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Precision Nutrition; Digitalisation; Responsible Electronics;In-space solar energy; Batt4EU Partnership; AI Systems
erstellt am 04.07.2023, gültig bis 23.11.2023, Autor: Hagen, Martina; Dipl.-Ing.

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DFG Open Research Area for the Social Sciences, deadline: 14. November 2023 23:00 CET

In order to strengthen international cooperation in the field of social sciences, wishing to fund high-quality scientific research within their own countries, and aware that some of the best research can be delivered by working with the best researchers internationally, the ORA partners are launching an eighth ORA call for proposals in order to fund the best joint research projects in the social sciences. The scheme will provide funding for integrated projects by researchers coming from at least three of the four subscribing countries – in any combination of three or more countries.

Four funding organisations will participate in this eighth ORA competition: the Agence nationale de la Recherche (ANR, France), the Deutsche Forschungsgemeinschaft (DFG, German Research Foundation, Germany), the Economic and Social Research Council (ESRC, United Kingdom) and the Social Sciences and Humanities Research Council (SSHRC, Canada).

There is a possibility for cooperation partners in Japan (if applicable) to obtain special funding from a Japanese funding agency. The Japan Society for the Promotion of Science (JSPS) will provide an independent funding opportunity on an application basis to support the cooperation partners in Japan involved in the successful proposals.

Proposals may be submitted in any area of the social sciences. However, the disciplinary coverage varies according to the involvement of the national agencies. Applicants who are uncertain of whether their proposal would be eligible should contact the relevant national agencies for clarification.

ORA 8 will use the same format as ORA 7: the call will follow a one-stage, one-application procedure. Funding will be distributed among the national agencies according to the affiliation of the researchers and according to the funding rules of each agency.

SSHRC is the coordinating agency for this round. All proposals for this call will be submitted through the SSHRC Convergence Portal.

The deadline for the submission of proposals is Tuesday, 14 November 2023, 17:00 Eastern Time (23:00 Central European Time).

Further Information:
https://www.dfg.de/foerderung/info_wissenschaft/ausschreibungen/info_wissenschaft_23_52/index.html

DFG Deutsch-afrikanische Kooperationsprojekte in der Infektiologie, Frist: 30. Oktober 2023

Die Deutsche Forschungsgemeinschaft (DFG) fordert zur Einreichung von Antragsskizzen für gemeinsame Forschungsvorhaben mit Wissenschaftlerinnen und Wissenschaftlern in Afrika auf.

Gegenstand der Ausschreibung ist:

- Die Erforschung von vernachlässigten tropischen Infektionskrankheiten bei Mensch und Tier, einschließlich deren soziale und verhaltensbezogene Aspekte. „Vernachlässigt" heißt in diesem Zusammenhang, dass nur geringe Mittel für Grundlagenforschung zu diesen Krankheiten zur Verfügung stehen.

- Die Etablierung oder Vertiefung gleichgewichtiger Partnerschaften zu gegenseitigem Nutzen, um afrikanischen Wissenschaftlerinnen und Wissenschaftlern Forschung in den vor Ort wichtigen Themen zu ermöglichen und langfristig der deutschen Wissenschaft in Afrika Forschungsmöglichkeiten zu erschließen.

- Die nachhaltige Förderung und Unterstützung akademischer und beruflicher Karrieren von jungen afrikanischen Wissenschaftlerinnen und Wissenschaftlern in ihren Heimatländern, um damit einen Beitrag zum Aufbau von Forschungskapazitäten in Afrika zu leisten.

- Die Stärkung der innerafrikanischen wissenschaftlichen Vernetzung; daher können auch mehrere afrikanische Partnerinnen beziehungsweise Partner an einem Projekt beteiligt sein.

Die DFG will schwerpunktmäßig Forscherinnen und Forscher in der Human- und in der Veterinärmedizin ermutigen, Fördermittel für die Erforschung vernachlässigter tropischer Infektionskrankheiten zu beantragen. Projekte zu HIV, Malaria und Tuberkulose fallen nur dann in den Fokus der Ausschreibung, wenn sie Mechanismen der Virulenz oder die Immunabwehr der genannten Krankheiten bearbeiten. Dabei können auch Ko-Infektionen Gegenstand der Antragsskizzen sein. Projekte mit sozial- und verhaltenswissenschaftlichen Fragestellungen können beantragt werden, sofern sich diese mit den Folgen oder Bedingungen vernachlässigter tropischer Infektionskrankheiten beschäftigen.

Anträge müssen grundsätzlich von in das deutsche Wissenschaftssystem integrierten Forscherinnen und Forschern gestellt

werden, denen auch die Projektverantwortung zukommt. Fördermittel für die afrikanischen Mitantragstellenden sind in den späteren Anträgen mit zu beantragen. Für die Antragsberechtigung auf deutscher Seite gelten die üblichen Regeln der DFG. Die Einreichung der Konzepte ist ausschließlich in digitaler Form über das elan-Portal möglich bis einschließlich 30. Oktober 2023.

Weitere Informationen:

https://www.dfg.de/foerderung/info_wissenschaft/ausschreibungen/info_wissenschaft_23_56/index.html

BMBF Beiträge zu nachhaltigen und widerstandsfähigen Agrar- und Lebensmittelsystemen, Frist: 07. September 2023 12:00 MESZ, 1. Stufe

Das Bundesministerium für Bildung und Forschung beabsichtigt, mithilfe der Förderung von Verbundvorhaben zu Forschung und Entwicklung unter Beteiligung ausländischer Verbundpartner die Umsetzung der Nationalen Bioökonomiestrategie im internationalen Kontext zu stärken. Gefördert werden Forschungs-, Entwicklungs- und Innovationsvorhaben (FuEuI-Vorhaben), die im Rahmen eines Wettbewerbs ausgewählt werden.

Konkret sollen Forschungs- und Innovationsvorhaben gefördert werden, die einen Beitrag für nachhaltige und effiziente Produktionssysteme in der Landwirtschaft sowie in der Lebens- und Futtermittelherstellung leisten. Dies gilt im Besonderen für Vorhaben, die ressourcenschonende und effiziente Ansätze bei der Anwendung und Wiedergewinnung von Düngemitteln beziehungsweise deren Bestandteilen verfolgen oder landwirtschaftliche Anbaumethoden erforschen, die zu reduziertem Einsatz von Düngemitteln führen. Außerdem werden Vorhaben gefördert, die Beiträge zur Selbstversorgung mit proteinbasierten Lebens- und Futtermitteln in Europa liefern.

Es können Vorhaben gefördert werden, die unter die beiden folgenden Schwerpunktthemen fallen.

A) Verbesserung der Effizienz beim Düngemitteleinsatz beziehungsweise bei der Rückgewinnung und Reduzierung des Verbrauchs konventioneller Dünger

Hierunter fallen beispielsweise Vorhaben, die

- sich mit der Produktion und Wiedergewinnung von Düngemittelsubstanzen befassen. Dabei sollen innovative Verfahren entwickelt beziehungsweise bestehende Verfahren weiterentwickelt werden, um Düngemittel und seine Bestandteile aus Abfall- und Nebenströmen der landwirtschaftlichen Primärproduktion sowie der Lebens- und Futtermittelherstellung zurückzugewinnen.

- durch innovative, landwirtschaftliche Produktionsstrategien den Düngemittelgebrauch senken, zum Beispiel durch zielgerichtete Bewirtschaftung (precision farming) unterstützt durch Lösungsansätze aus modernen Informations-und Kommunikationstechnologien, aus Modellierungen oder Entscheidungsunterstützungssystemen.

- sich mit der Entwicklung oder Verbesserung organischer Düngemethoden beschäftigen, beispielsweise mit der biologischen Stickstofffixierung durch zeitlich beziehungsweise räumliche Ko-Kultivierung mit Leguminosen.

B) Steigerung des europäischen Selbstversorgungsgrades an proteinbasierten Lebens- und Futtermittel

Hierunter fallen beispielsweise Vorhaben, die

- neue Konzepte zur optimalen Nutzung von Futterprotein in der Nutztierhaltung entwickeln, einschließlich der Nutzpflanzenzüchtung zur Erzeugung eiweißreicher Futterrationen.

- die Proteinrückgewinnung verbessern, indem sie innovative Bioraffineriekonzepte zur Gewinnung von Protein aus Reststoffen der Futtermittel- und Lebensmittelproduktion entwickeln.

- in der Proteinproduktion für Lebensmittel- und Non-Food-Anwendungen neuartige Proteinquellen mittels Züchtung neuer Eiweißpflanzen erschließen und die Verwertung von Alternativen (zum Beispiel Algen oder Insekten) untersuchen.

- neuartige Quellen für Lebensmittelproteine, ihre Verbraucherakzeptanz und das Verständnis von Verbraucherentscheidungen zum Thema haben.

Themenübergreifend sollen alle Vorhaben nicht nur die Ressourcen und die Art ihrer Verwendung berücksichtigen, sondern auch die Reduzierung von Emissionen, insbesondere von Treibhausgasen. Ertrag, Produktqualität, menschliche Ernährung und Rentabilität sind einzubeziehen.

Die Bekanntmachung umfasst sowohl ökologische wie auch konventionelle Ansätze zur Lebensmittelproduktion. Eine ganzheitliche Betrachtung von Ernährungs- und Landwirtschaftssystemen ist gewünscht. Ein solcher Ansatz könnte beispielsweise darin bestehen, die Kreislaufführung, das Schließen von Nährstoffkreisläufen, die Nutzung von Nebenströmen und die Minimierung von Abfällen zu betrachten und zu versuchen, die Effizienz auf Systemebene zu steigern und die Nutzung natürlicher Ressourcen zu verbessern.

Es werden transnationale Verbundprojekte mit mindestens drei Partnern aus mindestens drei der in der Ausschreibung

beteiligten Partnerländer gefördert. Die vorgeschlagenen Projekte müssen so konzipiert sein, dass eine Erreichung der Projektziele innerhalb von maximal 36 Monaten möglich ist. Es ist weiterhin erforderlich, dass die Projekte hinsichtlich des Arbeitsvolumens zwischen den beteiligten internationalen Partnern ausbalanciert sind.

Antragsberechtigt sind Hochschulen, außeruniversitäre Forschungseinrichtungen, Landes- und Bundeseinrichtungen mit Forschungsaufgaben sowie Unternehmen der gewerblichen Wirtschaft, insbesondere kleine und mittlere Unternehmen (KMU). Zum Zeitpunkt der Auszahlung einer gewährten Zuwendung wird das Vorhandensein einer Betriebsstätte oder Niederlassung (Unternehmen) beziehungsweise einer sonstigen Einrichtung, die der nichtwirtschaftlichen Tätigkeit des Zuwendungsempfängers dient (Hochschule, außeruniversitäre Forschungseinrichtung, Landes- und Bundeseinrichtungen mit Forschungsaufgaben), in Deutschland verlangt.

Das Antragsverfahren ist dreistufig angelegt.

Weitere Informationen:
https://www.bmbf.de/bmbf/shareddocs/bekanntmachungen/de/2023/06/2023-06-22-Bekanntmachung-Bio%C3%B6konomiestrateg

BMWK Cloud- und Edge-Infrastruktur und –Services, Frist: 21. Juli 2023, 1. Stufe

Der Bund gewährt die Zuwendungen nach Maßgabe dieser Förderrichtlinie, der §§ 23 und 44 der Bundeshaushaltsordnung (BHO) und den dazu erlassenen Verwaltungsvorschriften sowie den jeweils anzuwendenden aktuellen Nebenbestimmungen des Bundesministeriums für Wirtschaft und Klimaschutz. Ein Anspruch auf Gewährung der Zuwendung besteht nicht. Vielmehr entscheidet die Bewilligungsbehörde aufgrund ihres pflichtgemäßen Ermessens im Rahmen der verfügbaren Haushaltsmittel. Eine Förderung steht unter dem Vorbehalt der Verfügbarkeit von Haushaltsmitteln.

Förderungen nach dieser Förderrichtlinie werden auf Grundlage von Artikel 25 der AGVO, der Verordnung (EU) Nr. 651/2014 vom 17. Juni 2014 (ABl. L 187 vom 26.6.2014, S. 1) in der zum Zeitpunkt des Erlasses des Zuwendungsbescheids geltenden Fassung gewährt. 7 Sollten relevante inhaltliche Veränderungen der derzeitigen AGVO vorgenommen werden, wird die Förderrichtlinie an die dann geltenden Freistellungsbestimmungen angepasst werden.

Im Rahmen dieser Förderrichtlinie beabsichtigt das Bundesministerium für Wirtschaft und Klimaschutz die Förderung hoch innovativer Forschungs- und Entwicklungsvorhaben 8 im Bereich Cloud- und Edge-Infrastrukturen und –Services der nächsten Generation, die sich umfassend in das IPCEI-CIS integrieren.

Mit dem IPCEI-CIS wird ein offenes und interoperables Cloud-Edge-Ökosystem geschaffen, welches die digitale Souveränität und Unabhängigkeit der Nutzenden von Cloud- und Edge-Dienstleistungen sicherstellt und in der Lage ist, eine Vielzahl von kritischen QoS-Eigenschaften wie etwa minimale Latenzzeiten zu garantieren. Gegenstand der Förderung sind Einzel- und Verbundvorhaben, die diese Cloud-Edge-Infrastruktur technologisch weiterentwickeln oder hochskalierbare Anwendungsfälle schaffen sowie zu den in Nummer 1 genannten Förderzielen beitragen. Hierbei sollen die Vorhaben insbesondere die unten genannten Themenschwerpunkte adressieren, wobei die Förderung für weitere relevante Themen geöffnet ist.

- Mobilität: Das offene Cloud-Edge-Kontinuum des IPCEI-CIS bietet mit seinen garantierten QoS-Eigenschaften sowie seiner anbieterübergreifenden Interoperabilität die Möglichkeit, hochinnovative und skalierbare Anwendungen für den Mobilitätssektor zu entwickeln. Mögliche Anwendungsbereiche können beispielsweise die Echtzeitkommunikation zwischen Fahrzeugen und Umwelt sein, die Optimierung von Verkehr und Logistik, oder auch die digitale Begleitung von Reisenden.
- Energieeffizienz: Die Verbindung von Cloud und Edge in ein gemeinsames Kontinuum eröffnet neue Chancen für eine Steigerung der Energieeffizienz der so integrierten Systeme. Hierzu können beispielsweise Vorhaben beitragen, die das Monitoring sowie die Verteilung von Energie nach vorhandenen Bedarfen vereinfachen und verbessern oder eine effizientere Koordinierung von dezentralen Energiequellen, Energiespeichern und Energieverbrauchern ermöglichen.
- Industrie 4.0: Die echtzeitfähige Steuerung und Messung von Industrieanlagen sowie der Datenaustausch sind wichtige Säulen der Industrie 4.0. Die Einbindung von Industrie 4.0 Lösungen und Industrial-Internet-of-Things (IIoT)-Anwendungen ins Cloud-Edge-Kontinuum stellt deswegen eine wichtige Voraussetzung dar und ist eines der FuEuI 9 -Themen dieser Förderrichtlinie. Spezifische Anwendungsfälle der FuEuI-Projekte der geplanten Fördermaßnahme zur Industrieinitiative „Manufacturing-X" sollen an das Cloud-Edge-Kontinuum angebunden werden, um Synergieeffekte zu nutzen.
- Resilienz und Ausfallsicherheit von digitaler Infrastruktur: Vorhaben sollen bestehende Technologien deutlich weiterentwickeln und kritische Infrastrukturen durch die Einbindung in das Cloud-Edge-Kontinuum verlässlicher und sicherer machen, beispielsweise durch die dezentrale, redundante Verteilung von Rechenleistung oder die Erforschung von Sicherheitssystemen und -komponenten, die zum Beispiel eine Notfallkommunikation ermöglichen.
- Gesundheit: Das Cloud-Edge-Kontinuum des IPCEI-CIS eröffnet neue Möglichkeiten für Anwendungen im Gesundheitssektor. Hierzu zählen beispielsweise sichere Echtzeitanwendungen in der Telemedizin, eine dezentrale, geschützte und daten-

souveräne Verarbeitung von Gesundheitsdaten, Anwendungen des verteilten Maschinellen Lernens oder das Monitoring von Echtzeitdaten mittels digitaler Zwillinge. Die konsequente Ausrichtung des Cloud-Edge-Kontinuums an europäischen Normen und Werten bildet hierbei die Grundlage für einen vertrauenswürdigen und sicheren Umgang mit hochsensiblen Gesundheitsdaten.

Zuwendungsempfänger können Unternehmen der gewerblichen Wirtschaft mit Sitz, einer Niederlassung oder Betriebsstätte in Deutschland sowie staatliche und nicht staatliche Hochschulen, Forschungseinrichtungen, öffentliche Einrichtungen und sonstige Einrichtungen mit FuEuI-Interesse sein.

Das Antragsverfahren ist zweistufig angelegt.

Weitere Informationen:

https://www.bundesanzeiger.de/pub/publication/KmEERbvMNDVaNPnWcgp/content/KmEERbvMNDVaNPnWcgp/BAnz%20AT%

HORIZON EUROPE EIC Pathfinder Challenge: Clean and efficient cooling, deadline: 18. October 2023 17:00 Brussels time

Cooling is an essential process across many areas of society, important for human well-being, economic growth, sustainable urbanisation, reduction of food scarcity, and for socio-economic development. It presents relevant applications in sectors such as (i) built environment, heat, ventilation and air conditioning (HVAC), building health and comfort, interoperable urban energy systems, (ii) data centres, electronics and superconductors, (iii) food production (i.e. vertical farming), processing, storage and refrigerated transport, (iv) cold energy carriers production, transport and network integration (liquid H2, LNG, etc.), (v) chemical, metallurgical and hard to abate industries (including cryogenic carbon capture) and (vi) medical applications (e.g. vaccines that need refrigeration).

In terms of cooling technologies, vapour compression is the most widely applied method for air-conditioning and refrigeration. However, a wide range of alternative methods have been developed or are under active development including thermochemical (e.g. sorption) and solid-state (e.g. magnetic, electrochemical, thermo-acoustic, thermo-elastic) based cooling solutions. At the same time, the need for mechanical cooling can be mitigated by using nature-based solutions (such as trees and plants), passive cooling techniques (such as natural ventilation, shades, thermal insulation, radiative cooling etc.), the use of natural energy (e.g. winter cold for summer use, or solar cooling) and behavioural changes or other demand-based technologies.

The demand for cooling is rising and cooling processes often result in significant greenhouse gas (GHG) emissions, due to the use of hydrofluorocarbons (HFCs) or fossil fuel to power cooling equipment. At the same time, the global energy market disruption and increasing costs of energy supply are threating the competitiveness of several high cooling demand sectors, so that the availability of super-efficient and low-cost cold technologies is crucial. These needs call for novel solutions as they cannot be addressed by simply adapting conventional cooling processes and solutions, nor relying on existing supply chains for components and devices. The alternative cooling technologies under development are either for small scale (e.g. solid-state refrigeration) or for a limited temperature range (e.g. sorption based refrigeration).

This Challenge is strategic for the European Green Deal and the REPowerEU plan, Renewable Energy Directive (RED II), and Energy Efficiency Directive (EED) EU policy objectives, transforming the EU into a resource-efficient and competitive economy, increasing Europe's autonomy on energy and critical materials, preserving Europe's natural environment, tackling climate change and adaptation to it, food security and health protection, and strengthening the EU technological leadership in this strategic sector.

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:

- Generation of clean cooling which may integrate the use of renewable energy, waste heat/ cold harvesting, passive and radiative cooling, thermochemical and hybrid heat pumps, heat transformers, waste heat recovery, heat pipes); solutions for a wide range of applications ranging from vaccine storage temperature (-80 to 4°C), food (-40 to 12°C), data centres and air-conditioning (6 – 12°C) are eligible;

- Store and/or transport of cooling (spatially and/or temporally decoupling demand and generation), clean cold chain transportation, thermal energy carriers, inter-seasonal storage, including charging/discharging dynamics where relevant (i.e. short charging times and mid to long duration storage);

- Utilization and/or management of cooling, such as cascade use of cold energy for different temperature requirements,

integration of innovative and low/ net zero cooling concepts in critical demand segments (i.e. data-centre, hard-to-abate industrial sectors, buildings, specific solutions for food processing or medical applications) or other demand side related technologies).

Specific objectives of the Challenge are to explore new devices, processes, components and materials for cooling. Technologies to be integrated in products and services shall demonstrate their potential to (i) reduce investment/operational costs, (ii) increase efficiency, operational reliability and interoperability, (iii) avoid the use of critical raw materials or harmful refrigerants and (iv) pursue circularity by design approaches, low environmental impact and low carbon footprint.

The proposals should refer the expected COP (coefficient of performance) to the max theoretical COP of the inverse Carnot cycle and describe how the proposed solution can be competitive with the state of art at the proposed operating range. The proposed solutions should aim to achieve single stage temperature gradients higher than 5 °C at a competitive COP.

The proposals submitted in response to this Challenge may address fields 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.

The proposals may include smart interoperability solutions for electricity, heating and cooling networks integration, including reversible heating and cooling infrastructures, or cold-to-power solutions with waste heat and cold energy streams recovery from industrial processes, data centres and/or air conditioning of buildings.

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.

Further Information:
https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/horizon-eic-2023-pathfinderchallen
01-01;callCode=null;freeTextSearchKeyword=;matchWholeText=true;typeCodes=1,2,8;statusCodes=31094502;programmePeriod=20
%202027;programCcm2Id=43108390;programDivisionCode=null;focusAreaCode=null;destinationGroup=null;missionGroup=null;geog

HORIZON EUROPE EIC Pathfinder Challenge: AEC digitalisation for a new triad of design, fabrication, and materials, deadline: 18. October 2023 17:00 Brussels time

Life cycle greenhouse gas (GHG) emissions of buildings show a clear reduction trend due to improved operational energy performance. However, Life Cycle Assessment (LCA) analyses also reveal an increase in relative and absolute contributions of GHG emissions embodied in new buildings. Such embodied GHG emissions are caused during all stages leading up to final construction of the building, including in the choice of materials and their subsequent fabrication. Achieving net GHG

emission reductions by at least 55% by 2030, and net zero by 2050, will require changes in our built environment and, with that, changes in the Architecture, Engineering and Construction (AEC) value chains.

Moreover, with 70% of the world population projected to live in urban areas by 2050, it is also essential that the construction industry can avail of innovations that will positively impact the quality of life and the human experience in cities and buildings from environmental to social, cultural, and aesthetic points of view.

Decisions taken today by professionals and firms in the AEC sector impact the lives of generations far into distant futures. Initiatives such as the European Green Deal or the New European Bauhaus can offer context and targets in this domain to steer us towards better built environments.

These transformations can gradually interweave numerous scientific and technologic innovations into an interdisciplinary fabric that is interconnected by a common thread of digitalisation.

New digital technologies advance the state-of-the-art in areas such computational design, algorithmic design, physics simulation, agent-based modelling, topology optimisation, or parametric design. They can open whole new disruptive pathways of design, with higher degrees of system integration, optimisation, and complexity, if they are coupled with the parallel development of advanced digital fabrication and workflow technologies. Moreover, such digital fabrication technologies can in turn materialise such ever more complex designs, using or reusing known materials, and expectedly introducing more advanced innovative and engineered materials, including new classes of "meta-materials".

This Challenge seeks to develop research and early innovations with a breakthrough potential related to design, fabrication and materials for the AEC value chain enabled by novel algorithms and advanced digitalization. In such a digitalized AEC value chain design, fabrication and materials are symbiotic and mutually dependent and enabling.

This combination can enable designers, architects, engineers, and fabricators to imagine, design, optimise and create complex and efficient structures within a digitalisation pathway, in response to ever more ambitious requirements for climate neutral, sustainable, inclusive, aesthetic, and inspiring buildings.

The potential of the digitalised, mutually interdependent, mutually reinforcing, intertwined triad of design, fabrication and materials can potentially exceed our wildest imaginations. This Challenge seeks the realisation of disruptive solutions for AEC in one or more of the following areas:

- Computational design solutions that advance the state of the art of algorithmically generated design, topology optimisation, agent-based modelling, physical simulation, digital representations such as digital twins and nature inspired design. New algorithmic design solutions may enable breakthroughs in functional integration of complex systems. These solutions may also blur boundaries of nano-scale, micro-scale, meso-scale, and macro-scale, and allow for new developments in meta-materials or bio-mimicry in terms of building structures and patterns.

- Digital fabrication solutions synchronous with a vast potential of the nearly unlimited complexity of computational design. Digital fabrication can relate to all digitally enabled manufacturing technologies, in particular to novel concepts for additive manufacturing such as new 3D printing techniques to realise the highly complex design definitions at voxel level with ever-higher resolution. Beyond advancing and further building on the known practices of layered extrusion and binder jetting, processes such as rapid liquid printing in a carrier suspension can be a promising new pathway for digital fabrication for the AEC. In addition, quality assurance (QA) and quality control (QC) may be enabled by new scanning technologies such as Computed Tomography (CT/ μCT) to detect defects and build a digital "as built" model, albeit at the dimensional scale and fabrication context AEC needs.

- Alternative materials as a field where the mix with digital design and digital fabrication technologies can be demonstrated by the AEC sector to vastly reduce the use of cement and its CO_2 emissions in the transition to net zero. With a deeper adoption of digitalisation in design and fabrication on the potential of adopting alternative materials widens. Digital design and digital fabrication can enable a widespread adoption of bio-based materials, as for example all known and new timber derivatives, fungal architecture, bamboo, hemp, and others, natural materials such as earth, clay, stone as well as recycled and waste-based materials currently considered as inferior. By a similar token, new pathways for engineered materials can also emerge here, as for instance applications of composites and algorithmically generated "meta-materials". The adoption of such materials allows the AEC sector to reduce or even remove carbon permanently from the atmosphere and economic cycle.

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 CO_2 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 CO_2 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.

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.

Further Information:

https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/horizon-eic-2023-pathfinderchaller 01-02;callCode=null;freeTextSearchKeyword=;matchWholeText=true;typeCodes=1,2,8;statusCodes=31094502;programmePeriod=2 %202027;programCcm2Id=43108390;programDivisionCode=null;focusAreaCode=null;destinationGroup=null;missionGroup=null;geog

HORIZON EUROPE EIC Pathfinder Challenge: Precision Nutrition, deadline: 18. October 2023 17:00 Brussels time

Dietary guidelines provide recommendations on foods, food groups and dietary patterns to achieve reference intakes of nutrients, prevent chronic diseases and maintain overall health in the general population. However, dietary recommendations are not sufficiently stratified across different categories such as age, gender, ethnicity, genetic predisposition to certain Food-related Health Conditions (FrHCs) such as but not limited to obesity and malnutrition) and Noncommunicable Chronic Diseases (NCDs) such as but not limited to diabetes and hypertension.

The role of diet in human health is increasingly being researched as a factor that could contribute to human health. The human diet can have a pro-inflammatory effect and can influence the immune system by different mechanisms including altering the glycome in a way to produce more pro-inflammatory antibodies. In addition, depending on the genetic predisposition of an individual, diet can play a role in the development of various FrHCs and NCDs. Also, diet has been shown to be associated with the dense and complex population of microorganisms that colonise the human gastrointestinal tract. Yet, despite current knowledge about the glycome, the susceptibility to different dietary regimes for FrHCs and NCDs requires additional interdisciplinary research, while nutrition, human gut microbiome and glycome research are still mostly compartmentalised.

Common dietary patterns, characterised by high sugar and red meat consumption, as well as overly processed food with a lot of additives, have been investigated as influential factors on human health, including through an increased risk of developing FrHCs and NCDs. The need to ensure the long-term sustainability of current food production amid concerns for global food security, reinforces the idea that additional food sources should be considered and human diet recommendations revised and adjusted to specific needs. A diet based on more plant-based food is certainly a very promising option which provides dietary fibres and a large array of phytochemicals.

This Challenge will only fund multi-disciplinary research proposals that include at least nutritional, microbiome and glycan research aspects. The research focus can be on one or more of the Challenge specific objectives. Proposals are expected to investigate the interactions among nutrition, human gut microbiome and glycans beyond the state-of-the-art, to better clarify the role of diet into human health, including for example the interactions of whole plant foods, highly processed food and fermented foods with the human gut microbiome and glycans.

Since the response of the human gut microbiota to diet is highly individual, we encourage the integration of observational studies, randomised controlled trials, and mechanistic studies in animal models with a machine learning approach that can be applied to a large number of participants and large data sets from already available studies.

Proposals are expected to consider regulatory aspects and to build on the work carried out so far by the European Food and Safety Authority (EFSA).

The goal of this Challenge is to investigate and provide scientific evidence of the role of diet in FrHCs and NCDs.

The specific objectives of this Challenge are:
- Investigate causal relationships among diet, microbiome and glycans, with potential impact on personalising human diet.
- Identify food ingredients, food technology processes, additives and dietary patterns that have negative effects on human health and, aging.

- Identify food ingredients, food technology processes and additives that have a beneficial effect on human health, and aging.
- Develop recommendations for the reformulation of new food products and processes with no- or fewer additives.

Understanding and establishing relationships between diet and the pathology of Food-related Health Conditions and Non-communicable Chronic Diseases would enable the prevention and alleviation of the consequences of FrHCs and NCDs on health and well-being through changes in diet. This is foreseen through the evidence-based upgrade of the current dietary guidelines. In the long run, it is expected that project results will be the basis for the development of novel foods and processes which might decrease the incidence of FrHCs and NCDs among the general population, and a better quality of life for the individuals affected by these conditions.

Further Information:
https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/horizon-eic-2023-pathfinderchalle
01-03;callCode=null;freeTextSearchKeyword=;matchWholeText=true;typeCodes=1,2,8;statusCodes=31094502;programmePeriod=2(
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HORIZON EUROPE EIC Pathfinder Challenge: Responsible Electronics, deadline: 18. October 2023 17:00 Brussels time

Responsible electronics represents a unique opportunity for the future of EU industrial autonomy in a decarbonised and digital society, however fundamental scientific and technological challenges remain to be addressed. It has been predicted that by 2050, the production of electronics components and devices will rise exponentially and thus the use of raw materials in the sector will increase accordingly. As a result, the amount of electronic waste is also set to rise massively.

Responsible electronics can contribute to drastically reducing the environmental load of the electronic industry by shifting from traditional manufacturing industrial methods to innovative methods and materials with a lower environmental impact. This is in line with the EU Circular Economy Action Plan fostering research towards a circular economy with effective waste and carbon recycling strategies as well as complementary with the objectives of the European Chips Act.

Besides reducing the environmental impact of the electronics sector, innovations such as sustainable manufacturing or bio-inspired electronic systems can help Europe overcome the current chips crisis by reducing the dependency on critical raw materials and traditional high energy demanding semiconductor processes. Moreover, investing in responsible electronics would be beneficial for the entire semiconductor ecosystem in Europe and will uphold the EU technology sovereignty.

The overall goal of this Challenge is to create opportunities for discovery of new environmentally friendly electronic materials, thus reducing its environmental impact and the need for critical raw materials and hazardous chemicals.

The projects supported under this Challenge are expected to offer either materials with improved properties (such as flexibility, durability, end of life recyclability/reusability), materials processed with low energy consumption and low carbon footprint processing (such as printing instead of photolithography, avoiding use of fluorinated gases for patterning), or alternatives, including nano-sized ones, to replace common electronic materials such as silicon and silicon nitride.

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, or
- 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.

particularly those suitable for Internet-of-Thing (IoT) applications, while applying the life-cycle thinking approach.

This Challenge is expected to contribute to the development of materials with new properties or replacing materials used in current electronic devices with materials, which:
- reduce dependency on critical raw materials,
- are sustainable: having a low environmental footprint and developed recurring to the life cycle thinking approach.

The overall outcome of this Challenge is to support the move from traditional materials and manufacturing processes to less environmental impactful ones. It is expected that the Challenge will lead to the development of lab-scale validated proof of concept devices based on the developed innovative materials and manufacturing processes, which may represent a potential application of a more sustainable, trusted and secure electronics.

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.

Further Information:

https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/horizon-eic-2023-pathfinderchallen 01-04;callCode=null;freeTextSearchKeyword=;matchWholeText=true;typeCodes=1,2,8;statusCodes=31094502;programmePeriod=2 %202027;programCcm2Id=43108390;programDivisionCode=null;focusAreaCode=null;destinationGroup=null;missionGroup=null;geog

HORIZON EUROPE EIC Pathfinder Challenge: In-space solar energy harvesting for innovative space applications, deadline: 18. October 2023 17:00 Brussels time

Thermonuclear reactions in the Sun are practically an unlimited source of energy, however only tiny fraction of it is so far being exploited. At the same time, increased satellite launches and advancements of Low Earth Orbit (LEO) mega constellations, emergence of in orbit satellite servicing (IOS), and active debris removal (ADR) services demonstrate the need for energy to fuel ever increasing spacecraft in-space mobility. Satellite owners are expected to launch in multiple orbits, service satellites, perform collision avoidance manoeuvres, and move their satellites or space tugs into the desired orbits (e.g., LEO, etc.). Therefore, future spacecraft will need innovative propulsion capabilities in order to achieve long-term reliable, affordable, and scalable solutions for in-space mobility.

The visionary idea to find a way to collect solar energy in space and transmit it, possibly via an appropriate grid of re-translators, to various in-space recipients to be utilised for various in-space applications and novel propulsion approaches will result in emerging breakthrough innovations for renewable and self-sustainable in-space mobility solutions and bring substantial benefits for the European satellite owners.

On the other hand, there is an exponential growth of activities in orbit that will require in-space mobility with game changing novel propulsion methods and energy to be utilised for this propulsion. In-space energy harvesting could offer continuously energy to spacecrafts in orbit for in-space mobility, provided that a proper propulsion system is developed. These could be green propulsion solutions, utilizing the transformed and transmitted energy for orbital manoeuvres. Game changing green propulsion solutions for increased payload capability without impacting launch costs and even reducing them is one of the challenges to be addressed.

In addition, the lack of atmosphere will make possible also the transmission of this green energy to the lunar surface for various in-space applications e.g. In Situ Resource Utilisation (ISRU).

Mastering all the necessary technologies for developing innovative in-space applications would support the EU strategic autonomy in the critical field of energy, green propulsion for in-space mobility, and in-space transportation.

The overall goal of this Challenge includes the development of technologies required for in-space energy harvesting and transmission, and of novel propulsion technologies that will use such harvested energy.

To achieve such a breakthrough, the scientific and technological challenges to be overcome are enormous, since there are many obstacles and bottlenecks requiring game-changing solutions. The proposals submitted to this Challenge should ad-

dress at least one of the fields below. In particular, targeted research and development is necessary in order to come up with:
- Scalable solutions (e.g., solar energy harvesting antennas, on-board spacecraft photovoltaic cells) for in-orbit efficient solar energy collection and storage.
- Conversion of the harvested energy in a form, appropriate for transmission at long distances in empty space.
- Efficient wireless and secure power transmission of the transformed energy between in-space harvesting devices on spacecraft and re-translation stations or other final receivers. This may require a grid of re-transmitting stations, which not only amplify the wireless transmission, but also redirect the transmission as necessary.
Innovative green propulsion solutions for in-space mobility, resulting into low cost or eco-friendly innovative concepts.
This Challenge aims at developing and as such make related impacts in:
- Design and laboratory validation of concepts to develop technologies for energy harvesting in space e.g. in-space utilisation of this energy for transportation and other related research and innovation activities, in particular for cleaning space debris;
- Development and laboratory validation of breakthrough technologies for wireless power transmission of energy, e.g. through power grid, for energy beam pointing and control;
- Development of eco-friendly and innovative green propulsion solutions for in-space applications (e.g., spacecraft orbital corrections, in orbit satellite servicing, active debris removal, end-of-life services, etc.) addressing the barriers to the use of in-space solar energy for innovative propulsion.
- Use of innovative in-space robotic solutions for in-space manufacturing and assembly of space-based solar units.
The development of viable technologies in this area as a basis for space-based energy harvesting will significantly increase the EU strategic autonomy. The direct benefits will be potential fuel cost savings, in-space clean energy solutions and innovative in-space robotic and assembly solutions. Thus, encouraging in-space manufacturing and assembly with a wide range of applications (e.g. navigation, satcom, etc.) and are likely to result into spin-offs into terrestrial markets (e.g. robotics, electronics, etc.). Moreover, it will allow satellite owners to improve in-space mobility, extend the lifetime of their satellites, decommission their old satellites, and potentially generate fuel cost savings. Offering continuous energy and encouraging innovative green propulsion solutions for in-space applications contribute to European leadership in space clean energy, while increasing competitiveness and autonomy of EU space economy.
The submitted proposals must follow interdisciplinary and cross-sectorial approaches, looking for inspiration, ideas, and knowledge in a broad range of disciplines. Space sustainability is of critical importance for Europe and therefore, submitted proposals should incorporate considerations for sustainable space debris management. The safe and sustainable use of non-critical raw materials is crucial, and the projects should include a full life cycle analysis of the proposed solutions and their impact on Europe's decarbonisation goals.
Further Information:
https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/horizon-eic-2023-pathfinderchalle 01-05;callCode=null;freeTextSearchKeyword=;matchWholeText=true;typeCodes=1,2,8;statusCodes=31094502;programmePeriod=2 %202027;programCcm2Id=43108390;programDivisionCode=null;focusAreaCode=null;destinationGroup=null;missionGroup=null;geog

HORIZON EUROPE European Researchers' Night and Researchers at Schools 2024-2025, deadline: 25. October 2023 17:00 Brussels time

Proposals should cover both the organisation of the European Researchers' Night and the implementation of the Researchers at Schools initiative.
The European Researchers' Night takes place every year, on the last Friday of September. It supports events that can last up to two days: they can start on Friday and continue the following day. Pre-events, prior to the main event, and related post-events, such as wrap-up meetings or small-scale follow-up events, can also be organised. It is the occasion for a Europe-wide public and media event for the promotion of research careers.
The European Researchers' Night targets the general public, addressing and attracting people regardless of the level of their scientific background, with a special focus on young people and their families, pupils and students, and notably those who do not have easy access to, and thus are less inclined to engage in STEAM fields (science, technology, engineering, arts and mathematics) or research activities.
The Researchers at Schools initiative brings researchers to schools and other pedagogical and educational centres to interact with pupils on societal challenges and on the key role of research to address them. Pupils will thus also learn directly about research projects and initiatives related to EU main priorities.

European Researchers' Night activities can combine education with entertainment, especially when addressing young audiences. They can take various forms, such as exhibitions, hands-on experiments, science shows, simulations, debates, games, competitions, quizzes, etc. Where appropriate, engagement with educational institutions should be sought in order to encourage formal and informal science education with the aim of improving the scientific knowledge base. The European Researchers' Night should be highlighted as a European (and Europe-wide) event, and each proposal should promote the European Union and its impact on citizens' daily life in the most appropriate way, according to the set-up and the configuration of the event, its location and its activities.

Researchers at Schools activities will allow researchers to showcase their work and interact with pupils. Researchers will engage with teachers, educators and pupils on challenges related to climate change, sustainable development, health and other issues related to the European Commission priorities and main orientations, such as the European Green Deal or the EU Missions. The Researchers at Schools activities should take place at any time during the project duration and should be subject to a dedicated promotion, particularly towards schools and other pedagogical and educational centres.

Involvement of researchers funded by Horizon Europe or previous Framework Programmes, notably by the Marie Skłodowska-Curie Actions, is highly encouraged.

Both the European Researchers' Night and Researchers at Schools initiative should promote gender balance, diversity and inclusiveness in science in terms of planned activities and researchers involved.

The European Commission has defined priorities, notably through the EU Missions, which aim to tackle challenges faced by our societies. Applicants are encouraged to focus on, and include activities relating to these priorities identified by the Missions in their events.

Partnerships and coordination at regional, national or cross-border levels will be strongly encouraged aiming at a good geographical spread and avoiding overlaps. Activities carried-out in non-associated third countries are not eligible for funding. High-quality applications not retained due to lack of funding may be granted the status of associated events.

Eligible costs will take the form of lump sum contributions as stipulated in Decision of 11 March 2021 authorising the use of lump sum contributions and unit contributions for Marie Skłodowska-Curie actions under the Horizon Europe Programme. Applicants are encouraged to submit proposals covering activities for both 2024 and 2025, including the organisation of two successive editions (2024 and 2025) of the European Researchers' Night and implementation of Researchers at Schools activities during the project duration.

Project results are expected to contribute to the following outcomes:

For researchers
- Enhanced opportunities to interact with citizens and local, regional and national authorities;
- Improved communication skills and competences to interact with a non-research audience, notably with pupils and students.

For organisations
- Increased reputation and visibility of participating organisations in terms of hosting excellence research projects towards the general public and possible future students;
- Researchers' work made more tangible, concrete, accessible, and thus opening research and science to all;
- Improved outreach to all audiences, and notably those who do not have an easy access to science and research activities;
- Better communication of R&I results and activities to society, increased and strengthened opportunities for citizens' engagement.

Further Information:
https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/horizon-msca-2023-citizens-01-01;callCode=null;freeTextSearchKeyword=msca-2023;matchWholeText=true;typeCodes=0,1,2,8;statusCodes=31094501,3109450

HORIZON EUROPE Preparatory Action-European Fellowship Scheme for Researchers at Risk, deadline: 07. September 2023 17:00 Brussels time

At the level of project, the expected results include:
- Establishing, testing and validation of the proposed selection and matchmaking procedures through a small-scale fellowship scheme.
- The award of (around) 30 fellowships for researchers at risk,
- Ensuring the follow-up and overall sound management of the project.

At the level of individual researchers, the following outcomes are expected inter alia:
- New research and transferable skills and competences, leading to improved employability and career prospects within and

outside academia.
- New knowledge allowing the conversion of ideas into products and services, where relevant.
- Enhanced networking and communication capacities with scientific peers, as well as with the general public that will increase and broaden the research and innovation impact.
- Building long-lasting collaborative links with EU counterparts.
This action will pilot a European Fellowship Scheme to support Researchers at Risk by establishing, testing and validating procedures for the selection of researchers (assessing their risk and awarding them the fellowship) and for matching researchers with host institutions in the EU. The action will contribute to enhancing support for researchers at risk to continue their work in a safe environment, whether academic or non-academic.
Fellowship scheme for researchers at risk
To validate the established procedures, the PA will award fellowships to researchers at risk in two tracks, with around 15 fellowships in each track:
- Track 1: Urgent placements for non-EU researchers at risk (outside the refugee process) who are facing threats in their country of residence or have recently fled their country of residence due to such threats, and have neither refugee nor subsidiary protection status.
- Track 2: Non-EU refugee researchers and follow-up placements for at-risk candidates outside the refugee process – i.e. researchers with recognised refugee or subsidiary protection status; or researchers outside the refugee process holding or applying for temporary permits/visas
The evaluation and selection procedures of researchers will follow a set of criteria for the assessment and validation of researchers' risk (type, level, authenticity, etc.), background, research and work portfolio (quality and excellence), asylum/refugee status, and any other relevant assessment criteria. The evaluation and selection criteria will be an important part of the proposal developed by the applying consortium and they should be based on the consortium's prior experience in evaluation and vetting procedures for at risk researchers. Experience of comparable national and international programmes should be considered.
Researchers may come from all domains of research and innovation. Their proposals must be in line with the objectives and principles of scientific excellence, skills and career development, inter-sectoral mobility, equal opportunities and inclusiveness, attractive working conditions, work/life balance, while fostering open science, innovation and entrepreneurship.
Applicant researchers can be either doctoral candidates (enrolled in a doctoral programme leading to the award of a doctoral degree) or postdoctoral researchers (in possession of a doctoral degree).
The beneficiary and third parties hosting researchers at risk
The beneficiary of this Preparatory Action will report to the European Research Executive Agency and will be responsible for the implementation of the fellowship scheme:
- its overall management,
- establishing, testing and validating the procedures and criteria for the evaluation and selection of researchers at risk,
- the implementation of the proposed scheme to match selected researchers with potential hosts, in cases when researchers have not yet identified a potential host organisation.
Eligible third parties that will host researchers are principally academic or non-academic research organisations established in an EU Member State. Other organisations, including those established in non-EU countries can host researchers for short-term secondments.
Further Information:
https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/pppa-ri-2023-fellowships-rr;callCode=null;freeTextSearchKeyword=;matchWholeText=true;typeCodes=1,0;statusCodes=31094501,31094502,31094503;progra %202027;programCcm2Id=43637601;programDivisionCode=null;focusAreaCode=null;destinationGroup=null;missionGroup=null;geog

HORIZON EUROPE Advanced materials and cells development enabling large-scale production of Gen4 solid-state batteries for mobility applications (Batt4EU Partnership), deadline: 05. September 2023 17:00 Brussels time

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 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, as following:
- Safety: with a technology compatible with the level 4 EUCAR at module/pack level for automotive (level 2 for aviation and waterborne applications).
- Gravimetric and volumetric energy density: >400Wh/kg and 1000Wh/l.
- Cycling: up to 3000 cycles at 50% DoD (Depth of Discharge) with a minimum of 500 cycles at 80% DoD.
- C Rate at charge up to 5 C at 80% SoC (state of charge), or whichever C-rate / SOC combination that would allow <20mn full capacity recovery; for aviation applications, up to 10C.
- Materials and cells design with mechanical properties and constraints that enable large scale production processes at a competitive cost, especially in terms of pressure conditions at cell and module level.
- Atmospheric conditions in factories.
- 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.
Proposals are expected to cover all the following points:
- Develop or leverage the materials-specific models and digital tools for material and cell design to identify the best combinations of materials and speed up the cell optimisation process.
- Ensure high ionic conductivity (>0.5mS/cm2) and stability of the solid electrolyte.
- Integrate high voltage cathode (>4V) to reach the KPIs for mobility as listed in the Expected Outcomes section.
- Propose and evaluate interfaces and coating solutions especially to suppress dendrite growth and enable a stable solid-electrolyte interphase (SEI) and cathode-electrolyte interphase (CEI).
- Optimise the cell design with respect to all the cell components to meet high energy density objectives.
- Anode current collectors and/or solid electrolyte capable of accommodating volume changes upon charge/discharge.
- Demonstrate the potential for scale up of materials, cells and sustainable industrial processing methods with cells reaching a capacity of several Ah, produced in a statistical meaningful number to demonstrate the process repeatability.
- Project publications should adhere to the guidelines for publication of research results, as laid out by the "Batteries Europe - Reporting Methodologies" report, subject to the need to maintain confidentiality for future commercial exploitation.
Plans for the exploitation and dissemination of results for proposals submitted under this topic should include a strong business case and sound exploitation strategy, as outlined in the introduction to this Destination. The exploitation plans should include preliminary plans for scalability, commercialisation, and deployment (feasibility study, business plan) indicating the possible funding sources to be potentially used (in particular the Innovation Fund).
Projects should link to ongoing Horizon Europe calls, especially HORIZON-CL5-2021-D2-01-03: Advanced high-performance Generation 4a, 4b (solid-state) Li-ion batteries supporting electro mobility and other applications and HORIZON_CL5-2021-D1-01-05 (Manufacturing technology development for solid-state batteries (SSB, Generations 4a - 4b batteries). Projects should also take stock of the outcomes of the projects under call LC-BAT-1-2019 (Strongly improved, highly performant ad safe all-solid-state batteries for electric vehicles).
This topic implements the co-programmed European Partnership on Batteries (Batt4EU). As such, projects resulting from this topic will be expected to report on the results to the European Partnership on Batteries (Batt4EU) in support of the monitoring of its KPIs.
Further Information:
https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/horizon-cl5-2023-d2-02-01;callCode=HORIZON-CL5-2023-D2-02;freeTextSearchKeyword=BATT4EU%20Partnership;matchWholeText=true;typeCodes=1,0

HORIZON EUROPE New Approaches to Develop Enhanced Safety Materials for Gen 3 Li-Ion Batteries for Mobility Applications (Batt4EU Partnership), deadline: 05. September 2023 17:00 Brussels time

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

- Advanced Li-ion batteries with enhanced safety behaviour.
- Advanced materials which lead to improved cyclability (15% increase in cyclability by 2030 compared to 2019 base levels) and operational lifetime (a doubling of lifetime by 2030 compared to 2019 base levels), whilst maintaining competitive performance for cost, energy and power density with state-of-art advanced materials for Li-ion batteries.
- Improved sustainability and recyclability, in line with the recycled content, recycling efficiency and material recovery targets included in the proposed Batteries Regulation.
- A defined concept for demonstrable, highly sustainable, circular manufacturing for the selected advanced materials at Gigafactory scale, with sustainability measured in terms of recognised economic, environmental, social and ethical metrics.
- The improvement in safety has to be demonstrated at representative cell level for mobility applications by direct comparison with SOA Gen. 3 cells tested at the beginning of the project.
- A EUCAR Hazard Level of 3 or other equivalent mobility standard should be validated.
This topic aims at developing safer materials for high-performing cells by targeted modification in main cell components, namely the cathode, anode, separator and electrolyte. Solutions to common safety hazards have to be covered through a comprehensive design of new materials for at least three of following components:
- New cathode materials with no exothermal decomposition/reactions, reduced probability for oxygen and other gasses release, and preventing corrosion at current collector. Development can include the following approaches/strategies at different levels:
- Doping strategies or surface coating materials leading to more robust and effective cathode electrolyte interphase (CEI).
- Design of high-capacity cathode materials based on safer chemistries (e.g. stabilized Li-rich layered oxides, disordered rock salts, polyanionic materials…).
- Design high-voltage cathodes and high voltage anodes in order to combine them in a high energy cell, with sufficiently high operating voltage to avoid stripping/plating of lithium.
- Innovative approaches of cathode structuring to mitigate heat generation, including with toxic gas releases, in abuse conditions.
- New stable anode materials and electrode designs with non-swelling, or low degree of expansion over the whole cell lifetime, with no decomposition/exfoliation, high resistance against Li-dendrite formation – specially at high anode rate capabilities, and favouring the formation of a thermally stable, and low-resistivity SEI. Development can include the following approaches/strategies at different levels:
- Design and development of new systems with higher standard potential compared to lithium stripping/plating. (High SiO_x, Si/C, etc. content).
- Surface coating materials for more robust and effective SEI.
- New approaches to minimize material/anode swelling and expansion during cycling, including anode manufacturing (polymeric and ceramic coating-based approaches, etc.) and structuring the anode-current collector interface.
- New electrolyte formulations with shear thickening, flame retardant and over-charge/discharge properties, maintained high ionic conductivity, broad electrochemical stability i.e., voltage-operating window, and high onset point for Li-dendrite formation, SEI decomposition and CEI effectiveness. Development can include the following approaches/strategies at different levels:
- (Multi-)functional additives for SEI and CEI stabilisation and protection on anode and cathode such as flame-retardant additives or solvents, ionic conductivity boosters, stability window promoters, etc.
- Addition of selective particles (i.e. oxides, etc.) to hinder mechanical abuse and improve shear thickening behaviour.
- New separator materials with flame retardant and improved ion transport capabilities, high melting point, and mechanical stability
- New binder materials with thermal, mechanical and electrochemical stability (self-healing systems), low ionic and electrical resistance, improved adhesion and cohesion, and preventing swelling and porosity reduction in electrodes.
Projects need to justify the relevance of the selected components which will be addressed and how the new materials, and the combination of them, will lead to better safety outcomes. To the extent possible the safety and sustainability of developed materials should be assessed in alignment with the Commission Recommendation on safe and sustainable by design chemicals and materials.
Plans for the exploitation and dissemination of results for proposals submitted under this topic should include a strong business case and sound exploitation strategy, as outlined in the introduction to this Destination. The exploitation plans should include preliminary plans for scalability, commercialisation, and deployment (feasibility study, business plan).
In order to achieve the expected outcomes, international cooperation is encouraged, in particular with the USA.
Projects may collaborate and/or contribute to the activities of the Coordination and Support Action defined under the topic HORIZON-CL5-2022-D2-01-08.
This topic implements the co-programmed European Partnership on Batteries (Batt4EU). As such, projects resulting from

this topic will be expected to report on the results to the European Partnership on Batteries (Batt4EU) in support of the monitoring of its KPIs.

Further Information:
https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/horizon-cl5-2023-d2-02-02;callCode=HORIZON-CL5-2023-D2-02;freeTextSearchKeyword=BATT4EU%20Partnership;matchWholeText=true;typeCodes=1,0

HORIZON EUROPE 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), deadline: 05. September 2023 17:00 Brussles time

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[1]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.

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

The project is also encouraged to address some of the following outcomes:

- Improvement of the recycling efficiency (more than one material).
- Promotion of sustainability and circularity through the adoption of 4R methodological approach Reduce, Repair, Reuse, Recycle.
- Boost of the use of recycled and reusable material to reduce energy usage/CO2 footprint.
- Increase of competitiveness of the European battery industry across the value chain (from mines and refiners to cell manufacturers to cell integrators).
- Streamlined compliance with the proposed Batteries Regulation and EU federated dataspace.

The project outcomes are expected to:

- Be applicable to 3 or more use cases among the main transport or mobile applications (such as road, waterborne, airborne and rail transport, as well as non-road mobile machinery and industrial applications), with the aim to maximize the impact on the European industry.
- Also be applicable to stationary energy storage applications.

The project is expected to:

- Promote the adoption of a downstream development and implementation of a battery pack Digital Product Passport (DPP) at minimum subset design system level addressing raw materials (at least anode and cathode critical raw materials), cells and modules, which is both scalable and energy efficient.
- Be able to facilitate real-time data recognition for different indicators and at local device - even when the battery ceases to be part of the Energy Storage System (ESS).

- Consider the key performance indicators proposed by Batteries Europe or by the dedicated Partnerships, reflected in the Partnership Strategic Research Agenda (SRA), to guide the technology developments on the application segments and use cases. Contribute to the related regulation standards.
- Engage a variety of stakeholders along the whole battery value chain to assure the continuous traceability and assure that accountability will not be lost from raw or recycled raw material to first and second life and recycling.

The suggested blockchain, DLT, or equivalent, solutions are requested to demonstrate trustworthy tracking. The project is encouraged to:
- Validate its interoperable data sharing strategy by adopting a unique battery data space and testing of interoperability between different subsystems (mobility, energy, etc.) is encouraged.
- Develop a safety second life-battery certification protocol, and hazard alerts system to assure liability and protection during transport, and second use.
- Validate new business models, capable to demonstrate improvement in remanufacturing, repurposing and recycling.
- Aim for cross-sectorial applications
- Focus on the lithium-ion battery chemistries currently on the market - or reaching the market in the short term, with the potential to quickly adapt to next-generation battery chemistries and assess its safety tracking.

Projects need to be compliant with the following EU strategy and regulations framework:
- Green Deal and in particular Circular Economy Action Plan's Sustainable Product Initiative,
- the EU Digital strategy's Circular Electronics Initiative and,
- the EU Data strategy,
- Upcoming regulation on Batteries.

Plans for the exploitation and dissemination of results for proposals submitted under this topic should include a strong business case and sound exploitation strategy, as outlined in the introduction to this Destination. The exploitation plans should include preliminary plans for scalability, commercialisation, and deployment (feasibility study, business plan).

Proposals should interface with the project(s) funded under the topic DIGITAL-2021-TRUST-01-DIGIPASS "Digital Product Passport: sustainable and circular systems" and notably its activities regarding batteries. They should also establish cooperation and complementarity with the selected proposal under the topic HORIZON-CL4-2022-RESILIENCE-01-05 "Technological solutions for tracking raw material flows in complex supply chains", which is tracking raw material flows for batteries value chains and others.

They should furthermore establish collaboration with the partnership "Battery Passport" under the Global Battery Alliance. In order to achieve the expected outcomes, international cooperation is encouraged, in particular with the USA, Japan and South Korea.

Proposals could consider the involvement of the European Commission's Joint Research Centre (JRC) whose contribution could consists of providing added value regarding various aspects of battery sustainability, performance or safety.

This topic implements the co-programmed European Partnership on Batteries (Batt4EU). As such, projects resulting from this topic will be expected to report on the results to the European Partnership on Batteries (Batt4EU) in support of the monitoring of its KPIs.

Further Information:
https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/horizon-cl5-2023-d2-02-03;callCode=HORIZON-CL5-2023-D2-02;freeTextSearchKeyword=BATT4EU%20Partnership;matchWholeText=true;typeCodes=1,0

HORIZON EUROPE Framework Partnership Agreement (FPA) for developing a large-scale European initiative for High Performance Computing (HPC) ecosystem based on RISC-V, deadline: 31. August 2023 17:00 Brussels time

Framework Programme Agreement (FPA) for European hardware and software technologies, based on RISC-V in order to deliver high-end processors and/or accelerators and systems based on a strategic research roadmap, and the realisation of test-beds, pilots and/or demonstrators, integrating these processors.

The FPA is expected to address the following outcomes:
- Contribution towards European technological sovereignty, by establishing, maintaining and implementing a strategic R&I roadmap that fosters the European capabilities to design, develop and produce the IP related to high-end processors and/or accelerators based on RISC-V, driven by relevant key performance indicators.
- Designing and delivering energy efficient high-end processors and accelerators for HPC based on RISC-V hardware solutions,

test-beds, and at least one pilot integrating these processors/accelerators. The development of European processors and/or accelerators should prepare the technology for its future integration in post-exascale supercomputers to be acquired at a later stage by the EuroHPC JU targeting systems incorporating European technologies.

- A suitable software stack, including key elements such as programming models and runtimes (e.g. languages, compilers, programming environments, communication), libraries (e.g. mathematical, data analytics, AI frameworks), tools (e.g. debuggers, performance, system monitoring), operating system components (e.g. schedulers, workflows, software management, security), and other elements (e.g. for networking, software deployment, system-level composability and modularity of software, etc.).
- The necessary components adapted for the integration of the RISC-V based components in industrial grade HPC or Cloud solutions.
- A selected set of critical HPC applications, encompassing amongst others the major EuroHPC use-cases, ported and optimised to the new RISC-V based environment, based on a co-design approach.
- Standards and interface specifications for the software and hardware stack, with clear definition of standardization and licensing schemes of the developed Intellectual Property (IP), with mechanism to guarantee that this IP remains in the EU.
- Reinforce the use of pilot lines based in Europe and, widen the skill base for the design and manufacturing of high-end components.
- A long-term roadmap with a critical timeline, milestones and all the necessary activities that would be needed to build and deploy post-exascale systems in Europe using European technology.

The aim is to support a Framework Partnership Agreement (FPA) establishing a stable and structured long term partnership between the EuroHPC JU and a consortium of industry, research organisations and the institutions in High Performance Computing who commit themselves to establishing, coordinating and implementing a strategic and ambitious R&I initiative contributing to the development of innovative HPC hardware and software technology based on the open RISC-V ecosystem, followed by an ambitious action for building and deploying the exascale and post-exascale supercomputers based on this technology.

This partnership will be set up through one single FPA, which will ensure the implementation of the initiative through several complementary parallel and consecutive Specific Grant Agreements (SGAs) that will carry out the different activities in a common framework. The SGAs will be implemented as Research and Innovation Actions (RIA) or Innovation Actions (IA) in function of the concrete objectives of the action. The FPA should be carried out in different phases, which will be triggered after the attainment of appropriate intermediate progress milestones identified by the Consortium. The FPA will permit the coordinated development of the technology, its validation and the nurturing of the ecosystem. The developments should be integrated in at least one pilot demonstrator to validate the developments and demonstrate the scalability potential towards exascale systems. The demonstrator should be installed in a pre-operational environment in European supercomputing centres for user testing and validation. The FPA and its SGAs should target delivering of technological components for building and deploying in the EU exascale and post-exascale supercomputers based on European technology.

The FPA is expected to pursue an inclusive approach in the development of the necessary EU-wide RISC V ecosystem, ensuring European wide participation of relevant stakeholders across the EU and take-up of the technology developed. The FPA should include supercomputing centres, research institutes, universities, RTOs, industry, SMEs as well as any other organisations that can play a role in the realisation of the objectives of the initiative. The participation of the leading supercomputing centres in Europe is essential to provide upfront the general specifications of the future European supercomputers to ensure the proper alignment of the technological developments to the needs of the users. In addition, the FPA should aim towards a strong participation of the European HPC supplier as well as server/cloud supplier industry, including SMEs, so that they can leverage on existing technological developments and activities and, reinforce their capabilities of becoming leading technology suppliers.

The FPA should ensure a common framework for implementation by maintaining a long-term roadmap with a critical timeline and milestones of the necessary activities (including also other related activities funded outside EuroHPC) that would be needed to build and deploy exascale and post-exascale systems in Europe using the technology developed in this initiative. Proposals for FPAs should present an overall view of the different main areas of work to be implemented by SGAs, addressing them in a co-design approach. The co-design approach should bridge the gap between suppliers and users; define the characteristics and technical features of the new hardware architectures and where necessary the additional key components, existing or to be developed; as well as better computational methods and algorithms adapted to future real HPC application needs with a minimum significative number of use cases that demonstrate the capability of the developed solutions for solving concrete and challenging computational problems demonstrating a competitive edge in application areas that are crucial for the Union. The FPA should address in a co-design approach at least the topics listed below:

- RISC-V hardware: addressing the design, development, testing, tape-out of different generations of energy efficient high-end processors and/or accelerators, in particular chiplet-based approaches, for High Performance Computing (HPC), also

linked to cloud or data server use cases, using synergies with designs and components developed by projects funded through the Key Digital Technologies Joint Undertaking resp. Chips Joint Undertaking where relevant,
- Integration in test-beds and at least one pilot in pre-operational environments in supercomputing centres for user testing and validation.
- RISC-V software: develop the full SW stack and the associated software ecosystem for the developed processors and/or accelerators, addressing the system, middleware and application layers. The development should be driven by the needs of relevant HPC workflows and application requirements and cloud or data server use cases where relevant.
- Develop and/or adapt the other necessary technologies for the integration of the RISC-V based components into industrial grade HPC solutions.
- Identify the most critical HPC applications and domains and work towards porting and optimising them for the new RISC-V based environment, and the wide take-up of the developed technology by users.
- Explore and exploit existing manufacturing capabilities in Europe, including existing or under development pilot lines, to fabricate the required components.
The FPA should develop mechanisms guaranteeing that all IP generated in the initiative stays in the EU and will not be transferred to third countries, dedicating an appropriate effort to IP management, protection and exploitation (i.e., IP licensing, IP warranty, etc.).
The FPA should present a professional project structure management, a strategic R&I roadmap to implement the activities, and governance that are appropriate to coordinate the implementation of the future SGAs, including addressing the industrial use cases, and to deliver effectively and efficiently the main results of the initiative. The FPA should put in place appropriate management and progress control mechanisms, in particular, the establishment of common milestones for the SGAs and an intermediate main assessment point to assess the correct advancement of the different work lines towards the goals of the overall initiative.
The FPA should establish interaction with the relevant stakeholders and Programs of the KDT/Chips JU to coordinate work on horizontal issues common to both communities and exploit synergies where relevant, in particular for pilot lines for high end components, common design rules and tools.
Further Information:
https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/horizon-eurohpc-ju-2022-tech-03-01;callCode=null;freeTextSearchKeyword=eurohpc;matchWholeText=true;typeCodes=0,1,2,8;statusCodes=31094501,31094

HORIZON EUROPE Improving modes of delivery, deployment, and uptake of vaccines through phase IV implementation research, deadline: 28. September 2023 17:00 Brussels time, 1. Stage

This topic aims at supporting activities that contribute to one or several of the expected impacts for this call. To that end, proposals submitted under this topic should aim for delivering results that are directed, tailored towards, and contributing to all the following expected outcomes:
- Public health authorities and health care professionals in sub-Saharan Africa (SSA) have access to novel logistical and clinical solutions for vaccine delivery and have a better understanding of the behavioural barriers driving vaccine hesitancy, resulting in improved rates of vaccine deployment and uptake, particularly in poor and vulnerable communities.
- People in SSA have improved access, coverage, and trust in vaccines against all preventable infectious diseases within the scope of the Global Health EDCTP3. Better tools as well as data on immunisation levels and the individual and public health benefit of immunization will drive vaccination even in hard-to-reach regions, thus helping to contribute towards the WHO Immunization Agenda 2030.
Health professionals and especially clinicians as well as policy makers have access to comprehensive phase IV/implementation research results, making use of them to ensure widespread translation and adoption of research findings into national and international policy guidelines for better delivery, deployment, and uptake of vaccines in clinical practice in SSA.
Despite offering strong protection against infectious diseases, global vaccination rates have been declining for a few years resulting in the re-emergence of preventable infectious diseases that were thought to be on the verge of elimination. This trend further worsened during the COVID-19 pandemic because of severe interruptions in public health services, restrictions of non-urgent medical care and diversion of limited health care resources, resulting in cancellation or delays of routine vaccinations. Underserved communities in SSA have been most affected, leaving them less protected against vaccine-preventable diseases. Under immunised individuals and zero-dose-children (not having received any vaccine) are also found in other communities. Furthermore, there has been a significant erosion of trust in governments and public health institutions that

coordinate and conduct such immunisation efforts. Novel logistical and clinical solutions for vaccine delivery and a better understanding of the behavioural barriers driving vaccine hesitancy in SSA as well as better data to document beneficial vaccine effects on individual and public health are therefore of critical importance. Furthermore, there remain open questions on the use of vaccines, also in view of changing environments.

Accordingly, the proposed research is expected to deliver on the following:

- Carry out phase IV/implementation research studies on the deployment and uptake of registered vaccines in SSA, examining operational aspects, access, coverage, vaccine acceptability/hesitancy, community engagement, real-life impact on overall health and cost-effectiveness;
- Develop and test novel logistical solutions for vaccination;
- As relevant, develop and test novel clinical solutions for vaccine delivery, including new delivery modes;
- Gain a better understanding of different health care systems in sub-Saharan Africa as regards the factors driving structural inequalities in vaccine deliveries;
- Identify the social, economic, political, religious, cultural, and personal factors driving vaccine hesitancy in SSA and develop targeted solutions, as appropriate. Vaccine hesitancy should be considered in the context of the specificities of different types of vaccines and their perceived risks and benefits. It is further essential to investigate the factors that are undermining coverage in different countries, regions, or communities both in terms of vaccine types and doses received. In many cases, this means targeted collaborations with local leaders who can effectively address their communities' concerns and with caregivers who bring children to vaccination services. Applicants are also encouraged to develop evidence-based tools that can guide people towards informed vaccination decisions, delivering tailored information based on each user's concerns;

Applicants need to concisely describe any prior research findings and explain how the proposal builds on these results. Building on relevant results from projects supported under previous EDCTP programmes is encouraged.

The implementation research to be conducted must involve vulnerable groups, including participants from poorer, underserved, or hard-to-reach communities in SSA. The full range of relevant determining characteristics (sex, gender, age, socio-economic status, etc.) needs to be considered. Applicants are also encouraged to provide methodologies for translating research findings into public health practice and policy guidelines. They are welcome to draw on any relevant lessons from the COVID-19 vaccination strategies.

Proposals are expected to come from research consortia with a strong representation of institutions and researchers from African countries, including involvement of franco/lusophone countries where possible and relevant.

The proposals should involve all stakeholders, most notably policy makers, public health authorities, health care professionals and end-users. The applicants must ensure strong community engagement. International cooperation is encouraged, and the proposed research is expected to be multidisciplinary through the involvement of medical sciences, psychological sciences, social sciences, and the humanities.

All projects funded under this topic are strongly encouraged to participate in networking and joint activities, as appropriate. These networking and joint activities could, for example, involve the participation in joint workshops, the exchange of knowledge, the development and adoption of best practices, or joint communication activities. Therefore, proposals are expected to include a budget for the attendance to regular joint meetings and may consider covering the costs of any other potential joint activities without the prerequisite to detail concrete joint activities at this stage. The details of these joint activities will be defined during the grant agreement preparation phase. In this regard, the Global Health EDCTP3 Joint Undertaking may take on the role of facilitator for networking and exchanges, including with relevant stakeholders, if appropriate.

Further Information:
https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/horizon-ju-gh-edctp3-2023-02-01-two-stage;callCode=null;freeTextSearchKeyword=;matchWholeText=true;typeCodes=1,2,8;statusCodes=31094502;programme %202027;programCcm2Id=43108390;programDivisionCode=null;focusAreaCode=null;destinationGroup=null;missionGroup=null;geog

HORIZON EUROPE Advancing point-of-care diagnostics to the market, deadline: 28. September 2023 17:00 Brussels time, 1. Stage

Proposal under this topic should aim to deliver results that are directed, tailored towards, and contributing to all of the following expected outcomes:

- Health care providers and professionals have access to novel or improved point-of-care diagnostic (POC) devices that are suited to rapidly detect infectious diseases of relevance in sub-Saharan Africa (SSA) and within the scope of the Global Health EDCTP3 Scientific Research and Innovation Agenda.

- A diverse and robust pipeline of in vitro diagnostics is available, increasing options for clinical deployment, also in case of an infectious diseases outbreak with epidemic or pandemic potential, that can reach the most vulnerable populations.
- Health authorities and health care systems have access to health data and evidence to better develop and implement informed health policies and improved clinical surveillance of infectious diseases in SSA.

POC diagnostic tests that are easy to use, affordable and can rapidly diagnose diseases will lead to more timely treatment and thereby reduce mortality, morbidity, and transmission of diseases. POC diagnostic tests should improve the quality of healthcare for resource-poor communities in developing countries, where the burden of disease is the highest. A diagnostics gap for many diseases affecting SSA still exists and needs to be closed urgently to contribute the global and national disease elimination targets.

Hence, proposals submitted under this topic should implement clinical studies that lead to market authorisation of the relevant POC diagnostic test. The POC diagnostic test device should be aimed at detection of diseases that currently lack POC diagnosis tests or where POC diagnostics are inadequate. Tests that can in the same specimen simultaneously and rapidly detect and thereby distinguish a wide range of diseases for improved clinical decision-making are encouraged (e.g., distinction between bacterial versus viral pathogens). The POC diagnostic tools are expected to be affordable and suitable for use in SSA countries. POC diagnostics for all diseases in scope of the current Global Health EDCTP3 programme, for example antimicrobial resistance and emerging diseases, are included in this call (exception is Ebola Virus disease, covered under topic HORIZON-JU-GH-EDCTP3-2023-01-04).

Proposals should address all of the following areas:
- Clinical performance studies in several sites across SSA of POC diagnostics that are of high technology readiness level to achieve regulatory approval and market launch (i.e., CE mark); post-market surveillance studies are excluded from this call and are covered by other initiatives such as the African Health Diagnostics Platform;
- Studies need to provide evidence-based practice for the POC diagnostic test especially in terms of the ability to decide on treatment options after diagnosis and improving disease outcome; the possibility of the POC diagnostic to be deployed in the field, its usability by primary care and community health care workers in resource-limited patient communities should be especially considered;
- Inclusion of a clear regulatory path to market to ensure future compliance with the legal requirements; early engagement with regulatory authorities is expected;
- Product development plans for translation from prototype to industrial design, to implementation and sustainability of the innovation should be provided, also including a plan for the process of "sample to result to the use of result & treatment option" and how to report data & results (e.g., via mobile health/portable technology);
- Where available and relevant, World Health Organization target product profiles for diagnostics need to be addressed;
- Involvement of industry, notably of small and medium-sized enterprises (SMEs), especially African SMEs, is expected. Involvement of African SMEs is highly encouraged to contribute to developing the African industry and access to health products.

Proposals submitted under this topic are encouraged to consider innovative diagnostics sampling methods or samples bringing a significant improvement, such as less invasive sampling methods and self-testing at home. The POC diagnostic should allow for easy storage, such as at room temperature. Consideration of environmental friendliness of diagnostic tests would be advantageous. Transmission and economic modelling to examine the impact of the POC diagnostic assay on performance of long-term health outcomes and cost-effectiveness could be envisioned. Relevant partnerships with local and international organisation to create solutions for improved deployment of diagnostics for vulnerable populations in low-resource settings could be sought.

In addition, where relevant, the link between the diagnostic devices to relevant infectious disease surveillance strategies to inform public health authorities and advise public health policies should be made. This can include monitoring the impact of relevant POCs on the use of antibiotics.

For all proposed research activities, attention should be paid to critical social factors such as sex, gender, age, socio-economic factors, ethnicity/migration, and disability. Populations for POC diagnostic test development and evaluation of the POC diagnostic test performance and appropriateness should also include vulnerable populations, including children, pregnant women, people with co-infections and co-morbidities, older people, and people living in hard-to-reach communities. Rapid feedback from end-users through community engagement on the performance and acceptance of the technologies and their most effective use in endemic settings is expected.

Applicants need to concisely describe any prior research findings and explain how the proposal builds on these results. Building on relevant results from projects supported under previous EDCTP programmes is encouraged.

Proposals are expected to come from research consortia with a strong representation of institutions and researchers from African countries, including involvement of franco/lusophone countries where possible and relevant.

All projects funded under this topic are strongly encouraged to participate in networking and joint activities, as appropriate.

These networking and joint activities could, for example, involve the participation in joint workshops, the exchange of knowledge, the development and adoption of best practices, or joint communication activities. Therefore, proposals are expected to include a budget for the attendance to regular joint meetings and may consider covering the costs of any other potential joint activities without the prerequisite to detail concrete joint activities at this stage. The details of these joint activities will be defined during the grant agreement preparation phase. In this regard, the Global Health EDCTP3 Joint Undertaking may take on the role of facilitator for networking and exchanges, including with relevant stakeholders, if appropriate.
Further Information:
https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/horizon-ju-gh-edctp3-2023-02-02-two-stage;callCode=null;freeTextSearchKeyword=;matchWholeText=true;typeCodes=1,2,8;statusCodes=31094502;programme%202027;programCcm2Id=43108390;programDivisionCode=null;focusAreaCode=null;destinationGroup=null;missionGroup=null;geog

HORIZON EUROPE Capabilities for border surveillance and situational awareness, deadline: 23. November 2023 17:00 Brussels time

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.
External borders of the European Union and of the Schengen area, ranging from those closer to the Mediterranean to the Nordic Countries external land borders, present different border surveillance challenges. These differences may lead to difficulties in efficiently monitoring them, deterring illegal activities across the external borders, as well as trafficking of human beings and exploitation of irregular migration that avoid border crossing points.
Furthermore, the border surveillance capabilities' needs along borders may change in time, often just within a year or a season, and/or allow to respond and adapt within a relatively short notice. Solutions should hence allow re-orienting capacity and resources accordingly (through physical portability and/or other approaches).
Cooperation for surveillance along borders requires compatibility and interoperability among legacy and planned systems. Proposed solutions should allow higher interoperability cross-border among EU and Associated Countries practitioners, cross-systems and across the multiple authorities.
Compatibility and integration with the European Border Surveillance System (EUROSUR) is essential, and compatibility and/or exploitation of other information sharing environments, including the Common Information Sharing Environment (CISE) would be an additional asset.
Examples of technologies and approaches that can be explored by the research projects include (non-prescriptive and non-exhaustive): networked deployable, and possibly mobile, semi-autonomous surveillance towers; IoT and advanced mesh connectivity; Virtual and Augmented Reality for enhanced C2 and situational awareness; integrated wide area RPAS management; advanced sensors for geolocalisation; passive, low-energy systems; artificial intelligence.
Equipment and technologies enabling border surveillance should contribute to cost and energy efficiency, limit their environmental impact and be more and more sustainable once operational in the future. This may be addressed, for example, by integrating opportunities of circular economy, self-sustained equipment, lower emissions and/or environmental footprints.
The proposed solutions should include, by design, the protection of fundamental rights such as privacy, and/or the application of privacy-enhancing technologies. They should also ensure secure data collection, access, encryption and decision support processes.
EU and Member States authorities should plan to take up the results of the research, should it deliver on its goals and when compatible with applicable legislation, with the support of the Border Management and Visa Instrument (BMVI).
Research projects should consider, build on (if appropriate) and not duplicate previous research, including but not limited to research by other Framework Programmes projects. In particular, proposals should build on achievements and findings or relevant recent EU-funded civil security research projects, as well as projects from topic HORIZON-CL3-2021-BM-01-01: Enhanced security and management of borders, maritime environment, activities and transport, by increased surveillance capability, including high altitude, long endurance aerial support, and other relevant research.
Proposals should delineate the plans for further development to subsequent TRLs as well as uptake (industrialisation, com-

mercialisation, acquisition and/or deployment) at national and EU level, should the research deliver on its goals.

Proposals submitted under this topic are expected to address the priorities of the European Border and Coast Guard and of its Agency (Frontex). This should start from the definition of requirements and the design phase of their work, including basing on the EBCG Capability Roadmap when available; and on the engagement with the Agency during the implementation of the project. This perspective should be considered and planned when drafting proposals. Proposals should foresee that Frontex will observe projects' pilots and demonstrations, with the aim of facilitating future uptake of innovations for the border and coast guard community. Cross-community and cross-authority synergies within civil security can be an asset, for example in relation to combat crime and terrorism (i.e. across external borders) and Disaster-Resilient Society (regarding natural hazards and disasters).

Further Information:

https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/horizon-cl3-2023-bm-01-01;callCode=null;freeTextSearchKeyword=;matchWholeText=true;typeCodes=1,2,8;statusCodes=31094502;programmePeriod=2021%202027;programCcm2Id=43108390;programDivisionCode=null;focusAreaCode=null;destinationGroup=null;missionGroup=null;geog

HORIZON EUROPE Interoperability of systems and equipment at tactical level; between equipment and databases; andor between databases of threats and materials, deadline: 23. November 2023 17:00 Brussels time

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

- Increased interoperability of existing (and foreseeable upcoming) customs control equipment at tactical level, multi-supplier, multi-authority and cross-border;
- More efficient and quicker availability, for EU customs practitioners, of reference data (such as spectra) on threats and dangerous and/or illicit materials;
- Building capabilities for a more harmonised European application of customs controls based on risk management and trade facilitation.

European customs, as all operators and citizens, also work in our digitalised and interconnected world of equipment, systems, and data. On the one hand, this opens opportunities to harness their capacity to facilitate trade while protecting the security and safety of citizens and benefiting the EU's economy. On the other hand, the proliferation of equipment, system and data, often from different suppliers and in different versions, may also present challenges in terms of interoperability and an efficient management of flows of goods across the external borders of the Custom Union. Furthermore, the strategy of the "European custom union acting as one" implies that other authorities beyond customs use that same equipment. It also means that equipment, including mobile one, is shared among Member States to increase cooperation and collaboration on checking flows of goods across European borders. Finally, it equally means that standards and technical specifications for customs control equipment are harmonised.

Another challenge for European customs control capabilities is the rapid availability of, and rapidly shared, data references for (new) threats and illicit materials.

All this calls for research and innovation for solutions that prepare and increase the interoperability of customs control equipment and data at "tactical" level, in terms of multi-authority, cross-border, multi-supplier interoperability as well as linkages among Member States and Commission systems, and the more rapid availability and sharing of libraries of reference data for target substances or materials. There is room for innovation to improve access to updated spectra (or other formats or references) of target substances and materials when they appear; easily make them available to customs' devices; and improve data for libraries.

The solution(s) proposed under this topic should define the requirements and way forward to enable and enhance the interoperability of customs control equipment and of data used in different Member States and/or by different authorities at national level, as well as Commission systems.

The proposed solution(s) should address how to make libraries of data references on target substances and materials more rapidly available and shared with authorities; to update and share them faster and securely; to enable quicker tackling of illegal substances and materials, either innovating current approaches or designing altogether new approaches for reference libraries.

EU customs authorities should take up the results of the research in the framework of the Customs Union "acting as one", with the support of the Customs Control Equipment Instrument (CCEI). The CCEI will enable not only the possibility to establish harmonisation through common standards and technical specifications but will offer access to actively fund equipment across the Member States to fulfil these common standards.

The proposed solution should include privacy enhancing techniques to allow the sharing of tools without the sharing of data beyond what is strictly necessary. Leaking or compromising personal data should be avoided in the transfer of tools or models.

Improving energy efficiency and environmental impact aspects of new security technologies for this capability (e.g. low environmental footprint, low emissions, circular economy aspects and/or self-sustained equipment) would be desirable.

Examples of technologies and approaches that can be explored by the research projects include (non-prescriptive and non-exhaustive): blockchain/DLT, artificial intelligence; spectroscopy, data fusion.

Research projects should consider, build on (if appropriate) and not duplicate previous research, including but not limited to research by other recent EU Framework Programmes projects on security research.

Proposals should delineate the plans for further development to subsequent TRLs as well as uptake (industrialisation, commercialisation, acquisition and/or deployment) at national and EU level, should the research deliver on its goals.

Further Information:

https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/horizon-cl3-2023-bm-01-04;callCode=null;freeTextSearchKeyword=;matchWholeText=true;typeCodes=1,2,8;statusCodes=31094502;programmePeriod=2021 %202027;programCcm2Id=43108390;programDivisionCode=null;focusAreaCode=null;destinationGroup=null;missionGroup=null;geog

HORIZON EUROPE Secure Computing Continuum (IoT, Edge, Cloud, Dataspaces), deadline: 23. November 2023 17:00 Brussels time

Projects' results are expected to contribute to some or all of the following outcomes:
- Tools to support cybersecurity resilience, preparedness, awareness, and detection within critical infrastructures and across supply chains;
- Cloud infrastructures vulnerabilities mitigation;
- Secure integration of untrusted IoT in trusted environments;
- Use of Zero-Trust architectures;
- Trust & Security for massive connected IoT ecosystems & lifecycle management;
- Secure interoperability and integration of systems;
- AI-based automation tools for cyber threat intelligence;
- Secure infrastructure, secure Identities and usability for a security chain covering communication, data collection, data transport, and data processing.

The evolution of our interconnected society brings multiple layers of cloud, edge computing, and IoT platforms that continuously interact with each other. Yet this always-connected ecosystem populated with potentially vulnerable entities requires advanced, smart and agile protection mechanisms to manage the security and privacy of individual components throughout their lifecycle and of overall systems. The complexity of such interconnected environments underlines the need for the proactive and automated detection, analysis, and mitigation of cybersecurity attacks in cloud, at the edge, for OT, IoT deployments, and in application domains such as, for example, smart cities. Integrating end-to-end security and user-centric privacy in complex distributed platforms requires work to address security threats and vulnerabilities over the entire platform ecosystem.

The identification and analysis of potential regulatory aspects and barriers for the developed technologies/solutions is encouraged, where relevant.

Further Information:

https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/horizon-cl3-2023-cs-01-01;callCod %202027;programCcm2Id=43108390;programDivisionCode=null;focusAreaCode=null;destinationGroup=null;missionGroup=null;geog

HORIZON EUROPE Security of robust AI systems, deadline: 23. November 2023 17:00 Brussels time

Projects' results are expected to contribute to some or all of the following outcomes:
- Security-by-design concept and resilience to adversarial attacks;
- Inclusion of context awareness in machine learning in order to boost resiliency.

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 Intelligence, 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.

Further Information:

https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/horizon-cl3-2023-cs-01-03;callCod %202027;programCcm2Id=43108390;programDivisionCode=null;focusAreaCode=null;destinationGroup=null;missionGroup=null;geog

HORIZON EUROPE Operability and standardisation in response to biological toxin incidents, deadline: 23. November 2023 17:00 Brussels time

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

- Improved European crisis management in case of an incident with biological toxins through the development of a pan-European task force of security practitioners, taking into consideration existing intersectoral actions on bioterrorism;
- New and existing portable devices, technologies and methods for responders to perform on-site detection of biological toxins are brought to the market;
- Recommendations of effective decontamination measures for personnel, equipment and facilities exposed to biological toxins are provided based on solid experimental testing;
- Development of an operational European response network of specialised and forensic laboratories, taking into account existing initiatives such as e.g. the HERA Laboratory Network and harmonised procedures/guidelines for forensic analysis of biological toxins applicable to a range of relevant technologies and toxins;
- The risks for responders from exposure to biological toxins in the hot-zone are assessed and recommendations of protective equipment for working with biological toxins in the hot-zone are developed;
- Building on existing initiatives and networks, a consolidated platform is established providing support for standardisation efforts in the analysis of biological toxins.

Recent incidents in Europe and worldwide have highlighted the current threat posed by several biological toxins falling under the Chemical and Biological Weapons Convention. The incidents demonstrated the urgency for countries individually and collectively to improve crisis management capabilities, to advance standardisation efforts and to interconnect security practitioners such as first responders (including health emergency services), law enforcement agencies, specialists from public health (e.g. epidemiologists, environmental health experts), as well as specialised and forensic laboratories across Europe. In order to ensure cross border interoperability, existing and new national procedures need to be developed and implemented in an operational and coherent European crisis response network capable of addressing the threats posed by biological toxins.

To properly manage and minimise the effects of an attack with biological toxins, fast and reliable detection and identification of the used agent is critical. Portable devices, technologies and methods for responders to perform on-site detection of a panel of biological toxins remain to be developed. There is a need for evaluation, training and advancement of on-site detection methods for responders, as well as the integration of emerging detection technologies into marketable solutions.

The safety of responders relies on correct risk assessment and the use of appropriate protective equipment. The risks from exposure to biological toxins in the hot zone are largely unknown. In order to recommend appropriate protective equipment for first responders and to guide the use of effective decontamination measures, the risks from exposure need to be assessed, taking into account sex susceptibility to toxins exposure. The Commission stockpiles personal protective equipment, and links should be sought with this joint DG ECHO-HERA action to make proposals as useful as possible.

Following an attack, exposed personnel, equipment and facilities needs to be decontaminated and declared safe as quickly as possible, in order limit the effects on society. Most decontamination procedures are developed for chemical or biological (i.e. organisms and viruses) agents, but based on their characteristics, biological toxins are at the interface of classical biological and chemical agents. Therefore, the efficiency of existing decontamination procedures should be evaluated for the decontamination of biological toxins.

Previous initiatives have initiated standardisation efforts for lab-based detection and identification of biological toxins. Ana-

lytical tools and reference materials are available and comprehensive training and proficiency-testing programs were organised, however, the need for further technical and operational improvement was demonstrated. Building on existing initiatives and networks, a consolidated platform should be established providing analytical tools (including Certified Reference Materials), training and intercomparisons among laboratories. Following the initial detection of the used biological toxin, a more detailed analysis is needed in order to link the agent to confiscated materials. In support of criminal investigations, new procedures and guidelines for comprehensive forensic analysis of biological toxins are needed. The developed methods and procedures should be shared among specialised and forensic laboratories. This action is also expected to engage with the European Health Emergency Preparedness and Response Authority (HERA).

In this context it is important to remind that standardisation should support operations and policymaking to supplement it but should by no means substitute it. While standardisation of technology may be more straightforward, the right balance does especially have to be sought for processes. The action should ensure close synergies with standardisation activities on European (e.g. CEN/TC 391) and international level (e.g. ISO/TC 292).

Further Information:
https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/horizon-cl3-2023-drs-01-03;callCode=null;freeTextSearchKeyword=;matchWholeText=true;typeCodes=1,2,8;statusCodes=31094502;programmePeriod=2021%202027;programCcm2Id=43108390;programDivisionCode=null;focusAreaCode=null;destinationGroup=null;missionGroup=null;geog

HORIZON EUROPE Robotics: Autonomous or semi-autonomous UGV systems to supplement skills for use in hazardous environments, deadline: 23. November 2023 17:00 Brussels time

Projects' results are expected to contribute to some or all of the following outcomes:
- 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-o 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 readouts from various sensors carried by robots.

Robotics and automation are key technologies that help increase productivity and efficiency to prevent, prepare, and/or respond to natural and human-made disasters. Demographic change and lifestyle changes, such as shifting several time centre of one's life, build up lots of pressure, especially on volunteer-based first responder organizations, which need long training to be mission ready. First responders supported by robotics will be able to fulfil more work within a shorter amount of time and with less personnel. In this industry, cheaper, more capable, and more flexible technologies are accelerating the growth of fully automated production facilities. It is necessary to bring this innovation also into saving lives. Fundamental changes (procedures, tactics and strategies) in the civil protection traditional way of working are needed. Robotic systems with and without autonomous functionalities are not entirely new in disaster relief, but still, there is no continuous and decisive step towards bringing this innovation into the first responders' daily work. In order to be successful in this process, various aspects should be considered.

Firstly, there is a need to identify the fields and domains that will benefit from (autonomous) robotic systems. For a start, there is an urgent need to look into the deployments in hazardous environments or where the danger for first responders and citizens is the highest. What kind of technologies can be replaced with robotic solutions to complete the task more efficiently? What are the situations which cause the most significant danger to human life during a disaster situation? Also, it is essential to look into options where robotic systems might be more effective than humans. Extensive technology inventory is needed. Altogether this first step can be considered as the exhaustive requirements and gaps analyses which is an inevitable step bringing robotics closer to the civil protection.

Secondly, the identified gaps and needs should be the basis for proof-of-concept research and development studies. Proof of concept studies can either focus on autonomous systems or semi- autonomous systems (e.g. optionally manned or tele-operated systems). These solutions enable managers and practitioners to immerse themselves in what is happening on-site from a great distance and make decisions or even actively intervene in what is happening. To this end, new sensing capabilities should be developed to enhance robotic capabilities and provide more information about the hazards in the environment they operate. They should be adapted in a compact system to be mounted on robots. Human-machine inter-

action technologies that enable an overlapping control of the robotic systems between the artificial Intelligence entity and the operator need to be developed. The interaction between the user and the robotic system has to be intuitive and should work without extended training. Thirdly, first responders' training, preparedness, and mindset should be considered when bringing new technologies into the field. This is necessary in order to reach a required paradigm shift. This is a long-term process and therefore has to be strategical and well planned.

Fourthly, the relevant infrastructure needs to be put in place. Robotic systems should be seen as an integral part of first responder ecosystems and not as a single technology. Further research is needed to define the basic physical and organisational structures and facilities required for the operation of robotic solutions and integration to the current operational infrastructure. Therefore, adapted standard operational procedures have to be developed.

Overarching topics like ethics, legal and societal implications are highly relevant in the robotics context. They form the basis for the societal acceptance of artificial intelligence in control and decision-making. As robotics become a new resource for the application in hazardous environments (but not only), their acceptance has to be ensured from the perspectives of emergency services, just as the people to be rescued.

In summary, 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.). There are many research and engineering challenges that need to be addressed in the framework of this topic. First responders play a vital role in ensuring that the robotics solutions are based on the needs and are valuable assets for the civil protection ecosystem.

This topic requires the effective contribution of SSH disciplines and the involvement of SSH experts, institutions as well as the inclusion of relevant SSH expertise, in order to produce meaningful and significant effects enhancing the societal impact of the related research/innovation activities.

In order to achieve the expected outcomes, international cooperation is encouraged.

Further Information:
https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/horizon-cl3-2023-drs-01-05;callCode=null;freeTextSearchKeyword=;matchWholeText=true;typeCodes=1,2,8;statusCodes=31094502;programmePeriod=2021%202027;programCcm2Id=43108390;programDivisionCode=null;focusAreaCode=null;destinationGroup=null;missionGroup=null;geog

HORIZON EUROPE New methods and technologies in service of community policing and transferable best practices, deadline: 23. November 2023 17:00 Brussels time

Projects' results are expected to contribute to some or all of the following outcomes:
- Strengthened resilience of local communities against crime and radicalisation, lowered feeling of insecurity and improved law enforcing;
- Negative factors in local communities are identified early, possible threats are detected, and crime reporting is enhanced;
- Better recognition for community diversity within neighbourhoods, and tailored approaches to milieus including communities traditionally not engaging with statutory authorities resulting in comprehensive community empowerment;
- The interactions, and potential feedback between CP and alternatives to incarceration are explored;
- Identification and EU wide dissemination of validated community policing best practices;
- New methodologies, tools and adoption of technological support are developed; and
- Training curricula for Police Authorities are developed on community policing in non-homogenous local milieus with social complexities, including balancing of majority needs while recognising expectations of minorities and/or sub-groups.

Community policing (CP) is an integral part of policing focusing on cooperation with local community for better understanding challenges and the given group needs and meeting them. From both a theoretical and a practical point of view, three ways of delivering CP may be outlined: reactive, proactive, and co-active - based on community consultations and common actions. While performing such actions, police provides information, initiates and participates in programs to prevent crime and ensures the protection of citizens in cooperation with other institutions. CP aims to create opportunities for positive, mutually respectful interactions between civilians and the police, to increase citizens' trust and enhance the ability of police to enforce the law. To maximise the impact of CP actions, proposals should analyse its potential relations with introduction of innovative alternatives to imprisonment.

Nowadays, Police Authorities, while carrying out their duties to provide community security, are faced with numerous economic and demographic challenges. As a consequence, more efficient solutions, tools and methodologies are sought. First responders cope with growing communities, tighter budgets, and diverse, quickly evolving milieus in their areas of responsi-

bility, regularly facing challenges that initial professional training could not prepare them for. Moreover, rapidly changing social, economic and political environment, both domestically and internationally, complicates these problems and fuels new tensions.

New approaches should cover internal review of Police Authorities' personnel training, possible change of attitudes and communication language, or countering existing misconceptions and biases. International exchange of validated best practices is encouraged. Proposals should eventually integrate societal findings, relevant new or already existing technologies and legal framework into a comprehensive CP model. The successful proposal should build on the publicly available achievements and findings of related previous national or EU-funded projects. Activities proposed within this topic should address both technological and societal dimensions of CP in a balanced way.

This topic requires the effective contribution of SSH disciplines and the involvement of SSH experts, institutions as well as the inclusion of relevant SSH expertise, in order to produce meaningful and significant effects enhancing the societal impact of the related innovation activities.

Further Information:

https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/horizon-cl3-2023-fct-01-03;callCode=null;freeTextSearchKeyword=;matchWholeText=true;typeCodes=1,2,8;statusCodes=31094502;programmePeriod=2021%202027;programCcm2Id=43108390;programDivisionCode=null;focusAreaCode=null;destinationGroup=null;missionGroup=null;geog

HORIZON EUROPE Accelerating uptake through open proposals for advanced SME innovation, deadline: 23. November 2023 17:00 Brussels time

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

- Development of a mature technological solution addressing EU security policy priorities in the areas addressed by the Cluster 3 work programme.
- Facilitated access to civil security market for small and medium innovators and enhanced links between suppliers and public buyers;
- Improved cooperation between public buyers and small supply market actors for a swifter uptake of innovation in response to short to mid-term needs;
- Stronger partnerships between small and medium EU security industry and technology actors to ensure the sustainability of the EU innovation capacity in the civil security domain and increase technological sovereignty of the EU in critical security areas.

Europe's 25 million small and medium enterprises (SMEs) are the backbone of the EU economy. SMEs can bring innovation to societal challenges, including the security of EU citizens. Innovative SMEs and high-tech start-ups can transform and modernise EU security capabilities.

However, despite the innovation capacity of EU SMEs, these often experience difficulties in finding their way to the public markets. These include red tape in public contracts, access to new customers, access to finance, industrial competition and IP valorisation. These difficulties are exacerbated in markets that show restrictions of different kind, as it is the case of security.

Knowing that SMEs require additional support to reach the security buyers and that the collaboration opportunities offered by the projects of the Pillar II of Horizon Europe can be a catalyst for uptake, this topic aims to offer a collaborative environment for small and medium innovators to tailor their innovations to the specific needs of civil security end-users.

Applicants are invited to submit proposals for technology development along with the following principles:

- Focus on mature technological solutions addressing EU security policy priorities in the areas addressed by the Cluster 3 work programme.
- Not overlapping with the scope of the topics included in the other destinations of this work programme.
- Fostering collaboration between SMEs from different Member States and Associated Countries.
- Involving security end-users in the role of validator and potential first-adopter of the proposed innovations.
- Fostering collaboration schemes between small companies and research and technology organisations and/or big industrial players aimed at fostering innovative technology transfer or creating innovative business models that facilitate access to market and strengthen the innovation capacity of EU SMEs and start-ups in the domain of civil security.

The involvement of big industries in the projects should not focus on technology development but on supporting the SMEs in bringing their innovations to the market. Examples of activities include but are not limited to, acting as first buyer/integrator of the developed technologies, assimilating market requirements, facilitating access to additional funding, approaching po-

tential public buyers, assess competitive landscape, supporting in innovation management (methodological and process innovation, business model innovation, market innovation), assist in IP management and exploitation, provide guidance for expansion to future markets, etc. In the same fashion, the participation of research and technology organisations should not focus on technology development but on supporting the small industrial players in accelerating the technology transfer of innovative security solutions for their further development and production.

It is encouraged that one SME takes the coordinator role. Exceptions to this requirement should be duly justified.

The projects should have a maximum estimated duration of 2 years.

Under this topic, projects should address the one of the following areas of Fighting Crime and Terrorism (FCT, Option A), Disaster-Resilient Society (DRS, Option B), Resilient Infrastructure (INFRA, Option C) Border Management (BM, Option D). Some examples of domains that could be addressed:

Option A: Some examples of domains that could be addressed under the FCT area are: (indicative and non-exhaustive): mobile forensics; deepfake detection; detection of counterfeiting (fake items, fake currency bills) or of falsified/forged documents (passports, ID cards); detection and countering of advanced forms of malware, as well as non-cash payment frauds and other cyber-scams.

Option B: Some examples of domains that could be addressed under the DRS area are (indicative and non-exhaustive): data and satellite/remote sensing information exploitation, positioning and localisation tracking and tracing, monitoring and surveillance for disaster prevention.

Option C: some examples of domains that could be addressed under the INFRA area are: (indicative and non-exhaustive): physical access control, autonomous systems used for infrastructure protection, positioning and localisation tracking and tracing, monitoring and surveillance of environments and activities.

Option D: under the BM area are (indicative and non-exhaustive): facilitated border checks; secure documents and identity management for border crossings; border surveillance; detection of drugs, explosives, Chemical, Biological, Radiological and Nuclear (CBRN), weapons and/or other dangerous materials in customs environment; detection of stolen, smuggled, illicit or illegal goods (cigarettes, art, cultural goods, wildlife) in a customs environment

In this topic, projects should address the EU security policy priorities in the areas addressed by the Cluster 3 work programme.

In this topic, the integration of the gender dimension (sex and gender analysis) in research and innovation content should be addressed only if relevant in relation to the objectives of the research effort.

Further Information:

https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/horizon-cl3-2023-ssri-01-02;callCode=null;freeTextSearchKeyword=;matchWholeText=true;typeCodes=1,2,8;statusCodes=31094502;programmePeriod=2021
%202027;programCcm2Id=43108390;programDivisionCode=null;focusAreaCode=null;destinationGroup=null;missionGroup=null;geog

HORIZON EUROPE Open grounds for pre-commercial procurement of innovative security technologies, deadline: 23. November 2023 17:00 Brussels time

Projects' results are expected to contribute to some or all of the following outcomes:
- Consolidated demand for innovative security technologies built on the aggregation of public buyers with a common need expressed in functional and/or operational terms without prescribing technical solutions;
- Better informed decision-making related to investment in innovative security technologies based on a better understanding of the potential EU-based supply of technical alternatives that could address common needs of EU public buyers;
- Better informed decision-making related to investment in innovative security technologies based on an improved visibility of the potential demand in the EU market for common security technologies;
- Increased capacity of EU public procurers to align requirements with industry and future products and to attract innovation and innovators from security and other sectors through common validation strategies, rapid innovation, experimentation and pre-commercial procurement;
- Increased innovation capacity of EU public procurers through the availability of innovative tendering guidance, commonly agreed validation strategies and evidence-based prospects of further joint procurement of common security solutions.

End-users and public procurers from several countries are invited to submit proposals for a preparatory action that should build the grounds for a future Pre-Commercial Procurement action. Both this preparatory action and the future PCP action are open to proposals oriented to the acquisition of R&D services for the development of innovative technologies, systems, tools or techniques to enhance border security, to fight against crime and terrorism, to protect infrastructure and public spaces, and/or to make societies more resilient against natural or human-made disasters.

In preparing the grounds for a possible future PCP action, the outputs of this CSA should take into consideration:
- The policy priorities described in this Work Programme Part for the security areas mentioned above;
- The EU Directive for public procurement and in particular with the provisions related to PCP;
- The specific provisions and funding rates of PCP actions and the specific requirements for innovation procurement (PCP/PPI) supported by Horizon Europe grants, as stated in the General Annex H of the Horizon Europe Work Programme;
- The guidance for attracting innovators and innovation, as explained in the European Commission Guidance on Innovation Procurement C(2021) 4320, in particular those measures oriented to reduce the barriers to high-tech start-ups and innovative SMEs.
During the course of the project, the applicants are expected to deliver clear evidence on a number of aspects in order to justify and de-risk a possible follow-up PCP action, including:
- That the challenge is pertinent and that indeed a PCP action is required to complete the maturation cycle of certain technologies and to compare different alternatives;
- That there is a consolidated group of potential buyers with common needs and requirements which are committed to carry out a PCP action in order to be able to take an informed decision on a future joint procurement of innovative solutions;
- That there is a quantifiable and identifiable community of potential buyers (including and beyond those proposed as beneficiaries in the proposal) who would share to a wide extent the common needs and requirements defined and who could be interested in exploring further joint-uptake of solutions similar to those developed under the PCP, should these prove to be technologically mature and operationally relevant by the end of the project;
- That the state of the art and the market (including research) has been explored and mapped, and that there are different technical alternatives to address the proposed challenge;
- That a future PCP tendering process is clear, that a draft planning has been proposed and that the supporting documentation and administrative procedures will be ready on due time in order to launch the call for the acquisition of R&D services according to the PCP rules.
- That the technology developments to be conducted in the future PCP can be done in compliance with European societal values, fundamental rights and applicable legislation, including in the area of free movement of persons, privacy and protection of personal data.
- That in developing technology solutions, societal aspects (e.g. perception of security, possible side effects of technological solutions, societal resilience) can be taken into account in a comprehensive and thorough manner.
If the applicants intend to submit a proposal for a follow-up PCP in a future Horizon Europe Cluster 3 Work Programme, they should ensure that the above evidence is consolidated in the project deliverables of this CSA before the submission of the PCP proposal.
In this topic the integration of the gender dimension (sex and gender analysis) in research and innovation content should be addressed only if relevant in relation to the objectives of the research effort.
The project should have a maximum estimated duration of 1 year.
Further Information:
https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/horizon-cl3-2023-ssri-01-01;callCode=null;freeTextSearchKeyword=;matchWholeText=true;typeCodes=1,2,8;statusCodes=31094502;programmePeriod=2021
%202027;programCcm2Id=43108390;programDivisionCode=null;focusAreaCode=null;destinationGroup=null;missionGroup=null;geog

HORIZON EUROPE Beyond the state-of-the-art "biometrics on the move" for border checks, deadline: 23. November 2023 17:00 Brussels time

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.

Biometrics are one of the most usable and most reliable ways to validate the identity of an individual. Biometrics that are traditionally used in the context of border controls include fingerprints and 2D facial images; other biometrics are also used for identity management outside the European Union, or at national level, such as iris; and further others are used in other applications in the private sector and in consumer market.

As for many other technologies, applications of biometrics to improve capabilities in civil security, such as in the border management or law enforcement sectors, may have higher requirements than applications in the consumer market. This applies to the requirements on reliability, usability, scalability, throughput and strict minimization of risks to personal data protection and fundamental rights (including the elimination or minimisation of any risk of bias or discrimination).

Research should assess and develop the fit-for-purpose border management of biometric identification modalities beyond fingerprints and facial images, and/or innovative modalities of acquisition of those and other biometrics. Proposed projects should particularly investigate biometrics modalities that currently do not offer satisfactory performance (in terms of accuracy, reliability, usability, minimisation of data protection risk and risk of bias etc.) but potentially offer significant advantages over existing solutions in the short or medium term for applications in a border checks context.

Any innovation in biometrics shall imply clear improvements on acquisition, processing and validation, compared to the state-of-the-art, "on-the-move" (i.e. while the travellers are moving and without cooperation from them), contactless and with stand-off biometric capturing from long-distances (ideally, but not mandatorily, more than 10 meters), and/or of when multiple travellers cross borders, on foot or inside the same vehicle. The solutions should also take into account the different nature and scenarios of BCP operations (e.g. open-air conditions, night, time, time constraints, space constraints, etc.).

The solutions should comply with the requirements of current and foreseen EU large-scale IT systems on borders and visa (e.g. the Entry/Exit System), as well as with interoperability frameworks between EU large-scale IT systems on borders, visas, asylum and migration, as well as on police and judicial cooperation.

The proposed solutions should comply with EU data protection law, and, amongst others, embed data protection by design and by default and ensure transparency vis-à-vis the concerned individuals and avoid abuses of their personal data. The solutions should also meet robust fundamental rights impact assessment frameworks. Developed solutions could indeed help reduce the amount of biometric data needed to achieve improved reliability of identification, including by acquiring and using less personal data compared to the state-of-the-art.

The project should also study the stability over time of collected biometrics, and if and how it would be possible to "re-use" collected biometrics in a secure and privacy-friendly manner, for the same purposes and according to allowed uses, collected biometrics, and avoid collecting the same biometrics multiple times.

The proposed solution(s) should address modular integration with health checks – such as in the case of pandemics – as well as checks on people's temperature. At system-level, emphasis should be given to automated border check for the purpose of guiding travellers on-the-move while performing the seamless biometric acquisition. Systems should also be compatible with policies and measures typically introduced during pandemics (e.g. the use of facemasks and social distancing).

The proposed solutions should include automated decision support systems for the biometric recognition process suggesting to the end-users (border checks operators) which procedure, technology or database can be used without infringing rights of travellers.

The developed solutions need to comply with the Ethics Guidelines on Trustworthy AI (2019), the EU values and fundamental rights, including on data protection and avoid bias and discrimination.

EU border authorities in the consortia should plan to take up the results of the research, assuming the project delivers on its goals and is compatible with applicable legislation, using the financial support of the Border Management and Visa Instrument (BMVI).

Examples of technologies and approaches that can be explored by the research projects include (non-prescriptive and non-exhaustive): 3D facial images, contactless friction-ridge biometrics (i.e. fingerprint, palmprint and finger-knuckle-print), iris recognition from long distances, palm vein, periocular biometrics, novel algorithms embedding artificial intelligence as well as advanced hardware components like sensors, traveller tracking systems for high-quality on-the-move biometric acquisition, safe single wavelength or multispectral light sources (for the illumination of subjects) and document verification subsystems.

Research projects should consider, build on (if appropriate) and not duplicate previous research, including but not limited to research by other relevant recent EU Framework Programmes projects on security research, and projects funded under HORIZON-CL3-2021-BM-01-03: Improved border checks for travel facilitation across external borders and improved experiences for both passengers and border authorities' staff and HORIZON-CL3-2022-BM-01-02: Enhanced security of, and combating the frauds on, identity management and identity and travel documents.

Proposals should delineate concrete, clear and convincing plans for further development to subsequent TRLs as well as uptake (industrialisation, commercialisation, acquisition and/or deployment in operational context of border checks) at national and EU level, should the research deliver on its goals.

Proposals submitted under this topic are expected to address the priorities of the European Border and Coast Guard and

of its Agency (Frontex) and of the European Union Agency for the Operational Management of Large-Scale IT Systems in the Area of Freedom, Security and Justice (eu-LISA). This should start from the definition of requirements and the design phase of their work, including basing on the EBCG Capability Roadmap when available; and on the engagement with the Agencies during the implementation of the project. This perspective should be considered and planned when drafting proposals. Proposals should foresee that Frontex and of eu-LISA will observe projects' pilots and demonstrations, with the aim of facilitating future uptake of innovations for the border and coast guard community.

The funded projects will likely have the opportunity of exploiting the core capabilities of the "Frontex Technology and Innovation Centre" (FIT, formerly BoMIC), Frontex's future collaborative physical space for testing, demonstration, simulation and assessment of border-check prototype systems, processes and procedures with a focus on human-machine interaction and emulation of real operational environments.

Further Information:
https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/horizon-cl3-2023-bm-01-03;callCode=null;freeTextSearchKeyword=;matchWholeText=true;typeCodes=1,2,8;statusCodes=31094502;programmePeriod=2021%202027;programCcm2Id=43108390;programDivisionCode=null;focusAreaCode=null;destinationGroup=null;missionGroup=null;geog

HORIZON EUROPE Privacy-preserving and identity management technologies, deadline: 23. November 2023 17:00 Brussels time

Projects' results are expected to contribute to some or all of the following outcomes:
- Improved scalable and reliable privacy-preserving and identity management technologies for federated and secure sharing and for processing of personal and industrial data and their integration in real-world systems;
- Improving privacy-preserving technologies for cyber threat intelligence and data sharing solutions;
- Privacy by design;
- Contribution to promotion of GDPR compliant European data spaces for digital services and research (in synergy with DATA Topics of Horizon Europe Cluster 4). Also, contribution to the promotion of eID Regulation compliant European solutions;
- Research and development of self-sovereign identity management technologies and solutions;
- Provide resource efficient and secure digital identity solutions for Small and medium sized enterprises (SME);
- Strengthened European ecosystem of open-source developers and researchers of privacy-preserving solutions;
- Usability of privacy-preserving and identity management technologies.

Using big data for digital services and scientific research brings about new opportunities and challenges. For example, machine-learning methods process medical and behavioural data in order to find causes and explanations for diseases or health risks. However, a large amount of this data is personal data. Leakage or abuse of this kind of data, potential privacy risks (e.g. attribute disclosure or membership inference) and identity compromises pose threats to individuals, society and economy, which hamper further developing data spaces involving personal data. Likewise, there are similar challenges for the exploitation of non-personal/industrial data assets that may compromise the opportunities offered by the data economy. Advanced privacy-preserving technologies such as, for example, cryptographic anonymous credentials, homomorphic encryption, secure multiparty computation, and differential privacy have the potential to address these challenges. However, further work is required to ensure and test their applicability in real-world use case scenarios.

The security of any digital service or the access to data is based on secure digital identities. The eID Regulation provides the legal framework on which to build technological solutions that address the user needs concerning their digital identity. With regards to personal data, it is also important to develop self-sovereign identity solutions that give users complete control on their personal data and use.

Proposals should address usability, scalability and reliability of secure and privacy-preserving technologies in supply chain and take integration with existing infrastructures and traditional security measures into account. They should further take into account, whenever needed, the legacy variation in data types and models across different organizations. The proposed solutions should be validated and piloted in realistic, federated data infrastructures such as, for example, European data spaces. They should ensure compliance with data regulations and be GDPR compliant by-design. Open-source solutions are encouraged.

Consortia should bring together interdisciplinary expertise and capacity covering the supply and the demand side, i.e. industry, service providers and, where relevant, end-users. The use of authentication and authorisation infrastructure framework tools developed for data spaces, and notably with the European Open Science Cloud, could be considered. Participation of

SMEs is strongly encouraged. Legal expertise should also be added to ensure compliance of the project results with data regulations and the GDPR.

The identification and analysis of potential regulatory aspects and barriers for the developed technologies/solutions is encouraged, where relevant.

Further Information:

https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/horizon-cl3-2023-cs-01-02;callCod
%202027;programCcm2Id=43108390;programDivisionCode=null;focusAreaCode=null;destinationGroup=null;missionGroup=null;geog

HORIZON EUROPE Internationally coordinated networking of training centres for the validation and testing of CBRN-E tools and technologies in case of incidents, with consideration of human factors, deadline: 23. November 2023 17:00 Brussels time

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

- Extended networking of training centres in Europe and selected CBRN Centres of Excellence in non-EU countries;
- Compilation of information of capacities of networked CBRN-E training centres in view of better coordination of training and testing actions in support of research and standard developments;
- Improved cooperation and development of testing methodologies and protocols for the validation of tools and technologies resulting from research actions (including pre- or co-normative research) and/or proofs of concepts for developing standards, combining societal and technological challenges;
- Inter-cooperation through an established forum of training centres to synchronize actions for identifying gaps in test and validation techniques, methodologies and protocols.

In case of a Chemical, Biological, Radiological, Nuclear or Explosive (CBRN-E) incident, it is of outmost importance that personnel involved in handling the situation, i.e., rescue services and polices, are well educated and trained and that they are using equipment and tools that are reliable with validated capabilities. It can be the difference between a well-functioning management and a disaster. To achieve a more robust and consistent opportunity to practice, test and evaluate CBRN-E tools and technologies (resulting from research actions and/or standard developments) within Europe and beyond, it is necessary to strengthen networking of existing training and testing facilities and centres and to extend it to relevant CBRN Centres of Excellence located in non-EU countries. An assessment of such facilities can identify gaps where training and testing opportunities are lacking but can also be a possibility to highlight weaknesses in that there may be dependencies on one or a few actors. This will indicate what type of facilities are ready to be used for specific training / validation needs and which developments are required to strengthen the testing end exercise capabilities to be better prepared in the event of a CBRN-E incident. It will also give the existing centres a possibility to cooperate to compare, enhance, develop and extend the range of tests, exercises and training to achieve a robustness that will benefit the whole European CBRN-E community. Along validation / testing actions, training exercises should consider societal aspects (vulnerable groups, human factors) in combination of CBRN technological response in case of an incident. It should be considered whether the Commission stockpiled items, aiming to respond to medical and CBRN emergencies, could be a part of training and validation exercises. The work would build on the results achieved from past H2020 and Instrument for Security Funds (ISF) actions in this area, focusing on further development of tools, tests and training methods.

This topic requires the effective contribution of SSH disciplines and the involvement of SSH experts, institutions as well as the inclusion of relevant SSH expertise, in order to produce meaningful and significant effects enhancing the societal impact of the related research activities. The involvement of citizens, including citizen volunteers in demonstrations of tools and technologies, civil society and other societal stakeholders in co-design and co-creation should be promoted.

In order to achieve the expected outcomes, international cooperation is required, in particular with countries belonging to the CBRN Centres of Excellence network.

Further Information:

https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/horizon-cl3-2023-drs-01-
04;callCode=null;freeTextSearchKeyword=;matchWholeText=true;typeCodes=1,2,8;statusCodes=31094502;programmePeriod=2021
%202027;programCcm2Id=43108390;programDivisionCode=null;focusAreaCode=null;destinationGroup=null;missionGroup=null;geog

HORIZON EUROPE Increased technology solutions, institutional coordination and decision-support systems for first responders of last-kilometer emergency service delivery, deadline: 23. November 2023 17:00 Brussels time

Projects' results are expected to contribute to some or all of the following outcomes:
- Identification and evaluation of existing technologies supporting first and second responders in their immediate response to natural disasters (e.g. drones, AI, sensors), highlighting their strengths and weaknesses;
- Testing and implementation of most promising user-centred technologies in real-world conditions;
- Innovative technology solutions to improve searching operations in smoky environments in the case of wildfires.
Supplying relief items to various demand spots in disaster-prone areas is a critical task due to last-kilometer logistics problems that hamper the process of and efficient transportation of first responders and their equipment. Blocked roads, heavy terrain and bad weather conditions are factors that are faced by first and second responders (e.g. fire brigade, emergency medical services) in the immediate response to disasters. Innovative technologies (e.g. drones, AI, sensors etc.) are considered to support emergency workers in overcoming the aforementioned challenges related to relief items delivery and can provide ability to obtain critical information remotely about the extent, perimeter, or interior of the incident as well as conduct on-scene operations remotely without endangering responders. For example, technology solutions for navigation in smoky environments in the case of wildfires can potentially increase the efficiency of search operations by fire fighters.
Further Information:
https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/horizon-cl3-2023-drs-01-06;callCode=null;freeTextSearchKeyword=;matchWholeText=true;typeCodes=1,2,8;statusCodes=31094502;programmePeriod=2021%202027;programCcm2Id=43108390;programDivisionCode=null;focusAreaCode=null;destinationGroup=null;missionGroup=null;geog

HORIZON EUROPE Processing of large, complex and unstructured datasets resulting from criminal investigations, while reconciling big data analysis and data protection, deadline: 23. November 2023 17:00 Brussels time

Projects' results are expected to contribute to all of the following outcomes:
- Improved capabilities of European Police Authorities and other relevant security practitioners for a fast and flexible analysis of huge amounts of heterogeneous data through the application of robust and advanced tools, allowing them to efficiently fight criminals and terrorists who use novel technologies;
- Enhanced and modern analysis of heterogeneous data as well as training curricula that take into account legal and ethical rules of operation, cost-benefit considerations, as well as fundamental rights such as privacy and protection of personal data, providing reports that can be used in court;
- The work of European Police Authorities in the area of fighting crime and terrorism is supported by big data analysis that is in accordance with data minimisation principles and high privacy standards, with clearly identified challenges, adequate models and scientifically validated technical options for tackling the challenge proposed and solutions developed that meet the challenge.
With the constant increase of technological developments, the processing of large datasets is inevitable for police work in today's digital world. As a wide range of products and services become digitalised and interconnected, Police Authorities need adequate technologies to properly detect and counter emerging threats. Big data analysis also provides invaluable opportunities to carry out investigations, identify suspects, reveal or anticipate crime patterns or links between previously unconnected events or actors. In particular, there is a continuous need for handling large, complex and unstructured datasets, in order to gather, normalise, process, connect, prioritise, visualise the data (including text, image, audio and video) in ways that facilitate the extraction of actionable intelligence, while ensuring interoperability between existing systems and standards in different Member States. Solutions to perform temporal and geospatial analyses are needed too. The successful proposal should have a clear strategy related to quality data sets to be used for training and testing. The innovation efforts should provide support to web-based data analysis that can facilitate e.g. the fight against hate speech, human trafficking, terrorism or child sexual exploitation in an online environment. The work should include surface, deep and dark web.
Examples of relevant techniques include: examination of digitally captured signatures, identification of voice cloning and of deepfakes; detection and recognition of persons/objects/logos; speaker diarisation and identification; speech recognition and transcription into text; automatic classification of text based on risk factors; optical character recognition; named entity recognition; concept extraction, extraction of entities and relations between them in unstructured text; multimodal

analytics, in order to discover insights and patterns in large volumes of data through clustering, as well as the identification of user communities and key actors in the social networks being formed online; automatic correlations among all available sources, as well as cross-checking, cross-matching and mapping information between different cases, i.e. cross-reference with existing records in databases of Police Authorities. Identification of perpetrators can also be enhanced by detecting their online behaviour and habits, e.g. which days/hours they are used to login/logout.

Taking advantage of these modern technologies will require Police Authorities to move away from business models based on data input to data evaluation. It will require robust and reliable information management structures that encompass all aspects from data collection to handling, evaluation, exploitation and data security. In particular, key principles such as lawfulness of processing and data minimisation should apply to ensure that Police Authorities conduct data analysis in full compliance with fundamental rights and EU privacy and personal data protection legal framework. For example, it may be necessary to filter and reduce large datasets to what is relevant for operational support activities and in investigations, and/or apply methods such as differential privacy. Hence, all these efforts should also reconcile big data analysis and data protection, i.e.: explore challenges to conduct big data analysis in accordance with data minimisation principles and data protection by default standards, propose possible models and scientific options to tackle the challenge, and develop solutions (digital tools) that meet the challenge, focusing on triage and clustering functions. Possibilities of assessing and preventing bias and discrimination as a result of big data analysis should be analysed too. The successful proposal should thus help framing the issue of big data analysis for Police Authorities, providing guidelines as well as operational tools to comply with EU data protection law.

The successful proposal should build on the publicly available achievements and findings of related previous national or EU-funded projects as well as create synergies with similar on-going security research projects from the Calls 2021-2022 on Fighting Crime and Terrorism in the area of modern information analysis, in order to avoid duplication and to exploit complementarities as well as opportunities for increased impact.

In this topic the integration of the gender dimension (sex and gender analysis) in research and innovation content should be addressed only if relevant in relation to the objectives of the research effort.

Proposals funded under this topic are expected to engage with the Europol Innovation Lab during the lifetime of the project, including validating the outcomes, with the aim of facilitating future uptake of innovations for the law enforcement community.

Possibilities of coordination with related activities funded through the Internal Security Fund (such as the European Anti-Cybercrime Technology Development Association) and the Digital Europe Programme should be analysed too.

Further Information:
https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/horizon-cl3-2023-fct-01-01;callCode=null;freeTextSearchKeyword=;matchWholeText=true;typeCodes=1,2,8;statusCodes=31094502;programmePeriod=2021 %202027;programCcm2Id=43108390;programDivisionCode=null;focusAreaCode=null;destinationGroup=null;missionGroup=null;geog

HORIZON EUROPE A harmonized European forensics approach on drugs analysis, deadline: 23. November 2023 17:00 Brussels time

Projects' results are expected to contribute to some or all of the following outcomes:
- European Police Authorities, forensic institutes and other relevant security practitioners are equipped by modern means of chemical analysis (composition) in drugs aimed at facilitating the cross-matching of seized drugs to labs and the establishment of links between cases, including by developing protocols to quickly exchange information on new substances;
- Improved and uniform EU-wide approach for the collection of evidence regarding illicit drugs-related overdoses, that would allow for choosing adequate responses in countering the drug-related problems;
- Improved collection and availability of forensic evidence, that could be used in court by the authorities, in direct violence, kidnapping or human trafficking cases, as well as reinforced prevention of such cases thanks to sensors/kits that are reliable, lawful, fast and easy-to-use;
- Enhanced perception of citizens in public and private spaces that Europe is an area of freedom, justice and security.
Proposals are expected to address one of the following options:
Option A: A harmonised European approach is needed on the study of chemical analysis (composition) in drugs, to
1) facilitate the cross-matching of seized drugs to labs and the establishment of links between cases, including by developing protocols to quickly exchange information on new substances;
2) tackle forensic challenges related to illicit drugs-related overdoses.

The production of synthetic drugs in the EU is continuously expanding. The laboratories producing synthetic drugs are becoming more professional and versatile, resulting in an increased production and a greater flexibility in terms of which substances are produced, how they are produced and how/where they are sold.

On the one hand, criminal networks and criminals active in the production of synthetic drugs display a particularly high degree of specialisation. Thus, a modern and harmonised European approach to the analysis of the drugs composition would help to crossmatch seized drugs and illegal drugs markets to labs and make the links between cases, allowing a cross-border exchange of such evidence.

On the other hand, choosing appropriate responses that are likely to be effective in dealing with a particular drug-related problem requires a clear understanding of the problem, supported by the strongest available evidence. However, an obstacle in this process is the very limited or fully absent evidence, as it is the case in finding responses aimed at reducing overdose-related deaths. Namely, autopsies with full toxicology are underdeveloped in many Member States, making comparison at EU level difficult and aggregated numbers on overdose deaths not fully representative. Member States called to make this issue more comparable EU-wide. To this end, a modern chemical analysis of the drugs composition and a unified EU-wide approach would provide a significant support, also in view of commitments of the EU Drugs Strategy 2021-2025.

Option B: A reliable and easy-to-use detection of chemical submission drugs in beverages and urine.

GHB (Gamma-hydroxybutyrate) is one of the drugs known as "club drugs" or "date rape drugs". Notably when mixed with alcohol, it has a depressant effect and causes drowsiness, rendering the person defenceless and unable to remember what happened. Sexual assaults facilitated by chemical submission drugs have a growing tendency in Europe. Thus, Police Authorities and forensic practitioners need modern methods and technologies that enable better prevention against and investigation of different forms of violence and assault supported by these drugs. To this end, the successful proposal should aim at developing wearable, reusable, portable sensors and/or kits that would provide a fast response, without the need for additional instrumentation, and would be easy to use by Police Authorities in the field (i.e., in places where citizens are more at risk of ingesting GHB drugs through drinks and beverages). Furthermore, such solutions should provide results that are reliable, safe and simple to interpret when looking for and collecting evidence of such drugs that can be used in court. Gender-related impacts as well as legal and ethical challenges of such solutions should be fully considered in the development process.

Coordination among the successful proposals from this topic should be envisaged in order to avoid duplication and to exploit complementarities as well as opportunities for increased impact. Similarly, coordination with projects funded under HORIZON-CL3-2022-BM-01-03: Better, more portable and quicker analysis and detection for customs and HORIZON-CL3-2023-BM-01-04: Interoperability of systems and equipment at tactical level; between equipment and databases; and/or between databases of threats and materials would be welcome.

Proposals funded under this topic are expected to engage with the Europol Innovation Lab during the lifetime of the project, including validating the outcomes, with the aim of facilitating future uptake of innovations for the law enforcement community.

Further Information:

https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/horizon-cl3-2023-fct-01-02;callCode=null;freeTextSearchKeyword=;matchWholeText=true;typeCodes=1,2,8;statusCodes=31094502;programmePeriod=2021%202027;programCcm2Id=43108390;programDivisionCode=null;focusAreaCode=null;destinationGroup=null;missionGroup=null;geog

HORIZON EUROPE Supporting operators against cyber and non-cyber threats to reinforce the resilience of critical infrastructures, deadline: 23. November 2023 17:00 Brussels time

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

- Support is provided to the resilience of operators against cyber and non-cyber threats in specific sectors;
- A reliable state-of-the-art analysis of physical/cyber detection technologies and risk scenarios is created, in the context of an operator in a specific sector in sectors that have not yet been covered by previous research projects;
- Strengthened cooperation against natural or human-made threats and subsequent disruptions of infrastructures in Europe, allowing for operational testing in real scenarios or realistic simulations of scenarios with specific regard to disruptions in a specific sector of critical entities;
- Improved situational awareness, preparedness and governance by the implementation of effective solutions that enhance detection and anticipated projection of a determined threating situation, as well as implementation of prevention, preparedness/mitigation, response, and recovery types of intervention;

- Significant reduction of risks and exposures to anomalies or deliberate events on cyber-physical systems, or on complex and critical infrastructures/systems;
- Enhanced preparedness and response by definition of operational procedures of operators as well as public authorities considering citizen's behaviour/reaction and societal impact in case of disruption in a specific sector.

The operational environment in which operators operate has changed significantly in recent years. Security research and innovation related to infrastructure resilience has been following a sectorial approach in order to increase the resilience. This approach to critical infrastructure resilience is needed that as it reflects the current and anticipated future risk landscape, the increasingly tight interdependencies between different sectors, and also the increasingly interdependent relationships between physical and digital infrastructures.

A disruption affecting the service provision by one operator in one sector has the potential to generate cascading effects on service provision in other sectors, and also potentially in other Member States or across the entire EU.

With more and more infrastructure systems being interconnected, a stronger focus on the systemic dimension and complexity of attacks and disruptions by cyber or physical means needs to be applied. As such, not only interdependencies within one type of infrastructure (or closely related types) can be taken into account. The risk landscape is more complex in the recent years, involving natural hazards (in many cases exacerbated by climate change), state-sponsored hybrid actions, terrorism, insider threats, pandemics, and accidents (such as industrial accidents).

Physical disruptions of the activities of operators active in these sectors have possibly serious negative implications for citizens, business, governments, in the environment and endanger the smooth functioning of the internal market. Therefore, operators should be equipped with the best possible means to be able to prevent, resist, absorb and recover from disruptive incidents, no matter if they are caused by natural hazards, accidents, terrorism, insider threats, or public health emergencies. Another important issue is to have in place efficient cybersecurity measures to block the access to critical infrastructures. A possible project focusing on the protection of critical infrastructures against such threat should consider gaps and vulnerabilities that need to be identified and overcome (e.g. protection of drinking water supply systems from high chemical levels, nuclear facilities, etc.).

Therefore, the successful proposal, following a sector-based approach and identifying a specific priority sector, should work on how to increase the combined cyber and non-cyber resilience operators. It should do so by orienting itself on sectors that have not been covered in previous research, out of the list of sectors described in the respective Annexes of the of the directive on the resilience of critical entities (CER) and the directive on measures for high common level of cybersecurity across the Union (NIS) and thus contribute to enhancing the overall resilience on EU-level, in line with the EU Security Union Strategy.

The proposal should orient itself on the policy shift from protection towards resilience and thus focus on operators acting in the internal market, rather than only on physical or digital assets. This includes concepts of wider business continuity, as well as logistics and supply-chains. Proposals should also focus on the development of a more effective resilience plan conception method, which shall support operators to draft their resilience plans according to the provisions of the CER and NIS-2 Directives. The resilience plan conception method should include risk analysis, domino effects analysis, cross-sector and cross-border analysis, standardised plans etc. In addition, this method could include measures on adequate protection, measures on prevention, response, mitigation, and recovery from the consequences of incidents, protection of classified (e.g. the proposal for a Network Code on sector-specific rules for cybersecurity aspects of cross-border electricity flows) or sensitive information and measures that ensure adequate employee security management.

The main practitioners in this topic should come from private or public operators, meaning organisations and enterprises that use critical infrastructure to deliver services, vital for the functioning of society and the internal market. Consortia that will include MS public entities would be considered as an asset. Competent authorities of MS in charge of resilience and/or overseeing operators in one or more sectors are also encouraged to join the consortia of applicants.

If the infrastructure includes processing of personal data, the proposal should consider including a risk assessment or privacy impact of individuals and society.

This topic requires the effective contribution of SSH disciplines and the involvement of SSH experts, institutions as well as the inclusion of relevant SSH expertise, in order to produce meaningful and significant effects enhancing the societal impact of the related innovation activities.

Applicants are encouraged to explore and demonstrate synergies with the work conducted in the European Reference Network for Critical Infrastructure Protection (ERNCIP), as applicable.

Further Information:
https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/horizon-cl3-2023-infra-01-02;callCode=null;freeTextSearchKeyword=;matchWholeText=true;typeCodes=1,2,8;statusCodes=31094502;programmePeriod=2021%202027;programCcm2Id=43108390;programDivisionCode=null;focusAreaCode=null;destinationGroup=null;missionGroup=null;geog

HORIZON EUROPE Facilitating strategic cooperation to ensure the provision of essential services, deadline: 23. November 2023 17:00 Brussels time

Projects' results are expected to contribute to all of the following outcomes:
- Tools for EU Member State authorities and operators for the assessment and anticipation of relevant risks to the provisions of essential services are identified;
- The cooperation between authorities of EU Member States is facilitated by providing solutions for data exchange and joint cross-border risk assessments;
- Simulation tools are developed for large-scale exercises to test the resilience of operators and of specific sectors, and related training courses are designed;
- Measures by Member State authorities to facilitate risk assessments by operators are identified, including the assessment of dependencies on different sectors and cross-border interdependencies;
- Provide common European guidance and support for the drafting of their resilience plans in order to meet all the provisions of the proposed CER-Directive: risk analysis, domino effects, cross-sector and cross-border analysis, standardised plans, educational and training tools;
- An all-hazards framework is created to support Member States in ensuring improved concepts and instruments for the anticipation of risks to entities that provide essential services, resulting in an improved preparedness and response against disruptions of key sectors in the EU and enhanced resilience of the EU internal market.

The EU Security Union Strategy for 2020-2025, Counter-Terrorism Agenda. for the EU and the Cyber Security Strategy stress the importance of ensuring resilience in the face of various risks. The livelihoods of European citizens and the good functioning of the internal market depend on the reliable provision of services fundamental for societal or economic activities in many different sectors. Those services often are reliant upon one another, thus disruptions in one sector can generate severe and long-lasting effects on the provision of services in others.

Member States hold the primary responsibility in ensuring that operators who use critical infrastructures to deliver such services (hereafter: 'operators') comply with applicable rules and have the necessary support to ensure their own resilience and as part of a complex system of interdependencies. On EU-level, there has been a revision of certain legislation aiming at the minimum harmonisation of such rules, such as the directive on the resilience of critical entities (CER) and the directive on measures for high common level of cybersecurity across the Union (NIS-2). In combination with sectoral EU-legislation and policies on resilience (e.g. for a Network Code on sector-specific rules for cybersecurity aspects of cross-border electricity flows), this provides a comprehensive framework that needs to be put in practice.

"Facilitating strategic cooperation" refers to the necessity for public authorities of the Member States to be able to exchange information, in a secure way, on the risk assessments of their critical entities as well as their resilience. "Critical entities" is the specific term used in the CER directive to designate those entities that will be identified by the Member States under the directive. Pursuant to the directive, in particular of its articles 1 and 5, the identity of the critical entities will be classified. In the performance of the project, project participants will interact directly with Member States authorities responsible for risk assessment and analysis of the vulnerabilities of their critical entities. Pursuant to the proposed directive, the confidentiality of the critical entities (and of their vulnerabilities) shall be ensured and protected.

Proposals under this topic should support the competent authorities of Member States to identify and develop the most suitable tools, solutions and strategies to ensure the resilience of key sectors and thus facilitate the implementation of [related/ future]EU legislation.

Applicants should focus on delivering solutions that can be used by the competent authorities of EU Member States, to support their task in overseeing the resilience of key sectors in line with relevant EU rules. Such solutions should enhance their ability for cooperation and communication, conducting large-scale risk assessments (including the cross-border dimension), developing best practices for exercises and dedicated complex training modules. The proposals should address the development of improved concepts and instruments for the anticipation and management of strategic risks, strengthening governance framework and enhancing coordination between different authorities.

It is recommended that proposals develop concrete tools to support all-hazard analysis by integrating domain specific risk assessment and allowing to manage interdependencies phenomena among different sectors and Member States. Possible examples are virtual reality tools, dashboards, complex training and serious gaming modules or other instruments to be used and that currently may not exist on such scale.

Proposals should aim to cover the largest possible number of sectors described in the respective Annexes of the directive on the resilience of critical entities (CER) and the directive on measures for high common level of cybersecurity across the

Union (NIS-2). The inclusion of associations representing private or public operators in specific sectors, or across sectors on EU- or national level, is encouraged.

In this topic the integration of the gender dimension (sex and gender analysis) in research and innovation content should be addressed only if relevant in relation to the objectives of the research effort.

Projects are expected to outline how results are fed into the work of relevant Commission expert groups – [for example the Critical Entities Resilience Group (CERG) and the NIS-2 Cooperation Group]– and to explore synergies with the actions undertaken by relevant EU agencies.

Further Information:
https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/horizon-cl3-2023-infra-01-01;callCode=null;freeTextSearchKeyword=;matchWholeText=true;typeCodes=1,2,8;statusCodes=31094502;programmePeriod=2021%202027;programCcm2Id=43108390;programDivisionCode=null;focusAreaCode=null;destinationGroup=null;missionGroup=null;geog

HORIZON EUROPE Identify, inspect, neutralise Unexploded Ordnance (UXO) at sea, deadline: 23. November 2023 17:00 Brussels time

Projects' results are expected to contribute to some or all of the following outcomes:
- Increased capabilities to detect, classify, inspect, assess and neutralise UXO at sea;
- Improved safety and security for maritime economic operators and for EU citizens.

A large amount of Unexploded Ordnance (UXO), estimated by experts in the tens of thousands of tons, lay in European seas and often close to European shores. Most of this material dates back to World War I and World War II. Estimates for the timing of material corrosion suggest that much of this material is likely to be an increasing safety risk in the next 10 years. And this would happen while coasts, shores and seas have more and more value for economic and civilian activities, ranging from seafood production to communications, transport, trade and sustainable energy production. UXO hence represents a substantial safety risk for economic operators at sea, and citizens, as well as for the environment.

UXO also represents a security risk, as some of this dangerous material is relatively easily retrievable and could be misused in illicit, including criminal and terrorist, acts. These security threats could be linked directly to maritime security and infrastructures (to deny or ransom a port, for example), or be moved towards other illicit acts.

Roles and responsibilities to map, identify, assess, inspect, retrieve and/or neutralise UXO vary among Member States, allocated to private operators, local and regional governments, national governments, and/or the military that carry out civilian tasks.

Current capabilities on mapping, identifying, assessing, inspecting, retrieving and/or neutralising UXO still largely use human operators, and increased use of automated and/or unmanned systems would be desirable for efficiency and safety reasons. The proposed project should improve civilian capabilities on:
- 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).

Especially for proposing new solutions for the capabilities areas a) to c) described above, proposals should take into account and build on existing information produced and compiled by previous EU projects that carry out regular work on environmental risks of hazardous submerged objects such as UXO.

Research projects should consider results and recommendations from the European Commission's 2022 "Study on underwater unexploded munitions: final report".

Research projects should consider, build on (if appropriate) and not duplicate previous research or findings of previous operational work, including but not limited to research by other Framework Programmes projects and/or other EU projects, including those funded by the EU Maritime and Fisheries Fund, by the European Defence Fund and its precursors (the European Defence Industrial Development Programme (EDIDP) and the Preparatory Action on Defence research (PADR)), or by JPI Ocean. Relevant work by civilian national or regional projects, or by regional organisations (such as, for example, NATO/CMRE Research Centre).

For objectives in the capabilities areas d) and e) described above, proposals should focus on the solutions that address the

civil needs and challenges of UXOs (not necessarily deriving from mine countermeasures), with regard to civil resources and engaging civil stakeholders.

Indeed, the involvement of civilian stakeholders, beyond civilian authorities, such as operators on sea, is strongly encouraged. The project should focus on civilian capability gaps and needs, rather than capabilities that are better addressed by defence instruments and tasks.

Proposed solutions should be compatible or interoperable with legacy and current systems, and propose or allow an interoperability between systems in use by different Member States.

Proposed solutions that would improve energy efficiency and environmental impact aspects of current UXO risk mitigation operations (e.g. low environmental footprint, low emissions, circular economy aspects and/or self-sustained equipment) would be desirable.

Examples of technologies and approaches that can be explored by the research projects include (non-prescriptive and non-exhaustive): sonars and other sensors; UxVs/AUVs; on-board analytical capabilities for material samples; hydroacoustic profiling; artificial intelligence for detection and classification; wing tows from ships; system of systems architecture.

Proposals should delineate the plans for further development to subsequent TRLs as well as uptake (industrialisation, commercialisation, acquisition and/or deployment) at national and EU level, should the research deliver on its goals.

Synergies within civil security can be an asset, for example with Fighting Crime and Terrorism (regarding combating organised crime and terrorism) and Disaster-Resilient Society (regarding environmental contamination).

Further Information:

https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/horizon-cl3-2023-bm-01-02;callCode=null;freeTextSearchKeyword=;matchWholeText=true;typeCodes=1,2,8;statusCodes=31094502;programmePeriod=2021%202027;programCcm2Id=43108390;programDivisionCode=null;focusAreaCode=null;destinationGroup=null;missionGroup=null;geog

HORIZON EUROPE Improving social and societal preparedness for disaster response and health emergencies, deadline: 23. November 2023 17:00 Brussels time

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

- Identification of different factors in inequality and ways to communicate with vulnerable groups, of individual, organisational, and systemic resilience factors and pathways to support these, and of ways to address vulnerabilities in acute crisis as well as during prevention, in order to elaborate an interconnectedness of resilience and vulnerability;
- Improvement of populations health literacy and basic understanding of how medicine and vaccines work and how they are developed and produced;
- Improved crisis communication through increased awareness and risk perception regarding bio security, identification of challenges for and limits of communication strategies and interventions regarding different vulnerable groups and approaches to address these, elaborating of ways for resolving barriers for crisis communication: interlinguality, interculturality, intersemiotics;
- Putting the citizen at the centre of the crisis management process (involving where relevant citizen volunteers in demonstrations related to research developments), increasing their capacity to access, read and interpret scientifically sourced information, analysing gender behaviours regarding unpopular measures (e.g., quarantine) and vaccination attitudes and identification and relieving of barriers for vaccination readiness: Trust, risk appraisal, barriers for registration for vaccination, information, collective responsibility;
- Incorporation of information technology and bias-free data into crisis management through improved information processing in transformative governance, illustrating possibilities, challenges, and limits of digitalisation and enabling usage of data for political decision making;
- Incorporation of machine learning and artificial intelligence in governance and political decision making based on interdisciplinary discussions on definitions on problems in compliance with EU law; areas of application; and definition of responsibilities and competences in data governance;
- Validation of novel, smartphone sized or wearable technologies with laboratory-level diagnostics capability (e.g., wearables with integrated digital dosimeters, handheld PCR test devices);
- Strengthening of the One Health approach including not only human physical health but also mental health as well as environmental and animal health, and understanding of the biological risks posed by environmental changes such as climate change and preparedness for impacts on human health;
- Projects should comply with privacy safeguards to ensure that disaster response systems protect EU fundamental rights

such as privacy and protection of personal data.

The COVID-19 pandemic illustrated the specific challenges of health emergencies and the necessity to be prepared not only on a material and physical level but also from a social and societal perspective. Challenges during the pandemic included difficulties of working with protective gear such as insecurities and usage mistakes; additional disadvantages for vulnerable groups among others due to communication issues; and lack of local cooperation and prevention regarding equipment, stocks, and coordination. These challenges were largely due to deficiencies in the inclusion of social sciences in disaster research. The COVID-19 pandemic poses an opportunity to analyse successes and difficulties during a global health crisis and thereby preparing for future health crises.

Currently, different groups are not reached equally by public communication efforts. Risk communication especially fails to contact vulnerable groups. Social inequalities are present in different forms and on different levels. For communication strategies and interventions, it should be considered how they are affected by different groups, localities, and cultural factors. In different crises, different vulnerability factors can be more pronounced and different groups can be more vulnerable. On the other hand, resilience can protect against negative effects of crises. Resilience can be supported on an individual, organisational, or systemic level. All should be considered in preparation for crisis as well as in acute situations.

Information technology and digital data processing are becoming increasingly important in public health issues. Processing large datasets and automated analyses can open new possibilities in understanding health and illness on a population level and for deriving prevention strategies. However, the implementation of information technology poses several challenges and research on how to effectively use the results in political decision-making. Data security is another challenge when large amounts of personalized (health) data are processed automatically. Concerns about data security and general scepticism about digital information processing in the population need to be taken seriously and addressed, and the solutions need to comply with EU law, including on data protection and cybersecurity.

Health encompasses several aspects and levels. Human health incorporates both physical and psychological health which are interconnected and mutually dependent. At the same time, humans are embedded in their environment so human and environmental health cannot be approached in isolation from each other. According to the One Health approach, health of humans, animals, and environment are intertwined. This is illustrated by the current health crisis of COVID-19 which is attributed to SARS-CoV-2 jumping over from wild animals to humans. Another illustration of the interconnectedness are health impacts of climate change. These interdependencies make an interdisciplinary approach to health necessary that incorporates all aspects of health and their interconnectedness.

This topic requires the effective contribution of SSH disciplines and the involvement of SSH as well as gender experts, institutions as well as the inclusion of relevant SSH and gender expertise, in order to produce meaningful and significant effects enhancing the societal impact of the related research activities. The involvement of citizens, including citizen volunteers in demonstrations of tools and technologies, civil society and other societal stakeholders in co-design and co-creation should be promoted. In order to achieve the expected outcomes, international cooperation is encouraged.

Further Information:

https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/horizon-cl3-2023-drs-01-01;callCode=null;freeTextSearchKeyword=;matchWholeText=true;typeCodes=1,2,8;statusCodes=31094502;programmePeriod=2021 %202027;programCcm2Id=43108390;programDivisionCode=null;focusAreaCode=null;destinationGroup=null;missionGroup=null;geog

HORIZON EUROPE Design of crisis prevention and preparedness actions in case of digital breakdown (internet, electricity etc.), deadline: 23. November 2023 17:00 Brussels time

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

- Development of prevention/preparedness actions based on the (existing) analysis of interdependencies between critical infrastructures and possible cascading effects;

- Analysis of existing communication systems and assessment/development of alternative communication tools for Civil Protection and Crisis Management security authorities, including the communication with private sector and actors responsible for critical infrastructures, as well as representatives of regional / local authorities and citizen organisations.

Modern societies are highly dependent on the (seemingly unlimited) availability of electricity and digital infrastructures. A digital breakdown with loss of electricity and IT infrastructures would have severe impacts on various infrastructures and areas critical for the functioning of societies. Assessment of the consequences of possible digital breakdown (internet, electricity etc.) considering also actions under pandemic situations would require focused research in order to design appropriate crisis prevention and preparedness actions, including civil protection plans, taking into account cascading effects. This includes

analysis of interdependencies between different critical infrastructures, the assessment of different scenarios and conditions like duration and extent of the digital breakdown as well as possible cascading effects.

This topic requires the effective contribution of SSH disciplines and the involvement of SSH experts, institutions as well as the inclusion of relevant SSH expertise, in order to produce meaningful and significant effects enhancing the societal impact of the related research/innovation activities. The involvement of citizens, civil society and other societal stakeholders in co-design and co-creation should be promoted. In order to achieve the expected outcomes, international cooperation is encouraged.

Further Information:
https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/horizon-cl3-2023-drs-01-02;callCode=null;freeTextSearchKeyword=;matchWholeText=true;typeCodes=1,2,8;statusCodes=31094502;programmePeriod=2021%202027;programCcm2Id=43108390;programDivisionCode=null;focusAreaCode=null;destinationGroup=null;missionGroup=null;geog

HORIZON EUROPE Enhancing tools and capabilities to fight advanced forms of cyber threats and cyber-dependent crimes, deadline: 23. November 2023 17:00 Brussels time

Projects' results are expected to contribute to some or all of the following outcomes:
- Development of modular toolbox for Police Authorities, facilitating gathering and processing of data relevant for cybercrime and cyber - enabled crime investigations;
- Detection of crypto-jacking, compromised registration forms, malware attacks and other cybercrimes perpetrated using cryptocurrencies;
- Development of training curricula, for Police Authorities, prosecutors, as well as judicial actors on major contemporary cybercriminal activities;
- Recommendations on public cybercrime awareness actions contributing to early detection and prevention;
- Identification of best practices of international law enforcement and judicial cooperation networks; and¬
- Development of multi-stakeholders strategies, including novel investigation schemes and information sharing mechanisms.

While cyber-attacks, notably ransomware and distributed denials or services, are getting more sophisticated, law enforcement officers need to develop strategies to gain a comprehensive knowledge of the numerous elements contributing to the attack (Virtual Private Networks - VPNs, Bulletproof Hosting – BPH, Remote Access Trojans – RATs, botnets, Dark Web platforms, crypto-ransomware, Criminal Phone Banks, Pseudonyms, Advanced Persistent Threat groups – APTs, Internet infrastructure abuse (e.g. DNS), etc.). Having in mind that these are offered today in a form of Crime-as-a-service for anyone willing to pay, there is growing number of cases where authorities have to launch and conduct advanced inquiries. Investigators need timely access to relevant data and expertise of a different nature and belonging to different categories of stakeholders (e.g. other Police Authorities or Internet service providers). As geographical boundaries become irrelevant in the commission of crime, criminal investigations have to become cooperative, joint actions. It does not seem feasible for a comprehensive investigation of contemporary organised crime to be conducted by a single investigator or even a single force. This technical and organisational complexity together with the cross-border nature of cyberattacks requires cutting-edge investigative approaches, gathering a large range of expertise as well as trusted information sharing mechanisms across communities (including secured platforms). In addition, it is necessary to enhance cybercrime intelligence picture notably by enhancing reporting mechanism of cyber-dependent criminal activities. Development of multi-stakeholders strategies, including novel investigation schemes and information sharing mechanisms, is necessary in order to enhance prevention and deterrence of these forms of cyber and cyber-dependent crime. Project should also investigate the legal background and identify any related shortcomings so lawful access and processing of subject data has a valid legal foundation.

Coordination among the successful proposals from this topic as well as with the successful proposal under HORIZON-CL3-2023-FCT-01-05: Crime as a service should be envisaged in order to avoid duplication and to exploit complementarities as well as opportunities for increased impact.

Further Information:
https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/horizon-cl3-2023-fct-01-06;callCode=null;freeTextSearchKeyword=;matchWholeText=true;typeCodes=1,2,8;statusCodes=31094502;programmePeriod=2021%202027;programCcm2Id=43108390;programDivisionCode=null;focusAreaCode=null;destinationGroup=null;missionGroup=null;geog

Joint Research Centre Battery Energy Storage Testing for Safe Electric Transport, deadline: 30. June 2023 23:69 CEST

The Battery Energy Storage Testing for Safe Electric Transport (BESTEST) laboratory is situated at the Joint Research Centre of Petten (The Netherlands). It features state-of-the-art equipped facilities for analysing performance of battery materials and cells. The capabilities include cell preparation, pre- and post-test battery cell tear-down, cell cycling under controlled temperature (in combination with impedance spectroscopy) and post-mortem diagnosis.
Within the frame of this open access call, the following facilities may be accessed:
- Temperature (or climate) chambers that allow cell storage and cell cycling under controlled temperature (or controlled temperature and humidity). Battery testers with different specifications and frequency response analysers are available for cell cycling.
- A micro X-ray computed tomography system (including data evaluation) is available for analysis of cells or battery electrodes.
Priority topics of BESTEST:
- Performance analysis of cells (in combination with impedance spectroscopy);
- Micro X-ray computed tomography of cells or electrodes.
Definition and conditions of access:
Access to the research infrastructure is granted on the basis of Access Units.
For BESTEST, the Access Unit corresponds to 'Equipment Week', equal to the usage of the following equipment during five (5) working days:
- Temperature Chambers BiA MTH 4.46 for cell cycling (using a Maccor Bidirectional Battery Tester and FRA, or other electrical testing equipment, where required);
- Climate Chambers Vötsch VCS3 7060-5 for cell cycling (using a Maccor Bidirectional Battery Tester and FRA, or other electrical testing equipment, where required);
- Micro X-Ray Computed Tomograph Phoenix Nanotom S.
The Equipment Week also includes the evaluation periods, e.g. evaluation of cycling or CT data using dedicated software.
- Estimated total number of Equipment Weeks allocated to the call: 24
- Average number of Equipment Weeks per Project: 6 to 24 Equipment Weeks
- Estimated costs excluding consumables and expenses*:
- Research infrastructure operated by JRC staff: 448 € / Equipment Week*
- Research infrastructure operated by users: 341 € / Equipment Week*
The cost of an Equipment Week is factored by the following amounts for the following list of equipment:
- 1 for equipment a);
- 2 for equipment b);
- 5 for equipment c).
* if the total cost of a User Access Project falls below 5,000 €, payment of the access cost can be waived.
The payment of additional costs is waived for User Access Projects where the Lead User Institution and at least 2/3 of all the User Institutions (including the Lead User Institution) are located in a country eligible for the Widening participation and spreading excellence action under the Horizon Europe programme. In case of one or two User Institutions (including the Lead User Institutions), this requirement is only applied to the Lead User Institution.
Eligibility criteria:
- The Lead User Institution and User Institutions must be from an EU Member State, or country associated to the Horizon Europe programme.
- The Lead User Institution must be from a university, research or public institution, or from a Small-Medium-Enterprise (SME).
- User Institutions from international organisations, under the condition that the Lead User Institution and at least 2/3 of all the User Institutions (including the Lead User Institution) are located in a Member State or a country associated to Horizon Europe or to the Euratom research programme. In case of one or two User Institutions (including the Lead User Institutions), this requirement is only applied to the Lead User Institution.
- Ethical considerations in accordance with EU Law and applicable laws and regulations in the EU Member States.
- The proposal submission form is complete and complies with the instructions.
Proposals will be evaluated in accordance to the following selection criteria:

- Scientific implementation (50 points)
- Collaboration and access to new Users (20 points)
- Strategic relevance (30 points)
Further Information:
https://joint-research-centre.ec.europa.eu/calls-proposals/battery-energy-storage-testing-safe-electric-transport-2023-2-rd-energystora
bestest_en

Joint Research Centre Fuel Cells And Electrolyser Testing Facilities, deadline: 31. July 2023 23:69 CEST

At the Fuel Cell and Electrolyser Testing facility (FCTEST), we support technology assessment and progress monitoring as well as developments in harmonisation and standardisation through the validation of testing protocols, test procedures and measurement methods for the performance assessment of fuel cells and electrolysers. The facility is utilised to support the European Hydrogen Strategy aiming to create and enable a test environment to scale up renewable and low carbon hydrogen supply and demand for a climate-neutral economy.
Priority topics of the FCTEST facility:
- Testing of electrolyser and fuel cells (single cells, short-stacks & small systems);
- Environmental testing of system components, sub-systems and small systems;
- Testing of power devices.
Access to the research infrastructure is granted on the basis of Access Units (e.g. days or weeks of use, hours or sessions of beam time, processing time and gigabytes of data transmitted, etc.). Access Units are specific to the type and nature of each JRC research infrastructure that provides access.
For the FCTEST facility, the Unit of Access is 'Instrument days' which correspond to the use of one (1) instrument during one (1) day in the following list of equipment:
- 100 kW low-temperature fuel cell test station (FCATS) with 120 kVA DC/AC load inverter and 72 kW DC load (equipment a.);
- 500 W high-temperature electrolysis & high-temperature fuel cell test station including furnace and EIS equipment for single cell & short stack testing (equipment b.);
- 5 kW high-temperature fuel cell test station including EIS equipment for short stack and mini-system testing (equipment c.);
- 3 kW and 500 W low-temperature fuel cell test station for single cell & short stack testing (equipment d.);
- 1.5 kW low-temperature electrolysis & fuel cell test station for single cell testing (equipment e.);
- Programmable modular 4x 24 kW DC load (sink) / 4x 10 kW power supply (source) test bench for power device testing (equipment f.);
- Walk-in environmental chamber (climate chamber) with control of temperature (-40°C to +60°C) and relative ambient air humidity (5% to 95%) for environmental testing (equipment g.);
- Multi-axial vibration table (shaker table) with a 500 kg pay load capability for frequencies up to 250 Hz housed in the climate chamber for mechanical shock and vibration testing (expected to be operational by September 2023) (equipment h.).
- Estimated total number of Instrument days allocated to the call: 180
- Estimated number of Instrument days per User Access Project: 60
- Estimated maximum duration of the User Access Project: 12 months
- Estimated additional costs excluding consumables and other expenses:
- Research infrastructure operated by JRC staff: 435 € / instrument day*
- Research infrastructure operated by users: not possible
* the cost of an instrument day is factored by the following amounts in accordance with the list of equipment:
- 1.2 for equipment a.
- 0.8 for equipment b. through e.
- 0.4 for equipment f.
- 1.6 for equipment g. and h.
Eligibility criteria
- The Lead User Institution and User Institutions must be from an EU Member State, or country associated to the Horizon Europe programme.

- The Lead User Institution must be from a university, research or public institution, or from a Small-Medium-Enterprise (SME).
- User Institutions from international organisations, under the condition that the Lead User Institution and at least 2/3 of all the User Institutions (including the Lead User Institution) are located in a Member State or a country associated to Horizon Europe or to the Euratom research programme. In case of one or two User Institutions (including the Lead User Institutions), this requirement is only applied to the Lead User Institution.
- Ethical considerations in accordance with EU Law and applicable laws and regulations in the EU Member States.
- The proposal submission form is complete and complies with the instructions.
  Proposals will be evaluated in accordance to the following selection criteria:
- Scientific implementation (50 points)
- Collaboration and access to new Users (20 points)
- Strategic relevance (30 points)
  Further Information:
  https://joint-research-centre.ec.europa.eu/calls-proposals/fctest-fuel-cells-and-electrolyser-testing-facilities-1_en

Sonstige Wo gibt es Geld für die Forschung?, Termin: 06. Juli 2023 um 10 Uhr

Am 06.07.2023 führt von 10:00 bis 12:00 Uhr die Stabsstelle Forschungsförderberatung die Veranstaltung „Wo gibt es Geld für die Forschung?" durch.
Das Ziel der Veranstaltung ist, Ihnen einen Überblick über die Möglichkeiten der Einwerbung von Mitteln für die Forschung bei bedeutenden öffentlichen Mittelgebern sowie wichtige Tipps für Antragstellungen zu geben.
- Förderung der DFG
- Förderung des Bundes, Bundeshaushalt
- Förderung des Landes Sachsen-Anhalt
- HORIZON Europe / Internationale Förderung
- Förderung durch Stiftungen, Recherche in Datenbanken
- Tipps zur Antragstellung
Die Veranstaltung findet im Gebäude 80 R107, im Wissenschaftshafen, Niels-Bohr-Str. 1 in Magdeburg im Seminarraum in der ersten Etage statt.
Kontakt: Martina Hagen, Tel. +49 (0) 391 67 58505, martina.hagen@ovgu.de
Anmeldung unter:
https://eveeno.com/foerderung2023

Sonstige Das ABC der EU-Forschungsförderung - Teil A - Ausschreibungen der EU-Forschungsförderung in HORIZON Europe, Termin: 22. August 2023 um 10 Uhr

Am 22.08.2023 führt von 10:00 bis 13:00 Uhr die Stabsstelle Forschungsförderberatung die Veranstaltung „Das ABC der EU-Forschungsförderung - Teil A - Ausschreibungen der EU-Forschungsförderung in HORIZON Europe" durch.
Mit der Veranstaltungsreihe werden Wissen und Kompetenzen zum EU-Förderprogramm HORIZON Europe vermittelt. Die EU-Referenten und Projektmanager der Stabsstelle Forschungsförderberatung geben ihre Erfahrungen aus mehr als 300 Anträgen und mehr als 60 EU-Projekten weiter. Ziel ist es, die Chancen zu verbessern, EU-Drittmittel für Ihre Forschung zu erhalten sowie Bausteine für die Antragstellung in HORIZON Europe aufzuzeigen und Tipps zur Antragstellung zu geben.
Inhalt:
- Fördermöglichkeiten in HORIZON Europe– Überblick zum Programm, Teilnahmebedingungen, Förderformen und –regeln
- Zeitplanung, Teilnehmerportal, Dokumente, Lesen einer Ausschreibung Antragstellung – Planung und Struktur eines Antrags
- Konsortium - Partnersuche, Begutachtung, Schreiben einer Zusammenfassung
Die Veranstaltung findet im Gebäude 80 R107, im Wissenschaftshafen, Niels-Bohr-Str. 1 in Magdeburg im Seminarraum in der ersten Etage statt.
Kontakt: Veronika Kauert, Tel. +49 (0) 391 67 52114, veronika.kauert@ovgu.de

Anmeldung unter:
https://eveeno.com/abc2023

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

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