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1. /HORIZON EUROPE*/ Pan-European network of startup associations to support the integration of Ukrainian tech innovators into European ecosystems and to enhance their operations in Ukraine, deadline: 07. September 2022 17:00 Brussels time

This action supports intermediate organisations such as start-up associations, enterprise support centres, incubators, accelerators, etc., including those that operate at European or trans-national level, to work together to provide urgent support to Ukrainian innovative tech companies (start-ups and SMEs) that are:
1. established in Ukraine; or
2. relocated to, or established in, an EU Member State or Horizon Europe associated country, with a date of relocation or establishment after Russia's invasion of Ukraine on 24th February 2022. Such companies must have at least one founder or co-founder or top manager (CEO, CTO or equivalent) holding Ukrainian citizenship.
Particular attention should be paid to supporting women-led companies and companies working on innovative solutions/services/products for rebuilding and recovery efforts in Ukraine. The action enhances the activities funded under the European Innovation Council (EIC), paving the way for the participation of Ukrainian start-ups in future EIC calls.
The proposal under this action should include activities that will create opportunities for Ukrainian innovative tech companies to interact with main actors of the European innovation ecosystem, create interlinkages and gain access to new markets. Through variety of business advisory services, hands on and financial support, the proposal should provide substantial help to Ukrainian companies enhancing their capacity to interact successfully with the European ecosystem actors and take advantage of the European innovation financing instruments.
The proposed actions should foster the collaboration between Ukrainian and European tech start-ups and SMEs. . The proposal should particularly focus on strengthening the Ukrainian tech ecosystems and supporting innovative solutions/actions for rebuilding Ukraine.
Given the volatile security situation on the ground and uncertainties about future developments, the proposal should support: companies that may have temporarily relocated to the EU and/or Horizon Europe Associated Countries and/orcompanies that continue their current activities in Ukraine; The proposed activities should be built on a flexible model allowing for adjustments to the evolving situation in Ukraine and the changing needs of the Ukrainian innovation community.
Further information:

https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/horizon-eic-2022-ukrainiantech-01-01;callCode=null;freeTextSearchKeyword=;matchWholeText=true;typeCodes=1,2,8;statusCodes=31094502;programmePeriod=2021%20-%202027;programCcm2Id=43108390;programDivisionCode=null;focusAreaCode=null;destination=null;mission=null;geographicalZonesCode=null;programmeDivisionProspect=null;startDateLte=null;startDateGte=null;crossCuttingPriorityCode=null;cpvCode=null;performanceOfDelivery=null;sortQuery=startDate;orderBy=asc;onlyTenders=false;topicListKey=topicSearchTablePageState

2. /HORIZON EUROPE*/ Developing and validating monitoring systems of environmental sustainability and circularity: collection of best practices and benchmarks, deadline: 22. September 2022 17:00 Brussels time

ExpectedOutcome:
The successful proposal will support bio-based industries, traders, and certification companies in tracing environmental impacts and circularity of industrial bio-based systems to enable responsible production in the industrial bio-based systems in the EU, in line with the 2030 Climate Target Plan and the EU Zero pollution action plan[1]. Project outcomes will contribute to enhancing circular bio-based systems to operate according to planetary boundaries, replacing fossil-based systems and their carbon footprint, mitigating climate change, restoring biodiversity, and protecting air, water, and soil quality along supply chain of biological feedstock and industrial value chains within the EU and Associated Countries and across borders.
Project results are expected to contribute to the following expected outcome:
- Monitoring systems and assessment of the environmental impacts and circularity of bio-based systems for the EU single market and for international trade.
Expected EU contribution per project: It is estimated that a contribution of EUR 3 million would allow these outcomes to be addressed appropriately. Nonetheless, this does not preclude submission and selection of a proposal requesting different amounts.
Scope:
The environmental sustainability and circularity assessment of industrial bio-based systems is instrumental to guarantee and monitor that they are developed with the aim to contribute to the just green transition of the EU economy away from a linear fossil-based system. The method for such assessment would represent an instrument for policymakers and for investors to support the best performing bio-based sectors and to leverage investments and ensure competitive edge solutions. This requires the development of scientifically robust metrics and performance benchmarks, which should benefit to the greatest extent possible from existing methodologies and indicators[2]. Methods and indicators should use the available environmental observations efficiently.
Proposals under this topic should:
- Identify the range of industrial bio-based systems in the scope of CBE within the EU to be analysed in the project.
- Evaluate existing and/or develop new methods to assess environmental impacts of the selected industrial bio-based systems and their products on climate change (mitigation and adaptation), biodiversity (protection and enhancement), land use and water resources use as priorities, but also on air, water, and soil quality[3]. This task should be performed based on the existing initiatives[4], the review of relevant studies, including from BBI JU, as well as of past and ongoing R&I projects. The impact on climate should include both the greenhouse gas emissions and the carbon removal[5] potential of bio-based systems. Assessments should consider the life cycle perspective and should include an extensive study of end-of-life issues of the bio-based products in the scope of CBE JU.
? Evaluate existing and/or develop new methods to evaluate iLUC risks of bio-based systems (especially concerning bio-based feedstock) and demonstrate low/zero-iLUC risk levels.
- Evaluate existing and/or develop new criteria and metrics to assess the carbon removal potential of bio-based solutions, (following the upcoming European certification framework[6]).
- Evaluate the trade-offs and the interconnectivity of all assessed impacts to make a multicriteria analysis and more complex assessment.
- Evaluate existing and/or develop new metrics of circularity of industrial bio-based systems based on the application of the cascading approach of biomass use, the resources efficiency, including energy, and effectiveness on a life-cycle perspective (i.e., durability, reuse, repair, remanufacturing and recycling patterns of bio-based products), other circular aspects.
- Develop monitoring tools of the environmental impacts, iLUC risks, carbon removal potential and circularity of bio-based systems, to measure the pre-set KPIs in CBE JU.
- Develop digital tools for the environmental, sustainability and circularity monitoring such as those of advanced GIS, mobile web, robotics, cloud innovations, etc.
- Perform an assessment of the trade-offs and synergies with economic and social objectives (including geographical distribution aspects, urbanization pressures, etc.) of bio-based systems in the scope of CBE and with competing and adjacent economy sectors in the bioeconomy (e.g., food and feed, biofuels and bioenergy), as well as with the fossil-based industrial systems.

- Collect and analyse the (range of) best available industrial bio-based systems in the scope of CBE JU within the EU in terms of environmental and circular performances, to build a preliminary set of benchmarks or references of best performing industrial systems for similar ones.
- Disseminate the results of the developed methods to assess and monitor the environmental impacts, the iLUC risks, the circularity and the carbon removal potential of bio-based systems, as well as results from the collection of best available industrial bio-based systems. All results should be publicly available, following the principles of open science (FAIR data) and using of the possibilities offered by the European Open Science Cloud (EOSC) to store and give access to research data.
- Explore the possibility to collaborate with and/or provide inputs to the European Commission Knowledge Centre on Bioeconomy[7].
- Consult stakeholders, making use of existing fora for discussion of stakeholders, including policymakers at EU and national levels.
- Develop and disseminate guidelines on the assessment methods and monitoring systems developed in the project and all the outputs from the project to leverage the engagement in deploying the environmental sustainability and circularity criteria of bio-based systems. Targeted stakeholders of dissemination may include policymakers, bio-based industries, bio-based feedstock producers and providers, researchers and innovators, consumers, civil society.
- Proposals may involve financial support to third parties to provide direct support (e.g. in the form of cascading grants) to researchers, developers, SMEs, start-ups and other multidisciplinary actors. A maximum of ¤ 60 000 per third party might be granted. Conditions for third parties support are set out in Part B of the General Annexes. Consortia need to define the selection process of organisations, for which financial support will be granted. Maximum EUR 450 000 of the EU funding can be allocated to this purpose. The financial support to third parties can only be provided in the form of grants.
Consortia of applicants should involve LCA experts and researchers in the bio-based technologies, bio-based industries, trade bodies, consumers' organisations, etc.
International cooperation included with international organisations is encouraged, in order to collect best practices (indicators, methodologies, tools and data) outside EU and to expand the outreach of projects outputs.

Further information:
https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/horizon-ju-cbe-2022-s-01;callCode=null;freeTextSearchKeyword=;matchWholeText=true;typeCodes=1,2,8;statusCode=8;statusCodes=31094502;programmePeriod=2021%20-%202027;programCcm2Id=43108390;programDivisionCode=null;focusAreaCode=null;destination=null;mission=null;geographicalZonesCode=null;programmeDivisionProspect=onProspect=null;startDateLte=null;startDateGte=null;crossCuttingPriorityCode=null;cpvCode=null;performanceOfDerformanceOfDelivery=null;sortQuery=startDate;orderBy=asc;onlyTenders=false;topicListKey=topicSearchTablePageSchTablePageState

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3. /HORIZON EUROPE/ Sustainable fibres biorefineries feedstock, deadline: 22. September 2022 17:00 Brussels time

ExpectedOutcome:
A successful proposal will contribute to the European Green Deal, the EU Bioeconomy strategy and its action plan, the Circular Economy Action Plan, the Sustainable Textiles strategy, the Zero pollution action plan[1], as well as the New European Bauhaus initiative and the EU Industrial Strategy, as well as the upcoming Sustainable Product initiative[2]. The growth of European fibrous bioeconomy is also a powerful tool for revitalising marginal areas suffering from desertification or experiencing socio-economic difficulties.
Project results are expected to contribute to the following expected outcomes:

- Sustainable provision of green biomass for the industrial biorefining process, with environmental and social co-benefits (e.g., increased valorisation of green biomass, large-scale high-carbon sequestration, improved understanding and application of biodiversity enhancing potentials (e.g., nature-based solutions), improved ecosystem services[3], recyclability, as well as skilled green jobs, especially in the rural contexts).
- This topic includes underexploited feedstocks for making alternative, sustainable fibres, from crop plants, trees, agricultural and forestry residues, fungi and algae, or marine/freshwater plants (e.g., Salicornia);
- Development of fibre substrates, e.g., textiles, non-woven materials, composite bio-based materials, to foster innovation across industrial ecosystems, ranging from fashion, automotive, construction, to furniture sectors, enabling several possible end applications with future benefits for consumers based on the selected green fibre feedstocks. This may look on the potential of innovative biotechnology, synthetic biology and related technology, supporting development of circular bio-based end products.
- Improved sustainable exploitation, cultivation and, where relevant, processing methods based on promising selected green feedstocks.
- Increased competitiveness of European bio-based sector underpinned by biotechnology, in particular, SMEs, as well as of the primary biomass producers (agriculture actors), with socio-economic benefits in the engaged participation in the bio-based systems.
- Increased public awareness of links between biodiversity/natural resources and its potentials, leading to increased trust in the scientific approaches based on informed and robust communication and mutual-learning efforts.

Technology Readiness Level (TRL): Activities are expected to achieve TRL 5 by the end of the project - see Horizon Europe General Annex B.

Expected EU contribution per project: It is estimated that a contribution of EUR 4.5 million would allow these outcomes to be addressed appropriately. Nonetheless, this does not preclude submission and selection of a proposal requesting different amounts.

Scope:

Dedicated, purposely grown industrial crops and novel terrestrial and aquatic sources of biomass to deliver specific precursors for further processing into chemicals and materials such as textiles, or composites present an attractive route to high value applications. Examples include promising European green fibre crops, such as well-known species as flax and hemp, or trees, but the proposals could also focus on less developed fibrous species e.g., nettle or perennial grasses, or aquatic plants like Salicornia. The proposals should focus on the identification of those promising low-input crops with associated ecological benefits (biodiversity enhancement, soil quality and retention potential, low requirement for water and nutrient use, pollinator friendliness, as relevant depending on the specific source).

In addition to the aforementioned crop selection, the projects should include research on breeding / cultivation and harvesting optimisation steps, and other agronomic options necessary for the subsequent scale-up into the industrial use, in the context of an urgent need to improve EU agriculture innovation potentials, including its bio-based rural element, as related to e.g., fibre quality traits (mechanical properties and overall performance), e.g., fibre length, strength, stress resistance etc., in addition to addressing high yield, considering the need for efficient biomass processing. This should consider a representative variety of European soil and climatic conditions, allowing the replication and subsequent take-up by the bio-based industry and rural actors, especially to identify the conditions suitable for cultivation on unused, marginal, or contaminated land that is currently not in use, in line with the biodiversity protection. Proposals addressing this point could also contain remediation actions for marginal or contaminated soils in order to convert or return these lands to use for agricultural purposes, and/or that can be cultivated in novel and highly resource-efficient conditions.

Proposals under this topic should:

- Enable any of several possible end applications, based on the developed fibre substrates, e.g., textiles, non-woven materials, composite bio-based materials, to foster innovation across industrial ecosystems, ranging from fashion, automotive, construction, to furniture sectors etc.
- Develop a plan for a subsequent up-scaling at biorefinery level, which should include the role of all actors in the value chain, from the feedstock supplier to the actors on the end-market. Furthermore, the model should show that the bio-based system does not interfere with the food chain (feedstocks not suitable for

food production/marginal lands etc.).
- Proposals may apply and/or adapt existing/mature or novel digital technologies if they are instrumental to achieving the project's outcomes and scope. Applications of digital technologies that should be considered in the scope are among the following areas: i) chemicals, materials and process design & modelling ii) process monitoring and optimisation and iii) data analytics and data management of the activities in the scope.
- Social innovation (e.g., mutual-learning methods), inclusive communication and dissemination measures must form part of the proposals in mapping understanding, drivers and barriers from the view of public opinions. This will serve to promote an increased trust in the scientific approaches among the stakeholders.
International cooperation is encouraged as a win-win solution (for instance, regarding the biotechnology aspects, but also on improved environmental impacts, especially biodiversity protection[4]), while taking care of the European industrial competitiveness.
Among the past and ongoing EU funded research projects, on which the project should build activities, proposals should include specifically: the ones under the BBI JU[5], Horizon Europe calls[6], and other EU partnerships[7].
Proposals must implement the multi-actor approach and ensure adequate involvement of all key actors in the value chains relevant for this topic, including primary producers, in the bio-based system. Please see the section Additional requirements in the CBE JU Annual Work Programme 2022[8] for more details.

Further information:
https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/horizon-ju-cbe-2022-r-05;callCode=null;freeTextSearchKeyword=;matchWholeText=true;typeCodes=1,2,8;statusCode=8;statusCodes=31094502;programmePeriod=2021%20-%202027;programCcm2Id=43108390;programDivisionCode=null;focusAreaCode=null;destination=null;mission=null;geographicalZonesCode=null;programmeDivisionProspect=onProspect=null;startDateLte=null;startDateGte=null;crossCuttingPriorityCode=null;cpvCode=null;performanceOfDerformanceOfDelivery=null;sortQuery=startDate;orderBy=asc;onlyTenders=false;topicListKey=topicSearchTablePageSchTablePageState

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4. /HORIZON EUROPE*/ Alternative sources for high added value food and/or feed ingredients, deadline: 22. September 2022 17:00 Brussels time

ExpectedOutcome:
In line with the Farm to Fork strategy for a fair, healthy and environmentally friendly food system, biodiversity strategy, and the European Green Deal priorities, successful proposals will support the large-scale production of high value food and or feed ingredients from alternative sustainable sources (excluding animal sources), without impacting or regenerating local biodiversity and ecosystems.
Project results are expected to contribute to the following expected outcomes, depending on the choice between focus on food or/and feed ingredients:
- Availability of premium (i.e., nutritious, healthy, functional and environmentally sustainable) food ingredients meeting consumers' expectations, including on economic level.
- Availability of high added value sustainable feed ingredients, ensuring nutritional quality and health and safety profile.
- Rebalanced ratio between animal and plant-based proteins in human consumption, needed for healthy food supply respecting the planetary boundaries[1].
- Contribution to the sustainable food supply for a growing world population (SDG 2 Zero hunger).
- Increased circularity of biomass resources, and resource efficiency, as confirmed by the LCA assessments, leading to improved EU strategic autonomy via reduction/replacement of imports.
- Public awareness and acceptance of bio-based solutions.

- Support market uptake growth and acceptance of scalable bio-based solutions.
Technology Readiness Level (TRL): Activities are expected to achieve TRL 8 by the end of the project - see Horizon Europe General Annex B.
Expected EU contribution per project: It is estimated that a contribution of EUR 14 million would allow these outcomes to be addressed appropriately. Nonetheless, this does not preclude submission and selection of a proposal requesting different amounts.
Scope:
Europe needs to increase its strategic autonomy by diversifying sources of sustainable food ingredients (including proteins). Promoting healthier or more sustainable foods are gaining ground among European consumers. Since the introduction of the first Novel Food Regulation in 1997, consumers have witnessed a growing number of novel foods and food ingredients introduced on the market, e.g., based on new crops or algae, to name a few. Additional effort is required to support this trend and bring more products to the market, while ensuring their high environmental sustainability, as confirmed by the life cycle assessment, as well guaranteeing high quality for the consumers (including toxicological safety, high nutritional performance, taste, and texture, technological functionality etc.). Even more importantly, novel ingredients require the development of new value chains, and attention to issues such as production costs, food safety, scalability and consumer acceptance. Furthermore, positive environmental impacts cannot be taken for granted with novel ingredient sources, and care must be taken to ensure that comparisons between novel and existing sources are valid.
The scope of this topic is to deploy the production of improved nutritious, healthy, and environmentally sustainable food and feed ingredients from alternative non-animal sources.
Proposals under this topic should:
- Validate at large scale the processing and production of food ingredients from sustainable alternative sources, demonstrating their clear-cut environmental sustainability gains, and reduced environmental footprint, compared to existing alternatives, as based on peer-reviewed life-cycle analysis.
- Contribute to the EU sustainability targets under the Farm to Fork strategy and the European Green Deal, such as reduction in fertilizers, pesticides, herbicides, water and energy ensuring a holistic approach.
- These sources may include e.g., novel crops, plant-based resources, fungi, algae (micro and macro), microorganisms (bacteria, yeast, etc.), biomass side streams or food waste.
- Ensure that food safety criteria are met, and that any circularity approach is achieved in a safe, non-hazardous way, without (re-)connecting epidemiological pathways or introducing pathogen/toxin/pollutant enrichment cycles when involving biogenic materials, show sustainability of production, reduced environmental footprint compared with alternative sources.
- Address consumer understanding, awareness and acceptance, especially related to nutritional profile, safety, taste, functionality, quality and texture of foods / feed palatability based on alternative sources.
- Communicate and disseminate the results by inclusive actions (e.g., mutual learning exercises, interaction with the educational system) seeking the engagement of the civil society (e.g., consumer organisations, special focus groups, NGOs), and awareness on issues related to high resource efficacy, and circularity of biomass, as well as innovation and scientific approaches.
- Benefit from high potential of bio-based innovation, seeking cross-sectorial solutions, and complementarities to the projects under BBI JU, Horizon 2020 and Horizon Europe.
- Depending on the chosen source, the projects may propose necessary technical options for sustainable intensification of production, e.g., development of new varieties, and/or cultivation practice, in line with all relevant legal EU and national frameworks, to enable future scale-up. Environmental side-benefits should be duly considered, if relevant, e.g., carbon storage potentials, soil health etc.
- A life cycle assessment should be included in the proposals. An assessment of economic and social impacts should be included.
- Present the economic impact on consumers, including the comparison of new products with their current alternatives on the market (if available).
- Apply and/or adapt existing/mature or novel digital technologies, if they are instrumental to achieving the project's outcomes and scope, especially to ensure high standards of resource efficiency and environmental protection. Applications of digital technologies that should be considered in the scope are among the following areas: i) chemicals, materials and process design & modelling ii) (real-time) process

monitoring and optimisation (including environmental performance) iii) predictive maintenance & plant engineering and iv) data analytics and data management of the processing and production of food ingredients in the scope.
(Note) Points i)-iv) should consider the contribution to/from data/feedback loops across circular, bio-based value chains but also coordination of processes among different sectors (especially if symbiosis concepts apply in the project)
- Quantify and showcase the achievements and challenges of the project to national/regional stakeholders and policymakers, investors and brand owners[2] to foster their support to scale up the industrial capacity to deploy sustainable circular bio-based solutions across Europe.
- Design and perform dissemination activities to targeted stakeholders, including public and relevant industry actors, enabling the replication, market and social acceptance of the large-scale development of bio-based solutions in the processing and production of food ingredients in the scope. Consider the parallel topic HORIZON-JU-CBE-2022-R-04 (Proteins from alternative and unconventional sources) to pursue potential synergies and avoid overlap.
Proposals must implement the multi-actor approach and ensure adequate involvement of all key actors in the value chains relevant for this topic, across the sustainable circular bio-based system, such as researchers, feedstock producers and suppliers, regional actors, regional policy makers civil society, as well as the bio-based processing industry, including brand owners. Please see the section Additional requirements in the CBE JU Annual Work Programme 2022[3] for more details.
Further information:
https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/horizon-ju-cbe-2022-iaflag-02;callCode=null;freeTextSearchKeyword=;matchWholeText=true;typeCodes=1,2,8;status=1,2,8;statusCodes=31094502;programmePeriod=2021%20-%202027;programCcm2Id=43108390;programDivisionCode=null;focusAreaCode=null;destination=null;mission=null;geographicalZonesCode=null;programmeDivisionProvisionProspect=null;startDateLte=null;startDateGte=null;crossCuttingPriorityCode=null;cpvCode=null;performanceCall;performanceOfDelivery=null;sortQuery=startDate;orderBy=asc;onlyTenders=false;topicListKey=topicSearchTablePageState;cSearchTablePageState

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5. /HORIZON EUROPE*/ Cooperative business models for the sustainable mobilisation and valorisation of agricultural residues, by-products, and waste in rural areas, deadline: 22. September 2022 17:00 Brussels time

ExpectedOutcome:
Successful proposals will support the Bioeconomy Strategy and the Common Agriculture Policy by promoting diverse forms of cooperation among primary producers to produce sustainable value-added bio-based products in fair bio-based value chains.
Project results should contribute to the following expected outcomes:
? Vertical integration of primary producers in bio-based systems and improved cooperation between regional stakeholders in rural areas
? Deployment of replicable, regional, circular bio-based business models through organisational innovation[1].
? Mobilisation and circular use of secondary biological resources and new valorisation pathways for high added-value applications in the scope of CBE through biorefinery processing and technologies.
? Through the development of new jobs and growth, diversification, and revitalisation of the economy in rural areas, ensure fair benefit distribution among all actors involved, with a focus on the primary sector.
? Production of added-value bio-based materials and industrial products with improved sustainability characteristics and identification of factors for success in respect to robust contracts and agreements, training, and capacity building.

? Support the establishment of cooperatively owned biorefineries, taking advantage of having full control of the value chain, optimizing value creation and stability in high quality feedstock supply.
? Preservation/improvement of soil quality and fertility.
? Public awareness and acceptance of bio-based solutions.
? Support market uptake growth and acceptance of scalable bio-based solutions.
Technology Readiness Level (TRL): Activities are expected to achieve TRL 7 by the end of the project - see Horizon Europe General Annex B.
Expected EU contribution per project: It is estimated that a contribution of EUR 5 million would allow these outcomes to be addressed appropriately. Nonetheless, this does not preclude submission and selection of a proposal requesting different amounts.
Scope:
The sustainable mobilisation and valorisation of secondary resources can result in the creation of new economic and social opportunities in rural areas, while also protecting the environment and climate. Implementing these new opportunities needs the establishment of new bio-based systems, new business models and interactions between primary producers and other actors all the way to consumers, as well as ensuring circularity. However, individual farmers usually do not have the financial and technical capacity to invest in the necessary infrastructure or to provide a sufficient quantity and quality of these biological resources to make innovative valorisations economically viable.
Farmers' cooperatives and producer organisations play an important role in helping farmers to capture a higher share of the value added in the supply chain, to strengthen their position on the market as well as in the areas of R&I, capacity building, and knowledge transfer.
This topic addresses cooperative business models among primary producers for the efficient conversion of agricultural residues, by-products, and waste into high-value bio-based materials and products with improved sustainability characteristics.
Proposals under this topic should:
? Demonstrate the potential of contractual agreements or fully developed shareholder/ownership concepts (e.g., cooperatives or producer organisations) to optimise harvesting, logistics and processing of secondary bio-based feedstock at relevant scales.
? Co-design and implement business cases for primary producers that build on existing rural infrastructures, support the economy of scale, and contribute to a fair distribution of costs, benefits, and risks among the economic operators in the bio-based system.
? Demonstrate resource-efficient pathways for the valorisation and conversion of waste, by-products, and residues from agriculture for innovative high-value materials and products at relevant scales.
? Establish long-term strategies to serve the stakeholder's interests long-term.
? If applicable, explore cross-sectoral synergies and collaborations (e.g., regional clusters) to improve the economic viability and commercial operativity and synergies with the food industry.
? Analyse and minimise the potential negative impacts of alternative uses of biomass streams on the environment and market/sector (e.g. in terms of biodiversity, soil fertility, competing sectors, etc.), while taking care of the full circularity potentials (e.g. soil improver, bio-based fertilisers, organic crop protection agents, etc.).
? Apply and/or adapt existing/mature or novel digital technologies, provided that they are instrumental to achieving the project's outcomes and scope, especially to ensure high standards of resource efficiency and environmental protection. Applications of digital technologies that should be considered in the scope among the following areas: i) chemicals, materials and process design & modelling ii) (real-time) process monitoring and optimisation (including environmental performance) iii) predictive maintenance & plant engineering and iv) data analytics and data management of the bio-based business models and solutions in the scope".
(Note) Points i)-iv) should consider the contribution to/from data/feedback loops across circular, bio-based value chains but also coordination of processes among different sectors (especially if symbiosis concepts apply in the project)
? Disseminate the outputs and learning outcomes from the project in order to increase the public awareness, and awareness of relevant industry actors, of potential benefits of bio-based solutions.

Propose recommendations on opportunities/challenges to be addressed for targeted stakeholders, including, where possible, national/regional stakeholders, investors and brand owners[2].
Proposals must implement the multi-actor approach and demonstrate the involvement of all concerned key actors, such as primary producers, in the bio-based systems. Please see the section Additional requirements in the CBE JU Annual Work Programme 2022[3] for more details.

Further information:

https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/horizon-ju-cbe-2022-ia-02;callCode=null;freeTextSearchKeyword=;matchWholeText=true;typeCodes=1,2,8;statusCo,8;statusCodes=31094502;programmePeriod=2021%20-%202027;programCcm2Id=43108390;programDivisionCode=null;focusAreaCode=null;destination=null;mission=null;geographicalZonesCode=null;programmeDivisionProspectionProspect=null;startDateLte=null;startDateGte=null;crossCuttingPriorityCode=null;cpvCode=null;performanceOfDerformanceOfDelivery=null;sortQuery=startDate;orderBy=asc;onlyTenders=false;topicListKey=topicSearchTablePagerchTablePageState

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6. /HORIZON EUROPE/ Biogenic carbon capture and use (CCU) for circular bio-based products, deadline: 22. September 2022 17:00 Brussels time

ExpectedOutcome:
Successful proposals will support researchers and innovators to upgrade technological solutions for biogenic gaseous carbon capture and use (CCU[1]) and the production of sustainable circular non-fossil-based products, in line with the objectives of the European Climate Law and with the initiatives outlined in the 'Sustainable Carbon Cycles' Communication from the European Commission[2]. The successful proposals will contribute to mitigating climate change along the bio-based industrial systems.
Project results should contribute to the following expected outcomes:
? Higher carbon removal[1] potential[4] of bio-based systems.
? Improved environmental performances of bio-based processes.
? Public awareness and acceptance of bio-based solutions.
? Support market uptake growth and acceptance of scalable bio-based solutions.
Technology Readiness Level (TRL): Activities are expected to achieve TRL 6 by the end of the project - see Horizon Europe General Annex B.
Expected EU contribution per project: It is estimated that a contribution of EUR 5 million would allow these outcomes to be addressed appropriately. Nonetheless, this does not preclude submission and selection of a proposal requesting different amounts
Scope:
The European Union has established the European Climate Law, having as objectives to become climate resilient and economy-wide climate neutrality by 2050, with the aim to achieve negative emissions thereafter. To achieve these objectives, the circular economy and the sustainable bioeconomy sectors need to promote technological solutions for carbon capture and use (CCU) and the production of sustainable renewable-carbon-based products.
Proposals under this topic should:
? Develop new or improve existing innovative CCU processing and conversion of circular gaseous carbon emitted from bio-based industry. These conversion steps can include, e.g., intensified use of industrial (bio)technologies tailored to the composition and characteristics of the exhaust emissions from existing and emerging processing of bio-based feedstock.
? Provision for the project integrating 'safe-and-sustainable-by-design' generic criteria and framework considerations[5], in line with the EU Chemicals strategy for sustainability.
? Improve the efficiency and circularity of the bio-based industry to minimise process losses.

? Apply innovative design of circular bio-based products in the scope of CBE, for example safe and sustainable by design bio-based products[5] and solutions for specific new applications, and/or with carbon storage capacity and/or low carbon footprint to substitute non-circular, fossil-based, energy-intensive or carbon-intensive product, and/or replacing toxic and hazardous substances in industrial processes and in final products and/or circular-by design bio-based products to allow for reuse, recycling, composting and biodegradation (in specific environments and conditions).
? Improve the environmental performances of bio-based processes through the capture, fractionation, extraction, and conversion of gaseous carbon from the exhaust flows, and recirculation as much as possible, thus minimising pollutant emissions from the plant.
? Design and apply an integrated monitoring system of the carbon removal[7] potential of the developed technologies, to allow for reporting and verification to be recognised as contributing to EU climate and environmental objectives (following the upcoming European certification framework[8]). The monitoring systems for carbon removal should include factors such as e.g., the storage time in bio-based materials, the risk of storage reversal, the uncertainty of the measurement, or the risk of carbon leakages increasing greenhouse gas (GHG) emissions elsewhere.
? Apply and/or adapt existing/mature or novel digital technologies, provided that they are instrumental to achieving the project's outcomes and scope, especially to ensure high standards of resource efficiency and environmental protection. Applications of digital technologies that should be considered in the scope are among the following areas i) chemicals, materials and process design & modelling ii) (real-time) process monitoring and optimisation (including environmental performance) iii) predictive maintenance & plant engineering and iv) data analytics and data management of the CCU technologies in the scope".
(Note) Points i)-iv) should consider the contribution to/from data/feedback loops across circular, bio-based value chains but also coordination of processes among different sectors (especially if symbiosis concepts apply in the project)
? Disseminate the outputs and learning outcomes from the project in order to increase the public awareness, and awareness of relevant industry actors, of potential benefits of bio-based solutions.
? Propose recommendations on opportunities/challenges for targeted stakeholders, including, where possible, national/regional stakeholders, investors and brand owners[7].
Proposals must implement the multi-actor approach and demonstrate the involvement of all concerned key actors in the bio-based systems, such as researchers and technology providers and bio-based industries emitting gaseous carbon. Please see the section Additional requirements in the CBE JU Annual Work Programme 2022[10] for more details.

Further information:

https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/horizon-ju-cbe-2022-ia-01;callCode=null;freeTextSearchKeyword=;matchWholeText=true;typeCodes=1,2,8;statusCo,8;statusCodes=31094502;programmePeriod=2021%20-%202027;programCcm2Id=43108390;programDivisionCode=null;focusAreaCode=null;destination=null;mission=null;geographicalZonesCode=null;programmeDivisionProspectionProspect=null;startDateLte=null;startDateGte=null;crossCuttingPriorityCode=null;cpvCode=null;performanceOfDerformanceOfDelivery=null;sortQuery=startDate;orderBy=asc;onlyTenders=false;topicListKey=topicSearchTablePagerchTablePageState

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7. /HORIZON EUROPE/ Proteins from alternative and unconventional sources, deadline: 22. September 2022 17:00 Brussels time

ExpectedOutcome:
Europe needs to diversify protein sources to decrease its dependence on imports and the environmental footprint often associated with animal-based proteins. In line with the Farm to Fork strategy for a fair, healthy and environmentally friendly food system and the European Green Deal priorities, successful

proposals will support the mobilisation of proteins for food, feed, and non-food bio-based applications. Project results are expected to contribute to the following expected outcomes:
- Identification of currently under- or unexploited sources of proteins.
- Mobilisation of novel protein streams from sustainable alternative sources.
- Increased availability of proteins in the EU and reduced dependency on imports.
- Sustainable premium (defined as nutritious, healthy, and environmentally sustainable) feed, food, and non-food chains meeting the customer expectations, including on economic level.
Technology Readiness Level (TRL): Activities are expected to achieve TRL 5 by the end of the project - see Horizon Europe General Annex B.
Expected EU contribution per project: It is estimated that a contribution of EUR 4.5 million would allow these outcomes to be addressed appropriately. Nonetheless, this does not preclude submission and selection of a proposal requesting different amounts.
Scope:
The growing world population requires an increase in affordable protein supply. However, this cannot be realised by depleting limited natural resources (land, water, nutrients[1], etc.), which are already under strong pressure globally and in the EU. Today's largest source of protein for human consumption is based on farm animals, which often involve multiple sustainability issues. Moreover, low-grade or speciality proteins not suitable for food or feed applications could serve as feedstock for the bio-based industry. However, the extraction and purification of such streams are difficult, especially from unconventional sources.
Proposals under this topic should:
- Develop and test available and upcoming potentially disruptive technologies to produce proteins from unconventional sources (e.g., proteins derived from plants, agro-food by-products, fungi, microorganisms, algae, protein-enriched fermentations, or invertebrates, including terrestrial (e.g., insects) or marine, with the potential for scale-up and deployment across Europe, enabling the production of bulk proteins for food and feed applications.
- Identify, mobilise, and extract proteins from sustainable alternative biomass sources.
- If necessary, functionalise the proteins for the intended use, also considering the application of specific emerging processing treatments for this aim. When targeting food and feed applications, health and safety regulations need to be duly considered, as well as solubility, functionality, bioactivity, consumer organoleptic experience, e.g., texture and taste (for food), bioactivity, functionality, nutritional requirements, digestibility and appetence (for feed). When targeting non-food applications, proposals must demonstrate that the intended use is not conflicting with food chain.
- For any use, and to increase economic value, the proposals should aim at novel and/or improved properties (e.g., nutritional profile, improved digestibility, nutraceutical properties), as well as full valorisation of biomass (extraction of microelements, vitamins, secondary metabolites, colorants, antimicrobials etc.), enabling industrial symbiosis[5].
- Apply and/or adapt existing/mature or novel digital technologies if they are instrumental to achieving the project's outcomes and scope. Applications of digital technologies that should be considered in the scope are among the following areas: i) chemicals, materials and process design & modelling ii) process monitoring and optimisation and iii) data analytics and data management of the production of alternative proteins in the scope.
- Disseminate the outputs and learning outcomes from the project in order to increase the public awareness, and awareness of relevant industry actors, of potential benefits of bio-based solutions and raise awareness on opportunities to be addressed.
- Benefit from high potential of bio-based innovation, seeking cross-sectorial solutions, and complementarities to the projects under BBI JU, Horizon 2020 and Horizon Europe.
Depending on the chosen source, the projects may propose necessary technical options for sustainable intensification of production, e.g., development of new varieties, and/or cultivation practice, in line with all relevant legal EU and national frameworks, to enable future scale-up. Environmental side-benefits should be duly considered, if relevant, e.g., carbon storage potentials, soil health etc.
Proposals must implement the multi-actor approach and ensure adequate involvement of all key actors in the value chains relevant for this topic, such as primary producers, in the bio-based systems. Please see

the section Additional requirements in the CBE JU Annual Work Programme 2022 for more details.
Further information:
https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/horizon-ju-cbe-2022-r-04;callCode=null;freeTextSearchKeyword=;matchWholeText=true;typeCodes=1,2,8;statusCode=8;statusCodes=31094502;programmePeriod=2021%20-%202027;programCcm2Id=43108390;programDivisionCode==null;focusAreaCode=null;destination=null;mission=null;geographicalZonesCode=null;programmeDivisionProspect=onProspect=null;startDateLte=null;startDateGte=null;crossCuttingPriorityCode=null;cpvCode=null;performanceOfDerformanceOfDelivery=null;sortQuery=startDate;orderBy=asc;onlyTenders=false;topicListKey=topicSearchTablePageSchTablePageState

8. /HORIZON EUROPE*/ Circular-by-design bio-based materials to improve the circularity of complex structures, deadline: 22. September 2022 17:00 Brussels time

ExpectedOutcome:
Successful proposals should contribute to research and development of innovative, sustainable bio-based materials, in the scope of CBE, to improve on the circularity and recyclability of currently used complex structures, such as multi-layered or multi-material structures, including plastics and composites.
Bio-based innovations should address a range of end-use applications where there is a priority to identify more sustainable, circular options (e.g., packaging, construction materials, etc.). Projects are therefore expected to contribute to the EU Bioeconomy strategy and its action plan, the Plastics Strategy, the Waste Framework Directive, the Sustainable Products Initiative (SPI) and the Circular Economy Action Plan.
Project results are expected to contribute to the following expected outcomes:
? Higher availability of circular-by-design[1] bio-based materials and B2B[1] products, as innovative solutions to current products with complex structures and in line with application (performance) requirements, while being positively assessed for environmental performance.
? Diversified bio-based materials and B2B products portfolio and their applications.
? Contribution to increasing the availability of renewable carbon-based complex structures, their circularity and addressing zero pollution goals.
Technology Readiness Level (TRL): Activities are expected to achieve TRL 5 by the end of the project - see Horizon Europe General Annex B.
Expected EU contribution per project: It is estimated that a contribution of EUR 4.5 million would allow these outcomes to be addressed appropriately. Nonetheless, this does not preclude submission and selection of a proposal requesting different amounts.
Scope:
The recyclability and circularity for complex structures (e.g., multi-layered products, multi-material products and composites)[3] remain a challenge that needs to be tackled. Their recycling can often be challenging due to their composition but also due to differences in practices across Europe in sorting, collection, and treatment of waste. Research and innovation should address current materials/components (in the aforementioned complex structures) that are currently fossil-based, or non-circular bio-based or partly bio-based/fossil-based, aiming for circular bio-based alternatives.
Proposals under this topic should:
? Design and develop novel 'circular-by-design' bio-based materials and B2B products, in the scope of CBE JU, as competitive solutions that address the circularity issues of complex materials, while meeting the supply chain and end-use performance requirements.
? Test the possible associated recycling and/or upcycling options (lab and pilot-scale). The proposed innovations should increase the valorisation of the complex structures after use and move up in the waste hierarchy[3].
? Provision for the project integrating 'safe-and-sustainable-by design' generic criteria and framework considerations,[5] in line with the EU Chemicals strategy for sustainability.

? Apply and/or adapt existing/mature or novel digital technologies provided that they are instrumental to achieving the project's outcomes and scope. Applications of digital technologies that should be considered in the scope are among the following areas: i) chemicals, materials and process design & modelling ii) process monitoring and optimisation and iii) data analytics and data management of the bio-based products in the scope.
? Disseminate the outputs and learning outcomes from the project in order to increase the public awareness, and awareness of relevant industry actors, of potential benefits of bio-based solutions and raise awareness on opportunities to be addressed.
? Develop guidelines and recommendations defining how to manage the developed bio-based materials and products throughout their life cycle, with a specific reference to end of life.
? Develop recommendations, based on the functionality and technical performance of the innovative bio-based structures, with regards to the potential end-uses/value chains being applicable for future, further scale up developments.
In the proposal, the preliminary assessment of the environmental sustainability of the developed bio-based materials and B2B products should include all vectors that are relevant to the biomass feedstock environmental sustainability.
Further information:
https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/horizon-ju-cbe-2022-r-03;callCode=null;freeTextSearchKeyword=;matchWholeText=true;typeCodes=1,2,8;statusCod
8;statusCodes=31094502;programmePeriod=2021%20-%202027;programCcm2Id=43108390;programDivisionCode=
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9. /HORIZON EUROPE/ Bio-based coatings, barriers, binders, and adhesives, deadline: 22. September 2022 17:00 Brussels time

ExpectedOutcome:
Successful proposals will contribute to delivering solutions[1] with improved environmental and production-efficiency performances, and higher technical and application performances, as well as circularity through advanced/new functionalities compared to the state of the art. Projects are expected to contribute to the EU Bioeconomy Strategy and its action plan, Plastics Strategy, Waste Framework Directive, the Sustainable Products Initiative (SPI) and the Circular Economy Action Plan23.
Project results are expected to contribute to the following expected outcomes:
? Diversification of the bio-based coatings and/or barriers and/or binders, and/or adhesives product portfolio and increase of their range of application.
? Improved sustainability and circularity when compared with fossil-based state of the art.
? Improved health and safety profile when compared with fossil-based state of the art.
Technology Readiness Level (TRL): Activities are expected to achieve TRL 5 by the end of the project - see Horizon Europe General Annex B.
Expected EU contribution per project: It is estimated that a contribution of EUR 4.5 million would allow these outcomes to be addressed appropriately. Nonetheless, this does not preclude submission and selection of a proposal requesting different amounts.
Scope:
Packaging, construction, agriculture, aquaculture, marine operations, textiles, furniture, wood-based industry and transport are some of the industrial sectors looking for bio-based alternatives to fossil-based coatings, barriers, binders, and adhesives. On one side, these sectors need to lower their environmental footprint and improve their health and safety performance; on the other side, they are looking to improve the functionalities of materials benefiting from the huge variety of chemical structures available in

bio-based materials (e.g., protection, barrier and mechanical characteristics; possibility of adding antimicrobial, anti-odour, anti-scratch, antifouling functions; increasing shelf life of products and food; including biomarkers etc.).
The abovementioned sectors can benefit from bio-based alternatives with improvements in both areas through biotechnological solutions and other innovative technologies available; however, so far only a few products are available. Research should focus on novel, viable alternatives in collaboration with customers, consumers and end users.
Proposals under this topic should:
? Develop and validate novel formulations for renewable, recyclable or bio-degradable, and min 95% (aiming at 100%) bio-based coatings and/or barriers and/or binders and/or adhesives, with improved or unprecedented properties with respect to state of the art.
? Develop adequate tests and results thereof on the developed bio-based solutions to show their benefits compared with state of the art. Provide proof of an improved functional, health and safety profile of the developed solutions compared with state of the art, showing fewer potential hazards and higher safety for consumers and end-users of the intended applications. Provision for the project integrating 'safe-and-sustainable-by-design' generic criteria and framework considerations[2], in line with the EU Chemicals strategy for sustainability.
? Apply and/or adapt existing/mature or novel digital technologies provided that they are instrumental to achieving the project's outcomes and scope. Applications of digital technologies that should be considered in the scope are among the following areas: i) chemicals, materials and process design & modelling ii) process monitoring and optimisation and iii) data analytics and data management of the bio-based products in the scope.
? Disseminate the outputs and learning outcomes from the project in order to increase the public awareness, and awareness of relevant industry actors, of potential benefits of bio-based solutions and raise awareness on opportunities to be addressed.
Further information:
https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/horizon-ju-cbe-2022-r-02;callCode=null;freeTextSearchKeyword=;matchWholeText=true;typeCodes=1,2,8;statusCode=8;statusCodes=31094502;programmePeriod=2021%20-%202027;programCcm2Id=43108390;programDivisionCode=null;focusAreaCode=null;destination=null;mission=null;geographicalZonesCode=null;programmeDivisionProspect=onProspect=null;startDateLte=null;startDateGte=null;crossCuttingPriorityCode=null;cpvCode=null;performanceOfDerformanceOfDelivery=null;sortQuery=startDate;orderBy=asc;onlyTenders=false;topicListKey=topicSearchTablePageSchTablePageState

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10. /HORIZON EUROPE/ High performance bio-based polymers for market applications with stringent requirements, deadline: 22. September 2022 17:00 Brussels time

ExpectedOutcome:
In line with the objectives of the EU Bioeconomy Action Plan, the Sustainable Products Initiative (SPI) and the Industrial strategy, successful proposals will contribute to delivering to the EU capacity to produce specialty bio-based polymers for applications under stringent operating conditions[1].
Project results should contribute to the following expected outcomes:
? Diversified bio-based polymer product portfolio, in terms of polymer types and range of applications under stringent operating conditions.
? Improved safety, sustainability, and circularity profiles of the end-products that use specialty bio-based polymers for applications under stringent operating conditions.
? Improved strategic autonomy and lower dependency of the EU on imports of specialty polymers for stringent operating conditions in specific market sectors.
Technology Readiness Level (TRL): Activities are expected to achieve TRL 5 by the end of the project - see Horizon Europe General Annex B.

Expected EU contribution per project: It is estimated that a contribution of EUR 4.5 million would allow these outcomes to be addressed appropriately. Nonetheless, this does not preclude submission and selection of a proposal requesting different amounts.
Scope:
The wide variety of molecular structures of bio-based polymers can offer significant opportunities to develop products tailored to specific applications[2]. Some specific applications demand polymers that are capable to perform as desired under stringent operating conditions in e.g., market sectors such as electronics, automotive, aerospace, maritime/naval, construction, textiles, packaging, etc.
Tailor-made bio-based polymers for these applications can benefit from their inherent physical/chemical properties, and from their potentially higher sustainability when compared with fossil-based counterparts (if any). The focus of this topic is on applications characterised by stringent operating conditions where the 'bulk properties'[3] of the developed solutions are prominent.
Some of these specialty polymers or their components may heavily depend on imports from outside the EU. Their production routes need to be designed, and their properties tested and proven useful and applicable under stringent conditions as demanded by specific market sectors. Innovative bio-based polymers in scope may be synthesised from bio-based building blocks, produced through biotechnology, other sustainable bio-based processing technologies, or through the functionalisation with biocatalysts or by other means of biopolymers extracted from bio-based feedstock.
Proposals under this topic should:
? Develop bio-based polymers with tailored functional properties for a pre-defined range of applications for market requirements under stringent conditions. The bio-based polymers should be circular-by-design, allowing for their reuse and recycling, including composting in case of biodegradable biopolymers.
? Develop validation tests (e.g., test rigs and testing procedures) and test the bio-based polymers against the application requirements. These tests should include their end-of-life handling.
? Provide an assessment of the environmental sustainability of the developed bio-based polymers.
? Provision for the project integrating 'safe-and-sustainable-by-design' generic criteria and framework considerations[4], in line with the EU Chemicals strategy for sustainability.
? Apply and/or adapt existing/mature or novel digital technologies provided that they are instrumental to achieving the project's outcomes and scope. Applications of digital technologies that should be considered in the scope are among the following areas: i) chemicals, materials and process design & modelling ii) process monitoring and optimisation and iii) data analytics and data management of the production of bio-based polymers in the scope.
? Disseminate the outputs and learning outcomes from the project in order to increase the public awareness, and awareness of relevant industry actors, of potential benefits of bio-based solutions and raise awareness on opportunities to be addressed.
Proposals should involve relevant actors, such as producers, end users, and customers of the developed bio-based polymers to validate their properties and market acceptance. Proposals should build particularly on the past BBI JU projects on biopolymers.
Further information:
https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/horizon-ju-cbe-2022-r-01;callCode=null;freeTextSearchKeyword=;matchWholeText=true;typeCodes=1,2,8;statusCode=8;statusCodes=31094502;programmePeriod=2021%20-%202027;programCcm2Id=43108390;programDivisionCode=null;focusAreaCode=null;destination=null;mission=null;geographicalZonesCode=null;programmeDivisionProspect=onProspect=null;startDateLte=null;startDateGte=null;crossCuttingPriorityCode=null;cpvCode=null;performanceOfDerformanceOfDelivery=null;sortQuery=startDate;orderBy=asc;onlyTenders=false;topicListKey=topicSearchTablePageSchTablePageState

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11. /HORIZON EUROPE*/ Maximum valorisation of sustainably sourced bio-based feedstock in multi-product, zero-waste, zero-pollution biorefinery, deadline: 22. September 2022 17:00 Brussels time

ExpectedOutcome:
In line with the objectives of the Circular economy and the Zero pollution action plan[1], successful proposals will facilitate the large-scale deployment of industrial bio-based systems. These systems will contribute to the EU Bioeconomy Strategy implementation, demonstrating improved environmental performances, maximum resource- and energy-efficiency, and optimal cascading use of bio-based feedstock, aiming for 'zero waste'[2] and 'zero-pollution'[2] operations.
Project results should contribute to the following expected outcomes:
? Enhanced sustainability and circularity performance of bio-based systems realising the 'zero-waste', 'zero-pollution' ambition.
? Revitalised communities of the bioeconomy by creating new green jobs and investments.
? Deployed industrial symbiosis[2].
? Integrated pollution prevention and control in bio-based systems of air, water, soil and noise levels.
? Public awareness and acceptance of bio-based solutions.
? Support market uptake growth and acceptance of scalable bio-based solutions.
Technology Readiness Level (TRL): Activities are expected to achieve TRL 8 by the end of the project - see Horizon Europe General Annex B.
Expected EU contribution per project: It is estimated that a contribution of EUR 14 million would allow these outcomes to be addressed appropriately. Nonetheless, this does not preclude submission and selection of a proposal requesting different amounts.
Scope:
The EU Bioeconomy Strategy sets the circularity and the environmental protection at the basis of the modernisation of bio-based industries in the Union, to ensure a trustful green transition of EU economy away from a linear fossil-based system.
The objective of this topic is to deploy solutions with the highest circularity levels, while extracting maximum value from the bio-based feedstock to produce bio-based products in the scope of CBE and prevent and control any pollution from bio-based industries.
Proposals under this topic should:
? Demonstrate at large scale a new biorefinery concept extracting maximum value from (all components of) the sustainably sourced bio-based feedstock to produce a variety of materials/products in the scope of CBE JU.
? Set up and operate a biorefinery model that maximises the total value extracted from the input bio-based feedstock, and to minimise the required input (feedstock, energy, other chemicals, other process materials), rather than 'just' focusing on a small number of main products, applying efficient use of biomass fractions (including cascading approach to valorise side-streams where applicable).
? Demonstrate the 'zero-waste' ambition by:
o Reducing any exhaust emissions from the industrial installation. These include exhaust flows that are usually not considered in the common pollution prevention and control operations, such as hot water, vapours, odours, etc.
o Designing circular processes and looking on the best practices already available or under development, including in other EU R&I programmes.
o Applying circular by design concepts to output materials/products.
? Demonstrate the 'zero-pollution' ambition by:
o Eliminating/minimising hazardous substances from the feedstock, if any.
o Using safe bio-based substances to substitute hazardous and toxic ones in processes.
o Re-circulating any process flow such as air/water/energy/chemicals, also looking on the best practices already available or under development, including in other EU R&I programmes.
? Provision for the project integrating 'safe-and-sustainable-by-design' generic criteria and framework considerations[5], in line with the EU Chemicals strategy for sustainability.
? Ensure that the operation of the biorefinery contribute to climate change mitigation, both aiming at negative GHG emissions and at realizing effective carbon removal[6], either through production of circular bio-based materials and/or carbon storage in nature-based solutions (e.g. reforestation, soil, grasslands, etc.).

? Design the biorefinery operations to include the reduction noise levels.
? Perform a full life cycle assessment of the environmental impacts of the output materials/products.
? Explore the viability of implementing industrial symbiosis, between different installations (respecting the short value chain concept) or other symbiosis (e.g., with municipal waste management) to share and exploit materials and carrier streams and any process flows such as air/water/energy/chemicals, to achieve the 'zero-waste' and 'zero-pollution' ambition.
? Apply circular by design concepts to output materials/products in the scope of CBE JU.
? Validate integrated monitoring and reporting systems on the effective reduction of pollutant emissions.
? Demonstrate the replicability of the zero-waste biorefinery concept by conducting replication studies under different assumptions (e.g., location, feedstock source) at a proof-of-concept level.
? Assess the contribution of the project to the 'zero-pollution' ambition, climate change neutrality and biodiversity protection and restoration targets.
? Evaluate the socio-economic impacts on local communities of the proposed solutions.
? Apply and/or adapt existing/mature or novel digital technologies, provided that they are instrumental to achieving the project's outcomes and scope, especially to ensure high standards of resource efficiency and environmental protection. Applications of digital technologies that should be considered in the scope are among the following areas: i) chemicals, materials and process design & modelling ii) (real-time) process monitoring and optimisation (including environmental performance) iii) predictive maintenance & plant engineering and iv) data analytics and data management of the multi-product, zero-waste, zero-pollution biorefinery.
(Note) Points i)-iv) should consider the contribution to/from data/feedback loops across circular, bio-based value chains but also coordination of processes among different sectors (especially if symbiosis concepts apply in the project)
? Quantify and showcase the achievements and challenges of the project to national/regional stakeholders and policymakers, investors and brand owners[6] to foster their support to scale up the industrial capacity to deploy sustainable circular bio-based solutions across Europe.
? Design and perform dissemination activities to targeted stakeholders, including public and relevant industry actors, enabling the replication, market and social acceptance of the large-scale development of bio-based solutions of the multi-product, 'zero-waste', 'zero-pollution' biorefinery in the scope.
Proposals should target relevant input bio-based feedstock (i.e., widely available in Europe) to ensure replicability of the biorefinery concept.
Proposals must implement the multi-actor approach and demonstrate the involvement of all concerned key actors in the bio-based systems, such as researchers, experts in pollution prevention and monitoring, bio-based processing industries, regional policy makers, civil society. Please see the section Additional requirements in the CBE JU Annual Work Programme 2022[8] for more details.
Further information:
https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/horizon-ju-cbe-2022-iaflag-01;callCode=null;freeTextSearchKeyword=;matchWholeText=true;typeCodes=1,2,8;status=1,2,8;statusCodes=31094502;programmePeriod=2021%20-%202027;programCcm2Id=43108390;programDivisionCode=null;focusAreaCode=null;destination=null;mission=null;geographicalZonesCode=null;programmeDivisionProspect=null;startDateLte=null;startDateGte=null;crossCuttingPriorityCode=null;cpvCode=null;performanceCall=null;performanceOfDelivery=null;sortQuery=startDate;orderBy=asc;onlyTenders=false;topicListKey=topicSearchTablePageState;topicSearchTablePageState

12. /HORIZON EUROPE*/ Co-processing of mixed bio-based waste streams, deadline: 22. September 2022 17:00 Brussels time

ExpectedOutcome:
In line with the European targets of recycling for biowaste, from the Waste Framework Directive, lowering the fraction of municipal bio-waste[1] sent to landfill to 10% by 2035, successful proposals will support the uptake of separation and conversion technologies for mixed bio-waste streams and will contribute to

reaching the European targets on bio-waste and the efficient use of resources.
Project results should contribute to the following expected outcomes:
? Increased processing shares of bio-waste, and waste from bio-based products and processes, as well as their higher priority uses in the waste hierarchy[1].
? Expanded opportunities for the valorisation of bio-waste in all stages and across all sectors - from bio-based industries to municipal bio-waste - exploiting chances of industrial symbiosis[1].
? Public awareness and acceptance of bio-based solutions.
? Support market uptake growth and acceptance of scalable bio-based solutions.
Technology Readiness Level (TRL): Activities are expected to achieve TRL 6-7 by the end of the project - see Horizon Europe General Annex B.
Expected EU contribution per project: It is estimated that a contribution of EUR 6 million would allow these outcomes to be addressed appropriately. Nonetheless, this does not preclude submission and selection of a proposal requesting different amounts.
Scope:
The CBE JU scope includes a variety of bio-based waste and side streams from different sectors: residual streams from agriculture and horticulture, forestry, horticulture and from aquatic biomass cultivation, processing, and from fisheries; food and feed waste (from the food and feed production/processing); bio-waste other than food waste from production processes, e.g. textiles, wood, pulp and paper, etc., including post-consumer waste; sewage and wastewater sludge; used cooking oil; construction and demolition waste that include wood-based component, residues and by-products from the bio-based industry. These streams may contain impurities as well as polymers and mineral components (also naturally occurring in bio-based feedstock).
Annual waste generation is projected to increase by 70% by 2050 while global consumption of materials such as biomass, fossil fuels, metals and minerals is expected to double in the next forty years. In the meantime, pressure on raw material and energy resources is increasing. Thus, converting bio-based waste streams in renewable raw materials is more necessary than ever. However, industry sets stringent requirements for the composition and purity of renewable raw materials to ensure proper processing and meet product requirements.
Proposals under this topic should:
? Valorise effectively and sustainably existing mixed residual and/or waste streams from bio-based products and processes from all relevant sectors and processing steps. The focus of this topic is on bio-based feedstock streams that are generated as heterogeneous mixtures, and on bio-based feedstock streams that contain non bio-based impurities (e.g. plastics, minerals, metals - excluding toxic or harmful substances) that hinder their valorisation using currently available technologies. The topic excludes homogeneous side streams from primary production (e.g. agri- or forest biomass residues) and mixed municipal solid waste. The topic also excludes conversion of contaminated biomass (e.g. from bioremediation). The proposal should develop innovative technologies for recycling and upcycling of secondary bio-based feedstock, residues, and bio-based products' waste, including sorting, separation, pre-treatment and upgrading technologies. Physical, chemical and biotechnologies are in scope.
? Set up and implement innovative and environmentally sustainable processing technologies and apply the cascading approach, when applicable, for example producing high-value bio-based products in the scope of CBE JU, recycling nutrients for agriculture and horticulture use, etc.
? Valorise the polymer and mineral component of bio-based waste streams, waste from bio-based products and processes (e.g., N- P- components in sewage sludge) into products in the scope of CBE JU.
? Demonstrate an integrated processing plant for mixtures of bio-based residues, bio-waste, waste from bio-based products and processes, while implementing symbiotic processes across different industrial operations.
? Apply and/or adapt existing/mature or novel digital technologies, provided that they are instrumental to achieving the project's outcomes and scope, especially to ensure high standards of resource efficiency and environmental protection. Applications of digital technologies that should be considered in the scope are among the following areas
(Note) i) chemicals, materials and process design & modelling ii) (real-time) process monitoring and optimisation (including environmental performance) iii) predictive maintenance & plant engineering and

iv) data analytics and data management of the processing technologies in the scope.
(Note II) Points i)-iv) should consider the contribution to/from data/feedback loops across circular, bio-based value chains but also coordination of processes among different sectors (especially if symbiosis concepts apply in the project).
? Disseminate the outputs and learning outcomes from the project in order to increase the public awareness, and awareness of relevant industry actors, of potential benefits of bio-based solutions.
? Propose recommendations on opportunities/challenges to be addressed to targeted stakeholders, including, where possible, national/regional stakeholders, investors and brand owners[4].
Proposals must implement the multi-actor approach and demonstrate the involvement of all concerned key actors in the bio-based systems, such as researchers, local authorities, bio-based feedstock providers including waste managers, and bio-based processing industries. Please see the section Additional requirements in the CBE JU Annual Work Programme 2022[5] for more details.
Further information:
https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/horizon-ju-cbe-2022-ia-04;callCode=null;freeTextSearchKeyword=;matchWholeText=true;typeCodes=1,2,8;statusCo,8;statusCodes=31094502;programmePeriod=2021%20-%202027;programCcm2Id=43108390;programDivisionCode=null;focusAreaCode=null;destination=null;mission=null;geographicalZonesCode=null;programmeDivisionProspectionProspect=null;startDateLte=null;startDateGte=null;crossCuttingPriorityCode=null;cpvCode=null;performanceOfDerformanceOfDelivery=null;sortQuery=startDate;orderBy=asc;onlyTenders=false;topicListKey=topicSearchTablePagerchTablePageState

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13. /HORIZON EUROPE*/ Cost-effective production routes towards bio-based alternatives to fossil-based chemical building blocks, deadline: 22. September 2022 17:00 Brussels time

ExpectedOutcome:
Successful proposals will contribute to developing bio-based novel dedicated[1] or drop-in[1] platform chemicals[3] with improved technical and/or environmental performances, contributing to the circularity and carbon neutrality of related systems. Projects are therefore expected to address the EU Bioeconomy Strategy and its action plan, the Chemicals Strategy for Sustainability, the EU industrial strategy, and the upcoming transition pathway for the energy-intensive industries ecosystem (more specifically the 'chemicals transition pathway').
Project results should contribute to the following expected outcomes:
? Resource- and energy-efficient cascading use of sustainably sourced biomass.
? Diversification on the range of EU-produced chemicals, while also growing the bio-based chemicals portfolio with high-volume/low cost and/or low volume/high-cost chemicals, depending on application, performance, and functionality.
? Higher sustainability and competitiveness of the European chemical industry.
? Reduction of direct emissions (scope 1 and 2)[1] and indirect emissions (scope 3)[1] against available fossil-based and/or bio-based benchmarks of the chemical industry, with a clear technical pathway to carbon neutrality.
? Public awareness and acceptance of bio-based solutions.
? Support market uptake growth and acceptance of scalable bio-based solutions.
Technology Readiness Level (TRL): Activities are expected to achieve TRL 6-7 by the end of the project - see Horizon Europe General Annex B.
Expected EU contribution per project: It is estimated that a contribution of EUR 6 million would allow these outcomes to be addressed appropriately. Nonetheless, this does not preclude submission and selection of a proposal requesting different amounts.
Scope:
Europe needs to diversify the sources of sustainable feedstock for its chemical industry, for not only improving on environmental sustainability performance of industrial processes and products, but to also enhance their strategic autonomy and resilience. Cost-competitiveness and scalability often remain a challenge for many bio-based chemicals. In contrast to fossil-based chemicals, they are characterised by

relatively novel and comparably lower production scales, having higher OPEX costs (as well as CAPEX costs for new biorefining facilities). Accelerating the development of the bio-based chemicals portfolio will be key for growth of the bioeconomy and towards accelerating further on the fossil-based feedstock substitution. In addition, climate change, driven by industrial emissions of greenhouse gases (GHGs), has a fundamental socio-economic and environmental impact. The reduction of GHGs emissions is a priority for the chemical industry, as an energy-intensive industry sector. Bio-based platform chemicals, derived from sustainably sourced feedstock and with a lower carbon footprint, can contribute to realising this priority. The topic does not address bio-based chemicals that already have a large-scale, industrial production capacity in Europe.
Proposals under this topic should:
? Demonstrate novel or improved production routes for bio-based platform chemicals, within the scope of CBE and reaching the targeted TRL, encompassing different enabling technologies [6].Assess and prove technoeconomic feasibility for the proposed bio-based platform chemicals, in comparison to fossil-based and/or bio-based benchmarks, where these exist.
? Apply and/or adapt existing/mature or novel digital technologies, provided that they are instrumental to achieving the project's outcomes and scope, especially to ensure high standards of resource efficiency and environmental protection. Applications of digital technologies that should be considered in the scope are among the following areas
(Note): i) chemicals, materials and process design & modelling ii) (real-time) process monitoring and optimisation (including environmental performance) iii) predictive maintenance & plant engineering and iv) data analytics and data management of the production processes in the scope.
(Note II) Points i)-iv) should consider the contribution to/from data/feedback loops across circular, bio-based value chains but also coordination of processes among different sectors (especially if symbiosis concepts apply in the project)
? Demonstrate scalability of the process towards industrial production and market size/applications for the chemical building blocks (dedicated and/or drop-in chemical structures) produced, including identifying appropriate business models for their market uptake.
? Assess the environmental sustainability performance for the production (and along the full bio-based system) of the bio-based platform chemicals via Life Cycle Assessment or other appropriate methodologies (see more under Additional requirements).
? Provision for the project integrating 'safe-and-sustainable-by-design' generic criteria and framework considerations[7], in line with the EU Chemicals strategy for sustainability.
? Demonstrate the applicability and added-value of the bio-based chemical building blocks compared to the fossil-based ones, while considering the target end uses in bio-based products.
? Develop and propose a strategic roadmap for closing the competitiveness gap between well-established fossil-based routes and the proposed novel or improved bio-based routes.
? Propose recommendations on opportunities/challenges to be addressed to targeted stakeholders, including, where possible, national/regional stakeholders, investors and brand owners[8].
? Disseminate the outputs and learning outcomes from the project in order to increase the public awareness, and awareness of relevant industry actors, of potential benefits of bio-based solutions.
Proposals must implement the multi-actor approach and demonstrate the involvement of all concerned key actors in the bio-based systems, such as researchers and technology providers bio-based processing industries, end-users and consumers (in case of B2C value chains). Please see the section Additional requirements in the CBE JU Annual Work Programme 2022[9] for more details.

Further information:

https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/horizon-ju-cbe-2022-ia-03;callCode=null;freeTextSearchKeyword=;matchWholeText=true;typeCodes=1,2,8;statusCo,8;statusCodes=31094502;programmePeriod=2021%20-%202027;programCcm2Id=43108390;programDivisionCode=null;focusAreaCode=null;destination=null;mission=null;geographicalZonesCode=null;programmeDivisionProspectionProspect=null;startDateLte=null;startDateGte=null;crossCuttingPriorityCode=null;cpvCode=null;performanceOfDerformanceOfDelivery=null;sortQuery=startDate;orderBy=asc;onlyTenders=false;topicListKey=topicSearchTablePagerchTablePageState

14. /HORIZON EUROPE*/ Expanding Investments Ecosystems, deadline: 04. October 2022 17:00 Brussels time

ExpectedOutcome:
Project results are expected to contribute to all of the following expected outcomes:
? Increased access to capital and investments in less connected innovation ecosystems, enhancing their openness, competitiveness, and global potential;
? Increased venture investments and enabled late-stage growth of local start-ups in less connected and developing innovation ecosystems;
? Facilitated investors' access to the flow of local deals;
? Improved investors' knowledge on regulatory frameworks and networks to support joint cross-border ventures in new markets.
Scope:
Target group(s): Business-acceleration providers such as incubators, accelerators, company-builders, innovation agencies, business clubs and networks, public and private VCs and their networks, national and regional promotional banks.
The lack of funding is one of the most problematic aspects of business growth in less connected innovation ecosystems and there are huge disparities between company needs and the available funding. Existing interventions by public and private funders are limited and further resources are necessary to bridge the gap. The lack of funding is harmful for local start-ups' survival rate and the development of regional scale-ups, especially for women-led companies. While the established European start-up hubs attract significant money and attention, the innovation ecosystems in other areas try to keep pace with fewer resources. In the struggle for resources, many start-ups face the choice to either close their business or move elsewhere, while foreign investors struggle to enter new markets due to insufficient information about the market, its opportunities and regulatory frameworks.
The Expanding Investments Ecosystems should attract foreign investors into "modest' and 'moderate' innovation ecosystems by raising awareness of local innovation ecosystems and their start-ups, as well as the potential of the whole region, to capital providers from across Europe.
The action supports co-designed programmes of activities, of at least two (2) years, proposed by business acceleration service providers and/or investor networks and clubs, located in less connected innovation ecosystems ('modest' and 'moderate') and innovation hubs ('strong innovators' and innovation leaders')[1], to facilitate the entry of funders in less connected innovation ecosystems through activities, for example:
? market orientation / introduction programmes for European investors, including establishment of central points of information for foreign investors providing them with knowledge on the ecosystem's establishment conditions, incentives, tax and legislation;
? assistance to foreign EU and international investors / Venture Capitalists, including women investors, during the whole process of investment, from the pre-entry stage until the exit, by ensuring support in administrative, legal, linguistic and cultural issues;
? organisation of European and worldwide international business forums, conferences and events to attract and connect international with local investors;
? peer-matching of investors and other networking activities to encourage joint ventures;

? a repository of best practices of market entry facilitation for international investors;
? a list of recommendations for local authorities and European regulators to better address investors' entry challenges and facilitate cross-border deals.
Further information:
https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/horizon-eie-2022-scaleup-02-01;callCode=null;freeTextSearchKeyword=;matchWholeText=true;typeCodes=1,2,8;status=1,2,8;statusCodes=31094502;programmePeriod=2021%20-%202027;programCcm2Id=43108390;programDivisionCode=null;focusAreaCode=null;destination=null;mission=null;geographicalZonesCode=null;programmeDivisionProspect=null;startDateLte=null;startDateGte=null;crossCuttingPriorityCode=null;cpvCode=null;performanceOfDelivery=null;sortQuery=startDate;orderBy=asc;onlyTenders=false;topicListKey=topicSearchTablePageState

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15.

ExpectedOutcome:
Project results are expected to contribute to the following expected outcomes:
? Support deep tech innovation as a basis for a modern, knowledge-driven, resource-efficient and competitive economy;
? Promote female leadership in the deep tech industry to build fairer, more inclusive, and more prosperous innovation ecosystems in Europe.
Scope:
Women TechEU targets highly innovative start-ups founded, or co-founded by women, holding a top management position (CEO, CTO or equivalent) in the company at the time of submission. The company must be registered and established in an EU Member State or a Horizon Europe Associated Country for at least six months at the time of the submission.
All deep tech[1] domains are eligible, with the emphasis being on overall gender balance and the position held by women in the start-up.
Support[2] provided to Women TechEU beneficiaries under this initiative is made up of the following components:
? financial support to the company as an individual grant of EUR 75 000 supporting activities such as evaluating and refining products/services, design, user experience, upgrading the business model, updating the business plan and growth strategy, finding partners and investors, market validation, etc.;
? mentoring and coaching provided by the EIC Business Acceleration Services (BAS), under the new 'Women Leadership Programme', which includes dedicated networking and pitching events;
? the possibility to participate in dedicated activities organised by InvestEU and the Enterprise Europe Network (EEN).
At the end of the funded project, and after completing the Women Leadership Programme, beneficiaries will submit a short final report. Women TechEU beneficiaries will become part of a community of peers, and given opportunities to expand their network and showcase their business at pitching and networking events, to give visibility to their work and attract further funding.

Further information:
https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/horizon-eie-2022-scaleup-02-02;callCode=null;freeTextSearchKeyword=;matchWholeText=true;typeCodes=1,2,8;status=1,2,8;statusCodes=31094502;programmePeriod=2021%20-%202027;programCcm2Id=43108390;programDivisionCode=null;focusAreaCode=null;destination=null;mission=null;geographicalZonesCode=null;programmeDivisionProspect=null;startDateLte=null;startDateGte=null;crossCuttingPriorityCode=null;cpvCode=null;performanceOfDelivery=null;sortQuery=startDate;orderBy=asc;onlyTenders=false;topicListKey=topicSearchTablePageState

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16. /HORIZON EUROPE*/ 2D materials-based devices and systems for biomedical applications (RIA), deadline: 16. November 2022 17:00 Brussels time

Expected Outcome:
Proposal results are expected to contribute to the following expected outcomes:
? New technology solutions exploiting the unique properties of 2D materials (2DM) that would reduce cost and increase the efficacy of diagnostics or therapies, or provide new diagnostics or therapies for which there is currently no solution. It would strengthen Europe's industrial position in, early diagnostics, disease prediction and prevention, disease monitoring and reducing hospitalization time.
Scope:
Proposals should build on the multi-functionality allowed by 2DMs and demonstrate the advantages of combining e.g. biocompatibility, chemical stability, (bio-)sensing and actuating, and integration with flexible electronic technologies, in addition to versatile surface chemistry (for interface with biology) to allow continuous health monitoring and built-in pharmacological interventions.
Emphasis of the proposals should have a translational perspective, addressing how the devices and systems will reach the clinic, preferably led by European industry. Furthermore, the proposals should bring together multidisciplinary teams including engineers, material scientists, pharmacologists, biologists, clinicians, patients, and ethics experts. Potential application areas include: engineering & bioengineering of biochemical or bioelectronic diagnostics or therapeutic devices and platforms; sensors for digital health; electronics for brain-computer interfaces, taking advantage of flexible devices; medical imaging in combination with implantable devices (e.g. MRI); graphene for drug delivery of therapeutics (e.g. for neurological disorders). The safety aspects of the proposed technologies should be given proper consideration.
Proposals should include activities aiming at facilitating future exploitation of results.
Proposals should aim, by the end of the project, at validating technology in relevant environment (TRL 5).
The proposal should also cover the contribution to the governance and overall coordination of the Graphene Flagship initiative.
Further information:
https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/horizon-cl4-2022-digital-emerging-02-19;callCode=null;freeTextSearchKeyword=;matchWholeText=true;typeCodes=;typeCodes=1,2,8;statusCodes=31094502;programmePeriod=2021%20-%202027;programCcm2Id=43108390;programDivisionCode=null;focusAreaCode=null;destination=null;mission=null;geographicalZonesCode=null;programmeprogrammeDivisionProspect=null;startDateLte=null;startDateGte=null;crossCuttingPriorityCode=null;cpvCode=null;cpvCode=null;performanceOfDelivery=null;sortQuery=startDate;orderBy=asc;onlyTenders=false;topicListKey=topicSstKey=topicSearchTablePageState

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17. /HORIZON EUROPE*/ Supporting the coordination of the Graphene Flagship projects (CSA), deadline: 16. November 2022 17:00 Brussels time

ExpectedOutcome:
Proposal results are expected to contribute to the following expected outcomes:
A strong and coherent graphene and 2D materials (2DM) initiative by providing key support functions, enabling participating projects to find synergies in their work and share best practice, and favouring interactions and synergies with national and regional initiatives, projects and infrastructures in the domain.
Scope:
Proposals should address the need to guarantee a sustained European leadership in 2DM, capitalise upon the investments made so far in graphene, exploit synergistically the scientific, technological and innovation outcomes of these investments and deliver benefits to the European society. Proposals should support the coordination of the projects of the Graphene Flagship initiative that would be selected under

the call topics of the initiative. They should address all the coordination and support functions necessary to build a strong Flagship initiative, including: governance, community engagement, dissemination, communication, outreach, dialogue with the public, etc. They should also work on standardisation activities, creating new education and training curricula, promoting innovation, developing research and innovation roadmap activities, liaising with and supporting the coordination with relevant national and regional 2DM activities and establishing and supporting the dialogue with other international relevant programmes and initiatives in the field.
Proposals should involve and be driven by representatives of the relevant actors of the field (e.g., academia, RTOs and industry, including SMEs).
Digital and emerging technologies for competitiveness and fit for the Green Deal
This destination will directly support the following Key Strategic Orientations, as outlined in the Strategic Plan:
KSO A, 'Promoting an open strategic autonomy by leading the development of key digital, enabling and emerging technologies, sectors and value chains to accelerate and steer the digital and green transitions through human-centred technologies and innovations.'
KSO C, 'Making Europe the first digitally led circular, climate-neutral and sustainable economy through the transformation of its mobility, energy, construction and production systems
Further information:
https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/horizon-cl4-2022-digital-emerging-02-22;callCode=null;freeTextSearchKeyword=;matchWholeText=true;typeCodes=;typeCodes=1,2,8;statusCodes=31094502;programmePeriod=2021%20-%202027;programCcm2Id=43108390;programDivisionCode=null;focusAreaCode=null;destination=null;mission=null;geographicalZonesCode=null;programmeprogrammeDivisionProspect=null;startDateLte=null;startDateGte=null;crossCuttingPriorityCode=null;cpvCode=null;cpvCode=null;performanceOfDelivery=null;sortQuery=startDate;orderBy=asc;onlyTenders=false;topicListKey=topicstKey=topicSearchTablePageState

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18. /HORIZON EUROPE*/ New generation of advanced electronic and photonic 2D materials-based devices, systems and sensors (RIA), deadline: 16. November 2022 17:00 Brussels time

ExpectedOutcome:
Proposal results are expected to contribute to the following expected outcomes:
New technological solutions with improved performance and reduced energy consumption providing significant advances towards the integration of 2D materials (2DM) technology, and the emergence of competitive value chains in graphene in Europe.
Scope:
Proposals should cover the development of 2DM-based devices and systems bringing 2DM technology one step further towards the integration in current technologies and to the development of radically new prototypes and/or solutions for industry for a wide range of application areas overcoming integration costs, functionalities and/or power consumption challenges. The proposals should develop 2DM-based electronic and photonic devices including ultrafast circuits, photodetector, and modulators, broadband detectors, switches, as well as sensors, advanced electronics, metamaterials, etc., serving applications such as 5G and 6G data communications, wireless connections, smart machine vision, autonomous robots and vehicles, internet of things, and neuromorphic circuitry and/or imaging applications. The 2DM-based devices and systems should demonstrate their added value in terms of e.g. functionality, integration, miniaturization, performances, power consumption, costs, etc. compared to current conventional technologies. Proposals should integrate the value chain and incorporate the relevant manufacturing technologies needed to bring the developed devices towards the market and indicate how they work with the newly established Graphene Flagship 2D-Experimental Pilot Line (2D-EPL)[1].
Proposals should address a modelling, design, manufacturing and characterization of developed devices and systems. The proposals should also explore, develop and assess the route(s) for integration (e.g.

wafer growth, transfer, wafer scale integration, co-integration) of 2DM into the devices and systems favouring industrial uptake in the longer-term.
Proposals should include activities aiming at facilitating future exploitation of results.
Proposals should aim, by the end of the project, at validating technology in relevant environment (TRL 5).
Proposals should also cover the contribution to the governance and overall coordination of the Graphene Flagship initiative.
Digital and emerging technologies for competitiveness and fit for the Green Deal
This destination will directly support the following Key Strategic Orientations, as outlined in the Strategic Plan:
? KSO A, 'Promoting an open strategic autonomy by leading the development of key digital, enabling and emerging technologies, sectors and value chains to accelerate and steer the digital and green transitions through human-centred technologies and innovations.'
? KSO C, 'Making Europe the first digitally led circular, climate-neutral and sustainable economy through the transformation of its mobility, energy, construction and production systems
Proposals for topics under this Destination should set out a credible pathway to contributing to the following expected impact:
? Open strategic autonomy in digital technologies and in future emerging enabling technologies, by strengthening European capacities in key parts of digital and future supply chains, allowing agile responses to urgent needs, and by investing in early discovery and industrial uptake of new technologies. Electronic and photonic components, and the software that defines how they work, are the key digital technologies that underpin all digital systems. As the digitalisation of all sectors accelerates, most industries depend on early access to digital components. Dependence on these technologies represents a clear threat to Europe's autonomy, particularly in periods of geopolitical instability, exposing Europe to risks of vulnerability. Actions under this Destination will build on EU strengths in low-power consumption and ultra-secure components, Europe needs to develop the essential electronic and photonic components for a wide range of applications such as healthcare equipment, electric and autonomous vehicles, manufacturing and production plants and equipment, telecom networks, aerospace vehicles, consumer products
Further information:
https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/horizon-cl4-2022-digital-emerging-02-17;callCode=null;freeTextSearchKeyword=;matchWholeText=true;typeCodes=;typeCodes=1,2,8;statusCodes=31094502;programmePeriod=2021%20-%202027;programCcm2Id=43108390;programDivisionCode=null;focusAreaCode=null;destination=null;mission=null;geographicalZonesCode=null;programmeprogrammeDivisionProspect=null;startDateLte=null;startDateGte=null;crossCuttingPriorityCode=null;cpvCode=null;cpvCode=null;performanceOfDelivery=null;sortQuery=startDate;orderBy=asc;onlyTenders=false;topicListKey=topicSstKey=topicSearchTablePageState

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19. /HORIZON EUROPE*/ Increased robotics capabilities demonstrated in key sectors (AI, Data and Robotics Partnership) (IA), deadline: 16. November 2022 17:00 Brussels time

ExpectedOutcome:
Proposals results are expected to contribute to at least one of the following expected outcome:
? Demonstrators able to show the added value of robotics and their performances in addressing challenges in major application sectors, or in dangerous, dull, dirty tasks or those strenuous for humans or in extreme environments.
? Systems able to demonstrate beyond human performance in complex tasks, with high impact in key sectors, that show extended levels of adaptation and flexibility.
? Systems able to show high levels of reactivity and responsiveness and intelligibility when performing human-robot and robot-robot interactions in major application sectors.
Scope:
Proposals are expected to focus on application oriented use cases that enhance specific sectors in achieving significant improvements in functional and application performance.

Proposals will integrate novel robotics technologies into solutions that are capable of autonomously taking over dangerous, dull and dirty jobs, or that are capable of achieving tasks beyond human capabilities, in a range of innovative applications in key sectors or that are capable of reaching the level of reactivity, flexibility and adaptivity and natural intelligibility required for smooth and beneficial human-robot, as well as robot-robot collaboration and interaction. Engagement with SSH[1] expertise is needed to improve human robot interaction design, behavioural intelligibility of robot interaction and action, especially in novel service applications, and to provide expertise on trustworthiness and acceptability by humans that impact at the design stage.
This topic will support innovation proposals, expected to exploit the latest robotics advances and demonstrate at TRL6-7 use-case scenarios considering end-user needs and expectations, in highly realistic operating environments, how they can directly contribute to the chosen application, supported by quantitative and qualitative industry or service related KPIs. Proposals need to make the case for the added value of such technologies, and demonstrating scalability, and short-term deployment potential. Progress should be demonstrated by appropriate KPIs, demonstrators, benchmarking and progress monitoring.
The proposals should be primarily application driven, with a concrete problem-solving approach, exploiting the most suitable robotics technologies at hand. The focus should be on real-world scenarios which can benefit in short term from the technology and demonstrate substantial impact on the chosen application, also taking into account the maturity of the technologies which can solve the problems at hand.
In case of shared workspaces, safe, dependable efficient and intuitive interaction will be key.
Considering that human factors and socio-economic aspects can limit or lessen efficient use of robots, human-centred and socio-economic approaches in combination with multi-stakeholder co-design activities can contribute to sustainable development of new enabling technologies. Putting people at the forefront will ensure novel transformation pathways, which help utilise existing technology in novel ways, and propose feedback loop systems that engage human users in developing new sociotechnical learning situations and tools. Further, agile sociotechnical learning designs, can remedy e.g., less efficient technologies, by emphasizing human aspects of technologies in any application sector, from service to production, to domestic use. For this, an interdisciplinary approach involving both technical and SSH[1], in particular ethics, researchers is needed to improve interaction design and to provide expertise on trustworthiness and acceptability by workers, and address gender equality and intersectionality[3] where relevant.
The involvement of the user industry and the workers, possibly also the social partners, would be key to drive the proposals, not only to identify the needs and the application scenarios, but to be involved in the testing of the solutions and providing feedback to adapt the solutions to optimise the working conditions and performances. This is also essential for the acceptance of the technology. A human-centred approach will be key in all proposals, with deep involvement of the workers, professionals and other relevant stakeholders including experts in human-centred design, work safety, ergonomics, social partners or work organisation as appropriate. They will closely collaborate with the technology providers and integrators.
The proposals should also take into consideration trustworthy AI principles including respect of human dignity and agency. Special attention will be given to including users of diverse age, gender and background.
Proposals are requested to dedicate at least 20% of their requested amount for FSTP to support SMEs or Start-ups in the development or enhancement of demonstrators, with a maximum of EUR 200 000 per third party[4], and 70% of the costs (100% for start-ups). The consortium will provide technical support with expertise in engineering integration, testing and validation to support the selected SMEs and start-ups acting as technology providers to demonstrate the added value of their solutions to address the challenges of the use-cases.
The selection of the application sectors should prioritise high impact sectors and use-cases where the technology can demonstrate maximum added value.
Each proposal will focus on one of the following use-cases:
? Demonstrating substantial added value of robotics in major application sectors with high socio-economic and/or environmental potential impact, improving the effectiveness and efficiency of processes or

services.
? Demonstrating how robotics can improve human working conditions and satisfaction in taking over dangerous, dull, dirty or strenuous tasks, keeping workers away from unsafe and unhealthy jobs.
Proposals are encouraged, where appropriate, to develop configuration and deployment tools as well as tools for rapid configuration and re-configuration of robotics to improve deployability, reduce time to deployment, increase user driven (re)configuration, including through model-based approaches.
When possible, proposals should build on and reuse public results from relevant previous funded actions.
Proposals should make use of connections to the Digital Innovation Hub networks, particularly those in Robotics, Data and AI. Full use should be made of the common resources available in the AI-on-Demand platform[5], Digital Industrial Platform for Robotics[6], data platforms[7] and, if necessary other relevant digital resource platforms. Communicable results from projects should be delivered to the most relevant of these platforms so as to enhance the European AI, Data and Robotics ecosystem through the sharing of results and best practice.
Proposals are expected to develop synergies with relevant activities in AI, Data and Robotics, primarily in destinations 1, 3, 4 and 6, but also in other destinations and clusters, and share or exploit results with relevant funded actions where appropriate.
This topic implements the co-programmed European Partnership on AI, Data and Robotics.
All proposals are expected to allocate tasks to cohesion activities with the PPP on AI, Data and Robotics and funded actions related to this partnership, including the CSA HORIZON-CL4-2021-HUMAN-01-02.
Where relevant, synergies with other PPPs are encouraged.
Further information:
https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/horizon-cl4-2022-digital-emerging-02-07;callCode=null;freeTextSearchKeyword=;matchWholeText=true;typeCodes=;typeCodes=1,2,8;statusCodes=31094502;programmePeriod=2021%20-%202027;programCcm2Id=43108390;programDivisionCode=null;focusAreaCode=null;destination=null;mission=null;geographicalZonesCode=null;programmeprogrammeDivisionProspect=null;startDateLte=null;startDateGte=null;crossCuttingPriorityCode=null;cpvCode=null;cpvCode=null;performanceOfDelivery=null;sortQuery=startDate;orderBy=asc;onlyTenders=false;topicListKey=topicSstKey=topicSearchTablePageState

20. /HORIZON EUROPE*/ AI, Data and Robotics for Industry optimisation (including production and services) (AI, Data and Robotics Partnership) (IA), deadline: 21. Dezember 2022 17:00 Brussels time

ExpectedOutcome:
Proposal results are expected to contribute to at least one of the following expected outcomes:
? Advancing AI, data and robotics, and automation for the optimisation of production and services value-chains, optimisation of products, services, processes, to increase competitiveness, improve working conditions, and environmental sustainability, and supporting the European Economy using AI, data and robotics technologies.
? AI or learning systems (including, but not limited to self-learning, continuous and transfer learning, self-configuring systems) adapting production or services workflows to changing environments, dynamic and unpredictable resource constraints and to the capabilities and restrictions of humans and transferring results from one domain to another.
Scope:
Proposals are expected to integrate and optimise AI, data and robotics solutions in order to demonstrate, by addressing use-cases scenarios in actual or highly realistic operating environments, how they optimise production and service use cases.
Industry-empowering AI, data and robotics: enable and boost wide spread deployment of European technologies, in demonstrating clear benefits in particular applications coming from major industrial sectors, in improving processes, products or services, contributing to their competitiveness, quality of

services, and strategy for environmental sustainability. Providing industry with more autonomous and more intuitive and easier to operate technologies they can trust and that are tailored for their needs, with the adapted and guaranteed levels of performance, reliability, safety, dependability, security and transparency. Providing trustworthy AI solutions combining various sources of data, sensors, interaction and information to address industrial challenges; combining the power of latest progress in AI, FAIR[1] data, autonomous or interactive robotics, smart devices and next generation networks and computing to increase automation and optimise processes, resources, and services, and addressing new technological challenges removing barriers for industrial deployment, and improving trust through more transparent and explainable AI. Where relevant latest development from low power consuming sensors, actuators and mechanisms, as well as new energy sources and batteries will be exploited to ensure energy autonomy for robotics. Promoting versatile, flexible, scalable, resilient physical and digital architecture that facilitate the future AI, data and robotics based services adoption.
Proposals should demonstrate how major European industries (covering all the sectors, from production[2] to services) can substantially benefit from optimising AI, data and/or robotics to maximise such benefits. Proposals are expecting to focus on specific use-cases to demonstrate such benefits, cross-sector use-cases are encouraged. Added value to the selected use-cases should be demonstrated by qualitative and quantitative industry and service relevant KPIs, demonstrators, benchmarking and progress monitoring.
While the proposals should be application driven, involving problem owners to define needs and validate the proposed solution, the focus is on optimising the enabling of AI, data and robotics technologies to maximise the benefit they bring.
Proposals should focus on demonstrating the added value of AI and/or Data and/or Robotics technologies to optimise value-chains, products, services or associated processes, including knowledge automation (including capturing and elicitation), to increase competitiveness, environmental sustainability, and where relevant, working conditions, for example, through added flexibility, configurability, adaptability, etc. Digital twin approaches could be considered, where necessary and of added value.
Proposals should also address non-technical issues hampering the adoption of AI, data and robotics in the selected application domain, e.g. ethical aspects for the possible replacement of human operators, trust, human-robots collaboration and cooperation, security and safety.
Proposals will address the production or service industries, where substantial added value of AI, data and/or robotics can be demonstrated. This should be demonstrated with actual or highly realistic operating demonstrators at TRL6-7. Proposals must clearly identify which of the industries (i.e. production or services) they will exclusively focus on.
Two types of proposals are expected:
1. Type 1 Projects: Focused projects (EU contribution around EUR 3.00 million), involving the user industry and technology provider(s). This type of proposals are not expected to involve the use of financial support to third parties.
2. Type 2 Projects: Projects (EU contribution around EUR 5.00 million) involving the use of financial support to third parties, where a number of companies in a given application sector will identify in the proposal common challenges and use-cases, and organise competitive calls for AI, data and robotics solution providers to address such challenges. Competitive calls will be open to all types of companies, but only SMEs and Start-ups[3] will receive financial support to third parties, with a maximum of EUR 200 000 per third party[4] and 70% funding (100% for start-ups). At least 40% of the requested amount should be dedicated to financial support to third parties. The consortium will provide technical support with expertise in engineering integration, testing and validation to support the selected SMEs and start-ups acting as technology providers to demonstrate the added value of their solutions to address the challenges of the use-cases. Maximum one type of third party project will be funded per focused area (either production or services).

In all proposals user industries are expected to play a major role in the requirement and validation phases.

Besides financial support, these SMEs and start-ups successfully demonstrating the potential of their solutions, must receive support from business experts, provided by the action, to further develop their business and develop their market reach, and maximise their business opportunities.
When possible, proposals should build on and reuse public results from relevant previous funded actions, including public results developed in Member States and Associated Countries. Proposals should make use of connections to the Digital Innovation Hub networks, particularly those in Robotics, Data and AI. Full use should be made of the common resources available in the AI-on-Demand platform[5], Digital Industrial Platform for Robotics[6], data platforms[7] and, if necessary other relevant digital resource platforms. Communicable results from projects should be delivered to the most relevant of these platforms so as to enhance the European AI, Data and Robotics ecosystem through the sharing of results and best practice.
Where appropriate, issues such as data access, data sovereignty and data protection should be addressed along the whole value chains, respecting all stakeholder interests, particularly SMEs.
The re-use and sharing of data collected and processed for AI and Data innovation should be encouraged to contribute to UN SDGs and the Green Deal (e.g.: sharing private data for the public good, B2G in addition to B2B; G2B data sharing may be identified, in view of helping businesses to increase sustainability and competitiveness).
Proposals should include dissemination activities to increase awareness about the potential value for society and people as well as the business of AI, data and robotics driven innovation.
Further information:
https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/horizon-cl4-2022-digital-emerging-02-05;callCode=null;freeTextSearchKeyword=;matchWholeText=true;typeCodes=;typeCodes=1,2,8;statusCodes=31094502;programmePeriod=2021%20-%202027;programCcm2Id=43108390;programDivisionCode=null;focusAreaCode=null;destination=null;mission=null;geographicalZonesCode=null;programmeprogrammeDivisionProspect=null;startDateLte=null;startDateGte=null;crossCuttingPriorityCode=null;cpvCode=null;cpvCode=null;performanceOfDelivery=null;sortQuery=startDate;orderBy=asc;onlyTenders=false;topicListKey=topicSstKey=topicSearchTablePageState

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21. /HORIZON EUROPE*/ 2D materials-based devices and systems for energy storage and/or harvesting (RIA), deadline: 16. November 2022 17:00 Brussels time

ExpectedOutcome:
Proposal results are expected to contribute to the following expected outcomes:
? Demonstrated added value of 2D materials (2DM) for energy storage devices and systems in applications where Europe can build competitive value chains.
? New technology solutions for portable energy sources outperforming alternative technologies e.g. in terms of energy and power density, operational safety, long-term stability, mechanical flexibility, light weight, thin thickness, and low cost that will enable the rapid development of power-demanding smart devices, Internet of Thing (IoT) sensors and wearable electronics.
Scope:
Proposals should develop solutions demonstrating the potential added value of 2DM-based energy storage like large energy storage technologies, beyond current Li-ion, for electric power grids/solar farms/wind farms with increased performances in terms of durability, safety, energy density and power density.
Proposals should also work on structural batteries and structural supercapacitors and related production techniques, i.e. energy storage devices integrated in structural parts of e.g. airplanes or cars, to address the demand of distributed sensors and electronics, functional printed micro-flexible supercapacitors for e.g. IoT applications.
Proposals addressing energy harvesting should investigate/establish proof of concepts/develop 2DM-based devices for energy conversion that can produce electricity in response to e.g. light, moisture, flowing liquid, friction, pressure force, or heat with unprecedented characteristics or unique functionalities.

Proposals should integrate the value chain and incorporate the relevant manufacturing technologies needed to bring the developed devices towards the market.
Proposals should include activities aiming at facilitating future exploitation of results.
Proposals should aim, by the end of the project, at validating technology in relevant environment (TRL 5).
The proposal should also cover the contribution to the governance and overall coordination of the Graphene Flagship initiative.
Further information:
https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/horizon-cl4-2022-digital-emerging-02-18;callCode=null;freeTextSearchKeyword=;matchWholeText=true;typeCodes=;typeCodes=1,2,8;statusCodes=31094502;programmePeriod=2021%20-%202027;programCcm2Id=43108390;programDivisionCode=null;focusAreaCode=null;destination=null;mission=null;geographicalZonesCode=null;programmeprogrammeDivisionProspect=null;startDateLte=null;startDateGte=null;crossCuttingPriorityCode=null;cpvCode=null;cpvCode=null;performanceOfDelivery=null;sortQuery=startDate;orderBy=asc;onlyTenders=false;topicListKey=topicSstKey=topicSearchTablePageState

22. /HORIZON EUROPE*/ Pushing the limit of physical intelligence and performance (RIA), deadline: 16. November 2022 17:00 Brussels time

ExpectedOutcome:
Proposal results are expected to contribute to at least one of the following expected outcomes:
? Robots with advanced physical functionalities, capabilities and efficiency (faster, safer, more agile and precise, etc.), to achieve wider variety of tasks efficiently. This includes beyond human capabilities (e.g. very large and very small scale capabilities or beyond human precision, or beyond human perception and decision making, for example by using multi-modal sensing).
? Robots with greatly improved intrinsically safe and efficient human-centric human-robot and robot-environment/objects physical interaction capabilities, at natural human speed or more.
? Robots with improved abilities and robustness, allowing them to adapt to changes in the environment, and making them more energy efficient in order to run autonomously for longer periods of time while maintaining trustworthiness and dependability.
Scope:
Proposals are expected to focus on technology and systems that significantly extend the physical capability of robots beyond the state of the art. Proposals should:
? Improve the physical performance of robots (for example: improving robustness and resilience - to handle environment variations and unknown or unexpected situations - and energy efficiency to run safely and autonomously for longer periods of time, increased speed, some operating under extreme physical conditions such as under water, rough terrain, difficult climatic conditions, in the body, in the air, etc.).
? Develop promising and innovative robotic concepts (e.g.: collaborative, modular and distributed, hyper redundant, highly reconfigurable, soft or miniaturised robotics) enabling adaptation to transformations of industry and society (including crisis), and in addition to examine design methods and tools for novel configurations and concepts.
Proposals should investigate novel scientific approaches or push the limit of existing ones to improve physical capabilities of robots relevant to industry and service needs in sectors where this is a barrier to uptake, such as innovative actuation principles (such as soft robotics, reconfigurable, hyper-redundant, modular robotics), or advance the field of miniaturised robotics, advanced control, improved hardware and increased trustworthiness and dependability (e.g. building on the latest results in mechatronics, advanced sensing and actuation, advanced materials, integrated and embedded systems for AI at the edge, neuromorphic computing).
Where relevant, proposals are also encouraged to embed, starting from the design stage, techniques, methods and tools that enhance the performance and interaction of robots in real world tasks where testability is limited and a "first time right" mentality must prevail; for example in space exploration, in dense urban envi2D-material-based composites, coatings and foams (IA)Personalised oncology: innovative

people centred, multi-modal therapies against cancerronments, when developing applications for vulnerable people, or in safety critical infrastructures such as nuclear reactors, pressure vessels or chemical storage tanks.
Proposals are expected to rethink robot bodies, with improved physical and interaction capabilities (with the environment and with humans taking into account gender, age and disabilities as appropriate) to reach novel or advanced abilities, such as powerful, fast, precise, and intrinsically safe navigation, manipulation, sympathetic automated adaptation, etc. capabilities. The shape and size of robots can vary from miniature to large-scale, from soft, to more rigid structure, from manipulators, to ground, air, marine, in-vivo, exoskeletons and wearable robots, etc. Such proposals could also propose innovative approaches in building on and integrating the latest developments in key underlying technologies, or by exploiting multimodalities (audio, vision, AR/VR, haptics, etc.), improved safety mechanisms, physical collaboration, collaborative and swarm robotics. In addition, proposals can address energy efficiency, to address the current limitation of energy autonomy in robotics. Proposals could also focus on advances in cognitive mechatronics, where sensing and actuation are closely coupled with cognitive systems to deliver improved autonomy, dexterity, control, motion quality, interaction (including all modalities), adaptation and learning, and safer systems.
Proposals should also take into consideration trustworthy AI principles, as appropriate.
Progress should be demonstrated by qualitative and quantitative KPIs, demonstrators, benchmarking and progress monitoring. Activities are expected to achieve TRL 4-5 by the end of the project.
When possible, proposals should build on and reuse public results from relevant previous funded actions.
Proposals should make use of connections to the Digital Innovation Hub networks, particularly those in Robotics, Data and AI. Full use should be made of the common resources available in the AI-on-Demand platform[1], Digital Industrial Platform for Robotics[2], data platforms[3] and, if necessary other relevant digital resource platforms. Communicable results from projects should be delivered to the most relevant of these platforms so as to enhance the European AI, Data and Robotics ecosystem through the sharing of results and best practice.
Further information:

https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-search;callCode=null;freeTextSearchKeyword=;matchWholeText=true;typeCodes=1,2,8;statusCodes=31094502;programmegrammePeriod=2021%20-%202027;programCcm2Id=43108390;programDivisionCode=null;focusAreaCode=null;destination=null;mission=null;geographicalZonesCode=null;programmeDivisionProspect=null;startDateLte=null;startte=null;startDateGte=null;crossCuttingPriorityCode=null;cpvCode=null;performanceOfDelivery=null;sortQuery=startortQuery=startDate;orderBy=asc;onlyTenders=false;topicListKey=topicSearchTablePageState

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23. /HORIZON EUROPE*/ 2D-material-based composites, coatings and foams (IA), deadline: 16. November 2022 17:00 Brussels time

ExpectedOutcome:
Proposal results are expected to contribute to the following outcomes:
? new multifunctional recyclable materials enabling solutions to environmental challenges.
Scope:
Proposals should address 2D materials (2DM) composites, aero-gels and foams that can bring the full nanoscopic functionality of 2DM from nano- and microscale into the macroscopic world. They should target in particular the development of 2D materials and technologies mainly addressing environmental issues including e.g. energy consumption reduction in transport, oil spill removal from water, water purification with low energy consumption and improved water desalination. They should also target the development of next generation, lightweight, recyclable composites and coatings endowed with key functionalities like e.g., high temperature performance, structural health monitoring, and as enablers for, e.g., structural batteries or hydrogen storage. They should also address Metal-2DM composites enabling ultralow friction surfaces, reducing energy loss in sliding mechanical and electrical parts and the development of 2DM foams enabling hydrogen economy through catalytic hydrogen generation and

storage. Proposals should also integrate the value chain and incorporate the relevant manufacturing technologies necessary to bring the developed devices towards the market.
Proposals must implement from the very beginning life cycle assessment (LCA) and end-of-life (EOL) materials management to fully capture the advantage and develop greener materials and processes.
Proposals should include activities aiming at facilitating future exploitation of results.
Proposals should aim at demonstrating by the end of the project fully functional material systems and prototype applications operating in relevant environment conditions (TRL 6-7).
The proposal should also cover the contribution to the governance and overall coordination of the Graphene Flagship initiative.
Further information:
https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/horizon-cl4-2022-digital-emerging-02-20;callCode=null;freeTextSearchKeyword=;matchWholeText=true;typeCodes=;typeCodes=1,2,8;statusCodes=31094502;programmePeriod=2021%20-%202027;programCcm2Id=43108390;programDivisionCode=null;focusAreaCode=null;destination=null;mission=null;geographicalZonesCode=null;programmeprogrammeDivisionProspect=null;startDateLte=null;startDateGte=null;crossCuttingPriorityCode=null;cpvCode=null;cpvCode=null;performanceOfDelivery=null;sortQuery=startDate;orderBy=asc;onlyTenders=false;topicListKey=topicStKey=topicSearchTablePageState

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24. /HORIZON EUROPE*/ Personalised oncology: innovative people centred, multi-modal therapies against cancer, deadline: 20. September 2022 17:00 Brussels time

ExpectedOutcome:
R&I actions to be supported under this topic shall contribute to all the following outcomes:
Platform, standards and regulatory
? A versatile and dynamically evolving platform for R&I collaboration across sectors, between academia and industry partners with a focus on the early stages of applied clinical research on cancer.
? Cancer healthcare pathway standards to enable personalised treatment and joint registries.
? Demonstration of how the benefits of health technology convergence can be harnessed in line with all relevant regulatory frameworks in Europe.
Improved multi-modal therapy
? Health innovations in cancer therapy through development, testing and validation of multi-modal therapeutic approaches including novel or emerging technical and clinical concepts and potentially supported by in vitro diagnostics.
? Personalised therapeutic options for cancer patients to improve outcomes, including shared information and integration of various specialised clinicians as well as shared decision-making for treatment and care.
? Improved active monitoring and adaptation of therapy through the patient journey, involving early-response biomarkers and evaluation of their predictive power and correlation to clinical outcomes, as well as more involvement of patients in the cancer patient journey.
Scope:
Different treatment modalities are available for various cancers, however, the differing biology of cancers as well as the differing efficacy of treatment modalities dictate rather patient-specific approaches. Multi-modal therapies have been shown to be of high value in this respect and there is a strong need to increase the therapeutic arsenal of such multi-modal therapies and to tailor the treatment approach to the individual patient.
The aim of this call topic is biomarker-guided multi-modal precision oncology based on imaging, phenotype, genomics, in vitro diagnostics, co-morbidities, clinical and real-world data.
Proposals should facilitate the development of new health technologies and integrate them with (possibly adapted) current therapy concepts, to create and explore multi-modal therapies personalised to the needs of the individual patient. Applicant consortia should pursue different therapeutic strategies and combine at least two cancer treating modalities1 (supported by a sound scientific rationale in the application).
The proposed R&I activities should include development of research protocols for multi-modal therapies expected to have a significant potential to create patient benefits. These protocols should be explored via

early clinical studies with sufficient sample size and statistical power to assess safety and efficacy and demonstrate feasibility of the chosen multi-modal approach.
Depending on the specific therapies to be studied and combined, the R&I activities should consider the clinical decision-making process aspect among the various disciplines involved. They should also include the evaluation of aspects such as the sequencing, timing and dosing of therapies to maximise treatment effects with minimal toxicity and normal tissue complications. It is expected that the use of prognostic and predictive biomarkers and the combination of diagnostic tools to plan and adapt treatment and evaluate treatment and the follow up of patients will be a key component of the proposed integrated healthcare solutions.
To overcome the barriers to cross-sectoral collaboration, proposals need to consider methodologies and standards for the combination of various technologies into integrated healthcare solutions. Furthermore, proposals should also consider the design and conduct of clinical studies of multi-modal therapies and methods to evaluate their safety and clinical benefits.
Proposals should include a description of how data will be generated, captured and stored, and how it will be used in line with the FAIR2 principles and sustained to promote collaboration among stakeholders. Proposals should enable secure, GDPR3 compliant and interoperable access of the data.
Expected Impact:
In addition to contributing to Europe's Beating Cancer Plan, the Mission on Cancer, the EU Industrial and Pharmaceutical Strategy, and implementation of the Sustainable Development Goals of the United Nations, the work supported under this topic will help to achieve several of the expected impacts from IHI specific objective 2: "Integrate fragmented health research & innovation (R&I) efforts bringing together health industry sectors and other stakeholders, focusing on unmet public health needs, to enable the development of tools, data, platforms, technologies and processes for improved prediction, prevention, interception, diagnosis, treatment and management of diseases, meeting the needs of end-users."
Specifically, it will do this by doing the following:
? Breaking down fragmentation between various disciplines of medicine and technological areas in order to conceive and develop technologically and socially innovative, people-centred, integrated healthcare solutions that can seamlessly be introduced in healthcare systems.
? Fostering the development of safe and effective innovative health technologies and their combinations thanks to new and harmonised approaches to data generation.
? Better and faster integration of future products, services and tools along the healthcare pathway responding to patients' specific needs and leading to improved health outcomes and patient well-being.
Moreover, the work supported under this topic will also contribute to some expected impacts from IHI Specific Objective 3: "Demonstrate the feasibility of people-centred, integrated health care solutions."
? Patients benefit from treatment and care better adapted to their needs through improved diagnostics, prognosis and monitoring their quality of life while on and beyond treatment.
? Integrated health care solutions, including those based on the use of digital solutions, better responding to the needs and preferences of patients and healthcare providers through an inclusive approach.
? Successful implementation of digital solutions supporting people-centred care.
Further information:
https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/horizon-ju-ihi-2022-01-03;callCode=null;freeTextSearchKeyword=;matchWholeText=true;typeCodes=1,2,8;statusCodes=31094501,31094502,8;statusCodes=31094502;programmePeriod=2021%20-%202027;programCcm2Id=43108390;programDivisionCode=null;focusAreaCode=null;destination=null;mission=null;geographicalZonesCode=null;programmeDivisionProspect=null;startDateLte=null;startDateGte=null;crossCuttingPriorityCode=null;cpvCode=null;performanceOfDelivery=null;sortQuery=startDate;orderBy=asc;onlyTenders=false;topicListKey=topicSearchTablePageState

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25. /HORIZON EUROPE*/ An innovative decision-support system for improved care pathways for patients with neurodegenerative diseases and comorbidities, deadline: 20.

ExpectedOutcome:
R&I actions to be supported under this topic shall contribute to the following outcomes:
? A (sustainable) re-usable, interoperable, easily adaptable, and scalable digital platform, capable of translating a heterogeneous and fragmented set of complex measurable and analysable health data elements into a clinical-decision-support system that can guide patients to better health and quality of life. Initially designed for patients with neurodegenerative diseases and comorbidities, the platform's easy adaptability ensures its re-use in other health areas for the benefit of healthcare professionals, patients, families, and carers, thereby promoting its wider use.
? A sustainable framework for collaboration across specialities and all relevant stakeholders to foster social innovation to decrease the burden on patients, families, and carers and to develop models to incentivise/maintain collaboration and ensure feasibility of future implementation.
? Effective and agreed standards and guidelines that support both data collection and all operational features of the digital platform enabling health technology developers to create efficient clinical decision support systems for a more patient-centric and optimised delivery of healthcare interventions. Healthcare professionals/providers use these solutions leading to improvements in the healthcare pathways.
? Enhanced, and more reliable tools and methods (e.g., analytical tools and algorithms) able to provide (near) real time feedback on health interventions, including on the usability, efficacy/effectiveness, and the long-term safety of health technologies. Together, these enable healthcare professionals and providers to make more inclusive and efficient patient-centred decisions that, additionally, can aid the development of predictive simulation tools and models.
? Enhanced clinical interpretation of multi-modal, multi-parametric data including socio-economical, which influence variations in the status of the patient with neurodegenerative disease and the required levels of care. This will be benefitting the patients, as a more person-centric treatment and care, and the healthcare providers as optimised allocation of resources, and prediction of how patients' needs will change due to their co-morbid condition or other precipitating medical factors.
Scope:
Neurodegenerative disorders represent a high societal burden impacting patients, their families, and public healthcare systems. Patients with a neurodegenerative disorder frequently display at least one comorbidity, which together with the observed polypharmacy creates a highly complex system that needs better understanding to optimise current care pathways. Recent developments give grounds for cautious optimism that a disease-modifying therapy is on the horizon. However, the high disease prevalence, and the complex evaluation process when such a therapy becomes available, will create challenges for already over-burdened healthcare systems. This will increase the demand for and importance of diagnostic and digital solutions that can drive the related clinical pathways and optimise and personalise care delivery.
The primary objective of this topic is to develop a decision-support system to enhance medical decisions with targeted clinical knowledge, patient information, and other health information for a more holistic (better integrating diagnosis, treatment and care and breaking silos across specialities) approach to managing and treating patients with a neurodegenerative disease and a comorbid condition, addressing the needs of today, while creating preparedness for a future paradigm-shift in treatment.
In their proposal, applicants should formulate how to best achieve all the outcomes/outputs of this topic, also describing the expected actual improvement in care and treatment outcomes and reflecting on aspects of implementation into routine care and sustainability, that are barriers to developing and distributing/delivering innovations. This should be preceded by a key stakeholder mapping to grasp the relevant players within this ecosystem and build and leverage as much as possible upon already available resources and learnings.
Proposals should address a patient population with a neurodegenerative disease where there is evidence of the importance of comorbidities in their healthcare pathways and on patient quality of life. The choice of the comorbidity should consider the burden for patients, carers and families, and the availability of medical technology-generated data. Cancer is out of scope.
Applicants should develop a (sustainable) re-usable, interoperable, and scalable digital platform, to safely and efficiently collect, curate, store, share, access, integrate and analyse multimodal longitudinal, dynamic health data generated within and outside the healthcare setting.

This will require breaking existing data silos across different medical specialities to allow the dynamic flow of information on the concomitant conditions and their interplay to improve the selection of the best possible care pathways, and patient adherence.
Data may include medical/laboratory data, automatically collected data, omics data, medical device data, treatment modality/intervention-type data, real-world evidence, including medical condition and lifestyle-related data collected via e-health solutions, smart devices, wearables, medical grade sensors and other patient self-reported data. Data on contextual information, for example on the socioeconomic environment as well as professional and informal caregivers (like availability, roles, interprofessional cooperation, interaction with the patient/client), the setting and organisation of care, staffing, and payment models, should be considered to enrich the dataset informing decision, as well as data from patient registries. Current European activities on digital health and care should be considered when relevant1. The patient perspective and notably their quality of life, will need to be sufficiently considered including via patient-reported experiences and outcomes measurements (PREMs; PROMs). The perspective of families and carers should be also included.
Applicants should consider leveraging relevant large datasets that are already available at national and / or European level.
Ensuring data quality will be of paramount importance. In addition, applicants should ensure trustworthy and safe sharing of patient data through 'privacy and security by design'. They should also give ample consideration for the control of data reuse by patients and healthcare professionals, for example by the implementation of 'FAIR' data principles and a suitable data governance structure.
The platform should build on suitable existing platforms or elements thereof (for example specialised research infrastructures, including those developed by IMI projects) with proven efficiency and interoperability, complying with European privacy and security requirements and enabling integrated workflows of data management, curation, and analysis to amplify the intrinsic value of the datasets. Its design should allow for future expansion as well as continuous updates in a secure environment, plus potential integration with other platforms and easy adaptation for use in other health areas.
Advanced analytical and workflow tools (including artificial intelligence (AI)-based) and, where relevant, predictive simulations should be proposed which enable improved analysis of the integrated patient data in combination with clinical insights and expertise to optimise best practice guidelines, support better clinical decision-making and assessment of outcomes for optimised care pathways, bespoke to the patient and the healthcare system.
Applicants should also consider how the proposed solutions could be part of integrated community-based health and social services that optimise independence, quality of life and the wellbeing of the individual, including when relevant behavioural changes, while decreasing the burden on families and carers.
Applicants providing data as part of their applications should include in the proposals evidence that all legal, ethical, and intellectual property permissions are in place to ensure the availability of the data to the consortium.
Expected Impact:
The following impacts are expected:
? Enhanced cross-sectoral collaboration between healthcare industries, academia, and all relevant actors of the healthcare ecosystem (including patients and their organisations, carers, regulators, healthcare professionals/ providers), enabling exchange of resources beyond data (such as analytical tools, material for training and professional development of personnel).
? Earlier and more precise diagnosis, more clinically effective interventions, better patient adherence, and reduced hospitalisation (reduction in re-admission/period of hospitalisation).
? A patient stratification able to better predict clinical outcomes to support the development of more patient-adapted interventions / therapeutics including that of potential emerging disease modifying therapies.
? Better patient clinical outcomes and improved patient experience for patients with neurodegenerative diseases.
? More cost-effective and better prepared care pathway management for patients with neurodegenerative diseases.

? Contribute to the 'European Health Data Space1 by promoting better exchange of, and access to, different types of health data and data generated by health technologies (through FAIR principles: findable, accessible, interoperable, and re-usable) for the benefit of European citizens, health researchers and health policy makers.
Further information:
https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/horizon-ju-ihi-2022-01-01;callCode=null;freeTextSearchKeyword=;matchWholeText=true;typeCodes=1,2,8;statusCodes=31094502;programmePeriod=2021%20-%202027;programCcm2Id=43108390;programDivisionCode=null;focusAreaCode=null;destination=null;mission=null;geographicalZonesCode=null;programmeDivisionProspectionProspect=null;startDateLte=null;startDateGte=null;crossCuttingPriorityCode=null;cpvCode=null;performanceOfDelivery=null;sortQuery=startDate;orderBy=asc;onlyTenders=false;topicListKey=topicSearchTablePageState

26. /HORIZON EUROPE*/ Next generation imaging and image-guided diagnosis and therapy for cancer, deadline: 20. September 2022 17:00 Brussels time

ExpectedOutcome:
The proposals are expected to focus on image-based cancer diagnosis, prognosis, treatment planning and therapy. Project results must contribute to all of these expected outputs and outcomes:
? Expanded use of cancer patient imaging data sources, with improved data quality, annotation and computability, contributing to solutions that automatically link images to clinical data to improve diagnostic, staging, predictive and therapeutic tools for clinicians, including image-guided tools.
? Robust evaluation and validation frameworks for AI/ML-based algorithms applied to cancer patient images, to improve image-guided diagnosis, prediction of therapy outcome, planning and therapy of cancer patients.
? Healthcare professionals across Europe get access to advanced, easy-to-use solutions for minimally invasive interventions, guided by medical imaging for monitoring disease progression or treatment response, in combination with biomarkers and other relevant data.
? Improved image-driven planning and predictive tools that enable healthcare providers to facilitate diagnosis, treatment, and follow-up to improve patient outcomes.
? Novel, continuously self-learning, trustworthy, explainable AI/ML-enabled image guided diagnosis, therapy planning, and interventional systems used in clinics/hospitals and possible related benchmarks.
? Demonstrated added-value for end-users such as patients and carers, healthcare professionals, national health systems, and healthcare providers in using next generation imaging and image-guided diagnosis and therapy solutions for cancer.
? Enable seamless and successful further development of the concepts and solutions developed, leading to integrated products and services delivering proven benefits to patients, carers, healthcare systems and society as a whole.
Scope:
The specific challenge to be solved by this call topic is to provide early evidence of improved cancer patient care when using next-generation imaging technologies and image-guided solutions as part of combined cancer therapies. An optimised image-based care path from early diagnosis and screening to treatment and follow-up is essential to improve the outcome of cancer patients and help optimise clinical workflows and cancer patients' journey.
Innovative solutions in cancer diagnosis, therapy planning, interventions and outcomes can be achieved by pooling, linking, and using existing cancer patient imaging and other relevant data for the development of robust AI/ML-based algorithms and enhancing of image-guided tools in clinical settings. A key point underpinning the use of AI and ML in the fight against cancer is access to high quality data. Furthermore, there are limited recognised validation and performance evaluation frameworks for AI/ML-based diagnostic algorithms.

Within the framework of the European Cancer Imaging Initiative1 and building on the results of other relevant research projects, the proposal should enable secure, General Data Protection Regulation (EU GDPR) compliant and interoperable access to cancer imaging data sources for the purpose of developing and/or enhancing new innovative features of AI/ML-enabled tools used for diagnosis, prognosis, therapy planning, intervention, and follow up. Proposals should also focus on understanding challenges and propose sustainable solutions to close gaps in algorithm validation and algorithm evaluation in the context of developing AI/ML-based tools for cancer diagnosis and outcome prediction.
The proposal should aim to improve AI/ML-enabled imaging and image guided solutions in order to assist and guide clinicians during diagnosis, staging, patient monitoring, therapy planning, intervention and follow-up. Where appropriate, proposals should demonstrate novel ways to interact with the imaging data. The driving principle must be improving and enhancing image-based diagnosis and therapy, e.g. through automated image interpretation and segmentation, quantitative disease assessment, intuitive treatment planning and smart guidance both during treatment itself and in post-treatment monitoring of response to therapy, to enable more efficient patient-centric diagnosis/therapies/interventions and better patient outcomes.
The proposed research and innovation (R&I) activities should result in simplified clinical workflows, for instance through enhanced or complementary robotic-assisted procedures, thus resulting in more precise therapeutic and interventional procedures for patients, reduced workload on staff, a reduction in therapy planning and intervention time, and shorter recovery times/hospital stays.
Expected Impact:
? Patients benefit from improved diagnostic and therapeutic procedures and innovations better adapted to their individual health condition, while meeting the needs of the healthcare system.
? Contributing to the development of high-quality tools, high-quality data, advanced patient imaging and image-guided technologies and processes for improved early diagnosis, prognosis, staging, intervention planning, therapy and management of cancer and long term follow up.
? Including next-generation imaging technologies and image-guided solutions as part of combined cancer therapies (e.g., theranostics, chemotherapy, targeted therapy including immunotherapy, radiotherapy and/or surgery) through seamless integration of tools, data and algorithms into the care pathways.
? Enabling the development of improved artificial intelligence (AI) and machine learning (ML) validation and evaluation methodologies for imaging and image guided diagnosis and image-guided therapy for cancer.
? Better informed decision-making at different levels of the healthcare system that will in turn contribute to a better allocation of resources towards cost-effective innovations.
? Contributing to the objectives of Europe's Beating Cancer Plan and to the Horizon Europe Mission on Cancer and the initiatives in the Digital Europe Programmes.
Further information:
https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/horizon-ju-ihi-2022-01-02;callCode=null;freeTextSearchKeyword=;matchWholeText=true;typeCodes=1,2,8;statusCodes=31094502;programmePeriod=2021%20-%202027;programCcm2Id=43108390;programDivisionCode=null;focusAreaCode=null;destination=null;mission=null;geographicalZonesCode=null;programmeDivisionProspectionProspect=null;startDateLte=null;startDateGte=null;crossCuttingPriorityCode=null;cpvCode=null;performanceOfDelivery=null;sortQuery=startDate;orderBy=asc;onlyTenders=false;topicListKey=topicSearchTablePageState

27. /HORIZON EUROPE*/ Access and integration of heterogeneous health data for improved healthcare in disease areas of high unmet public health need, deadline: 20. September 2022 17:00 Brussels time

ExpectedOutcome:
Proposals under this topic should aim to deliver results that contribute to all of the following expected outcomes for a specified disease area of high unmet public health need1:
? Researchers, including industry stakeholders, have long-term access to diverse data at scale, enabled by the linkage and integration of novel and cross-sectoral sources, including industry sources. If possible, some of these data should be able to be used for providing evidence to support regulatory decision-making.
? Researchers, including industry stakeholders, have long-term access to new tools that enable the integration and analysis of these data. If possible, some of these tools should be able to be used for providing evidence to support regulatory decision-making.
? Citizens, including patients, are given user-friendly, interoperable tools to access their own health data from different sources to support disease self-management and empower joint health care professional - patient decision making.
? Health care professionals and healthcare providers2 have access to integrated data from diverse sources and clinical (and other) decision support systems to deliver better healthcare services to patients and populations in the most suitable and efficient manner.
Scope:
Over the past few years, there has been an explosion in the generation of data that could be harnessed for use in healthcare delivery and research. These data include data generated by digital technologies and patient reported outcome and experience measures, as well as data from clinical trials and routine clinical care. However, accessing, integrating & analysing these data to maximise the value for patient care and research is extremely challenging.
This topic aims to provide a scalable platform for the seamless integration or linkage of these diverse data at scale, and develop tools to allow the data to be used in clinical care, patient self-management and research in disease areas of high unmet public health.
For their proposed activities applicants should clearly identify a disease area of high unmet public health need1 taking into account comorbidities and/or functional status, and explain their choice with empirical evidence where possible.
? Develop / further develop a scalable, open platform for the seamless integration or linkage of data at scale from diverse public and private data sources relevant to the disease area selected. These data sources should, as a minimum, include all of the following: clinical trials; registries; patient safety data; routine clinical care; publicly available health insurance data; patient reported outcome and experience measures; and data generated by digital technologies such as sensors, wearables and mHealth apps. Preferably, projects should also integrate data that has not usually been used before for the purpose of medical decision-making.
? Develop / further develop tools focused on the needs of patients, leveraging these diverse data sources to support patient self-management and empower joint healthcare professional - patient decision making.
? Develop / further develop clinical (and other) decision support systems leveraging these diverse data sources to allow clinicians to deliver better healthcare services to patients in the disease area selected.
? Demonstrate the added value of the platform and tools compared to current approaches through a use case (study) applied to the disease area selected.
? Demonstrate the widespread applicability and scalability of the platform & tools using data sources from outside of the project
? Publish sufficient information, including access protocols, on the data that has been used in the project to facilitate long-term access and re-use, while ensuring compliance with the General Data Protection Regulation and other relevant European legislation.
Applicants should also aim to deliver the following:
? Public release of a set of minimum technical requirements for the developed platform/tools that includes interoperability, connectivity, data protection, cybersecurity and authentication/identification requirements that need to be met to allow the efficient integration of additional data from new devices/sensors/sources into the decision-support system after the project ends.
? Sustainable, ideally open-source tools that help ensure the quality and FAIRness[1] of data at source (e.g., automated tools to help data entry, semantic coding, and data management in particular in registries

and databases maintained by healthcare professionals/providers and research institutions) as well as methodologies, quality standards and metrics to assess data quality.
? Sustainable tools to increase cross-border and cross-sector interoperability of health data from the diverse sources mentioned above. Ideally, these tools use open exchange formats and take into account relevant EU initiatives including the eHealth Digital Services Infrastructure (eHDSI)2 and the European Electronic Health Record Exchange Format (EEHRxF)3
? Sustainability plan/business model to ensure the long-term impact of the project results.
Other considerations:
? Applicants should build on clearly identified existing tools & platforms where possible, and ensure that the platform and tools developed can be applied to other disease areas or be relevant for other scientific and clinical communities (i.e. ensuring interoperability with other solutions). If applicants choose to develop a new data platform, a strong justification must be provided.
? Applicants must demonstrate that they have access to sufficient diverse data, including from industry sources, to meet the objectives of this topic. The data sources (name & country), types, and size must be described in the proposal alongside convincing evidence that the consortium will have access to these data for the project implementation.
? During their activities, applicants should ensure appropriate engagement of the end-users of the developed tools, especially patients and healthcare professionals.
? Applicants are expected to explore the integration of the outputs with the European Health Data Space (EHDS)4 when it becomes operational, and explore synergies with other relevant health data initiatives and projects.
Expected Impact:
This topic aims to achieve the following:
? Better and faster integration of future products, services and tools along the healthcare pathway, responding to patients' specific needs and leading to improved health outcomes, patient safety and patient well-being.
? Wider availability of interoperable, large scale, quality data, respecting FAIR principles1 facilitating research and the development of integrated products and services.
? Advanced analytics/artificial intelligence (AI) supporting health research & innovation, resulting in:a) clinical decision support for increased accuracy of diagnosis and efficacy of treatment;b) wider availability of personalised health interventions to end-users;c) better evidence of the added value of new digital health and AI tools, including reduced risk of bias due to improved methodologies.
Further information:
https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/horizon-ju-ihi-2022-01-04;callCode=null;freeTextSearchKeyword=;matchWholeText=true;typeCodes=1,2,8;statusCodes=31094502;programmePeriod=2021%20-%202027;programCcm2Id=43108390;programDivisionCode=null;focusAreaCode=null;destination=null;mission=null;geographicalZonesCode=null;programmeDivisionProspect=null;startDateLte=null;startDateGte=null;crossCuttingPriorityCode=null;cpvCode=null;performanceOfDelivery=null;sortQuery=startDate;orderBy=asc;onlyTenders=false;topicListKey=topicSearchTablePageState

28. /HORIZON EUROPE*/ Cardiovascular diseases - improved prediction, prevention, diagnosis, and monitoring, deadline: 20. September 2022 17:00 Brussels time, 1. Phase

ExpectedOutcome:
The results of the selected project will provide the basis for better primary and secondary prevention of CVD. The goal is to identify existing comprehensive CVD and heart failure (HF) patient datasets (with contextual parameters e.g., behavioural, socioeconomic, gender, ethnicity) and integrate them with data from diagnostic tools (e.g. wearables, imaging devices, bio samples / biopsies) and routine clinical practice. This will provide the basis for independently validated prediction models for improving the stratification of

patients, and reveal insights to achieve earlier intervention. Additionally, the project will leverage developed algorithms to define and validate care pathways that tailor therapy towards individual patient needs and compare it to the "one-size-fits-all" approach.
This project is expected to achieve all of the following outcomes:
? Identification of relevant data sets, for instance derived from classical diagnostic screening; in-vitro diagnostics; 'multi-omic' platforms (comprising genomic, transcriptomic, proteomic and multimodality imaging data, most preferably with multiple timepoint assessments to ascertain the directionality and dynamics of relevant changes); continuous glucose monitoring (CGM) data, continuous electrocardiogram (ECG) data from wearables. In addition HF and activity data, wearable devices, digital health applications and routine clinical practice.
? Leverage data in currently available federated databases with 'open access' generated during, for example, IMI1/IMI2 projects in compliance with GDPR (General Data Protection Regulation), such as results/data/biomarkers/electronic health records provided by project participants, adding to the knowledge base.
? Demonstration of the utility of biomarker combinations including data from different modalities e.g., wearables, smart (acute or chronic) care setting devices, imaging/screening for the diseases and comorbidities.
? Based on existing biomarker combinations, determination of whether new biomarkers are needed for detecting patients at risk.
? Developed and/or evaluated artificial intelligence (AI) models that, using data from various sources, can identify patient subgroups who require and respond differently to the prevention and/or treatment of atherosclerotic cardiovascular disease (ASCVD) and HF in clinical practice.
? Identification of previously undiagnosed subgroups of ASCVD and HF patients, for instance people with insulin resistance, diabetes, and obesity, into clinically meaningful subgroups.
? Documentation and analysis of patient preferences regarding information, diagnosis and treatment of CVD, as well as requirements and preferences of individuals to share their data.
? Integration of patient data (e.g. via a federated database concept) to enable a holistic overview of specific patient groups to enable more effective and efficient disease management and execution of screening programmes and individual treatment tailoring.
? Inclusion of validated patient reported outcome and experience measure (PROMs and PREMs) data including biophysical, mental and psychosocial parameters with the aim of using it in a clinical setting. This may include, but is not limited to, measures on quality of life, sleep quality, physical activity, emotional stress, satisfaction with treatment, healthcare service experience.
? Leveraging developed algorithms/decision trees to define and validate care pathways that tailor therapy towards individual patient needs and compare them to the "one-size-fits-all" approach.
? Sustainability of relevant results and data repositories.
? Identification of incentives that reward positive health behaviour and motivate consistent and continuous data generation especially when health status has changed.
? Utilisation of the knowledge gained from the project to facilitate and guide better prevention, considering the patient perspective.
? Data collection in the patient population with type 1 diabetes that historically has been excluded from clinical trials. Identifying the highest-risk individuals (in the paediatric, adolescent and adult populations, among others) to aim for more intensive contemporary CVD risk lowering agents (such as glucose, lipid and blood pressure lowering), and other, ideally personalised, cardioprotective adjunct therapies could help reduce the burden of CVD and contribute to improving outcomes in type 1 diabetes.
? Data collection in patient populations with other (genetically defined) predispositions to CVD and HF, that historically have been excluded from clinical trials. Identifying the highest-risk individuals could contribute to improving the outcomes in people with obesity, type 2 diabetes or (genetic) predisposition to CVD/HF.
Scope:
The overall aim of the project is to provide tools for the earlier diagnosis of atherosclerosis and heart failure as well as earlier identification of patients at risk. This includes biomarker or predictive algorithms to assess changes in risk and stratify patients according to individual responses to therapeutic intervention. Currently, patient data from various sources such as devices, intake forms, and diagnostic

and exploratory tests are not integrated or monitored to give a complete understanding of the patient's disease state. Integration of these data sets, e.g. by a federated database, and its accessibility to healthcare providers and researchers will provide better understanding to help detect, monitor, and treat ASCVD and HF. The selected project should clearly outline their approach for data capture, storage and sharing, for instance data federation, or an open, centralised database architecture. The proposed data management strategy should be sustainable, seek synergies with other relevant projects, and align with the FAIR principles1. To fulfil this aim, the selected project should:
1. Increase our understanding of the initial hallmarks of disease, which will allow for a better identification of individuals at risk for ASCVD and HF at a young age, and the creation of a clinical risk profile based on a multi-omic approach (e.g. genetic markers, transcriptomics, proteomics, and in depth multimodality imaging data) in adolescents who have either genetic and/or enrichment of specific endpoint associated risk factors (obesity, chronic kidney disease, type 1 diabetes, type 2 diabetes, genetic preponderance for HF and increased atherosclerosis).
2. Generate and validate a risk model better than currently used risk engines such as SCORE, by evaluating whether and to which extent risk factors identified in large prospective CVD primary prevention cohorts are predictive in a secondary prevention setting. The data from surrogate markers such as imaging, electronic health records (EHR), and predictive markers (plasma based multi- omics), as well as data from wearables, will generate a more refined risk engine.
3. Outline the extent to which social, ethical, and regulatory implications can be considered and quantified in the new risk models and gauge the potential additive value of data generated by wearable devices in current healthcare systems. Outline the extent to which regional and legal issues have an impact, and what models and methodologies can be used to examine this. Moreover, as the risk-benefit of wearable derived data will be ascertained in individuals who are likely to be frontrunners in the adoption (i.e. people with type 1 diabetes and people with a (genetic) risk for premature atherosclerosis and/or HF), the project should include behavioural elements to be analysed to provide suggestions to increase adoption in other populations.
4. Model short- and long-term economic and public health morbidity and mortality benefit/risk assessments of therapeutic intervention in people at risk with the new risk models to prevent or delay onset of CVDs.
5. Develop a decision tool that will allow a physician to select the intervention to best address ASCVD and HF in an individual patient. The tool will provide a risk-benefit profile, helping the physician and the patient in a decision-making process, integrating also patient reported outcome and experience measure (PROMs and PREMs) data.
6. Explore possibilities for novel methods of clinical development and trial execution. Based on learnings about risk prediction and pathophysiological modelling, novel surrogate endpoints may be considered for a risk-based cardiovascular outcome trial approach. The project generated from this topic could provide an exploratory and interactive platform to discuss the validity of novel methods of evidence generation, such as the use of data from wearable devices. The project should pave the way to transform the rather static phase 3 clinical trial approach into a more agile (more inclusive/enriched patient population, faster, cost-effective etc.) and sustainable part of clinical development. Specifically, the project should engage in the Regulatory Science Research Needs initiative, launched by the European Medicines Agency (EMA), assessing the utility of real-world healthcare data to improve the quality of randomised controlled trial simulations (H2.3.3). During the COVID-19 pandemic, the world has experienced a transition to virtual and remote care as more and more patients connect with their health care teams online. This presents an enormous opportunity and benefits for patients. A pathway forward could be to through use of real-world evidence (RWE) data to address sex, ethnicity and race disparities in cardiovascular outcome trials and better promote CV management.
Expected Impact:
Cardiovascular disease (CVD) remains one of the leading causes of death globally and, as such, has a major impact at a personal, societal, and economic scale. Over 60 million people in the EU live with CVDs, at an economic cost of EUR 210 billion annually.
CVD risk assessment is not fully implemented in many clinical practices across Europe1 and treatment of CVD is commonly practiced as with a "one size fits all" approach, meaning that all patients are treated with

a standard medical regimen regardless of risk level. The prevalence of well-established CVD risk factors such as obesity, diabetes, and chronic kidney disease is rising, and combined with an ageing population in Europe, the urgency for a more personalised approach to cardiovascular risk assessment becomes evident.
The generation of a personalised risk-benefit approach, based on data derived from transcriptomic, proteomic and multimodality imaging studies, combined with data from electronic interventions via CE certified wearable devices, such as smartwatches or activity trackers, as well as routine clinical data from medical devices, will contribute to all of the following impacts:
? Accuracy of diagnosis and efficacy of treatment will increase thanks to an individualised sub-phenotype-risk approach which will allow for risk-focused targeted therapy.
? Patients will be empowered and encouraged to take control over their health by accessing an integrated overview, including biometric data derived from wearables, of their health information, which can also be used for a more informed dialogue with their healthcare provider(s).
? Early diagnosis of CVDs, combined with better understanding of the mechanisms involved, will lead to the development of more cost-effective strategies, and the identification of new care pathways.
Further information:
https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/horizon-ju-ihi-2022-02-01;callCode=null;freeTextSearchKeyword=;matchWholeText=true;typeCodes=1,2,8;statusCodes=31094502;programmePeriod=2021%20-%202027;programCcm2Id=43108390;programDivisionCode=null;focusAreaCode=null;destination=null;mission=null;geographicalZonesCode=null;programmeDivisionProspectionProspect=null;startDateLte=null;startDateGte=null;crossCuttingPriorityCode=null;cpvCode=null;performanceOfDelivery=null;sortQuery=startDate;orderBy=asc;onlyTenders=false;topicListKey=topicSearchTablePageStateOfTopicSearchTablePage

29. /HORIZON EUROPE*/ Setting up a harmonised methodology to promote uptake of early feasibility studies for clinical and innovation excellence in the European Union, deadline: 20. September 2022 17:00 Brussels time, 1. Phase

Scope:
The incremental development of innovative / breakthrough health technologies takes a long time, during which an innovation will have to successfully go through a process of testing and evidence generation before it can be launched.
As part of this process, early feasibility studies provide the opportunity to capture relevant additional information for the intended use from the real-world setting that would not be possible in non-clinical studies (i.e. bench testing and animal studies) at a very early stage. EFS can make it possible to optimise design and gain necessary information before running a large clinical investigation.
Even if it is legally possible to undertake EFS in the EU, such studies are not yet widely used. Indeed, most EFS are run today outside of the EU, and primarily in the United States1.
This means that the EU may be at risk of losing out on an important opportunity to attract clinical research and further investments in innovation development to the region.
This topic seeks to develop and validate a methodology for EFS that is compliant with EU regulations, including a working methodology, easily accessible online, with information on how to undertake such studies, the process and requirements to follow and fulfil.
It also aims to bring together the relevant stakeholders that could have an interest in EFS and to facilitate use-cases where technologies would run the newly developed EFS methodological framework in order to test it and recommend any adjustments to be made to the methodology.

The project would entail the following:

? Research & analysis, including a review of existing international, EU and national guidelines, standards and best practice experiences. This would also include a survey of potential current gaps, barriers and challenges to undertaking EFS in the EU, taking into account the interplay between the different relevant current and future EU regulations.
? Development of an EU methodology for EFS
? The methodological framework would include:i) definition and scope, including legal considerations;ii) the place of EFS in the development pathway of health technologies and when there is an added value for EFS;iii) the type of data required to conduct an EFS (technical data, preclinical data, number of patients, etc.);iv) process evaluation, methods and tools, including statistical tools adapted to the analysis of EFS results, and tailored to the needs and specificities of different health technologies, including digital and mobile health technologies;v) the contribution of EFS to making more patient-centred devices;vi) the contribution of EFS to the development of training plans for healthcare professionals that would in turn improve the use of devices.
? Recommendations for best practices, addressing also ethical aspects from the outset, and contractual elements.
? Development of a sustainable, freely-accessible online portal, hosted and maintained by the consortium, which would act as a repository for the methodological framework and the best practices, and which would facilitate interactions between stakeholders with an interest in EFS.
? Facilitate the creation of a sustainable stakeholder network at national and EU level
? The network would promote the conduct of EFS and continue to gather experience from subsequent studies where appropriate and relevant to inform the EU EFS methodology.
? Target groups include patient organisations and representatives, healthcare professionals, research institutions and hospitals, health technology developers, including SMEs, regulators, and HTA bodies.
? The selection of dedicated use-cases to inform, refine and validate the framework
? The purpose of selected use-case technologies will be to undertake an EFS in the EU, whilst applying the methodology developed by the selected project, in order to test the methodological framework and evaluate the benefits for the conformity assessment process and patient access.
? Learnings acquired on the use-cases will be used to adapt and finalise the methodological framework, and, where necessary, the blueprints and templates.
? During the project execution, the consortium will define specific criteria and processes to determine which use-cases can be selected. Indicators of success will be developed and defined within each pilot trial, to compare it to other trials, and used as potential stop criteria.1 US National Library of Medicine, ClinicalTrials.gov. Out of the 300 EFS referenced, only 8 are conducted in Europe as per September 2020.
Expected Impact:
By setting up a harmonised EU methodology to promote the uptake of early feasibility studies (EFS)1, this topic will improve patients' access to health technologies, including digital technologies, support technological innovation, and contribute to a smoother development process for these health technologies. As such it will contribute to all the following IHI scientific, technological and economic expected impacts:
? Improve quality of clinical evidence on health technology innovation generated through earlier clinical experience obtained in the development process from an EFS.
? Facilitate uptake of early feasibility studies in health technology development, including for digital technologies.
? Increase the attractiveness of conducting clinical research and trials for healthcare technologies in the EU, including for SMEs, spin-offs and start-ups.
? Enable faster translation of health technology innovation into practice with increased access to treatment for patients, especially those with medical conditions that have limited or no alternative therapeutic options.
Better refined patient populations, their carers or patient representatives, and strengthened understanding of disease management and functional impairments, and treatment options.
Further information:

https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/horizon-ju-ihi-2022-02-02;callCode=null;freeTextSearchKeyword=;matchWholeText=true;typeCodes=1,2,8;statusCodes=31094502;programmePeriod=2021%20-%202027;programCcm2Id=43108390;programDivisionCode=null;focusAreaCode=null;destination=null;mission=null;geographicalZonesCode=null;programmeDivisionProspectionProspect=null;startDateLte=null;startDateGte=null;crossCuttingPriorityCode=null;cpvCode=null;performanceOfDerformanceOfDelivery=null;sortQuery=startDate;orderBy=asc;onlyTenders=false;topicListKey=topicSearchTablePageSrchTablePageState

30. /HORIZON EUROPE*/ Fostering balanced brain circulation - ERA Talents, deadline: 15. November 2022 17:00 Brussels time

ExpectedOutcome:
The ERA Talents action aims to boost interoperability of careers and employability of research and innovation talents across sectors, with a centre of gravity in widening countries. Projects are expected to contribute to several of the following outcomes:
? Strengthened human capital base in R&I of Widening countries, with more entrepreneurial and better-trained researchers, innovators and other R&I talents;
? A more balanced talent circulation, both geographical and cross-sectoral;
? Boosted R&I capacity and R&I support capacity, as well as contribution to increased excellence of the research-performing organisation in widening countries;
? A more structured and impactful collaboration between academia and businesses;
? Increased set of research, entrepreneurial and other transferable skills and competences;
? Improved employability and sustainable career prospects of diverse talents within academia, industry and beyond.
Scope:
Cross-sectoral talent circulation and academia-business collaboration for knowledge transfer is requiring systematising and structuring efforts. Through ERA4You, as one of the ERA Policy Actions[1], the European Commission aims to support and incentivise such transformations, towards a more balanced circulation of talents, both trans-nationally and across sectors. Within this scope, ERA Talents aims to support training and mobility of researchers, innovators, and other research and innovation talents across sectors with a particular focus on widening countries. The grant covers expenses related to the ERA Talents participating organisations and individual talents hosted/seconded (administrative costs, training costs, travel and subsistence costs and salaries for seconded staff, and costs associated with dissemination & communication and transfer of knowledge).
Experimentation. Complementary to ERA Chairs, Excellence Hubs, ERA Fellowships and MSCA Staff Exchanges, the ERA Talents scheme promotes innovative inter-sectoral collaboration in research and innovation through cross-sectoral exchange of staff, with a focus on widening countries. This call particularly encourages experimentation by diverse and heterogeneous consortia in order to develop best practices for intersectoral talent circulation at the benefit of widening countries. Grants awarded under this topic will be invited to collaborate with each other and participate in mutual learning exercises.
Intersectoral mobility. Actions are invited to develop activities in view of realising one or more of the following European Commission's objectives regarding intersectoral mobility. The European Commission aims at selecting a portfolio of complementary actions where possible.
Strengthening academia/non-academia cooperation, and reinforcing innovation ecosystems, focussing on establishment of public-private links, private sector involvement booster, activities for the transfer of researcher know-how to businesses, as well as activities that foster closer involvement of business sector staff in training of academic staff.
Improving training and lifelong learning for researchers, innovators, and other research and innovation talents, characterised by opportunities for upskilling and interdisciplinary skill development. In particular, (i) training for specific in-demand skills by industry or other non-academic sectors in specific thematic

areas, such as Missions and Partnerships, greening of society, to improve employability and interoperability, and (ii) training to build R&I support capacity ('other research and innovation talents'), such as knowledge brokers, data stewards, research managers, research infrastructure operators, knowledge and technology transfer officers, etc.
Boosting researcher entrepreneurship, focused on development of entrepreneurial skills (e.g. business economics, business creation, knowledge transfer, intellectual property rights and other relevant legal framework) for researchers and commercialisation or other valorisation training and support for researchers, through preparatory activities for entrepreneurship and support for researcher start-up creation.
Participating organisations. ERA Talents actions must involve organisations from the academic and non-academic sectors. The consortium partners contribute directly to the implementation of a joint training and mobility methodology by seconding and/or hosting eligible staff members. The collaborative approach of ERA Talents should exploit complementary competences of the participating organisations and create synergies between them. The participation of Ukrainian researchers in these activities is especially encouraged.
Seconded staff. Support is provided for inter-sectoral mobility of R&I staff leading to knowledge transfer and increased employability between participating organisations. Costs to be claimed by beneficiaries should be mainly linked to seconded personnel in the form of salaries, training, travel, and subsistence packages. The joint training and mobility methodology presented by the applicant consortium should include an approach to identify a diverse audience of research and innovation talents engaging in the action, outlined in the application. The ERA talent should have a secondment term within one (or more) of the participating organisations. Supported staff members must be actively engaged in or linked to R&I activities or R&I support activities for at least 6 months (full-time equivalent) at the sending institution before the first period of secondment.
Proposers are requested to provide an estimate of the number of 'ERA talents' the action is going to provide with a mobility opportunity. Secondments are open to researchers, innovators, and other research and innovation talents - such as administrative, managerial and technical staff supporting R&I activities in their organisations - from any career stage, excluding though doctoral candidates (PhD students). For innovators and other R&I talents, emphasis needs to be put on staff at an early career stage. The consortium needs to demonstrate clear benefit of the proposed secondment methodology for widening countries, including the perspective to allocate at least 70% of the budget for secondments for the benefit of widening countries.
Return and reintegration. A mandatory return phase for every cross-border secondment from a widening country has to be included in the secondment methodology, equal to the duration of the secondment, but not more than 12 months. Support, excluding salaries, for such return phase on the grant is allowed for up to 12 months after the first secondment, within the duration of the grant. A return phase is not mandatory for mobility within the same country or secondment from a non-widening to a widening country.
Strengthening careers and collaboration. For participating staff members, the project should offer new skills acquisition and career development perspectives. Participating organisations must ensure that the seconded staff (ERA talents) are adequately mentored. Preference will be given to actions that propose secondment mechanisms offering improved and more sustainable career prospects to the ERA talents (e.g. with follow-up position at the sending organisation after the secondment duration), thus maximising the impact of the action for knowledge sharing and long-term collaboration. Specific attention should be paid to gender equality objectives, in line with the organisations' commitments through their adopted gender equality plans, and in line with ERA objectives, as far as appropriate.
Exchanges should mainly occur between academic and non-academic sector entities (or vice-versa) from different EU Member States and Horizon Europe Associated Countries. Same-country exchanges are also possible under the condition that they serve the specific purpose of maintaining or reinforcing regional innovation ecosystems.
Grants have an expected duration of up to 4 years.
Further information:

https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/horizon-widera-2022-talents-03-01;callCode=null;freeTextSearchKeyword=;matchWholeText=true;typeCodes=1,2,8;odes=1,2,8;statusCodes=31094502;programmePeriod=2021%20-%202027;programCcm2Id=43108390;programDivisisionCode=null;focusAreaCode=null;destination=null;mission=null;geographicalZonesCode=null;programmeDivisiommeDivisionProspect=null;startDateLte=null;startDateGte=null;crossCuttingPriorityCode=null;cpvCode=null;perforne=null;performanceOfDelivery=null;sortQuery=startDate;orderBy=asc;onlyTenders=false;topicListKey=topicSearchTtopicSearchTablePageState

31. /HORIZON EUROPE*/ Enhanced situational awareness and preparedness of first responders and improved capacities to minimise time-to-react in urban areas in the case of CBRN-E-related events, deadline: 23. November 2022 17:00 Brussels time

ExpectedOutcome:
Projects' results are expected to contribute to some of the following outcomes:
? Development of tools and technologies, including novel multiplatform CBRN-E systems, to enhance situational awareness to prepare for and rapidly react to CBRN-E events both for responders on the ground as well as for dispatch and crisis centres, especially in urban areas.
? Support of first responders' situational awareness via high level processing solution, e.g. based on dispersion modelling or threat recognition / prediction solution using sensor data fusion and algorithms that combine heterogeneous sensor data in order to reduce the likelihood of false alarms and contribute to an improved decision-making process for the responders.
? Development of fast, reliable and portable devices for responders to perform an in-situ provisional identification of CBRN-E suspicious samples, enabling to decide which personal protective equipment (PPE) is required for first responders, including smart wearable equipment.
? Solutions integrating different commercial and experimental sensors/platforms, which should improve the state-of-the-art products in terms of communication (e.g. by using novel and open communication protocols, pre-processing of data), power consumption (e.g. by offering supplemental power source to the existing sensors), interfacing capability (e.g. by proposing an open interface specification). The proposals should also cover the system transportability, online capability and continuous operation issues.
Scope:
Addressing first responders' needs requires innovative actions resulting in technological, institutional and capacity-building solutions that are tailored to the risks, affordable, accepted by citizens, and customised and implemented for the (cross-sectoral) needs of practitioners. Innovative solutions are required to enable first responders to get a faster overview of any disaster situation based on the knowledge of past events and prevention actions. Complementing this, novel technologies and tools are necessary to enhance situational awareness in the case of disaster-prone events or health-related crises, especially in the case of cross-border situations, in order for first responders to be better prepared in emergency operations. In this context, innovative technologies are required for first responders to rapidly identify hazardous agents and contaminants such as CBRN-E substances in case of an accident, outbreak/pandemics or terrorist attack and act more efficiently and rapidly regarding communication. This requires novel rapid and accurate detection of substances (possibly coupled with unmanned vehicles or drones) and on-line communication systems to support first responders' operations and to provide the ability to conduct on-scene operations remotely without endangering them. Needs cover a broad range of technologies on top of existing CBRN-E detectors, e.g. samplers, separation systems, dilution or sample pre-concentrators etc., multiplying their capabilities. Advancements should take into consideration power consumption of front-end technology, as well as, transportability, on-line, dynamic sampling, automation, smart samplers, sample preparation, integration with detectors, standardisation. A focus should be made on experimental or commercial systems that are not optimised in terms of online, continuous measurements, power consumption and hyphenation. Other areas of research closely depending upon

enhanced situational awareness and preparedness concern decisions related to the protection of first responders (e.g. advanced protective gear and smart wearable equipment), in particular in case of CBRN-related events (infectious diseases, accidental or linked to terrorism), and ways to minimise their time-to-react in urban areas or to conduct on-scene operations remotely without endangering responders (e.g. ways through traffic, UAVs etc.).
In order to achieve the expected outcomes, international cooperation is encouraged, in particular with Japan in the framework of the EU-Japan collaboration.
Where possible and relevant, synergy-building and clustering initiatives with successful proposals in the same area should be considered, including the organisation of international conferences in close coordination with the Community for European Research and Innovation for Security (CERIS) activities and/or other international events.
Further information:
https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/horizon-cl3-2022-drs-01-08;callCode=null;freeTextSearchKeyword=;matchWholeText=true;typeCodes=1,2,8;statusCodes=31094502;programmePeriod=2021%20-%202027;programCcm2Id=43108390;programDivisionCode=null;focusAreaCode=null;destination=null;mission=null;geographicalZonesCode=null;programmeDivisionProspectus=null;startDateLte=null;startDateGte=null;crossCuttingPriorityCode=null;cpvCode=null;performanceOfDelivery=null;sortQuery=startDate;orderBy=asc;onlyTenders=false;topicListKey=topicSearchTablePageState

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32. /HORIZON EUROPE*/ Improved crime scene investigations related to transfer, persistence and background abundance, deadline: 23. November 2022 17:00 Brussels time

ExpectedOutcome:
Projects' results are expected to contribute to some or all of the following outcomes:
? Improved European common investigation capabilities thanks to modern, robust, validated and reliable solutions, used by forensic institutes and Police Authorities for analysing complex crime scenes with various types of trace evidence items;
? Shorter court case thanks to the availability of more solid forensic (cross-border) evidence that is acceptable in court, respecting fair trial requirements;
? Common European approaches are made available to policy-makers and security practitioners for analysing risks/threats, and identifying and deploying relevant security measures while inspecting, gathering and analysing trace substances collected in complex crime scenes, which take into account legal and ethical rules of operation, the traceability of forensic evidence, cost-benefit considerations, as well as fundamental rights such as privacy and protection of personal data;
? Improved shaping and tuning by security policy-makers of regulation on using innovative solutions in crime scene investigations by forensic institutes and Police Authorities;
? Improved understanding of the underlying phenomena governing the transfer of material from a surface to another, persistence of material once transferred, recovery process of the material as well as characterisation and expectations regarding the background noise;
? Ground truth datasets accessible to the scientific community to support interpretation at the activity level of transfer of microtraces, biological traces, biometric traces and chemical traces;
? Enhanced evidence collection on crime scene due to an increased use of novel technologies;
? Police Authorities and forensic institutes are provided with innovative methods of biological fluid identification for forensic applications;
? Forensic practitioners and Police Authorities active in crime scene investigations are provided with modern and innovative training curricula.
Scope:
Nowadays, Police Authorities deal with a growing complexity of crime scenes containing various types of trace evidence items that can also present safety hazards for the forensic experts and crime scene

investigators. Traditional forensic crime scene analysis typically involves several techniques to inspect, gather and analyse collected trace substances. There is a need to improve these processes and make them more accurate, effective and sensitive in such a complex scenario, by employing modern approaches, for instance (but not limited to) nanotechnology, next generation sequencing or Artificial Intelligence.
A way to modernise forensic science for the professionalisation of crime scene investigations is through improving the understanding of the underlying phenomena governing the transfer of material from a surface to another, persistence of material once transferred, recovery process of the material as well as characterisation and expectations regarding the background noise.
Regarding transfer, persistence and background abundance, two different types of developments are needed: 1) of ground truth datasets accessible to the scientific community to support interpretation at the activity level for transfer of microtraces (paint, glass, soil), biological traces (body fluids, DNA), biometric traces (fingermarks, shoemarks), chemical traces (drugs, explosives, ignitable liquids); and 2) of methods of biological fluid (blood, semen, saliva, urine, etc.) identification for advanced forensic applications. The proposed activities should take into account the European dimension regarding harmonisation of the approach and cross-border acceptance of the collected evidence. A special attention has to be given to applicable legislation, ethics and fundamental rights, as well as to the well-documented use of scientific method to enhance transparency in the establishing of forensic evidence. The testing and/or piloting of the tools and solutions developed in a real setting with one or more Police Authorities and other relevant authorities is an asset; regardless, actions should foresee how they will facilitate the uptake, replication across setting and up-scaling of the capabilities - i.e. solutions, tools, processes et al. - to be developed by the project.
Coordination with successful proposals under topic SU-AI02-2020 (on AI research datasets), HORIZON-CL3-2021-FCT-01-04 (on ground-truth data sets for conventional forensics) and HORIZON-CL3-2022-FCT-01-02 (on common data formats) should be envisaged so as to avoid duplication and to exploit complementarities as well as opportunities for increase
Further information:
https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/horizon-cl3-2022-fct-01-01;callCode=null;freeTextSearchKeyword=;matchWholeText=true;typeCodes=1,2,8;statusCodes=31094502;programmePeriod=2021%20-%202027;programCcm2Id=43108390;programDivisionCode=null;focusAreaCode=null;destination=null;mission=null;geographicalZonesCode=null;programmeDivisionProspectus=null;startDateLte=null;startDateGte=null;crossCuttingPriorityCode=null;cpvCode=null;performanceOfDelivery=null;sortQuery=startDate;orderBy=asc;onlyTenders=false;topicListKey=topicSearchTablePageState

33. /HORIZON EUROPE*/ Better, more portable and quicker analysis and detection for customs, deadline: 23. November 2022 17:00 Brussels time

Scope:
Research will further develop capabilities for portable and quicker testing, analysis and detection of threats at customs checks sites. Example of target substances include drugs, with a focus on new psychoactive substances, but also gems or precious metals and other threats or illicit goods.
These capabilities would allow customs to deploy detection capacity where and when more appropriate and efficient and to carry out inspections "on the move" and more quickly. This would allow detection of threats in the flow of goods directly at the customs inspection site, without having to divert the scanned object(s) to a different site, like a more distant dedicated detection laboratory. This would provide better response capability for customs in an ever-changing operational environment. It would allow for a faster detection and verification capability in the field.
The improved capability includes being able to update more easily and quickly the references for the target goods and substances, and to be able to detect them. This includes updated spectra of drugs such

as new psychoactive substances, which would allow detecting them. There is room for innovation to improve customs' access to updated spectra of substances when they appear; to make spectra easily available to customs' devices; and to improve data for spectra libraries.
This technology will also allow for an automatic collection of relevant data on the conditions and outcomes of the controls, as to allow measuring the efficiency of the measures and feeding the analysis for risk management and security at the borders.
The involvement of police authorities is encouraged, as well as synergies with relevant topics of the Fight against Crime and Terrorism Destination, to ensure operational scenarios are best identified for detection capabilities by customs. Research projects should consider, build on if appropriate and not duplicate previous research, including but is not limited to research by other Framework Programmes projects.
Testing and validation, within the project, of developed tools and solutions in an operational environment, will be an asset. Proposals should be convincing in explaining the methods they intend to use for demonstrating, testing and validating the proposed tools and solutions. Proposals should also delineate the plans to develop possible future uptake and upscaling at national and EU level for possible next steps after the research project.
Further information:
https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/horizon-cl3-2022-bm-01-03;callCode=null;freeTextSearchKeyword=;matchWholeText=true;typeCodes=1,2,8;statusCodes=31094502;programmePeriod=2021%20-%202027;programCcm2Id=43108390;programDivisionCode=null;focusAreaCode=null;destination=null;mission=null;geographicalZonesCode=null;programmeDivisionProspect=null;startDateLte=null;startDateGte=null;crossCuttingPriorityCode=null;cpvCode=null;performanceOfDelivery=null;sortQuery=startDate;orderBy=asc;onlyTenders=false;topicListKey=topicSearchTablePageState

34. /HORIZON EUROPE*/ Improved international cooperation addressing first responder capability gaps, deadline: 23. November 2022 17:00 Brussels time

ExpectedOutcome:
Projects' results are expected to contribute to the following outcomes:
? Improved real-time detection, tracking and analysis of different situations, incidents and risks (including the location and well-being of first responders)
? More targeted actionable intelligence and more efficient command operations due to the fast analysis of different information sources
? Enhanced European and global interoperability for different types of first responders (e.g. firefighters, medical responders, police, civil protection)
? Availability of first responder solutions that are oriented on internationally defined requirements and recognised practices, and thus can be used with different national systems and equipment
Scope:
International cooperation is key to respond to different kind of natural and man-made disasters, as well as intentional security threats. Besides operational cooperation, there is a need to find a common understanding on what innovation is needed to able to respond to different challenges. The Sendai Framework for Disaster Risk Reduction 2015-2030 list the need 'to strengthen technical and logistical capacities to ensure better response to emergencies'[1]as one priority for national and local levels. Such capacities depend to a large extent on the effectiveness and the specific capabilities of organisations responsible for first response to incidents.
In order to perform their dangerous tasks, First Responders require the best possible equipment that is tailor-made for extreme scenarios. As such, tools and gear need to be highly specialised and adapted to the different specific first responder needs. The market for such equipment is however fragmented, limiting the availability and affordability.

International cooperation to define common requirements has helped to create a clearer picture on what gaps remain and cannot be satisfied by existing solutions, thus requiring targeted research. Global capability gaps have been identified by international expert groups such as the UNDRR Scientific and Technical Advisory Group and the International Forum to Advance First Responder Innovation (IFAFRI), involving scientific experts, firefighters, medical responders and police officers from several EU and non-EU countries.
Proposals under this topic are invited to address one or several of the following capability gaps that were identified by national first responders within IFAFRI:
? The ability to know the location of responders and their proximity to risks and hazard in real time
? The ability to detect, monitor, and analyse passive and active threats and hazards at incident scenes in real time
? The ability to monitor the physiological signs of emergency responders
? The ability to incorporate information from multiple and non-traditional sources into incident command operations
? The ability ty to create actionable intelligence based on data and information from multiple sources
Proposed solutions should take into account the different specifications as defined within IFAFRI, most notably the Gap Analysis, Statement of Objectives and Deep Dive Analysis[2] and propose solutions (to the extent possible) that are suitable for different types of responders.
Proposals can be submitted by any eligible organisation and do not necessarily require the cooperation with co-applicants from an IFAFRI member country.[3] Participation from non-associated third countries (including the non-EU IFAFRI partners) is however encouraged and the participation of at least 2 first responders' organisations from at least 2 different non-EU countries is strongly encouraged.
Where possible and relevant, synergy-building and clustering initiatives with successful proposals in the same area should be considered, including the organisation of international conferences in close coordination with the Community for European Research and Innovation for Security (CERIS) activities and/or other international events.
Further information:
https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/horizon-cl3-2022-drs-01-07;callCode=null;freeTextSearchKeyword=;matchWholeText=true;typeCodes=1,2,8;statusCodes=31094502;programmePeriod=2021%20-%202027;programCcm2Id=43108390;programDivisionCode=null;focusAreaCode=null;destination=null;mission=null;geographicalZonesCode=null;programmeDivisionProspectus=null;startDateLte=null;startDateGte=null;crossCuttingPriorityCode=null;cpvCode=null;performanceOfDelivery=null;sortQuery=startDate;orderBy=asc;onlyTenders=false;topicListKey=topicSearchTablePageState

35. /HORIZON EUROPE*/ Enhanced capacities of first responders more efficient rescue operations, including decontamination of infrastructures in the case of a CBRN-E event, deadline: 23. November 2022 17:00 Brussels time

ExpectedOutcome:
Project results are expected to contribute to all of the following expected outcomes:
? Analysis on if and how the specific requirements of operating under CBRN-E conditions can be taken into consideration also for teams/capacities that are traditionally not operating under CBRN-E conditions (e. g. search and rescue, medical care, shelter, firefighting, flood rescue, etc.).
? Development of innovative technologies and/or operating procedures for emergency management units that might need to work under CBRN-E (Chemical, biological, radiological, nuclear and explosives) conditions such as search and rescue (including victim triage procedures), medical care, shelter, firefighting, flood rescue, etc. Develop innovative technology and procedures for mass decontamination but also for the decontamination of inanimate material (infrastructure, buildings, vehicles, equipment),

including identifying standards for determining something as "decontaminated" in close collaboration with Topic CL3-2021-DRS-01-05.

Scope:
Chemical, biological, radiological and nuclear (CBRN-E) events increasingly target civilians, with first responders likely to be police officers, firefighters or paramedics. Based on the legacy of knowledge gathered in H2020 projects, innovative technologies and solutions are required for first responders to act more efficiently and rapidly in case of CBRN-E disaster events of any kinds. This includes the ability to rapidly identify hazardous agents and contaminants and to analyse threats and hazards in real time, the faster search and identification of victims enabling more efficient rescue operations, platforms for medical care and site management/shelter for a more efficient the triage of victims and their care, i.e. via appropriate decontamination chains of victims and infrastructures. Regarding this last point, links to standardization and Topic CL3-2021-DRS-01-05 are particularly important to be able to determine thresholds and identify people as well as objects as "decontaminated" or "free of decontamination". Where possible and relevant, synergy-building and clustering initiatives with successful proposals in the same area should be considered, including the organisation of international conferences in close coordination with the Community for European Research and Innovation for Security (CERIS) activities and/or other international events.
Further information:
https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/horizon-cl3-2022-drs-01-09;callCode=null;freeTextSearchKeyword=;matchWholeText=true;typeCodes=1,2,8;statusCodes=31094502;programmePeriod=2021%20-%202027;programCcm2Id=43108390;programDivisionCode=null;focusAreaCode=null;destination=null;mission=null;geographicalZonesCode=null;programmeDivisionProspect=null;startDateLte=null;startDateGte=null;crossCuttingPriorityCode=null;cpvCode=null;performanceOfDelivery=null;sortQuery=startDate;orderBy=asc;onlyTenders=false;topicListKey=topicSearchTablePageState

36. /HORIZON EUROPE*/ Better understanding the influence of organisational cultures and human interactions in the forensic context as well as a common lexicon, deadline: 23. November 2022 17:00 Brussels time

ExpectedOutcome:
Projects' results are expected to contribute to all of the following outcomes:
? Increased European common forensic investigation capabilities and cross-border exchanges thanks to a better understanding of main organisational cultures and of human interactions in the forensic context, and of the main causes of biases in interpretation and reasoning;
? Strengthened bridges between different actors in an investigative process through an improved non-ambiguous communication and enhanced communication mechanisms at all levels;
? Improved European common forensics investigation capabilities and cross-border exchanges thanks to a common, modern lexicon that is used by forensic institutes and Police Authorities, validated against practitioners' needs and requirements, to facilitate their (specialised) daily work on investigating terrorism and other forms of serious crime;
? Development of safer justice outcomes through an increased understanding of how human interactions impacts on decisions at all levels of an investigative process;
? Modern and robust methods of reasoning and of experts' decision making in forensic practice, overcoming various types of biases;
? Forensic institutes and Police Authorities active in crime scene investigations benefit from innovation education and training curricula.

Scope:
Security research projects related to forensics typically focus only on technologies and data, while the process by which forensic experts evaluate and interpret the evidence is often put aside. However, cognitive methods and human judgement play a significant role as forensic experts observe and interpret the data. By doing this, forensic experts are almost inevitably exposed to irrelevant contextual information (such as suspect's criminal record or ethnicity, a type of the information that can be obtained due to a liaison between a forensic expert and investigators, police and the prosecution), which can potentially cause bias. In contexts where digital technologies are involved in creating forensic outcomes, biases and loss of transparency can also arise from different roles and disciplinary backgrounds of the different actors working on and with the digital tools. Communication between practitioners within the same institute can introduce a bias as well. When exchanging the information cross-border, both organisational cultures and languages can also cause a bias.
Understanding how human interaction, both internally and in the European context, impacts on decisions at all levels of an investigative process is critical for the development of safe justice outcomes. In forensic practice, it is crucial to understand the impacts of various types of biases on interpretation and reasoning, and to develop methods to increase the robustness of reasoning and of experts' decision making.
Research is needed to evaluate, develop and enhance methods and cognitive techniques to communicate non-ambiguously in the forensic and legal context, as well as to develop, improve and enhance communication mechanisms between the actors of the criminal justice chain.
That being said, in the European context, a critical enabler for an improved collaboration and communication between forensic practitioners is the use of a clear, consistent vocabulary. Such a shared vocabulary would, among others, allow for a common understanding of forensics, improve structured (cross-border) data sharing, and amplify the (cross-border) acceptance of evidence in court. There is hence a need for a development of a common lexicon, able to adapt to the evolving aspect of forensic technologies.
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. Coordination with successful proposals under topic HORIZON-CL3-2022-FCT-01-04 and HORIZON-CL3-2022-FCT-01-01 (on common data formats) should be envisaged so as to avoid duplication and to exploit complementarities as well as opportunities for increased impact. Where relevant, coordination should also be foreseen with actions and results of projects under Justice Programme (2014-2020)[1]. Operational examples should also be considered, where relevant in line with activities of the SIRIUS Project[2] . In addition, cooperation with the European Network of Forensic Science Institutes (ENFSI) would be welcome.
Further information:
https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/horizon-cl3-2022-fct-01-02;callCode=null;freeTextSearchKeyword=;matchWholeText=true;typeCodes=1,2,8;statusCo
2,8;statusCodes=31094502;programmePeriod=2021%20-%202027;programCcm2Id=43108390;programDivisionCod
de=null;focusAreaCode=null;destination=null;mission=null;geographicalZonesCode=null;programmeDivisionProspe
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37. /HORIZON EUROPE*/ Enhanced fight against the abuse of online gaming culture by extremists, deadline: 23. November 2022 17:00 Brussels time

ExpectedOutcome:
Projects' results are expected to contribute to some or all of the following outcomes:
? Enhanced knowledge on the use of online gaming culture and structure by violent extremists as well as their modus operandi through video game chatrooms, used as their recruitment tools;

? European Police Authorities benefit from better, innovative and validated tools and training curricula (which take into account legal and ethical rules of operation, as well as fundamental rights such as privacy and protection of personal data) to tackle violent radicalisation through online gaming culture;
? Increased awareness of citizens about online radicalisation through gaming culture;
? Enhanced protection of youth in the gaming environment against recruitment into violent radicalisation;
? Improved shared understanding and cooperation between different actors involved, including security practitioners, gaming industry, social media, video game hosting services and civil society;
? Improved shaping and tuning by security policy-makers of regulation on preventing abuse of online gaming culture by violent extremists.
Scope:
A highly increasingly influencing societal issue related to radicalisation is the online gaming culture. Earlier studies have shown no link between video games and violence. However, terrorism and gaming experts claim that forums and chatrooms are used as recruitment tools. Research is needed to analyse the use of online gaming culture and structure by violent extremists as well as their modus operandi through video game chatrooms and forums.
Regarding video games themselves, an in-depth analysis is needed on how the type of the video game, of its theme, design, aesthetics etc. plays a role in the choice of the chatroom to be used as a recruitment area. As far as video game chatrooms, including social media platforms discussing video games, are concerned, dissemination strategies of violent extremists through them as well as their ways of grooming should be analysed.
Based on the results of these analyses, innovative (societal) means of fighting this type of crime, both online and offline, should be developed. The role of Police Authorities in this respect should be analysed. Possibilities of detecting and investigating this type of crime should be discussed as well, with a focus on legal and ethical aspects. Modern and effective awareness raising campaigns should be developed, that would target young people, parents, school teachers, video-gaming industry and wide communities, and that take into account the European multicultural dimension. Methods for evaluating proposed solutions should be developed as well. Suggestions to gaming industry on which traps to avoid when designing and upgrading a video game should be provided too.
Proposed activities should take into account the evolving nature of this type of crime and of technology, and be performed while respecting the applicable legislation and fundamental rights, such as privacy and protection of personal data. Societal dimension should be in the core of proposed activities, with a support of technologies. The consortia should consist in Police Authorities, representatives of gaming industry, gaming experts, IT specialists, (cyber) psychologists and sociologists. 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. Social innovation is recommended when the solution is at the socio-technical interface and requires social change, new social practices, social ownership or market uptake. Participation of relevant Civil Society Organisations or gaming communities would be an added value. Analysis of the possible applications of research results to other similar problems (e.g. child sexual abuse) is welcome.
Coordination with successful proposals under topic HORIZON-CL2-DEMOCRACY-2022-01-04 (Evolution of political extremism and its influence on contemporary social and political dialogue) should be envisaged so as 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-cl3-2022-fct-01-03;callCode=null;freeTextSearchKeyword=;matchWholeText=true;typeCodes=1,2,8;statusCodes=31094502;programmePeriod=2021%20-%202027;programCcm2Id=43108390;programDivisionCode=null;focusAreaCode=null;destination=null;mission=null;geographicalZonesCode=null;programmeDivisionProspectionProspect=null;startDateLte=null;startDateGte=null;crossCuttingPriorityCode=null;cpvCode=null;performanceOfDelivery=null;sortQuery=startDate;orderBy=asc;onlyTenders=false;topicListKey=topicSearchTablePageState

38. /HORIZON EUROPE*/ Effective fight against illicit drugs production and trafficking, deadline: 23. November 2022 17:00 Brussels time

ExpectedOutcome:
Projects' results are expected to contribute to some or all of the following outcomes:
? Improved and complete intelligence picture of security practitioners and policy-makers on drug production and trafficking, such as modus operandi, both offline and online, including the whole chain of trade, cross-border dimension, new trends, prevention of illicit drug market, new drugs, internet, including darknet, monitoring of drugs, financial flows of the related profits, etc.;
? European Police and Border Guards Authorities benefit from better, modern and validated tools (including the lawful court-proof collection of crime evidence) and training materials to tackle criminal activities related to drugs, such as monitoring of internet, including darknet;
? Enhanced ability of security practitioners to identify organised criminal groups involved in drug production and trafficking at an early stage;
? Enhanced ability of security practitioners and policy-makers to prevent the emergence of organised crime networks related to drugs, and respond to the threat of existing organisations, while respecting fundamental rights;
? Improved monitoring of dual-use chemicals used to drugs production;
? European Police and Border Guards Authorities benefit from improved strategies of cooperation in fighting drug trafficking and dismantling related criminal networks;
? Security policy makers are better supported in analysing the features of the drug trade and the business models underlying it, and the policy regulation related to the fight against drug production and trafficking is enhanced.
Scope:
Drug trafficking and drug production are the most profitable criminal activity of organised crime groups active in Europe. According to the 2019 EU Drug Markets Report, the total value of the retail market for illicit drugs in the EU was estimated at EUR 30 billion. There is a need for a comprehensive complete intelligence picture of this type of crime.
In the following, two main priorities in security research and innovation in this area are indicated. Firstly, innovative methods are needed to inquire into developments in the illicit drug market, especially on prevention and new drugs (their production, marketing and distribution). Secondly, internet, including darknet, monitoring as regards drugs has not been sufficiently addressed by innovative approaches until now. As stated by the European Monitoring Centre for Drugs and Drug Addiction (EMCDDA), it is worth mentioning that over 100 global darknet markets are known to have existed for varying lengths of time since 2010 when the phenomenon emerged, that illicit drugs have been and continue to be the backbone of most darknet markets (drugs are important, but they share space with other illicit goods), and that two thirds of darknet markets content is known to be drug-related.
While vendor and customer interactions are relatively well studied and understood, there is a need for innovative approaches aimed at improving currently limited knowledge regarding the actors and mechanisms involved in this trade beyond the distribution/sales phase in the drug trafficking chain. Knowledge gaps also remain in relation to the extent of involvement of traditional organised crime in the darknet trade in illicit drugs. Then, gaps exist in the knowledge of the financial flows related to the profits from darknet market platforms.
Activities proposed within this topic should address both societal and technological dimensions of drug trafficking and drug production in a balanced way, taking care of the applicable legislation and fundamental rights. As the organised crime groups involved are practically fully interconnected, the international dimension should be analysed as well, hence both Police and Border Guards Authorities should be involved in the consortia, in order to tackle effectively all aspects of this crime, such as cross-border drugs smuggling.

Coordination with successful proposals under topic HORIZON-CL3-2021-FCT-01-08, HORIZON-CL3-2021-FCT-01-09, HORIZON-CL3-2021-FCT-01-10, HORIZON-CL3-2022-FCT-01-05 and HORIZON-CL3-2022-FCT-01-07 should be envisaged so as to avoid duplication and to exploit complementarities as well as opportunities for increased impact. Proposed activities that could also link with security research for border management (e.g., border checks or detection of concealed objects) would be an asset. Due to the specific scope of this topic, in order to achieve the expected outcomes, international cooperation 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 the consortium deems it 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-cl3-2022-fct-01-06;callCode=null;freeTextSearchKeyword=;matchWholeText=true;typeCodes=1,2,8;statusCodes=31094502;programmePeriod=2021%20-%202027;programCcm2Id=43108390;programDivisionCode=null;focusAreaCode=null;destination=null;mission=null;geographicalZonesCode=null;programmeDivisionProspectus=null;startDateLte=null;startDateGte=null;crossCuttingPriorityCode=null;cpvCode=null;performanceOfDelivery=null;sortQuery=startDate;orderBy=asc;onlyTenders=false;topicListKey=topicSearchTablePageState

39. /HORIZON EUROPE*/ Effective fight against trafficking in human beings, deadline: 23. November 2022 17:00 Brussels time

ExpectedOutcome:
Projects' results are expected to contribute to some or all of the following outcomes:
? Security practitioners and policy makers are provided with an improved and more complete intelligence picture of trafficking in human beings, such as modus operandi, both offline and online, including the whole trafficking chain, cross-border dimension, new trends, relations with other types of crime, financial flows of the related profits, etc.;
? European Police and Border Guards Authorities benefit from better, modern and validated tools (including the lawful court-proof collection of crime evidence) and training materials to tackle criminal activities related to trafficking in human beings;
? Enhanced ability of security practitioners to detect and identify organised criminal groups involved in trafficking in human beings, in collaboration with citizens or NGOs when applicable;
? Enhanced ability of security practitioners to detect victims of all forms of exploitation, taking into account consistent patterns, and identify victims at an early stage;
? Enhanced ability of security practitioners to prevent the emergence of organised crime networks related to trafficking in human beings, to disrupt the trafficking chain at an early stage, deter organised crime groups related to trafficking in human beings and respond to the threat of existing organisations, as well as their potential expansion via de use of social media;
? Improved strategies of cooperation applied by European Police and Border Guards Authorities in fighting trafficking in human beings and dismantling related criminal networks, while respecting fundamental rights such as the protection of personal data, and improved cooperation between European and origin and transit countries authorities;
? Better policy-making related to the fight against trafficking in human beings.
Scope:
Trafficking in human beings is a serious and organised form of crime that involves the criminal exploitation of vulnerable people, the goal of which is the economic gain. This crime is often cross-border and consistently the vast majority of its victims are women and girls, around one fourth of all victims being children. Around half of the victims are EU nationals within the EU.

Trafficking can take place for various exploitation purposes, including sexual exploitation, forced labour, servitude, removal of organs, forced criminality (e.g., pickpocketing or drug trafficking). Trafficking in human beings is a grave violation of people's fundamental rights and dignity, and is explicitly prohibited by the EU Charter of Fundamental Rights. Understanding the nature, scale and costs of the crime is key to ensuring appropriate action at the European level to prevent the phenomenon. The 2017 Communication (COM(2017) 728 final) identifies as key priorities: to address the culture of impunity via disrupting the business model of criminals and untangling the trafficking chain; to provide a better access to and realise the rights of victims; to intensify a coordinated and consolidate response within and outside the EU. Innovation, reliable and comprehensive statistics are crucial in obtaining a complete intelligence picture of this crime, the modus operandi of the related criminal groups, identifying and addressing trends, developing evidence-based policy, and measuring the impact of individual initiatives. Innovative intelligence-based technological means of detecting, tracking and disrupting the online activities related to trafficking in human beings (including darknet) should be developed as well. The proposed activities would also aim to contribute to countering the culture of impunity by increasing the capacity of Police Authorities to detect the trafficking crime, the suspected perpetrators and the victims and to disrupt the business model and/or establish responsibility of all those involved in the trafficking chain.
Activities proposed within this topic should address both societal and technological dimensions of trafficking in human beings in a balanced way, taking care of the applicable EU legal and policy framework including fundamental rights and ethics. Since the international dimension of this crime should be analysed as well, both Police and Border Guards Authorities should be involved in the consortia, in order to tackle effectively all aspects of this crime, such as finding together means of disrupting the human traffickers' business model. Collaboration with Police Authorities, security practitioners and Border Guards Authorities from countries of origin or transit of criminal networks would be an added value.
Coordination with successful proposals under topic HORIZON-CL3-2021-FCT-01-08, HORIZON-CL3-2021-FCT-01-09, HORIZON-CL3-2021-FCT-01-10, HORIZON-CL3-2022-FCT-01-05 and HORIZON-CL3-2022-FCT-01-06 should be envisaged so as to avoid duplication and to exploit complementarities as well as opportunities for increased impact. Proposed activities that could also link with security research for border management (e.g., border checks or security controls) would be an asset.
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. Due to the specific scope of this topic, in order to achieve the expected outcome, international cooperation is encouraged.
Further information:
https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/horizon-cl3-2022-fct-01-07;callCode=null;freeTextSearchKeyword=;matchWholeText=true;typeCodes=1,2,8;statusCodes=31094502;programmePeriod=2021%20-%202027;programCcm2Id=43108390;programDivisionCode=null;focusAreaCode=null;destination=null;mission=null;geographicalZonesCode=null;programmeDivisionProspect=null;startDateLte=null;startDateGte=null;crossCuttingPriorityCode=null;cpvCode=null;performanceOfDelivery=null;sortQuery=startDate;orderBy=asc;onlyTenders=false;topicListKey=topicSearchTablePageState

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40. /HORIZON EUROPE*/ Nature-based Solutions integrated to protect local infrastructure, deadline: 23. November 2022 17:00 Brussels time

Scope:
The aim of the topic is to expand the knowledge on Nature-based Solutions (NBS) and their ability to enhance infrastructure resilience in cities and urban areas against natural and man-made hazards. Thus complementing other traditional security measures.
Cities are undergoing a rapid transformation most notably due to their digitisation. Besides this, the need for solutions to make them more sustainable and environmentally friendly has been addressed in many research projects, mainly from the perspective of climate adaptation. In this regard, nature-based

solutions combined with local knowledge offer a potential also for security research on infrastructures. Such solutions can help and provide business opportunities to make cities more resilient against natural disasters and possibly other security challenges. The European Commission defines NBS as: 'Solutions that are inspired and supported by nature, which are cost-effective, simultaneously provide environmental, social and economic benefits and help build resilience. Such solutions bring more, and more diverse, nature and natural features and processes into cities, landscapes and seascapes, through locally adapted, resource-efficient and systemic interventions[1].' Nature-based solutions must therefore benefit biodiversity and support the delivery of a range of ecosystem services.
EU-funded and national research activities have demonstrated the significant opportunities of NBS with regard to for example improved resilience, climate adaptation and the reduction of pollution in cities. What concerns security, projects have been focussing on the effects that NBS can have for prevention (for example flood-plains and mangroves for flood protection, natural source water protection, green roofs and pavements for heat and water absorption). The reduction of disaster risks and the potential for enhanced resilience of cities against different natural hazards are a priority to be put in place when applying NBS. Besides man-made hazards, Europe is facing increasingly frequent and intense natural hazards, including epidemics, droughts, heat waves, storms, floods and wildfires, which trigger needs for constant innovation when it comes to the protection of people. With the continuing increase of population concentrated in cities and urban areas and increasing impacts of climate change, such risks present a significant challenge in this regard.
NBS can offer the tools to address the potential to improve risk management and resilience using approaches that can provide greater benefit than conventional tools at the same time, like for example heat waves and wildfires, or storms and floods. The detailed understanding of ecosystems and how nature responds to different external shocks can help to strengthen existing strategies for urban resilience and deliver new approaches in protection, for example by integrating natural components in the different infrastructure assets.
Proposals should include a strong involvement of citizens/civil society, together with academia/research, industry/SMEs and government/public authorities. The testing and/or piloting of the tools and solutions developed in a real setting with one or more local authorities and/or other relevant authorities is an asset; regardless, actions should foresee how they will facilitate the uptake, replication across setting and up-scaling of the capabilities - i.e. solutions, tools, processes et al. - to be developed by the project.
In order to achieve the expected outcomes, international cooperation with countries pioneering the development of NBS is advised.
Further information:
https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/horizon-cl3-2022-infra-01-01;callCode=null;freeTextSearchKeyword=;matchWholeText=true;typeCodes=1,2,8;status1,2,8;statusCodes=31094502;programmePeriod=2021%20-%202027;programCcm2Id=43108390;programDivisionCode=null;focusAreaCode=null;destination=null;mission=null;geographicalZonesCode=null;programmeDivisionProsvisionProspect=null;startDateLte=null;startDateGte=null;crossCuttingPriorityCode=null;cpvCode=null;performanceCl;performanceOfDelivery=null;sortQuery=startDate;orderBy=asc;onlyTenders=false;topicListKey=topicSearchTablePaSearchTablePageState

41. /HORIZON EUROPE*/ Autonomous systems used for infrastructure protection, deadline: 23. November 2022 17:00 Brussels time

Scope:
Time is critical to prepare and react to disruptions of infrastructures. Faster and coordinated interventions can significantly reduce the impact, avoid negative cascading effects or in the best case prevent disruptions. The increasing interconnectivity of infrastructures has also led to bigger complexity in regards to the detection and response to incidents and certain technologies can be misused to conduct attacks or targeted disruptions of infrastructures. As underlined in the Security Union Strategy this is for example the

case for scenarios involving unmanned aircraft systems (UAS). It could however also be relevant for possible incidents with land- or sea borne devices approaching at very high speed.
In order to allow for the best possible detection of threats and quick response and restoration of performance levels (e. g. through decontamination of the affected material/person; detection as well as mitigation of a risk), autonomous systems for infrastructure protection are a promising field of research. Many state-of-the art technologies used in other areas (for example: advanced robots or other autonomous detection and repair capabilities based on artificial intelligence) combined with user centred approaches, have the potential to significantly reduce the reaction time and can provide therefore an added value also for security solutions. Besides a reduced reaction time, the use of autonomous systems can reduce the risk for human responders, which is important for dangerous operations as for example in gas or chemical plants, or CBRN contaminated areas. At the same time, such systems can access challenging locations, such as underground cables, underwater pipes or assets in high altitude. Those features do not only present an advantage in responding to intentional acts, but also allow for faster and more efficient response to natural disasters and subsequent cascading effects. On the other hand, automated systems do create new vulnerabilities and its use raises ethical concerns that would need to be taken into account in any research. Solutions and measures must take into account legal and ethical rules of operation, as well as fundamental rights such as privacy and protection of personal data. Cost-benefit analysis not compromising ethics and privacy should also be considered.
Results achieved so far in the area of robots and autonomous systems (RAS), also under Horizon 2020, have led to applications making use of Unmanned Vehicles for example in the area of infrastructure maintenance and the detection and response to safety risks. Other concepts have been including self-healing materials, smart technologies and built-in tools as well as associated processes. For security incidents, there are so far less solutions available which would take into account the specific challenges of intentional disruptions as compared to accidents or material failure.
Further information:
https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/horizon-cl3-2022-infra-01-02;callCode=null;freeTextSearchKeyword=;matchWholeText=true;typeCodes=1,2,8;status1,2,8;statusCodes=31094502;programmePeriod=2021%20-%202027;programCcm2Id=43108390;programDivisionCoCode=null;focusAreaCode=null;destination=null;mission=null;geographicalZonesCode=null;programmeDivisionProsvisionProspect=null;startDateLte=null;startDateGte=null;crossCuttingPriorityCode=null;cpvCode=null;performanceCl;performanceOfDelivery=null;sortQuery=startDate;orderBy=asc;onlyTenders=false;topicListKey=topicSearchTablePaSearchTablePageState

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42. /HORIZON EUROPE*/ Increased foresight capacity for security, deadline: 23. November 2022 17:00 Brussels time

Scope:
Anticipating the future, both in terms of threats and of opportunities offered by new emerging technologies is a real challenge. Having the capacity to depict plausible futures, to identify upcoming threats and to propose early responses can be of invaluable help to decision makers.
The sound programming of EU-funded security research can also be notably improved if the analytical capacity required to identify mid to long-term trends in the EU security context is in place and its outcomes are made available to decision makers through the right channels on a timely manner. This includes not only the identification of academic research, technology, innovation and industrial trends, but also of how these can be translated into early warning of threats and anticipated response. A common EU approach for civil security to address this need, properly covering the full range of security policy dimensions and acknowledging their particularities and distinctive features, is therefore needed.
Many organisations, including the European Commission, have developed instruments that provide timely assessment of technology trends on a regular basis. The broad technology landscape does not show frequent fluctuations, and a plethora of tools and ready-made information products unveiling trends in

different time horizons are widely available. However, pure technology watch-based approaches are not helpful for civil security decision makers unless they are embedded in a qualitative assessment of threats and capabilities. Such assessment shifts the focus from a purely technological standpoint to the way in which these technologies are and will be used in a given policy, operational, industrial and societal context. Therefore, building on existing technology and research landscaping mechanisms (and possibly tailoring them to the specificities of the civil security domain), applicants are invited to submit proposals for the development and operationalisation of a foresight framework for security including advanced tools, methods, techniques and processes. Such framework should be accompanied by a solid scientific model that connects future technologies with their future use. This should allow to identify how future civil security technology, research, innovation and industrial trends impact, influence and shape future threats and security capabilities, taking into account contextual aspects. These may include ethical, legal, societal, economic, geopolitical, environmental or industrial aspects, with particular emphasis on the capacity of the EU security technology and industrial base to achieve the desired technology development objectives, thus safeguarding the EU security technology sovereignty, if and when this is required. The proposed approach should combine qualitative and quantitative methods, maximise their automation and allow for qualified inputs through distributed and collaborative environment/schemes in order to make the most efficient and effective use of the human and technical resources available.
The proposals should take into account existing foresight approaches implemented by other EU and international organisations (e.g. JRC, EDA, INTERPOL, UNIDO, etc.). Should these be used as a reference, the newly proposed approaches should not just replicate the existing ones, but reference the source accordingly and adapt them to the context of EU civil security. Proposals should also take into account previous EU-funded research projects addressing foresight and build strong synergies with ongoing projects, in particular with the Networks of Practitioners funded under H2020 Secure Societies work programmes and the new Knowledge Networks for Security Research & Innovation funded under Horizon Europe Cluster 3.
The proposed foresight framework must be operationalised since the early stages of the project and deliver information products until its finalisation and beyond. When operationalising the proposed approach, applicants have to consider that they should deliver tangible value to the European Commission Strategic Foresight Agenda[1], supporting political priorities in the field of civil security, including the programming of the Union´s investment for the development of security capabilities through research and capacity building funds. Therefore, the results are expected to be made available at least to all stakeholders involved in this task, both at EU and national level. In order to allow that the developed foresight framework works with and for this purpose, the applicants should demonstrate that the working cycles proposed and the exchanges of information required are duly coordinated with the work of the Thematic Working Groups of the Community of Users for Secure, Safe and Resilient societies set-up by the European Commission (future CERIS -Community of European Research and Innovation for Security) and/or with equivalent innovation labs set-up by EU Agencies in the different thematic areas addressed (e.g. Frontex). Therefore, the thematic working groups should not only be a source of information, but also a validator of the foresight approach proposed and a beneficiary of the information products delivered. Applicants must show a good understanding of the context where security research and capacity building programming takes place (mostly at EU level), of who are the main actors involved and of what are their needs in terms of foresight. The proposal should pay special attention to the type and format of the outcomes to be delivered, their timeliness and to what audience these are addressed. In this sense, outcomes must be delivered periodically every 6 months or less throughout the whole project starting from month 6.
The project has to identify and describe options for the exploitation of the foresight model proposed beyond the project lifetime, including the setting up of a permanent technology foresight capacity in support to EU-funded security research and innovation programming, i.e. under the Research-as-a-service approach.
Further information:

https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/horizon-cl3-2022-ssri-01-01;callCode=null;freeTextSearchKeyword=;matchWholeText=true;typeCodes=1,2,8;statusCodes=31094501,31094502;programmePeriod=2021%20-%202027;programCcm2Id=43108390;programDivisionCode=null;focusAreaCode=null;destination=null;mission=null;geographicalZonesCode=null;programmeDivisionProspect=null;startDateLte=null;startDateGte=null;crossCuttingPriorityCode=null;cpvCode=null;performanceOfDelivery=null;sortQuery=startDate;orderBy=asc;onlyTenders=false;topicListKey=topicSearchTablePageState

43. /HORIZON EUROPE*/ Improved underwater detection and control capabilities to protect maritime areas and sea harbours, deadline: 23. November 2022 17:00 Brussels time

Scope:
Security of maritime infrastructures and transport is key to support the movement of people and trade to, from, and within Europe. Furthermore, it is important to strengthen capabilities for security in and of sea harbours and of their entrance routes, and detection, prevention and response to illicit activities in and near sea harbours, including in the underwater sea space. Both legal and illegal activities in the maritime domain increase and become more sophisticated and this presses on security practitioners to build and improve their capabilities to keep up and fulfil their tasks in the future.
A particularly critical environment would include the abilities to detect and act below the water surface. Possible threats concealed below the water surface should be detected. Criminal organizations for example have the modus operandi of hiding narcotic cargos under the water surface of large and medium-sized vessels. Detection and response capabilities against active threats below the surface (such as terrorist attacks against ships or harbour infrastructures) should also be developed. Security controls and fiscal manifest verifications on closed containers and cargo should be supported by information gathered below water surface.
Research could develop solutions to detect and identify anomalies below the water surface and/or automatically assess for below the water surface threats to a ship at harbour entrance and/or a pier. Projects should demonstrate, test and validate solutions working from detection to minimisation of threats from below the water surface. Research and innovation activities should focus on delivering advanced autonomous or semi-autonomous vessel screening capabilities (detection of underwater smuggling - for example in cylindrical containers).
Research proposals should consider, build on if appropriate and not duplicate, previous research, including but not limiting to research by other projects funded by the Framework Programmes for Research and Innovation.
Further information:
https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/horizon-cl3-2022-bm-01-01;callCode=null;freeTextSearchKeyword=;matchWholeText=true;typeCodes=1,2,8;statusCodes=31094501,31094502;programmePeriod=2021%20-%202027;programCcm2Id=43108390;programDivisionCode=null;focusAreaCode=null;destination=null;mission=null;geographicalZonesCode=null;programmeDivisionProspect=null;startDateLte=null;startDateGte=null;crossCuttingPriorityCode=null;cpvCode=null;performanceOfDelivery=null;sortQuery=startDate;orderBy=asc;onlyTenders=false;topicListKey=topicSearchTablePageState

44. /HORIZON EUROPE*/ Enhanced preparedness and management of High-Impact Low-Probability or unexpected events, deadline: 23. November 2022 17:00 Brussels time

ExpectedOutcome:
Projects' results are expected to contribute to some of the following outcomes:
? Increased understanding of high impact-low probability events in the short and medium term, both from natural and man-made hazards. These perspectives include cultural, societal, regional, ethical and historical contexts. This should capture new and emerging risks and develop end-user-friendly tools for risk assessors to conceptualise such risks.
? Improved methods/tools for decision-making under uncertainty to prepare for high-impact low-probability events. These methods could include the impact of past events, communication and linguistic components, and regional specificities. These should be developed in close cooperation with end users to maximise application of these tools in practice.
? Better preparedness for and management of high-impact low-probability risks that most, if not all, experts have difficulty conceptualising (the unexpected events), including by developing no-regret options that can address different kinds of impacts irrespective of the cause.
? Improved mapping of i) socioeconomic systems' interdependencies that can be negatively affected by high-impact low-probability events, and ii) which systems contribute to the materialisation of high-impact low-probability risks by increasing societal vulnerability. This would be supported by identification of interventions where resilience-building would be most effective. This identification could be based on an in-depth understanding of past events, a mapping of the current societies' cultural sensibilities in a geographical space / region context, and/or their ethical and legal contexts.
? Improved preparedness at an individual level, at local level and at the governmental level, including through clarifying roles and responsibilities around management of high-impact low-probability events. An improved understanding of existing risk and resilience management capacities across Europe at national and regional levels for responding to high-impact low-probability risks that Europe may face.
? Development of appropriate simulation tools to identify areas under higher risk of occurrence of HILP events and development of preparedness plans and management mechanisms, including communication, to address the effects of such occurrence.
? Combination of qualitative and quantitative approach strategies, which encompass practical and probabilistic knowledge to increase the success rate of identifying and adequately monitoring fast developing risks into potential high-impact low-probability events
? Multi-disciplinary reference library around HILP events and their impacts would allow to build up a record of observations that can help quantify the impacts and, by analogy, similar risks that might arise in the future.
? Scenario-building exercises and stress-test risk-related practices in critical infrastructure sectors (e.g., transport, communications, energy) would enhance preparedness and help identify particularly affected social groups while enabling rapid financial and practical support where national organizations are unable to cope or where the consequences are cross-border in nature. Independent, high-quality hubs (national or regional) for up-to-date risk notification and provision of scientific information and communication in a crisis - supported by governments, businesses and industry associations.
Scope:
The risk landscape has changed significantly over the last decades. With new and emerging risks and risk magnifiers such as climate change, cyber threats, infectious diseases and terrorism, countries need to anticipate and prepare for the unexpected and difficult to predict.
At European level, there is, however, no agreed definition nor methodology to characterise HILP and unexpected events, resulting in differing impact scales and a lack of comparability of risk ratings among National Risk Assessments. High-impact, low-probability risks (HILP/Hi-Lo) can be understood as "events or occurrences that cannot easily be anticipated, arise randomly and unexpectedly, and have immediate effects and significant impacts". They can manifest themselves not only as one-off high-profile crises and mega-disasters (e.g., Fukushima Daiichi Nuclear Accident, eruption of the Eyjafjallajökull volcano, 9/11 terrorist attack in the U.S. and COVID-19 pandemic) but also as lower-profile, persistent events with equally serious impacts such as flooding, droughts and cyclones which, owing to the low likelihood of occurrence or the high cost of mitigating action, remain un- or under-prepared for.
High-impact, low-probability events (HILP) and their cascading effects raise many challenges for governments, businesses and decision-makers, including defining where the responsibilities lie in

preparing for both individual shocks and slow-motion trends (e.g. global warming, tipping points, sea level rise) that tend to increase their magnitude and frequency. A 2019 revision of Decision 1313/2013/EU on a Union Civil Protection Mechanism has brought attention to high impact low probability risks and events, now requiring Member States to take prevention and preparedness measures to address them where appropriate, and the EU fully financing capacities through rescEU to respond to high impact low probability events.
To get the right balance between planning for specific 'known' events and creating generic responses for events that are rare or unexpected, research should support the anticipation and management of shock events through improving planning processes, establishing broader risk-uncertainty frameworks that capture such events, enhancing business resilience and responses to shocks, and stepping up communications in a crisis.
Preparing for and managing the consequences of a HILP event will benefit firstly from developing an increased understanding of new and emerging risks, besides the required risk understanding dealt with in topics CL3-2021-DRS-01-01 and CL3-2021-DRS-01-02, and in close connection to them. Improved methods should also be sought to support risk assessors and decision-makers in conceptualising these risks and developing no-regret options to manage them. A thorough understanding of existing risk management capacities across Europe at national and regional levels for responding to high-impact low-probability risks that Europe may face would contribute to improving preparedness at the European level to risks that can affect multiple countries at once and overwhelm national response capacities. Finally, enhancing preparedness for and management of high impact low-probability events cannot happen without an increased resilience of individuals. In close connection to topic CL3-2021-DRS-01-02, research is also needed on how to prepare citizens for unfamiliar risks and what information to disseminate, and how to communicate, during the disaster or crisis-related emergency in order to manage panic, confusion and threats of disinformation.
Given the practical nature of this topic, co-design, co-development, co-dissemination and co-evaluation of the research outputs engaging the intended end users will be particularly important.
Further information:
https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/horizon-cl3-2022-drs-01-02;callCode=null;freeTextSearchKeyword=;matchWholeText=true;typeCodes=1,2,8;statusCodes=31094501,31094502;programmePeriod=2021%20-%202027;programCcm2Id=43108390;programDivisionCode=null;focusAreaCode=null;destination=null;mission=null;geographicalZonesCode=null;programmeDivisionProspect=null;startDateLte=null;startDateGte=null;crossCuttingPriorityCode=null;cpvCode=null;performanceOfDelivery=null;sortQuery=startDate;orderBy=asc;onlyTenders=false;topicListKey=topicSearchTablePageState

45. /HORIZON EUROPE*/ Improved disaster risk pricing assessment, deadline: 23. November 2022 17:00 Brussels time

ExpectedOutcome:
Project results are expected to contribute to some of the following expected outcomes:
? Contribute to the public accessibility of fiscal data and information related to disaster risks, and available risk transfer mechanisms such as insurance in an easily available and understandable way.
? EU-wide or international standard or guidance on how to monetise and account intangible values from Climate Adaptation and Disaster Risk Reduction measures
? Innovative financial instruments and IT-solutions to reduce transaction costs for disaster risk finance and insurance products (e.g. earth observation data, artificial intelligence, financial technologies)
? Research and testing of novel European, cross-border, national and regional disaster risk financing frameworks. This needs to involve a wide range of stakeholders (e.g. disaster risk management, finance, communication) from public and private sectors.

? Risk model development for future natural catastrophe events, development of European stress-testing scenarios including vulnerable hotspots and uninsurable risks.
Scope:
Natural disasters (weather and climate related extremes and geological events) in the EU have cost on average EUR 17 billion per year the past ten years. Around 35 % of the total losses from climate and extreme and weather events are insured today in the EU, although the proportion of the insured losses ranges from 1 % in Romania and Lithuania to about 60 % in Belgium. In the near-term future, the European insurance industry and their regulators have warned that affordability and insurability are likely to become an increasing concern with climate change. Insurance, in combination with other risk transfer and financing mechanisms, is an important tool to achieve disaster risk reduction targets. Insurance plays an important role in financially supporting the recovery of individuals, organisations, businesses and communities affected by natural disasters. Large disaster losses in recent years have led insurance companies to re-examine their approach to increase the extent of insurance coverage and compensation for loss in vulnerable areas. This includes increasing their investment in assessing and modelling risk, developing advice on risk prevention and establishing new forms of coverage to support governments in managing the costs they face in post-disaster recovery. Questions remain about the limits of insurance in tackling fast-rising threats - not only how people at highest risk and with lower incomes can afford it, but whether insurance models can cope with much more frequent and destructive. Rethinking insurance pay-outs, giving homeowners clearer information on potential risks - using simple online tools, or providing data at the time of house purchases - may also be the way forward more resilient communities.
Further information:
https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/horizon-cl3-2022-drs-01-06;callCode=null;freeTextSearchKeyword=;matchWholeText=true;typeCodes=1,2,8;statusCodes=31094502;programmePeriod=2021%20-%202027;programCcm2Id=43108390;programDivisionCode=null;focusAreaCode=null;destination=null;mission=null;geographicalZonesCode=null;programmeDivisionProspectus=null;startDateLte=null;startDateGte=null;crossCuttingPriorityCode=null;cpvCode=null;performanceOfDelivery=null;sortQuery=startDate;orderBy=asc;onlyTenders=false;topicListKey=topicSearchTablePageState

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46. HORIZON EUROPE*/ Effective fight against corruption, deadline: 23. November 2022 17:00 Brussels time

ExpectedOutcome:
Projects' results are expected to contribute to some or all of the following outcomes:
? Security practitioners and policy-makers are provided with improved and complete intelligence picture of corruption, such as modus operandi, both offline and online, including cross-border dimension, new trends, its social and economic impact, its role in enabling other types of crime, as well as its close links with money laundering;
? A comprehensive risk analysis is provided to security practitioners and policy makers on the new opportunities offered by the COVID-19 pandemic in terms of corruptive practices, cross-border dimension, its social and economic impact and sectors at high risk;
? European Police Authorities, Border Guards and Financial Supervisory Authorities benefit from better, modern and validated tools (including the lawful court-proof collection of crime evidence) and training materials to tackle criminal activities related to corruption and improve resilience for corruption acts;
? Improved strategies of cooperation between European Police and Border Guards Authorities in fighting corruption and dismantling related criminal networks;
? Improved policy-making related to the fight against corruption.
Scope:
Corruption, a criminal category that ranges from bribery of public officials via sports to abuse of power and money laundering of proceeds from crime, is a strong enabler for crime and terrorism, and, as such, it

constitutes a threat to security. By creating business uncertainty, slowing processes, and imposing additional costs, it has a negative impact on economic growth.
Although the nature and scope of corruption may differ from one Member State to another, it harms the whole Europe by lowering investment levels, hampering the fair operation of the Internal Market and reducing public finances.
The points where innovative solutions can help are threefold. Firstly, there is a need to estimate the impact of corruption. It refers to social impact, factors that promote or hinder it, impact on vulnerable groups, economic, as well as fiscal and development costs.
Secondly, the role of corruption as an enabler of other crimes deserves analysis as well. Namely, corruption, increasingly facilitated by online services, is a fertile ground for organised criminal activities (human trafficking, smuggling...) and terrorism. For some criminal activities, corruption is an integral part of their modus operandi. Thus, relations with other types of crime should be explored too. Money laundering, closely linked to corruption, deserves special attention.
Thirdly, innovative societal and technological solutions for prevention, detection and investigation of this type of crime are needed, including also the collection of cross-border court-proof evidence. Therefore, activities proposed within this topic should address both societal and technological dimensions of corruption in a balanced way, taking care of the applicable legislation and fundamental rights. The international dimension should be analysed as well, hence both Police and Border Guards Authorities should be involved in the consortia, in order to tackle effectively all aspects of this crime. Due to the specific scope of this topic, international cooperation is encouraged.
Coordination with successful proposals under topic HORIZON-CL3-2021-FCT-01-08, HORIZON-CL3-2021-FCT-01-09, HORIZON-CL3-2021-FCT-01-10, HORIZON-CL3-2022-FCT-01-06 and HORIZON-CL3-2022-FCT-01-07 should be envisaged so as to avoid duplication and to exploit complementarities as well as opportunities for increased impact. 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.
Further information:
https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/horizon-cl3-2022-fct-01-05;callCode=null;freeTextSearchKeyword=;matchWholeText=true;typeCodes=1,2,8;statusCo
2,8;statusCodes=31094502;programmePeriod=2021%20-%202027;programCcm2Id=43108390;programDivisionCod
de=null;focusAreaCode=null;destination=null;mission=null;geographicalZonesCode=null;programmeDivisionProspe
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performanceOfDelivery=null;sortQuery=startDate;orderBy=asc;onlyTenders=false;topicListKey=topicSearchTablePa
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47. /HORIZON EUROPE*/ Knowledge Networks for security Research & Innovation, deadline: 23. November 2022 17:00 Brussels time

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Scope:
Innovation uptake is not a linear process, and even less a single-step process that happens only at the end of a research project and it is not automatically enabled by a successful research result. The innovation uptake process begins with the identification of a need and ends with an innovative solution deployed on the field of operations, being R&I only one of the many contributors to the overall process, but not the first and not the last. In other words, successful results of research projects are a necessary but not sufficient condition to guarantee the uptake of innovation.
Investment in security research needs to be designed taking into consideration how and when it can deliver outcomes that contribute to the development of security capabilities. Therefore, research needs to be undertaken, from its very early stages, in a way that addresses real needs while guaranteeing the

impact in the final solutions. It should also ensure to identify and underpin the factors that could help in the implementation of its results. However, the programming of research is highly conditioned by the quality, reliability and timeliness of the evidence that supports its decision making process. This includes the identification and understanding of the contextual elements that can or will influence or be influenced by the research (process), the research team and the research projects themselves.
The European Commission and the EU Member States carry out this programming exercise periodically, taking into account a wide variety of inputs. The complexity of the challenge is notable, considering that the EU security landscape is volatile, uncertain, complex and ambiguous in what regards the security threats, the capabilities required to face them, the evolution of modern technologies, and the skillset needed to deploy those. In order to carry out a sound programming exercise, the European Commission and the EU Member States strive to consult and involve all actors. With that aim, experts are gathered in different configurations and their inputs are coordinated at EU and national levels to be factored in by the decision-making bodies of EU-funded security research.
These experts require high quality, reliable and timely evidence to support their assessments, but information is often scattered, hardly visible and requires bespoke processing for the detection of patterns and for the generation of actionable intelligence. In other cases, it is simply not presented in the right format to unveil its value.
Applicants are invited to submit proposals for the establishment of Knowledge Networks for Security Research & Innovation. The role of these networks is to collect, aggregate, process, disseminate and exploit the existing knowledge to directly contribute to the expected outcomes of this topic.
Networks must engage with the main sources of information in order to have a sound and updated picture of the aspects mentioned above. This includes interaction with security experts (beyond the members of the project consortium), organisations, projects or initiatives, but also an extensive review of available databases, studies, reports or literature (notably all information generated under the EU-funded security research programmes, and possibly under other EU or MS funding programmes).
The networks have to ensure the dissemination and exploitation of their findings to the different communities of the security research ecosystem, including policy makers, security authorities, industry, researchers and citizens. Special emphasis needs to be made on the contribution of these networks to the work of entities and initiatives established by the European Commission and the EU Agencies (e.g. Union Civil Protection Knowledge Network) to contribute to the security research programming effort. In this regard, the networks have to contribute timely and intensively to the work of the Thematic Working Groups of the Community of Users for Secure, Safe and Resilient Societies (future CERIS -Community of European Research and Innovation for Security) and of other equivalent innovation labs/groups set-up by EU Agencies (e.g. EUROPOL). The networks will have to contribute to these working groups with the quantitative and qualitative evidence required to carry out their activities in support to a more impactful EU-funded Security R&I and to a more frequent and systematic innovation uptake.
Each proposal should include a plan, and a budget amounting at least 25% of the total cost of the action to interact with industry, academia and other providers of innovative solutions outside the consortium, with a view to assessing the feasibility of their findings, give support in validation processes, promote competitive development (e.g. via prizes) or dissemination of results, among other options.
The networks must be in a position to deliver findings on the abovementioned challenges starting from the month 6 of the project and periodically every 6 months or less, in accordance with the information needs of the entities and initiatives they are contributing to.
Proposals should clearly describe the process and timing for the collection of inputs and the generation of outcomes. This plan should go beyond the description of project deliverables and milestones, and describe in detail how and when the findings will be disseminated and exploited during the project and in collaboration with the communities described above.
The consortia submitting the proposals should ensure sufficient representativeness of the communities of interest (including, but not only, geographical representativeness) and a balanced coverage in terms of knowledge and skills of the different knowledge domains required to face the challenge, including security operations, technologies, research & innovation, industry, market, etc. The applying consortia should demonstrate how the project beneficiaries guarantee the expertise required to steer the project activities in all the knowledge domains to ensure the success of the action. The work of the partners should be

supported by solid and recognised tools and methods, also accompanied by the required expertise to put them in practice.
The networks should build to the extent possible on the work initiated by the Networks of Practitioners funded under H2020 Secure Societies work programmes. Should such networks be still ongoing, maximum cooperation and minimum overlapping should be ensured and demonstrated.
Under this call, the applicants are invited to propose networks on the thematic areas of:
Option A: Disaster Resilience
Option B: Fighting Crime and Terrorism.
The project should have a maximum estimated duration of 3 years.
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.
Further information:
https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/horizon-cl3-2022-ssri-01-02;callCode=null;freeTextSearchKeyword=;matchWholeText=true;typeCodes=1,2,8;statusCodes=31094502;programmePeriod=2021%20-%202027;programCcm2Id=43108390;programDivisionCode=null;focusAreaCode=null;destination=null;mission=null;geographicalZonesCode=null;programmeDivisionProspect=null;startDateLte=null;startDateGte=null;crossCuttingPriorityCode=null;cpvCode=null;performanceOfDelivery=null;sortQuery=startDate;orderBy=asc;onlyTenders=false;topicListKey=topicSearchTablePageState

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48. /HORIZON EUROPE*/ OPEN TOPIC, deadline: 23. November 2022 17:00 Brussels time

Scope:
Under the Open topic, proposals are welcome to address new, upcoming or unforeseen challenges and/or creative or disruptive solutions within this Destination that are not covered by the other topics, in either of Call Border Management 2021 and Call Border Management 2022.
Adapted to the nature, scope and type of proposed projects, proposals should convincingly explain how they will plan and/or carry out demonstration, testing and validation of developed tools and solutions.
Proposals should be convincing in explaining the methods they intend to use for demonstrating, testing and validating the proposed tools and solutions. Proposals should also delineate the plans to develop possible future uptake and upscaling at national and EU level for possible next steps after the research project.
Research proposals should consider, build on if appropriate and not duplicate previous research, including but is not limited to research by other Framework Programmes projects.
Specific Topic Conditions:
Activities are expected to achieve TRL 5-7 by the end of the project - see General Annex B.
Further information:
https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/horizon-cl3-2022-bm-01-05;callCode=null;freeTextSearchKeyword=;matchWholeText=true;typeCodes=1,2,8;statusCodes=31094502;programmePeriod=2021%20-%202027;programCcm2Id=43108390;programDivisionCode=null;focusAreaCode=null;destination=null;mission=null;geographicalZonesCode=null;programmeDivisionProspect=null;startDateLte=null;startDateGte=null;crossCuttingPriorityCode=null;cpvCode=null;performanceOfDelivery=null;sortQuery=startDate;orderBy=asc;onlyTenders=false;topicListKey=topicSearchTablePageState

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49. /HORIZON EUROPE*/ Enhanced citizen preparedness in the event of a disaster or crisis-related emergency, deadline: 23. November 2022 17:00 Brussels time

ExpectedOutcome:
Projects' results are expected to contribute to some of the following outcomes:
? Design of preparedness actions linking together multilevel interventions that need to involve citizens, communities, business organisations, public administrations for empowering citizens and their communities to act by themselves together with emergency services and managing spontaneous volunteers in the case of a disaster or crisis-related emergency of any kind (natural hazards, including pandemics, or man-made including terrorist threats) in the form of best practices and guidelines exploiting local resources (knowledge, networks, tools) developed with practitioners and local decision-makers.
? Development of effective means for communication improving inter-organisational collaborative processes e.g. early warning systems and communication chains, roles, tasks and responsibilities of citizens, communities, local authorities, NGOs, business companies and practitioners, taking into account the legal framework, procedures for normal operation and organizational boundaries.
? Improved early warning systems, forecasts and strategies to reach different public representatives with proper messages in the event of a disaster.
? Demonstration exercises involving citizens, training and educational institutions, local decision-makers, employees in public administrations and in business companies, and practitioners, to identify practices, test guidelines and communication strategies in near-real-case situations in the framework of field exercises, virtual trainings and serious gaming, school / university curricula and professional training.
? Building a 'culture of disaster preparedness' for citizens, communities, public administrations, business companies, practitioners: Development of an effective education system and integration of theory and practice of preparedness in school curricula; development of an effective integration of multilevel action in public administration (at local and regional national and international levels) focusing also on responsibility and deliberation issues; development of effective preparedness practices for citizens, communities, business organisations and practitioners (and their associations).
? Deployment of evidence-based assessment methods/models to monitor and strengthen emergency preparedness.
Scope:
Improving societal resilience to disasters or crises relies on various features related to preparedness of citizens, communities, education systems, public administrations, business companies and practitioners. These concern, in particular, ways to react and informed decisions to take in case of an event. Individual, public and multi-level actions are needed in disaster risk management and they have huge implications on potentially reducing losses and increasing the operational capacity of responders, along with significant impacts on the emergency planning and management phases and its relation to continuous operations and existing safety management. In particular, the level of awareness of EU citizens of the risks in their region is an indicator for measuring progress in increasing public awareness and preparedness for disasters and in the implementation of the Union Civil Protection Mechanism legislation.
Besides the required risk understanding dealt with in topic CL3-2021-DRS-01-01, research is needed in several domains. With regard to public administrations, it is relevant to conceptualise how to increase risk awareness by building processes capable of fostering a long-lasting coalition with citizens around the objective of reducing vulnerability. This implies the definition of action protocols and models of responsibility that mobilise the intervention of individual employees of public administrations. With regard to business companies and practitioners, it is relevant to integrate their emergency activities in the local context. With regard to citizens and communities, it is necessary to design preparedness actions enabling an empowerment of citizens (including particularly vulnerable groups), their communities and NGOs through bottom-up participatory and learning processes. This includes school/university curricula and professional training and trust building among local actors, integrating relevant traditional knowledge, incorporating a gender perspective where relevant, best practices, guidelines, and possible changes of regulations, to allow participatory actions. Difficulties in communication to the public in preparedness

(and response) phases requires the consideration of legal aspects, along with investigations into innovative practices, forms and tools that will enable the more effective sharing of information, taking into account possible risks of disinformation and fake news. These will support citizens in acting efficiently by themselves, through enhanced collaboration and communication and improving information exchanges between local authorities (including first and second responders), vulnerable populations (e.g. socio-economic groups, ethnic groups, persons with disabilities or illnesses, children, elderly, hospital patients), and the private sector.
Moreover, recent crises have shown that there is a large sense of solidarity among the population during a disaster or crisis situation. Many citizens that were not involved in disaster relief organisations before the crisis want to offer support to their fellow citizens and the broader community in times of crises. These initiatives of "spontaneous volunteers" are however most efficient if they are informed and trained and if their valuable contributions are coordinated with the authorities and first and second responders on the ground. Preparedness plans, tests and continued adaption on how best to manage spontaneous volunteers and integrate those into the response are needed.
This topic requires the effective contribution of SSH disciplines and the involvement of SSH experts, institutions as well as the inclusion of relevant SSH expertise, in order to produce meaningful and significant effects enhancing the societal impact of the related research activities. In 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-cl3-2022-drs-01-01;callCode=null;freeTextSearchKeyword=;matchWholeText=true;typeCodes=1,2,8;statusCodes=31094502;programmePeriod=2021%20-%202027;programCcm2Id=43108390;programDivisionCode=null;focusAreaCode=null;destination=null;mission=null;geographicalZonesCode=null;programmeDivisionProspect=null;startDateLte=null;startDateGte=null;crossCuttingPriorityCode=null;cpvCode=null;performanceOfDelivery=null;sortQuery=startDate;orderBy=asc;onlyTenders=false;topicListKey=topicSearchTablePageState

50. /HORIZON EUROPE*/ Better understanding of citizens' behavioural and psychological reactions in the event of a disaster or crisis situation, deadline: 23. November 2022 17:00 Brussels time

ExpectedOutcome:
Project results are expected to contribute to some of the following expected outcomes:
? Qualitative and quantitative analyses on the behaviour of diverse society groups affected by a natural and man-made disaster or crisis situation, during and after an even occurs, based on real cases and testimonies, lessons learned from past disasters or crisis and recommendations from citizens and local authorities. Examine how this analysis could be integrated into preparedness plans and processes to include cultural, historical, and ethical perspectives on what defines disasters and how they are responded to.
? Analyses of human behaviour as triggering or cascading factors of disasters or crisis situations, and transformation of qualitative data into quantitative information to improve vulnerability and exposure analyses.
? Development of community-centred (vis-à-vis victim- or patient-centred) approaches and corresponding preparedness plans: in view of limited emergency response capacities and threat of systems collapses (e.g. health system, food distribution, supply chains) in large-scale disaster scenarios, analyse what community practices and communication strategies can help mitigate the latter and enable the public to be a capable partner in emergency planning and response.
? Specific measures to better address the needs and requirements of most vulnerable groups (chronic suffers, persons with disabilities, children, elderly persons, economically and socially deprived persons,

refugees and irregular migrants in emergency planning and recovery measures.
? Analyses of the nature and scope of mental health issues of the affected populations and of first-responders arising during and following natural or man-made disasters or crisis situations and their implications for response and recovery, and options to address these issues, including through social and health services such as emergency psycho-social support.
? Analyses of mechanisms and factors that can lead to false alarms and misdirected actions, and of the direct consequences on both population and decision-makers.
Scope:
Human actions and behaviour may strongly influence the effects and dynamics of a disaster or crisis situation and on the response, potentially modifying the vulnerability of the population. For example, inadequate design of technological systems may favour cascading consequences due to limited consideration of human performance, and insufficient planning. Linked to this, due to extreme time pressure, crisis managers are often forced to make decisions on the basis of inadequate information. The behaviour of the general public, mostly influenced by demographic factors (e.g. gender, age, income, education, risk-tolerance, social connectivity etc.) and the perception of risks, depends on the availability, form and access to information about the crisis and management of trade-offs (e.g. efficiency and thoroughness trade-offs). Social media play an important role here being a means of disinformation and misinformation.
Recent disasters related either to natural causes (including climate-related and geological hazards), man-made causes (including industrial accidents or terrorist attacks) or the COVID-19 pandemic crisis have shown the lack of sufficient knowledge in the way citizens react in case of disasters or crisis situations, with implications on policy design and implementation for example in the form of preparedness plans. In this respect, taking into account the knowledge gathered by projects funded in Horizon 2020 and ensuring complementarity, behavioural and psychological research on how citizens behave in the event of a disaster or crisis situation is needed to better understand how to best raise awareness in the population and develop tools to facilitate this.
It is hence necessary to better investigate how historical, cultural and emotional factors (e.g. anxiety, panic etc.) during a disaster or a crisis influence rational actions, evaluations of options and information seeking. In addition, the impact of disasters on health also requires looking into the short and long-term consequences of exposure to high stress/threat levels bears, in particular for mental health.
Where possible and relevant, synergy-building and clustering initiatives with successful proposals in the same area should be considered, including the organisation of international conferences in close coordination with the Community for European Research and Innovation for Security (CERIS) activities and/or other international events.
Further information:
https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/horizon-cl3-2022-drs-01-04;callCode=null;freeTextSearchKeyword=;matchWholeText=true;typeCodes=1,2,8;statusCodes=31094501,31094502;programmePeriod=2021%20-%202027;programCcm2Id=43108390;programDivisionCode=null;focusAreaCode=null;destination=null;mission=null;geographicalZonesCode=null;programmeDivisionProspectus=null;startDateLte=null;startDateGte=null;crossCuttingPriorityCode=null;cpvCode=null;performanceOfDelivery=null;sortQuery=startDate;orderBy=asc;onlyTenders=false;topicListKey=topicSearchTablePageState

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51. /HORIZON EUROPE*/ Improved impact forecasting and early warning systems supporting the rapid deployment of first responders in vulnerable areas, deadline: 23. November 2022 17:00 Brussels time

ExpectedOutcome:

Projects' results are expected to contribute at least three of the following outcomes:
Comparison of measures and technologies to enhance the response capacity to extreme weather and geological events (including local measures and warning systems) affecting the security of people and assets.
Adjustments of warning and response systems in the light of cross-disciplinary cooperation, involving planning authorities and first responders, to better manage the rapid deployment of first responders and communication to citizens in vulnerable areas in the case of extreme climate events or geological disasters.
Timely operational forecasts of severe (short-term focus) extreme weather events (e.g. floods, hot waves, storms, storm surges) or geological hazards (e.g. volcanic eruption, earthquake, tsunami) to aid planning authorities, civil protection agencies and first responders in their decision-making.
European-scale multi-hazard platform to facilitate the identification of expected natural hazards with great specificity in time and space and improve science communication for boosting interactions between scientists, general media and the public.
Methodologies to integrate innovative state-of-the art early warning systems into existing tools for decision-making and situation reporting already used by civil protection authorities from international to local level.
Scope:
Enhanced risk and crisis assessment and preparedness to natural hazards rely on tools using different types of data, information and forecasts (e.g. meteorological data, physical data related to geohazards and climate projections etc.) which may enable to anticipate the occurrence of disasters. Based on the legacy of existing solutions, in particular in the area of extreme weather events, further developments are required to compare impact forecasting and early warning approaches at international level. The aim of such comparisons would be to design EU-wide decision-support and information systems supporting planning authorities and civil protection agencies in the rapid deployment of first responders and communication to citizens in vulnerable areas in the case of extreme climate events or geological disasters. This platform development might be prone to international cooperation, hence supporting the implementation of both EU policies and the UN Sendai Framework for Action. Innovation actions should improve measures and technologies that are needed to better plan for extreme climate events and geological disasters, reduce risks, as well as manage the immediate consequences of natural disasters, in particular regarding emergency responses. This should lead to sound and timely operational forecasts of severe (short-term focus) extreme weather events or geological hazards to aid planning authorities, civil protection agencies and first responders in their decision-making. Built up on developments from relevant H2020 projects, a European-scale multi-hazard platform should be designed, taking into account existing developments at EU level and available space information, in order to facilitate the identification of expected natural hazards with great specificity in time and space. The aim is to utilise largely existing capabilities and combine them into a single, user-friendly platform.
In order to achieve the expected outcomes, international cooperation is encouraged, in particular with vulnerable countries, e.g. African and South Mediterranean members of the Union for the Mediterranean. Where possible and relevant, synergy-building and clustering initiatives with successful proposals in the same area should be considered, including the organisation of international conferences in close coordination with the Community for European Research and Innovation for Security (CERIS) activities and/or other international events.
Further information:
https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/horizon-cl3-2022-drs-01-05;callCode=null;freeTextSearchKeyword=;matchWholeText=true;typeCodes=1,2,8;statusCodes=31094502;programmePeriod=2021%20-%202027;programCcm2Id=43108390;programDivisionCode=null;focusAreaCode=null;destination=null;mission=null;geographicalZonesCode=null;programmeDivisionProspect=null;startDateLte=null;startDateGte=null;crossCuttingPriorityCode=null;cpvCode=null;performanceOfDelivery=null;sortQuery=startDate;orderBy=asc;onlyTenders=false;topicListKey=topicSearchTablePageState

52. /HORIZON EUROPE*/ Stronger grounds for pre-commercial procurement of innovative security technologies, deadline: 23. November 2022 17:00 Brussels time

ExpectedOutcome:
Projects are expected to contribute to all of the following expected 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.
Scope:
End-users and public procurers from several countries are invited to submit proposals for a preparatory action that should build the grounds of a future Pre-Commercial Procurement action. Both this preparatory action and the future PCP action will be 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, or to make societies more resilient against natural or man-made disasters.
Projects funded under this topic could also consider submitting a proposal to an open call for a follow-up PCP action that the Commission may include in the Cluster 3 Work Programme 2023-2024 (subject to budget availability and priorities of the Work Programme 2023-2024). 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(2018) 3051[1], 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.
Should 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.
In this topic the integration of the gender dimension (sex and gender analysis) in research and innovation content is not a mandatory requirement.
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-cl3-2022-ssri-01-03;callCode=null;freeTextSearchKeyword=;matchWholeText=true;typeCodes=1,2,8;statusCodes=31094501,31094502;programmePeriod=2021%20-%202027;programCcm2Id=43108390;programDivisionCode=null;focusAreaCode=null;destination=null;mission=null;geographicalZonesCode=null;programmeDivisionProspect=null;startDateLte=null;startDateGte=null;crossCuttingPriorityCode=null;cpvCode=null;performanceOfDelivery=null;sortQuery=startDate;orderBy=asc;onlyTenders=false;topicListKey=topicSearchTablePageState

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53. /HORIZON EUROPE*/ Social innovations as enablers of security solutions and increased security perception, deadline: 23. November 2022 17:00 Brussels time

ExpectedOutcome:
Projects' results are expected to contribute to one or several of the following outcomes:
? Policy makers, security practitioners and researchers have increased understanding of the capabilities and capacities of local communities and citizens to contribute to developing security solutions;
? Policy makers, researchers and system developers increase the orientation of security solution development towards socially innovative and Responsible Research and Innovation approaches;
? The notions of 'smart citizens' and 'smart local communities' empowered by Responsible Research and Innovation and social innovation, where the general public co-control safety and security of their environments, are more widely adopted by decision makers;
? New benchmarks, standards or other quality criteria are established for developing security solutions through Responsible Research and Innovation[1];
? Increased collaboration across all parts of the quadruple helix (academia/research, public authorities, industry/SMEs, civil society/citizens/local communities) to develop innovations in line with the needs, values and expectations of society;
? Innovative, transferable and potentially scalable technological solutions co-created with citizens and local communities in social labs and innovation living hubs, and citizens empowered to act as generators, validators and end-users of the new horizontal technologies;
? Societal trust in security research products, their desired usefulness and social acceptability[2];

Scope:

Citizens and local communities are insufficiently involved in the co-creation of socially innovative processes to develop security solutions and thus conceptions of what citizens and local communities know and think about security could be predominantly shaped by media coverage. This might result in bias in the assessment of the seriousness and probability of different security threats. Nevertheless, social acceptance of security technology depends on understanding citizens' awareness of security problems and threats. Comprehensive discussion that involves citizens from all parts of society directly in co-design such as through Responsible Research and Innovation and social innovation, alongside other security technology actors, would integrate public concerns beyond incident-based interpretations of security threats, thereby increasing social acceptance of security technology and subjective feelings and perceptions of personal security in daily life. At the same time, industry would be in a position to identify new business opportunities in producing and delivering security products and services, which are in line with needs, values and expectations of citizens and local communities and support their well-being.
Social innovations[3] for increasing security and security perception can be manifold and the scope of application of social innovation is potentially wide-ranging and can address diverse aspects. For example, apps that help citizens to prevent, detect and respond with first responders in disaster and crisis situation and to access real-time information about adequate responses; the formation of networks of parents of children who are considered susceptible to extreme ideologies to establish early warning and early-intervention mechanisms. What these examples have in common is that they give citizens an active role in co-creation and produce a practical use value.
Giving more emphasis on a co-creation procedure from the design phase could also overcome the corresponding lack of knowledge about how socially innovative solutions can contribute to increased security and security perception. Although citizens and local communities can successfully support as co-designers and beneficiaries to replicate and upscale best practices as well as systemic and cross-sectorial solutions that combine technological, digital, social and nature-based innovation, existing knowledge of such contributions is limited. Therefore, proposals should develop a societal development plan that builds upon a people-centred approach and examines how social innovations on security are organised, how they work, how and why they are adopted or rejected, their direct and indirect benefits and costs, including in vulnerability assessments, how they sustain, and which interfaces with other more formal security agents are established.
Proposals should map and analyse a social innovation in one or more distinct social spheres, in areas such as:
(a) Security disturbance at large (pop-) cultural and sports events;
(b) Security and security behaviour in public places, public transport or mobility;
(c) Radicalisation, dis-integration in local communities and social media;
(d) Digital identity, data portability and data minimisation with an attribute based society in control;
(e) Safety and security in remote communication, command and control of operation in risk scenarios;
(f) Mobilisation on human trafficking;
(g) Automatic detections' use.
Proposals should consider the social relevance of research, social marketing, transferability and scaling of such social innovations as this is an area where there is limited research and experimentation, which could help to spread the use of such solutions. They should also consider education, training and change individual behavioural and social practices by involving citizens and local communities as generators, validators and end-users of the new horizontal/advanced technologies.
Proposals which have developed innovative ideas on societal resilience under the Destination Disaster-Resilient Society and which can transform them into social innovations for disaster crisis situations engaging citizens and local communities are not pre-empted to participate in this topic.
Consortia should give meaningful roles to all research and innovation actors, including security practitioners, system developers, the public sector, technology development organisations, civil society organisations[4], communication specialists on security research, researchers and Social Sciences and Humanities Experts from a variety of EU Member States and Associated Countries. In order to ensure a meaningful democratic oversight of the EU's security research programme, projects and policies at national and European level, proposals should establish a multidisciplinary approach and have the appropriate balance of industry, representatives of citizens and local communities and social sciences and

humanities experts.
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.
As indicated in the introduction of this call, project proposals should foresee resources for clustering activities with other successful proposals in the same or other calls, to find synergies, and identify best practices, and to develop close working relationships with other Programmes (e.g. the Civil Society Empowerment Programme (CSEP-ISF), Science with and for Society (SwafS), the Digital Europe Programme).
The project should have a maximum estimated duration of 4 years.
Further information:
https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/horizon-cl3-2022-ssri-01-04;callCode=null;freeTextSearchKeyword=;matchWholeText=true;typeCodes=1,2,8;statusCodes=31094501,31094502;programmePeriod=2021%20-%202027;programCcm2Id=43108390;programDivisionCode=null;focusAreaCode=null;destination=null;mission=null;geographicalZonesCode=null;programmeDivisionProspect=null;startDateLte=null;startDateGte=null;crossCuttingPriorityCode=null;cpvCode=null;performanceOfDelivery=null;sortQuery=startDate;orderBy=asc;onlyTenders=false;topicListKey=topicSearchTablePageState

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54. /HORIZON EUROPE*/ Enhanced security of, and combating the frauds on, identity management and identity and travel documents, deadline: 23. November 2022 17:00 Brussels time

ExpectedOutcome:
Projects are expected to contribute to some or all of the following expected outcomes:
? Improved capabilities of border management and law enforcement practitioners to identify citizens and the use of identity and travel documents and credentials in the context of border and police checks, for a better, more reliable and more secure experience for citizens and security practitioners, including in connection to optimised e-Government settings;
? Improved capabilities of border management and law enforcement practitioners to defend identity and document/credential management against attacks to their security and attempts to falsify biometrics, identity thefts and online frauds;
? Improved knowledge for European approaches to future identity management systems and document and credential security, building on and integrating with existing tools and respecting the privacy of European citizens.
Scope:
Research will build capabilities to prevent, detect and respond to challenges to the security and reliability of identity management and identity and travel documents, in the context of border and police checks. Research should also address solutions for integrated secure identity creation, protection and management in the context of future increasingly "digitalised" borders; and contribute to improve the performance and the comfort of the border and police checks experience for both security authorities' operators and the users.
New challenges for secure identity management and secure identity and travel documents could emerge in the coming years and decades. Solutions will hence have to enable new capabilities while at the same time ensuring both privacy and security of identity and identity documents. Future electronic identification systems will have to safeguard key parameters of identity management, such as security, efficiency, user friendliness, trust, privacy and protection of data. Electronic identifications (eIDs) can be carried on mobile devices, to respond to security requirements, ease of use and range of applications. In addition, it is necessary to ensure the reliability and link among the information contained on identity supports and

their owner, to avoid the possibility of having authentic documents with false information. Research can focus on security and privacy enhancing features in new eID ecosystems and/or on innovative identity lifecycle processes.
Areas of research could include exploring solutions against morphing attacks to the security of identity and travel documents, including robust algorithms to detect morphing, as well as against other possible future attempts and techniques to falsify biometrics; methods to validate and verify identity at borders or police checks; or advanced and privacy-enhanced technologies for the security of identity, breeder and travel documents. Research should explore novel solutions for document verification and fraud detection, including Manipulation Attack Detection (MAD) and Presentation Attack Detection (PAD) at border checks.
The proposed solutions should act not only at technological level, but should also propose new approaches to the traditional central authority architecture. The solutions should take into account the management of sensitive information and include an assessment of legal and ethical issues.
Solutions have the potential to contribute to future evolutions of European identity strategies based on eIDAS (Electronic Identification, Authentication and Trust Services), and could explore synergies with tools offered by the eIDAS Regulation.
Research proposals should consider, build on if appropriate and not duplicate previous research, including but not limiting to research by other Framework Programmes projects such as those on capabilities for document security, as well as EU studies on potential applications of technologies to the improvement of border management capabilities.
Further information:
https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/horizon-cl3-2022-bm-01-02;callCode=null;freeTextSearchKeyword=;matchWholeText=true;typeCodes=1,2,8;statusCodes=31094502;programmePeriod=2021%20-%202027;programCcm2Id=43108390;programDivisionCode=null;focusAreaCode=null;destination=null;mission=null;geographicalZonesCode=null;programmeDivisionProspectionProspect=null;startDateLte=null;startDateGte=null;crossCuttingPriorityCode=null;cpvCode=null;performanceOfDerformanceOfDelivery=null;sortQuery=startDate;orderBy=asc;onlyTenders=false;topicListKey=topicSearchTablePageSearchTablePageState

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55. /HORIZON EUROPE*/ OPEN TOPIC, deadline: 23. November 2022 17:00 Brussels time

Scope: Under the Open topic, proposals are welcome to address new, upcoming or unforeseen challenges and/or creative or disruptive solutions within this Destination that are not covered by the other topics, in either Call Border Management 2021 and Call Border Management 2022.
Adapted to the nature, scope and type of proposed projects, proposals should convincingly explain how they will plan and/or carry out demonstration, testing and validation of developed tools and solutions.
Proposals should be convincing in explaining the methods they intend to use for demonstrating, testing and validating the proposed tools and solutions. Proposals should also delineate the plans to develop possible future uptake and upscaling at national and EU level for possible next steps after the research project.
Research proposals should consider, build on if appropriate and not duplicate previous research, including but is not limited to research by other Framework Programmes' projects.
Further information:
https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/horizon-cl3-2022-bm-01-04;callCode=null;freeTextSearchKeyword=;matchWholeText=true;typeCodes=1,2,8;statusCodes=31094502;programmePeriod=2021%20-%202027;programCcm2Id=43108390;programDivisionCode=null;focusAreaCode=null;destination=null;mission=null;geographicalZonesCode=null;programmeDivisionProspectionProspect=null;startDateLte=null;startDateGte=null;crossCuttingPriorityCode=null;cpvCode=null;performanceOfDerformanceOfDelivery=null;sortQuery=startDate;orderBy=asc;onlyTenders=false;topicListKey=topicSearchTablePageSearchTablePageState

56. /HORIZON EUROPE*/ Improved quality assurance / quality control of data used in decision-making related to risk management of natural hazards, accidents and CBRN events, deadline: 23. November 2022 17:00 Brussels time

ExpectedOutcome:'
Projects' results are expected to contribute to the following outcomes:
? Evaluation of Quality Assurance / Quality Control (QA/QC) needs in areas not prone to systematic quality checks prior to decision-making in the natural hazards and CBRN-E areas, for physical, chemical and biological parameters.
? Based on past experience, organised intercomparisons among laboratories and institutes at EU level which are in charge of providing data for risk- and evidence-based decision-making in order to evaluate the comparability of data produced worldwide.
Production of reference materials and possible certification schemes for the systematic checking of laboratory and method's performance for monitoring data used in risk- and evidence-based decision-making that are not prone to readily established schemes.
Scope:
Risk management of natural hazards and CBRN-E events closely rely on available data, taking into account uncertainties brought on by climate change and Earth dynamics. The soundness of decisions is based on quality data, which justifies that continuous efforts are made to improve their quality assurance / quality control, in particular in the natural hazards area as well as in the CBRN-E area. In many instances, measurement data used in decision-making are rarely challenged in the areas of crisis management and/or mechanisms are still underdeveloped to systematically demonstrate their quality (e.g. in the case of substances of criminal nature such as biological toxins). Quality assurance / Quality control (QA/QC) are prone to standardised procedures such as the EN 45000 Series, which includes requirements related to laboratory settings, analytical techniques, criteria for analytical performances (e.g. accuracy, repeatability, limits of detection etc.) that are well implemented in sectors such as the environment (including water), food and health. In other areas requiring monitoring data of physical, chemical or biological nature related to risk assessment of natural hazards such as climate threats and pandemics, man-made (accidental) risks (e.g. chemical substances in Seveso-type environments) or terrorism threats (e.g. chemical or biological toxins used for criminal purposes), the QA/QC rules are much less known and followed. In particular, the systematic comparison of measurement techniques related to risk assessment of natural hazards (including health) and CBRN-E data is not wide-spread and references data or materials are often lacking. Recent developments have led to the testing of proficiency testing schemes for biological toxins of potential bioterrorism risk, but a general framework for checking data quality and controlling laboratory and analytical technique performances (including from measurement data directly gathered in the field) does not yet exist at European level. There is hence a need to evaluate the needs for QA/QC developments in relevant areas for which physical, chemical and biological measurement data are insufficiently checked for quality, and to develop an appropriate EU-wide approach to improve and demonstrate this quality, thus ensuring a traceability and comparability of data used throughout Europe for sound risk- and evidence-based decision-making.
Further information:

https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/horizon-cl3-2022-drs-01-03;callCode=null;freeTextSearchKeyword=;matchWholeText=true;typeCodes=1,2,8;statusCodes=31094502;programmePeriod=2021%20-%202027;programCcm2Id=43108390;programDivisionCode=null;focusAreaCode=null;destination=null;mission=null;geographicalZonesCode=null;programmeDivisionProspectus=null;startDateLte=null;startDateGte=null;crossCuttingPriorityCode=null;cpvCode=null;performanceOfDelivery=null;sortQuery=startDate;orderBy=asc;onlyTenders=false;topicListKey=topicSearchTablePageState

57. /HORIZON EUROPE*/ Public spaces are protected while respecting privacy and avoiding mass surveillance, deadline: 23. November 2022 17:00 Brussels time

ExpectedOutcome:
Projects' results are expected to contribute to all of the following outcomes:
? Improved understanding by local authorities, operators and policy makers of the effect of large-scale surveillance of public spaces on the behaviour of citizens and possible negative effects on local communities;
? Enhanced transparency for citizens on different forms of surveillance by Police Authorities[1], local authorities and private actors in public spaces, and increased awareness of applicable rights towards operators of such systems;
? Improved protection of public spaces without the need for 24/7 data collection and storage;
? Set of common standards and good practices by local authorities, operators and policy makers for internal access restriction, anonymization and data minimization allowing a proportionate use of already installed surveillance-systems (such as CCTV) in public spaces, reducing the risk of misuse of collected data and respecting fundamental rights, especially the protection of personal data.
Scope:
In recent years, the number of different tools for the surveillance of public spaces has been growing at massive pace in most European cities. CCTV-systems in public spaces are the most evident examples. They have been expanded in terms of quantity (number of CCTV in public spaces, such as squares, streets or touristic sites), quality (improved solution of images, possibility of tracking and automatic pattern-recognition) and also scope (CCTV present in areas like parks, 24/7 recording as standard due to higher data storage capacities).
CCTV-systems are the most evident and visible, although by far not the only ones. Acoustic sensors, Automatic Number Plate Recognition (ANPR) and in the future possibly widespread facial recognition add to a system of sensors that cover large parts of public spaces in many European cities.
While evidence suggests that such tools can help to combat certain forms of crime an increase the perceived security of citizens, the significant expansion of areas that are monitored risks to create negative effects for the right for privacy. Scientific studies indicate that also legal forms of behaviour are adapted by persons, which are aware that they are monitored by surveillance systems. Furthermore, there is evidence that such systems are often concentrated in socially deprived districts, creating the risks of stigmatisation of its residents.
In terms of crime prevention there are indications that for many settings, sensors like CCTV are in the best case only part of a solution and they can create a tendency of reducing personnel on the ground, thus limiting the possibilities for classical policing and reducing the direct interaction between local police and public order services and the citizens. Such interaction is however key to address crime prevention and response to criminal threats in a holistic manner.
The quantitative growth of both public and private surveillance has led to the fact that nowadays, citizens are hardly able to keep track of where their data has been captured and thus not able to make us of their rights as guaranteed by applicable legislation, such as the GDPR. While citizens as subjects of the surveillance are becoming transparent towards public and private operators of surveillance, the operators themselves remain in many cases inaccessible and few technological innovations are used to make sure

only relevant data is stored and processed.
While significant industry and research resources are invested in the design of new and the upgrading of existing surveillance systems for public spaces, innovation could be stimulated to look for alternatives. Such alternative could identify means to protect public spaces though enhanced interaction with local communities, re-design sensors as to ensure they capture data in the most proportionate way, increase transparency for citizens towards public and private operators of surveillance systems and finally explore privacy-friendly technological features to ensure that only relevant data is kept, processed and accessible by authorised actors. 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.
Responsible Research and Innovation[2] could be a relevant approach for the involvement of diverse stakeholders, launching debates, and co-developing or even implementing solutions.
In this topic the integration of the gender dimension (sex and gender analysis) in research and innovation content should be addressed only if the consortium deems it 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-cl3-2022-fct-01-04;callCode=null;freeTextSearchKeyword=;matchWholeText=true;typeCodes=1,2,8;statusCodes=2,8;statusCodes=31094502;programmePeriod=2021%20-%202027;programCcm2Id=43108390;programDivisionCode=null;focusAreaCode=null;destination=null;mission=null;geographicalZonesCode=null;programmeDivisionProspectionProspect=null;startDateLte=null;startDateGte=null;crossCuttingPriorityCode=null;cpvCode=null;performanceOfDelivery=null;sortQuery=startDate;orderBy=asc;onlyTenders=false;topicListKey=topicSearchTablePageState

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58. /HORIZON EUROPE*/ Transition towards Quantum-Resistant Cryptography, deadline: 16. November 2022 17:00 Brussels time

ExpectedOutcome:
Projects are expected to contribute to at least three of the following expected outcomes:
-Measuring, assessing and standardizing/certifying future-proof cryptography
-Addressing gaps between the theoretical possibilities offered by quantum resistant cryptography and its practical implementations
-Quantum resistant cryptographic primitives and protocols encompassed in security solutions
-Solutions and methods that could be used to migrate from current cryptography towards future-proof cryptography
-Preparedness for secure information exchange and processing in the advent of large-scale quantum attacks

The proposal should provide appropriate indicators to measure its progress and specific impact.
Scope:
During the next decades the European Union should seize the opportunities that quantum technologies will bring. However, quantum technologies will also pose a significant risk to the security of our society. The advent of large-scale quantum computers will compromise much of modern cryptography, which is instrumental in ensuring cybersecurity and privacy of the digital transition. Any cryptographic primitive based on the integer factorization and/or the discrete logarithm problems will be vulnerable to large-scale quantum-powered attacks. The digital data/products/systems that derive their security ultimately from the abovementioned primitives will be compromised and must be upgraded -including their replacement when needed- to quantum-resistant cryptography. The massive scale of this foreseen upgrade shows that preparations are needed today in order to widely implement the relevant mitigations in the future. Many companies and governments cannot afford to have their protected communications/data decrypted in the

future, even if that future is a few decades away. There is a need to advance in the transition to quantum-resistant cryptography.
Applicants should propose approaches to tackle the abovementioned challenges, with the goal to develop cryptographic systems that are secure against attacks using both quantum or/and classical computers. Proposals may also try to better understand the expected capabilities of quantum computers (e.g. novel relevant quantum algorithms) and to further assess their implications to cybersecurity.
The proposed actions responding to this topic should take stock of and build on the relevant outcomes from other research fields (such as mathematics, physics, electrical engineering) and actions (e.g. H2020 projects, NIST Post-Quantum Cryptography competition, efforts in ETSI), and are encouraged to plan engaging and cooperating with them to the extent possible. Participation of SMEs is encouraged.
Applicants should demonstrate innovative ways to design, build, and deploy the new quantum-resistant infrastructures (including relevant hardware, software and IT processes). This should include switching from nowadays infrastructures to the proposed new ones with practical migration paths, aiming to efficiently manage the total time needed and the total costs associated, while also paying attention to affordable energy consumption.
Applicants should look at the implementation of quantum-resistant algorithms on software as well as specific hardware, such as. resource constrained IoT devices, smart cards, high-speed field-programmable gate arrays.
Proposals should devise, develop and validate metrics, methodologies, conformity assessment tests and tools for assessing and quantifying the security and the privacy of the proposed systems and services. Furthermore, proposals should strive to encompass a thorough comprehensive security evaluation of the engineering and deploying of efficient and secure implementations of the proposed solutions. Due consideration should be given to countermeasures against side channel attacks.
Applicants should strive to use the most promising relevant cryptographic primitives as well as to adapt the used cryptographic protocols accordingly.
Proposals may analyse how to develop combined quantum-classical[1] cryptographic solutions in Europe, for those use cases where these hybrid solutions might bring gains to the overall security. To this end, the analysis should take into account relevant actions in quantum cryptography (e.g. H2020 OpenQKD project, EuroQCI).
Proposals should validate their concept by exercising and deploying pilot demonstrators in relevant use cases. The demonstrators should include exercises on executing different migration strategies for real use cases and applications that would allow their implementation in large-scale, complex systems. Lessons learned from the exercises should be transformed into practical, multidisciplinary guidelines that support entities to plan and execute their own migration, considering the technical, the economical and legal contexts.
For expanding the proposed work in terms of including additional quantum-resistant infrastructures, additional pilot sites, additional countries and users the actions may involve financial support to third parties in line with the conditions set out in Part B of the General Annexes. Each consortium will define the selection process of the third parties for which financial support will be granted (typically in the order of EUR 50 000 to 300 000 per party). Up to 20% of the EU funding requested by the proposal may be allocated to the purpose of financial support to third parties.
In this topic the integration of the gender dimension (sex and gender analysis) in research and innovation content is not a mandatory requirement.
Specific Topic Conditions:
Activities are expected to achieve TRL 6 by the end of the project - see General Annex B.
Further information:

https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/horizon-cl3-2022-cs-01-03;callCode=null;freeTextSearchKeyword=;matchWholeText=true;typeCodes=1,2,8;statusCo,8;statusCodes=31094502;programmePeriod=2021%20-%202027;programCcm2Id=43108390;programDivisionCode=null;focusAreaCode=null;destination=null;mission=null;geographicalZonesCode=null;programmeDivisionProspectionProspect=null;startDateLte=null;startDateGte=null;crossCuttingPriorityCode=null;cpvCode=null;performanceOfDerformanceOfDelivery=null;sortQuery=startDate;orderBy=asc;onlyTenders=false;topicListKey=topicSearchTablePagerchTablePageState

59. /HORIZON EUROPE*/ Trustworthy methodologies, tools and data security "by design" for dynamic testing of potentially vulnerable, insecure hardware and software components, deadline: 16. November 2022 17:00 Brussels time

ExpectedOutcome:
Projects are expected to contribute to some of the following expected outcomes:
- Effective access control to system components and management of trustworthy updates
- Modelling of security and privacy properties and frameworks for validating and integration on the testing process
- Integrated process for testing, formal verification, validation and consideration of certification aspects (including potential synergies with the EU cybersecurity certification framework, as established by the EU Cybersecurity Act)
- Tools providing assurance that third-party and open source components are free from vulnerabilities, weaknesses and/or malware
- Data security "by design" e.g. via secure crypto building blocks
- Instrumentation and secured communication with system components for dynamic testing
- Methods and environments for secured coding by-design and by-default and secure hardware and software construction
- Effective audit procedures for cybersecurity testing
? Methods or procedures to make supply chains secure
The proposal should provide appropriate indicators to measure its progress and specific impact.
Scope:
Trustworthy methodologies and tools for advanced analysis and verification, and dynamic testing of potentially vulnerable, insecure hardware and software components calls for good practices for system security, with a particular focus on software development tools, IT security metric and guidelines for secure products and services throughout their lifetime. A holistic methodology is needed, integrating runtime methods for monitoring and enforcement as well as design-time methods for static analysis and programme synthesis, which allows for the construction of secure systems with the strongest possible formal guarantees. The firmware of devices, implementations of communication protocols and stacks, Operating Systems (OSs), Application Programming Interfaces (APIs) supporting interoperability and connectivity of different services, device drivers, backend cloud and virtualisation software, as well as software implementing different service functionalities, are some examples of how software provides the essence of systems and smart (networked) objects. Supply chain issues, including integration of software and hardware, should be considered appropriately.
R&I will be funded to develop hybrid, agile and high-assurance tools capable of automating evaluation processes, accountability tools for audit results and updates and lightweight, isolated virtualisation environments capable of securely inspecting and orchestrating appliances in heterogeneous hardware and software architectures. Moreover, KPIs, metrics, procedures and tools for dynamic certification of implementation security and scalable security, from chip-level to software-level and service-level, should be developed. It may also include testing methods like coverage guided fuzzing as well as symbolic execution.

The participation of SMEs is strongly encouraged. In this topic the integration of the gender dimension (sex and gender analysis) in research and innovation content is not a mandatory requirement.
Further information:
https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/horizon-cl3-2022-cs-01-02;callCode=null;freeTextSearchKeyword=;matchWholeText=true;typeCodes=1,2,8;statusCodes=31094502;programmePeriod=2021%20-%202027;programCcm2Id=43108390;programDivisionCode=null;focusAreaCode=null;destination=null;mission=null;geographicalZonesCode=null;programmeDivisionProspect=null;startDateLte=null;startDateGte=null;crossCuttingPriorityCode=null;cpvCode=null;performanceOfDelivery=null;sortQuery=startDate;orderBy=asc;onlyTenders=false;topicListKey=topicSearchTablePageState

60. /HORIZON EUROPE*/ Improved monitoring of threats, intrusion detection and response in complex and heterogeneous digital systems and infrastructures, deadline: 16. November 2022 17:00 Brussels time

ExpectedOutcome:
Projects are expected to contribute to at least three of the following expected outcomes:
- Improved disruption preparedness and resilience of digital infrastructure in Europe
- Improved capacity building in digital infrastructure security including organisational and operational capabilities
- Robust evidence used in cybersecurity decisions and tools
- Better prediction of cybersecurity threats and related risks
- Improved response capabilities based on effective collaboration and/or coordination with other relevant national or EU bodies in charge of Cybersecurity, including holistic incident reporting and enabling coordinated cyber-incident response.

The proposal should provide appropriate indicators to measure its progress and specific impact.
Scope:
Digital infrastructures together with their connected devices are characterised by complex interdependencies involving various physical and logical layers and connecting a wide range of legacy IT solutions and innovative technologies. Application scenarios include but are not limited to cybersecurity of communication systems and networks and their components, e.g. 5G networks, Internet of Things (IoT) devices, medical devices, supervisory control and data acquisition (SCADA) systems, and their services, e.g. cloud-based ICT solutions. Their availability, controlled performance and reliability need to be guaranteed at every moment serving the needs, sometimes critical and safety-related e.g. in transportation, energy, healthcare, of millions of citizens, enterprises and society. Therefore, they need to be protected in real-time against ever-evolving cybersecurity threats.
Building on research and innovation in the area of cybersecurity of digital infrastructures for example projects funded from H2020 SU-DS01-2018[1], SU-DS04-2018-2020[2], SU-DS05-2018-2019[3] and SU-TDS-02-2018[4], state of the art technologies should support the logging, categorisation, data aggregation from different sources, automatic information extraction and analysis of cybersecurity incidents. This includes advanced methods for cyber threats intelligence and cyber-incident forensics enabling better prediction of cyber security threats. Proposals should develop and validate demonstration prototypes of tools and technologies to monitor and analyse cybersecurity incidents in an operational environment in line with the NIS directive and the General Data Protection Regulation. They should contribute to improved penetration testing methods and their automation by using machine learning and other AI technologies as appropriate. Moreover, proposals should support effective network traffic analysis applying detection techniques in network operations based on advanced security information management and threat intelligence. Proposed solutions should also include validation or piloting of cyber threat intelligence with early-stage detection, prediction and contributions towards response

capability using predictive analytics, and as relevant, with efficient and user-friendly interaction methods, e.g. visual analytics. Furthermore, solutions deployed by this action should validate their approach to intrusion detection and incident monitoring with real end-users and their needs.
For expanding the proposed work in terms of additional pilot sites, additional user groups, additional applications, and complementary assessment of the acceptability of the use case, the actions may involve financial support to third parties in line with the conditions set out in Part B of the General Annexes. Each consortium will define the selection process of the third parties for which financial support will be granted (typically in the order of EUR 50 000 to 300 000 per party). Up to 20% of the EU funding requested by the proposal may be allocated to the purpose of financial support to third parties.
A strong culture awareness of data protection should be fostered. The proposals should also appropriately address concerns about mass surveillance and protection of personal spaces. All technologies and tools developed should be appropriately documented, to support take-up and replicability.
Consortia should bring together interdisciplinary expertise and capacity covering the supply and the demand side. Participation of SMEs is strongly encouraged. In this topic the integration of the gender dimension (sex and gender analysis) in research and innovation content is not a mandatory requirement.
Specific Topic Conditions:
Activities are expected to achieve TRL 7 by the end of the project - see General Annex B.
Further information:
https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/horizon-cl3-2022-cs-01-01;callCode=null;freeTextSearchKeyword=;matchWholeText=true;typeCodes=1,2,8;statusCo,8;statusCodes=31094502;programmePeriod=2021%20-%202027;programCcm2Id=43108390;programDivisionCode=null;focusAreaCode=null;destination=null;mission=null;geographicalZonesCode=null;programmeDivisionProspectionProspect=null;startDateLte=null;startDateGte=null;crossCuttingPriorityCode=null;cpvCode=null;performanceOfDerformanceOfDelivery=null;sortQuery=startDate;orderBy=asc;onlyTenders=false;topicListKey=topicSearchTablePagerchTablePageState

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61. /HORIZON EUROPE*/ Development and validation of processes and tools used for agile certification of ICT products, ICT services and ICT processes, deadline: 16. November 2022 17:00 Brussels time

ExpectedOutcome:
Projects are expected to contribute to at least three of the following outcomes:
? Availability of applicable tools and procedures for partial and continuous assessment and lean re-certification of ICT products, ICT services and ICT processes;
? Reduction of time and efforts spent for (re-) certifying ICT products, ICT services and ICT processes;
? Improved stakeholder collaboration on cybersecurity certification information, including manufacturers and end users from different Member States;
? Efficient (re-)use of information and evidence relevant to certification and in support of multi-scheme (re-)use;
? Integration of certification on the whole system modelling, verification, testing and verification process
? Increased comparability of assurance statements arising from certification schemes and the standards used therein; avoidance of multi-certification;
? Advancing test and simulation facilities, including incident and threat analysis;
? Increased Digital Twin capabilities for continuous assessment and integration of new solutions.
The proposal should provide appropriate indicators to measure its progress and specific impact.
Scope:
In order to foster the application of security standards, agile certification and continuous assessment of cyber resilience systems, actions will cover the harmonising, packaging and distributing of certification processes for contemporary ICT products, services, and processes but to new and disruptive technologies

as well, such as AI and High Performance Computing.
To support cybersecurity autonomy of the EU, approaches concerning a dynamic, real time, collaborative vulnerability testing and information sharing should be developed and build on existing resources (including the work carried out in preparation of the EU cybersecurity certification framework, as established by the EU Cybersecurity Act). The resources may range from tools, procedures, practices, and information sources, such as checklists, flaw repositories deployment and configuration guidance, and impact assessments posted by European industries, manufacturers, developers, CSIRTs, ISACs (Information Sharing and Analysis Centres), or national and international authorities (e.g. NIST, JVN) and relevant standards.
The actions should aim at improving certification processes, tools, evidence presentation and assurance statements, at least in quantifiable terms, where relevant by relying on a suitable IT security metric and should complement or aid other certifications relevant in other sectors or risk scenarios.
Further information:
https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/horizon-cl3-2022-cs-01-04;callCode=null;freeTextSearchKeyword=;matchWholeText=true;typeCodes=1,2,8;statusCo,8;statusCodes=31094502;programmePeriod=2021%20-%202027;programCcm2Id=43108390;programDivisionCode=null;focusAreaCode=null;destination=null;mission=null;geographicalZonesCode=null;programmeDivisionProspectionProspect=null;startDateLte=null;startDateGte=null;crossCuttingPriorityCode=null;cpvCode=null;performanceOfDerformanceOfDelivery=null;sortQuery=startDate;orderBy=asc;onlyTenders=false;topicListKey=topicSearchTablePagerchTablePageState

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62. /BMBF/ Richtlinie zur Förderung von „Neuen translationalen Ansätzen zur Bewältigung der Herausforderungen schwer zu behandelnder Krebsarten von der Frühdiagnose bis zur Therapie", deadline: 18. Juli 2022, 1. Phase

Die EU arbeitet seit Jahrzehnten an der Krebsbekämpfung und ihren strategischen Maßnahmen, z. B. zur Eindämmung des Tabakkonsums und zum Schutz vor gefährlichen Stoffen, welche Leben gerettet und die Lebensdauer verlängert haben. Neben Inzidenz, Mortalität und Prävalenz ist die Überlebensrate ein Schlüsselindikator für die onkologische Nachsorge: Sie ermöglicht es, die allgemeine Verbesserung der Prognose von Krebspatientinnen und -patienten zu beurteilen. Diese ergibt sich sowohl aus Initiativen zur Krebsfrüherkennung und Verbesserung der Krebsbehandlung als auch aus therapeutischen Fortschritten. Die Überlebensrate für die meisten Krebsarten hat sich in den letzten 40 Jahren verdoppelt, wobei 50 % der Patientinnen und Patienten zehn Jahre oder länger überleben. Allerdings sind die Fortschritte nicht bei allen Krebsarten gleich groß. Den maßgeblichen epidemiologischen Krebsregistern in der westlichen Welt zufolge (z. B. dem NIH Surveillance, Epidemiology, and End Results (SEER)-Programm, https://seer.cancer.gov oder dem IARC-Projekt Cancer Survival in High-Income Countries (SURVMARK-2), https://gco.iarc.fr/survival/survmark) ist die Überlebensrate bei einigen Krebsarten aufgrund mangelnder Behandlungserfolge im Rückstand. Bei einigen schwer behandelbaren Krebsarten (Hard-To-Treat Cancers, HTTC) liegt die Fünf-Jahres-Überlebensrate immer noch unter 35 %, und in den letzten Jahrzehnten hat es kaum oder gar keine Verbesserungen gegeben; dazu gehören Tumore der Speiseröhre, der Leber und ihrer Nebenorgane, der Bauchspeicheldrüse, der Lunge/Brustfell und des Gehirns.
Die Ursachen für das Scheitern von Therapien können vielfältig sein: späte Erkennung aufgrund fehlender fortschrittlicher Diagnostik, Fehlen geeigneter Biomarker und/oder zielgerichteter Ansätze, Heterogenität des Tumors, erworbene Arzneimittelresistenz, problematische Arzneimittelentwicklung aufgrund der Seltenheit einiger Tumorarten sowie tumor- und lokalisationsspezifische Hürden. So ist beispielsweise das Glioblastom vom übrigen Gewebe nicht klar abgegrenzt, was die chirurgische Entfernung erschwert, während die Blut-Hirn-Schranke das Eindringen von Medikamenten in den Tumor erschwert. Auch bei Mesotheliomen und Bauchspeicheldrüsentumoren ist das Eindringen von Medikamenten aufgrund ihrer fibrösen

Außenschicht problematisch. Speiseröhrenkrebs zeichnet sich durch frühe Lymphknotenmetastasen aufgrund der Anatomie der Schleimhaut und durch multifokale Läsionen aus, was die Heterogenität erhöht.
Die Bewältigung der vielfältigen Herausforderungen bei HTTC ist eine Hauptpriorität im Bereich der translationalen Krebsforschung und von großer Bedeutung für die Krebsmission der Europäischen Kommission und für den europäischen Plan zur Krebsbekämpfung. Der Plan ist, Krebs vorzubeugen und eine hohe Lebensqualität für Krebspatientinnen und -patienten durch Maßnahmen in entscheidenden Bereichen wie Früherkennung und Diagnose, Behandlung und Nachsorge zu gewährleisten. Darüber hinaus kamen auf den europäischen Tagungen des französischen Nationalen Krebsinstituts (INCa) am 3. und 4. Februar 2022 europäische Interessenvertreter zusammen, um konkrete Maßnahmen vorzuschlagen, die auf den Zielen des europäischen Plans zur Krebsbekämpfung und der Krebsmission von Horizont Europa aufbauen. In diesem Zusammenhang wurde Krebs mit schlechter Prognose als eine der fünf Prioritäten bei der Krebsbekämpfung identifiziert, die am meisten von einer verstärkten europäischen Zusammenarbeit und koordinierten Maßnahmen profitieren können.
Daher haben sich die TRANSCAN-3-Partner darauf geeinigt, ihre zweite gemeinsame transnationale Bekanntmachung (JTC 2022) auf folgendes Thema zu konzentrieren:
„Neuartige translationale Ansätze zur Bewältigung der Herausforderungen schwer behandelbarer Krebserkrankungen von der Frühdiagnose bis zur Therapie".

Die folgenden nationalen/regionalen Förderorganisationen haben sich bereit erklärt, am JTC 2022 teilzunehmen:
- Bundesministerium für Bildung und Forschung (BMBF), Deutschland;
- Austrian Science Fund (FWF), Österreich;
- Research Foundation - Flanders (FWO), Belgien;
- Fund for Scientific Research - FNRS (F.R.S.-FNRS), Belgien, French speaking community;
- Estonian Research Council (ETAg), Estland;
- French National Cancer Institute (INCa), Frankreich;
- ARC French Foundation for Cancer Research (ARC Foundation), Frankreich;
- National Research, Development and Innovation Office (NKFIH), Ungarn;
- Health Research Board (HRB), Irland;
- The Chief Scientist Office of the Ministry of Health (CSO-MOH), Israel;
- Ministry of Health (IT-MOH), Italien;
- Alliance Against Cancer (ACC), Italien;
- Tuscany Region (TuscReg), Tuscany, Italien;
- Fondazione Regionale per la Ricerca Biomedica (FRRB), Lombardy, Italien;
- Latvian Council of Science (LCS), Lettland;
- National Research Fund (FNR), Luxembourg;
- Research Council of Norway (RCN), Norwegen;
- Norwegian Cancer Society (NCS), Norwegen;
- National Centre for Research and Development (NCBR), Polen;
- Executive Agency for Higher Education, Research, Development and Innovation Funding (UEFISCDI), Rumänien;
- Slovak Academy of Sciences (SAS), Slovakei;
- National Institute of Health Carlos III (ISCIII), Spanien;
- The Scientific Foundation of the Spanish Association Against Cancer (FCAECC), Spanien;
- Ministry of Science and Technology (MoST), Taiwan.

Für die vorliegende Fördermaßnahme wurde von den beteiligten Förderorganisationen ein gemeinsamer englisch- sprachiger Bekanntmachungstext sowie begleitende Dokumente verfasst (http://www.transcanfp7.eu/).
Mit der vorliegenden Fördermaßnahme wird das Ziel verfolgt, sich ergänzende Expertisen und Ressourcen von einschlägig qualifizierten Arbeitsgruppen aus den teilnehmenden Ländern/Regionen zusammenzuführen. Durch kooperative Forschungsansätze sollen neue frühdiagnostische und

therapeutische Ansätze zum Verständnis und zur Behandlung von HTTC identifiziert und validiert werden. Des Weiteren sollen neuartige Methoden zur wirksamen Verabreichung von Medikamenten entwickelt werden. Dadurch sollen Fortschritte bei der effektiven und dauerhaften Therapie von Krebserkrankungen realisiert werden, die aus den oben genannten Gründen allein auf nationaler/ regionaler Ebene nicht zu erreichen sind. Das BMBF leistet damit einen Beitrag zum Handlungsfeld 1: ,,Forschungsförderung - Krankheiten vorbeugen und heilen" im Rahmenprogramm Gesundheitsforschung der Bundesregierung.

Further information:
https://www.gesundheitsforschung-bmbf.de/de/14876.php

63. /BMBF*/ Richtlinie zur Förderung von deutsch-französischen Projekten zum Thema Künstliche Intelligenz, deadline: 22. September 2022 13 Uhr MEZ, 1. Phase

Mit der Unterzeichnung des Aachener Vertrags am 22. Januar 2019 haben Deutschland und Frankreich eine Zusammenarbeit auf dem Gebiet der Forschung und des digitalen Wandels beschlossen, insbesondere auf dem Gebiet der Künstlichen Intelligenz (KI). Kooperation ist ein Schlüsselelement, um die Sichtbarkeit der KI-Akteure im Hinblick auf die in beiden Ländern etablierten nationalen KI-Strategien zu erhöhen.
Mit der Unterzeichnung der gemeinsamen Roadmap für ein deutsch-französisches Forschungs- und Innovationsnetzwerk auf dem Gebiet der KI am 16. Oktober 2019 sowie der Unterzeichnung der Absichtserklärung des Ministeriums für Hochschulbildung, Forschung und Innovation der Französischen Republik (MESRI) und des Bundesministeriums für Bildung und Forschung (BMBF) zum deutsch-französischen Forschungs- und Innovationsnetzwerk für KI im April 2020 haben beide Seiten ihren Willen bekräftigt, die Entwicklung eines europäischen Ansatzes für KI zu verfolgen und die Entstehung eines gemeinsamen KI-Ökosystem zu fördern.
Durch bilaterale Kooperationsprojekte soll ein vertiefter Wissenstransfer aus der Wissenschaft in die Wirtschaft erreicht und so eine verbesserte Entwicklung innovativer Technologien in Deutschland und Europa ermöglicht werden, von der insbesondere kleine und mittlere Unternehmen (KMU) profitieren. Die Ergebnisse der Förderung sollen sich in nachhaltigen wissenschaftlichen und technologischen Kooperationsbeziehungen und erhöhter Methodenkompetenz auf dem Gebiet der KI in der industriellen Praxis niederschlagen. Die Forschungsprojekte sollen dazu beitragen, kooperative Forschungsstrukturen als Nukleus einer europäischen KI-Forschung aufzubauen und zu vertiefen oder prototypische KI-Systeme zur späteren Verwendung in Produkten und Dienstleistungen zu entwickeln.
Mit dieser bilateralen Fördermaßnahme werden qualitativ hochwertige KI-Forschungskooperationen zwischen Frankreich und Deutschland finanziert. Die Fördermaßnahme ist Teil der Umsetzung der KI-Strategie der Bundesregierung und der Hightech Strategie 2025.
Die Ergebnisse der bilateralen Projekte sollen zur Methodenentwicklung in aktuellen Forschungsfeldern der KI beitragen, Anwendungsfelder von KI erschließen sowie die Nutzbarkeit von KI in Spitzentechnologien verbessern. Gemeinsam sollen Anstrengungen auf der Grundlage nationaler Strategien gebündelt werden, um ein Ökosystem für neue Kooperationsprojekte in Forschung und Industrie zu schaffen. Das so entstehende Netzwerk aus Akteuren aus Forschungsorganisationen, KMU und Industriepartnern soll zu einem besseren gemeinsamen Verständnis des Bedarfs auf dem Gebiet der KI führen, dazu beitragen, Ergebnisse der KI-Grundlagenforschung schneller und in stärkerem Umfang in Anwendungsfelder zu transferieren und einen nachhaltigen wirtschaftlichen und gesellschaftlichen Mehrwert schaffen.
Further information:
https://www.bmbf.de/bmbf/shareddocs/bekanntmachungen/de/2022/06/2022-06-20-Bekanntmachung-KI.html

64. /DFG/ New Indo-German Funding Initiative in Medical Research, deadline: 30 September 2022

Having concluded a joint Memorandum of Understanding in December 2021, the Indian Council of Medical Research (ICMR) and the Deutsche Forschungsgemeinschaft (DFG, German Research Foundation) wish to announce the beginning of a joint funding initiative for the benefit of Indo-German collaboration in medical research.
In their first joint call under the new funding initiative, the two agencies invite proposals for joint Indo-German academic research projects in the field of toxicology (e.g. experimental and molecular, environmental, food and chemical, occupational, regulatory, or systemic toxicology, as well as new approach methods). For suggestions regarding possible project topics, please see the Annex under the link given below under "Further Information".
The agencies are particularly interested in proposals submitted by teams of principal investigators with some initial cooperation experience. Projects with potential medical relevance may be prioritised.
Specification of projects
Projects within this funding initiative have a duration of three years. Proposals can include fund requests for personnel, consumables, instruments, joint workshops, travel and other items (for details, see below). ICMR and DFG expect that proposals submitted under this funding initiative describe ambitious projects which do not just benefit from, but essentially require international collaboration to achieve the defined objectives. While all researchers can apply, the call particularly addresses Indo-German teams who already have a track record of joint research.
On the German side, the regulations governing the funding opportunity, follow the funding line "Sachbeihilfe"/"Research Grants" (see the DFG guidelines 50.01). This includes the duty to cooperate ("Kooperationspflicht") within Germany for members of non-university institutions with permanent positions. For more information see the corresponding guidelines for the Research Grants Programme (DFG form 50.01).
On the Indian side, refer to the information given on the ICMR Electronics Project Management System (e-PMS) (see link below).
Shortlisted proposals on the Indian side will be required to obtain Health Ministry's Screening Committee (HMSC) approval as a prerequisite before the grant can be released.
Further information:
https://www.dfg.de/foerderung/info_wissenschaft/2022/info_wissenschaft_22_41/index.html

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65. /DFG/ Deutsch-afrikanische Kooperationsprojekte in der Infektiologie, deadline: 26 Oktober 2022

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.
Nicht Gegenstand der Ausschreibung ist:
? Infrastrukturförderung (jedoch können Mittel für notwendige Zusatzausstattungen beantragt werden)
? Förderung klinischer Studien (clinical trials)
? Entwicklung diagnostischer Verfahren
? Projekte, in denen nach neuen, pharmakologisch wirksamen Substanzen gesucht wird, ohne dass überwiegend molekulare Wirkprinzipien untersucht werden
? Projekte, die Produktentwicklung zum Inhalt haben
? Epidemiologische Studien, die keine unmittelbare Erforschung von Virulenzmechanismen zum Ziel haben
? Projekte, die sich auf die Sammlung von Isolaten und/oder deren Sequenzierung beschränken
Antragsberechtigung
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 Vollanträgen mit zu beantragen. Für die Antragsberechtigung auf deutscher Seite gelten die üblichen Regeln der DFG.
Für an außeruniversitären Einrichtungen arbeitende Wissenschaftlerinnen und Wissenschaftler gelten die Regeln zur Kooperationspflicht. Nähere Angaben hierzu sind dem Merkblatt zur Sachbeihilfe (DFG-Vordruck Nr. 50.01) in seiner aktuellen Fassung zu entnehmen.
Projekteinreichungen von Forscherinnen und Forschern, die nicht in das deutsche Wissenschaftssystem integriert sind, können aus rechtlichen Gründen nicht akzeptiert werden. Mindestens eine in Deutschland arbeitende Wissenschaftlerin beziehungsweise ein Wissenschaftler muss im Konzept vertreten sein. Beiträge zu den Gehältern der Projektführenden in Afrika können nicht beantragt werden. Mittel können nur für Arbeiten der Projektteilnehmenden in Deutschland und in den Ländern Afrikas beantragt werden. Die Beteiligung von Forscherinnen und Forschern in anderen Ländern ist zwar möglich, muss jedoch aus anderen Quellen finanziert werden.
Further information:
https://www.dfg.de/foerderung/info_wissenschaft/2022/info_wissenschaft_22_42/index.html

66. /Sonstige/ Kontakt Forschungsförderberatung der Otto-von-Guericke-Universität Magdeburg

Bei Fragen zu Fördermöglichkeiten, konkreten Ausschreibungen, Hilfe zur Antragstellung und in der Projektbetreuung wenden Sie sich gerne an die Stabstelle Forschungsförderberatung/EU-Hochschulnetzwerk der Otto-von-Guericke-Universität Magdeburg.
Informationen zu aktuellen Veranstaltungen, Förderstrukturen und Kontakt online unter:
https://www.ovgu.de/KontaktForschungsfoerderung

https://www.euhochschulnetz-sachsen-anhalt.de/