materials

Manufacturing

Construction

Process Industry

Raw Materials

Galileo/EGNOS

Copernicus

Production

Earth Observation

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

CL4 Keyword: Artificial Intelligence, Copernicus

IA – 5mln (5mln) – 12 Apr 2023

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, namely from its Maritime Surveillance Service;
- 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

HORIZON-CL6-2023-ZEROPOLLUTION-01-1: Knowledge and innovative solutions in agriculture for water availability and quality

CL4 Keyword: Earth Observation, Artificial Intelligence

RIA – 6mln (6mln) – 28 Mar 2023

Proposals should address the following:

- Produce tools and techniques to support farmers, special planners, policy makers and water managers with scientific and practical knowledge,
- Develop or improve with new scientific knowledge and practice the methodology for monitoring and prediction of water quality and quantity requirements for agricultural use, based on information provided by Earth Observation systems and in situ measurements, using digital technologies such as smart (bio)sensors and artificial intelligence (AI), as well as DNA-based indicators,
- Assess and propose relevant adaptation of water infrastructures for irrigation, agricultural practices and land use. Consider nature-based solutions and latest technologies to address emerging needs and challenges like floods, droughts and/or salinization.
- Develop scientific and practice advice to reduce water losses in agricultural activities while considering farmer's water security and quality challenges.
- Technologies to support a significant reduction of the presence of pesticide residues and nutrients in water bodies to levels that are no longer harmful.

Cluster 4 Complementarities – European Partnerships

DID YOU KNOW?

European Partnerships are initiatives where the EU, together with private and public partners, commit to jointly support the development and implementation of a programme of research and innovation activities. The partners could represent industry, universities, research organisations, bodies with a public service remit at local, regional, national or international level or civil society organisations, including foundations and NGOs. Partnerships are not new - they were first introduced in 2002 as part of the European Research Area to overcome fragmentation of research effort.

3 Istitutional partnerships (Art.187, Public-Private)

EuroHPC JU
Key Digital Technologies JU (ex ECSEL JU)
Smart Networks and Services JU (ex 5G PPP)

Next call in 2023

7 Co-programmed partnerships

Made in Europe (ex FoF)
Process4Planet - Carbon neutral Circular Industry
Clean steel (ex SPIRE)
AI, Data and Robotics
Photonics
Globally competitive Space Systems (Proposed 2023)

1 Istitutional partnership (Art. 185, Public-Public)

European Partnership on Metrology

Next call in 2023

Digital Europe in pillole

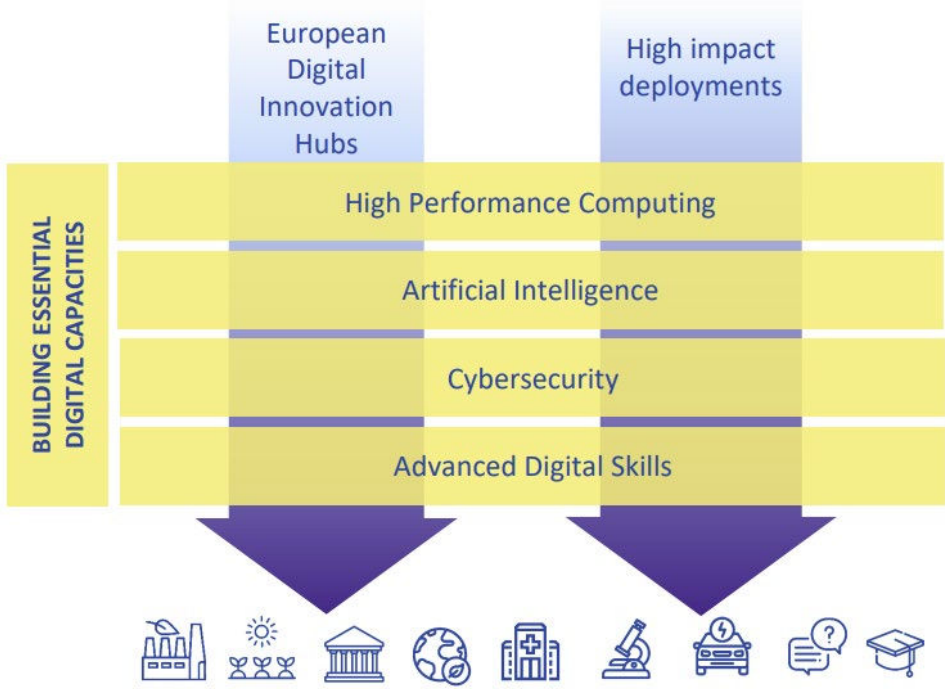
It will make use of the most recent research results, **but it will not support research**. For example, DE will support:

- The acquisition of HPC machines
- The set-up of sectorial data spaces, e.g. manufacturing
- The building or reinforcing of Testing and Experimentation Facilities
- The set up and delivery of Master courses in key advanced digital technologies

The programme has **specific restrictions to participation** of entities not in the EU or in the EEA.

Funding schemes:

- Grants with cost reimbursement 50% for everybody or with 75% for SMEs
- CSA at 100%
- Wider use of procurement



Programmi Complementari – Digital Europe

- The third call opened on **29 September.**
- The deadline for these calls is **24 January 2023** except for the European Digital Innovation Hubs which has a deadline of 16 November 2022.
- Cybersecurity call deadline **15th of February 2023**.
- Two EuroHPC topic **4th of April 2023**

APRE

Agenzia per la Promozione della Ricerca Europea

Email: segreteria@apre.it

Tel. +39 06 48 93 9993

www.apre.it