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**Call Topics for International Cooperation  
in Horizon 2020  
EU and New Zealand**

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## Excellent Science

<b>Horizon 2020 Pillar:</b>	Excellent Science
<b>Programme:</b>	Research Infrastructures
<b>Call Title:</b>	Implementing the European Open Science Cloud
<b>Call Identifier:</b>	h2020-infraeosc-2018-2020
<b>Topic Title:</b>	Integration and consolidation of the existing pan-European access mechanism to public research infrastructures and commercial services through the EOSC Portal
<b>Topic Identifier:</b>	INFRAEOSC-03-2020
<b>Type of Action:</b>	RIA Research and Innovation action
<b>Deadline(s):</b>	22.04.2020 (single-stage)

### Participant Portal Weblink:

<https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/infraeosc-03-2020>

**Specific Challenges:** The phase of integration and consolidation of e-infrastructure platforms initiated under the Research Infrastructures Work Programme 2016-2017 (in particular, through the EOSC-hub) as well as the work carried out by other EU funded projects and initiatives<sup>[1]</sup>, has set the ground for the development of the [EOSC Portal](#). Through its main components, the EOSC website, catalogue of services and marketplace<sup>[2]</sup>, researchers and other users can find and use research-enabling services and resources, get technical support, integrated solutions from the EOSC providers, participate in co-design, and be informed about and engaged with, the EOSC vision and policy initiatives.

Building on this work, the challenge is now to consolidate and scale up the EOSC Portal and its underlying service platform in order to:

1. strengthen the EOSC Portal so that it continues to provide an increasing portfolio of high quality standard compliant and interoperable services of proven user interest and scientific relevance from a wide range of national, regional and institutional public research infrastructures in Europe as well as from commercial service providers in its catalogue;
2. reinforce the role of the marketplace as the access channel to integrated, composable and reliable services;
3. attract more users, within the research community and beyond, by enhancing the user experience and seamlessly accommodating their needs; and
4. ensure its long-term sustainability taking into account all the relevant governance and business frameworks.

**Scope:** Building on the outcomes of the projects awarded under topics EINFRA-12-2017<sup>[3]</sup>, INFRAEOSC-06-2019 (a), INFRAEOSC-05-2018 (a), INFRAEOSC-04-2018 and other relevant EU funded projects and initiatives<sup>[4]</sup> (including the thematic clouds), proposals should address the following activities all together:

- a. Operation, maintenance and enhancement of the EOSC Portal (the website, the catalogue of services and the marketplace)
  - Enhance operational aspects of the EOSC Portal: proposals should include tools and activities to ensure the basic functionalities underpinning the portal, such as the support, quality, security, reliability and traceability of services, effective monitoring of usage and evaluation of performance, messaging and usage accounting. A user-friendly interface, offering integrated information on the EOSC vision and process, should be also ensured, encouraging constant learning and alignment in all disciplines and Member States.
  - Engage with the supply side of EOSC: proposals should provide a framework to interact with all service and resources providers<sup>[5]</sup>, in order to ensure that their services are integrated into the catalogue of services and, where appropriate, the marketplace. They should also ensure the alignment of the providers with future EOSC principles, standards and values including compliance with the Rules for Participation and FAIR principles<sup>[6]</sup> and the reduction of the complexity barrier to users. Consortia should address issues related to the adoption of common standards by all suppliers, the implementation of Application Programming Interfaces (APIs), the automatic collection and exchange of information related to service updates, the mechanisms for reporting usage, the support for virtual access accounting mechanisms<sup>[7]</sup>, etc.
  - Interact with the EOSC end users and provide a highly usable service platform: proposals should foresee the necessary feedback mechanisms (including a user panel) and user behaviours' analysis within the EOSC Portal environment to allow for constant improvement of the features of the different EOSC Portal components and their usability easing the way users can interact and evaluate the service. The analysis should include gender sensitive issues, when relevant. Proposals should also put in place the necessary mechanisms to elicit users' needs requiring new services (including commercial ones).
- b. Fostering and enabling secure service composability

To allow for a higher level of service integration within the EOSC marketplace, proposals should take due consideration of the need for secure composition of services and resources from different providers. Researchers and other EOSC end users should be able to discover services and combine them to compose new, more complex services, tailored to their specific needs. By enabling EOSC users to compose reliable, secure and scalable services, the EOSC marketplace will become more flexible and adaptable, maximising its impact and benefit for the research community.

In this context, proposals should provide a framework, including specific pilot scenarios, for exposing, integrating and managing a wide-range of standard

and policy compliant cross-domain and domain-specific research enabling services and resources from pan-European horizontal and thematic research infrastructures as well as from commercial providers. In particular, they should:

- Allow for user friendly discovery, access and re-use of major public research outputs (e.g. publications or datasets) and data processing capabilities, analytical tools or any other added-value quality service from various providers;
- Provide and evolve service management tools that support the provider's participation to the EOSC federation;
- Foster secure composability of services and interoperability of datasets and other outputs by supporting the use of common interfaces, standards, ICT specifications and best practices that not only allows for services to be reused in multiple service compositions but also ensures the reliability, flexibility and scalability of those services.

c. User enhanced experience using Artificial Intelligence (AI) techniques

Proposals should describe how the EOSC Portal would be enhanced with AI-based services in order to exploit usage patterns and to advise researchers and other EOSC users on the most suitable EOSC services according to their research profiles and needs. In this way, researchers that have completed their EOSC user profile (including their affiliation, research interests and needs) can get suggestions based on what services other EOSC users with similar interests and access rights have used to address their research needs. The advice will have to be continuously updated, based on the actual activity of the users at the EOSC Portal enhancing quality and improving predictive response to cover evolving needs and ensure engagement. The quality of the advice of such AI-based services should improve with the increase of the number of EOSC users and services available.

d. Widening the EOSC user base

Proposals should include strategies and well-defined structures for gathering needs from potential new user communities and propose methods outlining the operational requirements to be satisfied by the EOSC Portal to effectively attract and integrate new users. This includes the possibility of federating and/or integrating heterogeneous and hybrid research clouds into the EOSC Portal.

In order to enable users from non-research communities to access EOSC services through the EOSC Portal, the AAI<sup>[8]</sup> federated architecture implemented in the EOSC Portal should be fully aligned with the legal and interoperability framework set by the eIDAS Regulation<sup>[9]</sup>.

Proposals shall include the development of APIs or any other necessary feature that allow third parties such as Open Data Initiatives or other initiatives under the European Common Data Space to become users of the EOSC services and to access the available services in the EOSC Portal from their own environments.

Proposals should include an outline of the legal, technical and business processes to be implemented through contractual agreements between the EOSC Portal and user institutions that are interested in providing increased accessibility to EOSC services and resources to their affiliated members.

e. Widening the service offer with commercial services

Proposals should address both of the following activities:

- Proposals should incorporate commercial services into the EOSC marketplace and expand it, by building further on the work carried out under the topic INFRAEOSC-01-2018<sup>[10]</sup> and under the EOSC-hub project. In particular, proposals should
  1. through the EOSC Portal feedback mechanisms<sup>[11]</sup>, aggregate the various needs of EOSC users for commercial services that are complementary to the services offered by public infrastructures,
  2. procure preferably green<sup>[12]</sup> innovative commercial services addressing the aggregated user demand and
  3. make available the purchased services to EOSC users.

Proposals will make the procured capacity available for access - together with other capabilities of interest - through the portal access channel. Service capacity shall be allocated to projects and initiatives through a selection process that ensures excellence, fair distribution across scientific communities and removal of digital divides across communities and countries. The procurement mechanism should be compatible with the Green Public Procurement initiative<sup>[13]</sup>. Examples of commercial services that could be incorporated include commodity type commercial digital services that are necessary for interdisciplinary research activities or secure Earth Observation commercial services stemming from the use of Copernicus open data, etc. The inclusion of such added-value commercial services will enrich the existing catalogue, generate positive impact on cross-disciplinary research activities in the EOSC environment and improve user experience with the overall EOSC service offering. A maximum amount of EUR 10 million of the total budget for this sub-topic is foreseen for this procurement activity.

- Building on the work of the EOSC-hub project, proposals should collaborate with private sector entities, in particular with SMEs, in the context of digital innovation hubs initiatives, in order to stimulate an ecosystem of innovation and knowledge transfer that fosters the development of commercial services to continuously cover the needs of EOSC users<sup>[14]</sup>.

f. Support activities

Proposals shall also cover all the following activities aiming at boosting the impact and outreach of the EOSC Portal:

- i. Outreach and skills  
Leveraging on existing networks and actions for training on and outreach

of the EOSC and in strong collaboration with the awarded grants under topic INFRAEOSC-07-2020, proposals should include activities to:

- Foster the EOSC initiative's uptake and spread both geographically and across scientific disciplines and communities (including long tail of science). Moreover, proposals should include measures and dissemination activities for closing the gap between European countries with higher and lower EOSC uptake, including the EU candidate countries and the Western Balkans.
  - Develop the necessary skills of EOSC users for sharing resources, managing data and applying the FAIR principles in the context of the EOSC Portal, by e.g. providing researchers and data practitioners with consolidated cross-infrastructure training packages for data skills, data science and data stewardship.
- ii. Support to the **Research Data Alliance's** contribution to the EOSC:
- Proposals retained for funding should directly support the contribution of RDA to the EOSC initiative and, in particular, in the context of the EOSC Portal.
  - Proposals should also provide financial support to third parties wishing to engage and participate in the **Research Data Alliance** processes and activities, including RDA outputs adoption fostering the interoperability and service composition in the EOSC Portal<sup>[15]</sup>.

Grants awarded under this topic will be complementary to the actions awarded under topic INFRAEOSC-07-2020. The main purpose of the collaboration agreements referred to in Article 41.4 of the Model Grant Agreement is to describe the terms and conditions for the provision of services through the EOSC Portal.

Grants awarded under this topic will be complementary to the action awarded under topic INFRAEOSC-06-2019 (a) and should conclude a collaboration agreement.

For grants awarded under this topic, beneficiaries will be subject to the following additional obligations aiming at ensuring exploitation of its results: proposals must necessary state the participants' commitment to: a) use open source software, b) make tools, standards, specifications and all other relevant outputs generated in the action available, through a well-defined mechanism, to the EOSC governance and any other institution responsible for the continuity of the EOSC Portal beyond the lifespan of the Grant Agreement.

Grants awarded under this topic are expected to carry out an analysis regarding energy consumption and environmental impact of technologies used in the context of the project. The analysis should include an action plan in order to limit the carbon and energy footprint with a specific reference to the standard EN 50600-4<sup>[16]</sup> together with a timeline for implementation of the defined milestones and KPIs.

As the scope of this activity is to consolidate a single EOSC Portal, at most one single proposal covering all the described activities (a. to f. included) is expected to be funded.

The Commission considers that proposals requesting a contribution from the EU of up to EUR 40.9 million and a 30 months duration would allow this challenge to be addressed appropriately. Nonetheless, this does not preclude submission and selection of proposals requesting other amounts and durations.

#### **Expected Impact:**

- Provide pan-European access to state-of-the-art secure, interoperable and scalable EOSC services and resources enabling the emergence of genuine Open Science, enhancing data skills and boosting data intensive research in Europe.
- Enable researchers and other users to compose secure and scalable services that respond to actual and evolving needs, in a secure, flexible and scalable environment.
- Build an agile EOSC and increase the uptake of its services by public and private sectors stakeholders, across Europe, exploiting solutions and technologies for the benefit of all areas of economy and society.
- Reduce the burden for research organisations and other service users to engage in complex procurement processes, support cross-analysis of data from heterogeneous sources and create market opportunities for innovative research data services.
- Increase the overall value of open research data and ensure that EOSC contributes to the global playing field of open FAIR data.

**Cross-cutting Priorities:** Gender, Open Innovation, Open Science

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- [1] In particular, those mentioned in the SWD for the Implementation Roadmap of the EOSC Commission Staff Working Document, SWD(2018) 83 final.
- [2] The EOSC marketplace is conceived as a platform integrated into the EOSC Portal where users are able to access, order and compose different services and resources: <https://marketplace.eosc-portal.eu/>
- [3] <http://www.eosc-hub.eu/>, <https://www.openaire.eu/>, and <https://eosc-portal.eu/>
- [4] In particular, those mentioned in the Implementation Roadmap of the EOSC Commission Staff Working Document, SWD(2018) 83 final.
- [5] Including with service providers in the grant awarded under topics INFRAEOSC-02-2019, INFRAEOSC-04-2018 and the thematic clouds developed under other parts of the Horizon 2020 programme.
- [6] See for reference: SWD(2018) 83 final – Implementation Roadmap for the European Open Science Cloud.
- [7] See description of Virtual access activities in part D of the section “Specific features for Research Infrastructures”.
- [8] Authentication and Authorization Infrastructure. Based on the work of AARC, AARC2 and the EOSC-hub projects.
- [9] Regulation (EU) No 910/2014 of the European Parliament and of the Council of 23 July 2014 on electronic identification and trust services for electronic transactions in the internal market.
- [10] OCRE project: <https://cordis.europa.eu/project/rcn/219198/factsheet/en>
- [11] See point a1) on user feedback.
- [12] For more information about the green public procurement initiative: [http://ec.europa.eu/environment/gpp/index\\_en.htm](http://ec.europa.eu/environment/gpp/index_en.htm)
- [13] [http://ec.europa.eu/environment/gpp/index\\_en.htm](http://ec.europa.eu/environment/gpp/index_en.htm)
- [14] See point a1) on user feedback.

- [15] In line with the conditions set out in part K of the General Annexes. A maximum amount of EUR 1M is foreseen for the total financial support to third parties under this point while the maximum amount per third party may not exceed EUR 60 000.
- [16] EN 50600-4: Information technology: Data centre facilities and infrastructures. For the link to the latest published version, tools and resources regarding the standard, check: <https://ictfootprint.eu/en-50600-4-factsheet-0>

## Industrial Leadership

<b>Horizon 2020 Pillar:</b>	Industrial Leadership
<b>Programme:</b>	Leadership in enabling and industrial technologies (LEIT)
<b>Call Title:</b>	Competitive, low carbon and circular industries
<b>Call Identifier:</b>	h2020-low-carbon-circular-industries-2020
<b>Topic Title:</b>	ERA-NET on materials, supporting the circular economy and Sustainable Development Goals
<b>Topic Identifier:</b>	CE-NMBP-41-2020
<b>Type of Action:</b>	ERA-NET-Cofund ERA-NET Cofund
<b>Deadline(s):</b>	05.02.2020 (single-stage)

**Participant Portal Weblink:**

<https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/ce-nmbp-41-2020>

**Specific Challenges:** Maintaining Europe's position in research related to materials science and engineering requires concentrated action on common European research priorities in view of implementing joint initiatives.

The M-ERA.NET 2 network has successfully targeted the Low Carbon Energy Technologies addressed by the SET Plan. Now the scope should on one hand guarantee some continuation, and on the other hand become more ambitious and underline the commitment of the EU regarding the circular economy and Sustainable Development Goals.

The European Commission has adopted an ambitious new Circular Economy Package to help European businesses and consumers to make the transition to a stronger and more circular economy. Moreover, in 2016, the 17 Sustainable Development Goals (SDGs) of the 2030 Agenda for Sustainable Development came into force. They aim to end poverty, protect the planet, ensure prosperity and tackle climate change. The EU is fully committed to be a frontrunner in implementing the 2030 Agenda and SDGs. Finally, the Commission launched the Battery Alliance initiative in 2017.

Materials research is a relevant field for addressing these overall challenges and for making substantial contributions to achieving the specific objectives.

Global challenges call for co-operation on a global scale to build capacity in science, technology and innovation (STI) at both national and international levels. A strategic and industrially relevant approach is needed that cover the entire research and innovation chain by pooling national research and innovation capacities, thereby mobilising European infrastructure networks as well as promoting education and training in materials research and innovation.

**Scope:** The proposed ERA-NET aims at coordinating the research efforts of the participating Member States, Associated States and Regions in the field of materials, continuing the activities started by M-ERA.NET, for materials research and innovation, especially targeting the circular economy and Sustainable Development Goals (such as Goal 7 – “Affordable and clean energy”, by enabling electromobility through sustainable energy storage technology or Goal 9 “Industrial innovation and infrastructure”, by enhancing scientific research and upgrading the technological capabilities of industrial sectors). Proposals should pool the necessary financial resources from participating national or regional research programmes by implementing a joint transnational call for proposals (resulting mainly in grants to third parties) with EU co-funding to fund multinational innovative research initiatives in this domain, including support to the large scale research initiative on future battery technologies launched under the H2020-LC-BAT-2019-2020 Call<sup>[4]</sup>.

Proposers are also requested to implement other joint activities and, additional joint calls without EU co-funding. The proposal should demonstrate that these additional joint calls exclude any overlaps with related on-going actions co-funded by the EU under NMBP.

Proposals should demonstrate the expected impact on national and transnational programmes as well as the leverage effect on European research and competitiveness, and should plan the development of key indicators for supporting this.

Participation of legal entities from **third countries**, and/or regions including those not automatically eligible for funding in accordance with General Annex A is encouraged in the joint call as well as in other joint activities including additional joint calls without EU co-funding. Participants from countries not listed in General Annex A are eligible for EU funding under this topic and may request a Union contribution (on the basis of the ERA-NET unit cost) only for the coordination costs of additional activities.

The Commission considers that proposals requesting a contribution from the EU of EUR 15 million would allow this specific challenge to be addressed appropriately. Nonetheless, this does not preclude submission and selection of proposals requesting other amounts. EUR 5 million of the requested contribution from the EU should be used as support to transnational projects, co-funded by the Commission, on future battery technologies, fostering synergy between European, national and regional initiatives and promoting broader partnerships between the European stakeholders in future battery technologies.

**Expected Impact:**

- synergies with international, national and regional programmes that support research and innovation;
- synergies but no overlap with the topics of Horizon 2020 and with related European Partnership initiatives and be open to adapt to future coming initiatives of Horizon Europe;
- leverage of national, regional and European funding;
- contribution to meeting Global Challenges through Better Governance: International Co-operation in Science, Technology and Innovation;

- relevant contribution to the SDGs, including sustainable battery based energy storage technology;
- relevant contribution towards a circular economy.

**Cross-cutting Priorities:** ERA-NET

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[1] [http://ec.europa.eu/research/participants/data/ref/h2020/wp/2018-2020/main/h2020-wp1820-cc-activities\\_en.pdf](http://ec.europa.eu/research/participants/data/ref/h2020/wp/2018-2020/main/h2020-wp1820-cc-activities_en.pdf)

<b>Horizon 2020 Pillar:</b>	Industrial Leadership
<b>Programme:</b>	Leadership in enabling and industrial technologies (LEIT)
<b>Call Title:</b>	Foundations for Tommorrow's Industry
<b>Call Identifier:</b>	h2020-nmbp-to-ind-2018-2020
<b>Topic Title:</b>	Towards Standardised Documentation of Data through taxonomies and ontologies (CSA)
<b>Topic Identifier:</b>	DT-NMBP-39-2020
<b>Type of Action:</b>	CSA Coordination and support action
<b>Deadline(s):</b>	05.02.2020 (single-stage)

**Participant Portal Weblink:**

<https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/dt-nmbp-39-2020>

**Specific Challenges:** Standardised data documentation with metadata based on an agreed ontology<sup>[1]</sup> across the domains covered by this work programme is critical for the widest use of data and, ultimately, reliable end-user products.

The challenge is for all relevant stakeholders to develop, test, validate and agree on data documentation to ensure consistency and interoperability of intra-and cross-domain specific taxonomies<sup>[2]</sup> and ontologies. The standardised data documentation should be developed with a global ambition through international cooperation.

**Scope:** The proposals should develop EU-wide standardised data documentation that ensures interoperability of data. The data documentation should take the form of an actionable ontology that consists of a top level ontology, adapted existing domain ontologies (such as manufacturing, materials processing, materials modelling, nano-safety, characterisation and life cycle sustainable analysis ontologies), complemented by new ontologies for other subdomains,.

In particular, the projects should:

- Network relevant stakeholders to collect input on existing data documentation;
- Develop and agree on a top level ontology to connect relevant subdomains of this work programme
- Harmonise existing ontologies with respect to the top level ontology.
- Develop and agree on new ontologies for relevant sub-domains of this work programme

- Deliver at least ten demonstrators on the use of ontologies (decision systems, innovation projects, workflows, quality assurance, guided AI and data parsing...)

Projects should liaise with the work done under the European Open Science Cloud, standardisation bodies, the **Research Data Alliance** and other relevant initiatives. Existing taxonomies and/or ontologies relevant for this part of the programme should be taken into account. Therefore, proposals should foresee a dedicated work package for this cooperation and earmark appropriate resources.

Proposals should guarantee the maintenance and further development of the ontology and data documentation after the project duration. The vast majority of the deliverables, including subsequent taxonomies and ontologies, should be public.

The Commission considers that proposals requesting a contribution from the EU around EUR 4 million would allow this specific challenge to be addressed appropriately. Nonetheless, this does not preclude submission and selection of proposals requesting other amounts.

**Expected Impact:** Proposals must address all the following impact criteria, providing metrics to measure success where appropriate

- Enable a standardised and operational data documentation at intra- and cross-across domains covered by this work programme that meets the FAIR data principles;
- Enable a mechanism to allow practical and user-friendly re-usability of data across domains and industrial sectors;
- Enable a maintained and continuously developed ontology and data documentation to ensure long-term relevance and implementation;
- Facilitate uptake of new project results;
- Improved ability to build interoperable software solutions in materials, process and manufacturing;
- A better integrated materials, processes, and manufacturing development environment in Europe from networking academics, innovation hubs and industry.

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[1] An ontology consists of definitions of vocabulary, classes and relations between classes

[2] A taxonomy consists of definitions of vocabulary and classes

## Societal Challenges

<b>Horizon 2020 Pillar:</b>	Societal Challenges
<b>Programme:</b>	Health, demographic change and wellbeing
<b>Call Title:</b>	Better Health and care, economic growth and sustainable health systems
<b>Call Identifier:</b>	h2020-sc1-bhc-2018-2020
<b>Topic Title:</b>	<b>Global Alliance for Chronic Diseases (GACD)</b> - Prevention and/or early diagnosis of cancer
<b>Topic Identifier:</b>	SC1-BHC-17-2020
<b>Type of Action:</b>	RIA Research and Innovation action
<b>Deadline(s):</b>	07.04.2020 (single-stage)

### Participant Portal Weblink:

<https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/sc1-bhc-17-2020>

**Specific Challenges:** The **Global Alliance for Chronic Diseases**<sup>[1]</sup> (GACD) call will focus on implementation research proposals for the prevention<sup>[2]</sup> and/or early diagnosis of cancer in Low and Middle-Income Countries (LMIC) and/or in vulnerable populations<sup>[3]</sup> in High- Income Countries (HIC)<sup>[4]</sup>.

The world is facing a critical healthcare problem due to ageing societies, unhealthy lifestyles, socio-economic inequalities, and a growing world population. Cancer is becoming one of the most important public health problems worldwide. In 2018, it is estimated that 181 million<sup>[5]</sup> people have been diagnosed with cancer and 9.6 million have died from it. Predictions suggest that 30 million people will die from cancer each year by 2030, of which three-quarters in low- and middle-income countries (LMICs).

With an estimated 30-50% of avoidable cancers, it is a leading cause of premature death, reducing a country's productivity. Current cancer prevention and control do not fully reflect ethnic, cultural, environmental, socio-economic and resource differences. In particular, limited implementation research is conducted on cancers primarily found in LMICs and vulnerable populations in HIC. In order to achieve the United Nations' sustainable development goal 3.4<sup>[6]</sup>, implementation research and healthcare efforts are needed to prevent and control cancers in these countries and populations.

**Scope:** Proposals should focus on implementation research for the prevention and/or early diagnosis of cancer on in LMIC and/or in vulnerable populations in HIC. Proposals should build on interventions with promising or proven effectiveness (including cost-effectiveness) for the respective population groups under defined

contextual circumstances. For promising interventions, a limited validation period can be envisaged. However, the core of the research activities should focus on their implementation in real-life settings. The proposed interventions should be gender-responsive.

The aim should be to adapt and/or upscale the implementation of these intervention(s) in accessible, affordable and equitable ways in order to improve the prevention and early diagnosis of cancer in real-life settings. Interventions should meet conditions and requirements of the local health and social system context and address any other contextual factors identified as possible barriers.

Each proposal should:

Focus on implementation research addressing prevention, and/or early identification strategies derived from existing knowledge about effective and/or promising interventions.

For screening interventions, the pathway to referral for positive cases should be included.

Include a strategy to test the proposed model of intervention and to address the socioeconomic and contextual factors of relevance to the targeted region and community.

Lead to better understanding of key barriers and facilitators at local, national and international level that affect the prevention and/or early diagnosis of cancer.

Include health economics assessments as an integral part of the proposed research, including considerations of scalability and equity.

Propose a pathway to embed the intervention into local, regional or national health policy and practice, addressing:

A strategy to include policy makers and local authorities (possibly by being part of the consortium), as well as other relevant stakeholders such as community groups, patient groups, formal and informal carers and any other group, wherever relevant from the beginning of the project, which will contribute to the sustainability of the intervention, after the end of project.

Relevance of project outcomes/evidence for scaling up the intervention at local, national and international level and then scaled-up appropriateness with respect to the local social, cultural and economic context.

Research under GACD involves regular exchange of research findings and information across participating projects by means of cross-project working groups and annual joint meetings. Wherever feasible, projects should harmonise and standardise their data collection and exchange data. Applicants must budget for annual costs of having two team members participate in one annual face-to-face meeting of the Annual Scientific Meeting (location to vary annually). Applicants must budget their involvement in GACD working groups and other GACD wide activities, beyond their projects.

The Commission considers that proposals requesting a contribution from the EU of between EUR 1 to 3 million would allow this specific challenge to be addressed

appropriately. Nonetheless, this does not preclude submission and selection of proposals requesting other amounts.

**Expected Impact:** The proposals should address one of or combinations of:

- Advance local, regional or national cancer prevention and/or early diagnostic health policies, alleviating the global burden of cancer;
- Establish the contextual effectiveness of cancer intervention(s), including at health systems level;
- Improve tailored and affordable prevention and/or early diagnosis;
- Provide evidence and recommendations to national programmes and policies focusing on prevention, screening, and/or early diagnosis;
- Inform health service providers, policy and decision makers on effective scaling up of cancer interventions at local, regional, and national levels, including affordability aspects for users and health providers;
- Reduce health inequalities and inequities, including due consideration of socio-economic, gender and age issues where relevant, in the prevention and/or early diagnosis of cancer at both local and global levels;
- Provide pathway to cancer care for the patients diagnosed with cancer;
- Maximise the use of existing relevant programmes and platforms (e.g. research, data, and delivery platforms);
- Contribute to the United Nations' Sustainable Development Goal 3.4.

**Cross-cutting Priorities:** International cooperation, Socio-economic science and humanities

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[1] <http://www.gacd.org/>

[2] Tertiary prevention is excluded from the topic.

[3] Proposals should demonstrate the vulnerability of the targeted population in HIC.

[4] <https://databank.worldbank.org/data/download/site-content/CLASS.xls>

[5] GLOBOCAN and CONCORD-3

[6] <https://www.un.org/sustainabledevelopment/health/>

<b>Horizon 2020 Pillar:</b>	Societal Challenges
<b>Programme:</b>	Health, demographic change and wellbeing
<b>Call Title:</b>	Better Health and care, economic growth and sustainable health systems
<b>Call Identifier:</b>	h2020-sc1-bhc-2018-2020
<b>Topic Title:</b>	Actions in support of the International Consortium for Personalised Medicine
<b>Topic Identifier:</b>	SC1-HCO-01-2018-2019-2020
<b>Type of Action:</b>	CSA Coordination and support action
<b>Deadline(s):</b>	07.04.2020 (single-stage)

**Participant Portal Weblink:**

<https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/sc1-hco-01-2018-2019-2020>

**Specific Challenges:** Personalised Medicine is a very broad and multifaceted area where success relies on a well-functioning collaboration between several disciplines and different actors. While great advances have been made in some fields of medicine, in particular in stratification of cancer patients and in addressing rare diseases, most of today's healthcare protocols do not include personalised approaches apart from occasional division into broad age groups (children/adults/elderly), sex or ethnicity. Furthermore the prevention aspect of personalised medicine, i.e. identifying individuals prone to develop certain diseases, is largely isolated from treatment options. As is the case for a relatively nascent field there is a need for standardisation of approaches, including for sampling, data storage, interpretation and data exchange and also for clinical trials design and reimbursement models. European countries with their social model of healthcare along with (in several cases) centralised cost reimbursement, are ideally placed to lead the way for an integrated health management system. Many needs for coordination and support activities have been identified by ICPeMed<sup>[1]</sup>, an EU Member States led initiative which includes representatives from most EU countries along with several other European countries, Brazil and Canada. The EC currently supports ICPeMed with a grant to operate its secretariat until October 2020<sup>[2]</sup>. Wider internationalisation of ICPeMed can be underpinned by coordinating networking activities with **third countries**.

**Scope:** Each action should focus on one of the following fields:

- **International aspect:** The action should focus on building links with **third countries** by analysing the potential and advantages of collaboration in personalised medicine (PM) with those countries, studying areas of interest for Europe in PM collaboration and promoting international standards in the field. In particular the uptake of personalised approaches in health systems and healthcare should be addressed, taking into account social, cultural, ethical and legal aspects, health economy issues and equitable healthcare. For the 2018 call, the project should focus on CELAC<sup>[3]</sup> as a group of countries, and for the 2019 call on China. For the 2020 call, the project should focus on countries in Africa<sup>[4]</sup>, linking also into the EU-AU (African Union) policy dialogue and taking into account the new Africa-Europa Alliance for Sustainable investment and Jobs<sup>[5]</sup>. Alignment with activities of the **Global Alliance for Chronic Diseases** (GACD) and The European and Developing Countries Clinical Trials Partnership (EDCTP) activities should be explored. Special attention should be given to prediction and prevention, and to promoting well-being for all at all ages. Furthermore, the project should seek to integrate local knowledge and practice. Data safety and privacy should be addressed in line with existing standards and legislation. The project should have a duration of at least four years and address sustainability beyond that to ensure longer term structuring effect. Due to the specific challenge of this topic, in addition to the minimum number of participants set out in the General Annexes, proposals shall include at least one participant based in the international partner region; Africa (2020 call).
- **Regional aspect:** The action should establish and support networking between regions and interregional cooperation in different European countries, in particular linking remote or sparsely populated regions with regions harbouring critical mass of medical and PM expertise while taking into account broader socio-economic and cultural aspects. The focus of the action can include aspects of genomic analysis, me-Health (mobile and electronic Health), telemedicine etc. but should aim at structuring PM application at regional level. Linkage to existing inter-regional projects (financed by INTERREG programmes) or interregional partnerships of Thematic Smart Specialisation Platforms will be actively encouraged. (2018 call).
- **Healthcare- and pharma-economic models for personalised medicine,** interlinking European public health approaches with medical practice and financing. The action should carry out studies in support of research in and development of new health- and pharma economic models for PM, including prevention, to capture value and to develop relevant health financing models. Analysing mid- and long-term impacts of innovative products designated for sub-sets of patient populations on the patients themselves and on public health systems. Assessing the benefits of personalised medicine development for citizens and their broader social environment while ensuring patient safety, access, equity, solidarity, data safety and financial sustainability of public health systems in the EU. The action should involve different relevant stakeholders and take into account work being carried out by other EU funded initiatives, such as EUnetHTA<sup>[6]</sup>. SME participation is encouraged. Results of the studies and workshops should be actively disseminated to a wider

audience, including relevant authorities, professionals and the wider public. (2018 call).

- Standardisation for clinical study design. Establishment of innovative clinical trial design methodology for PM, including guidelines for research and reflection papers. The action should take into account sex/gender differences as well as the work done by relevant stakeholders and authorities such as EMA<sup>[7]</sup> and the HMA network<sup>[8]</sup>, as well as the European legal framework<sup>[9]</sup>. SME participation is encouraged. The results of the studies and workshops should be actively disseminated to a wider audience, including, industry, researchers and other professionals. (2019 call).
- ICPeMed secretariat: The project should continue the work done by the secretariat for ICPeMed, e.g. maintenance of existing services, organising the meetings of the ICPeMed Executive Committee, convening dedicated workshops and preparing and issuing updates of the ICPeMed Action Plan. Furthermore maintaining the network of policy makers and funders gathered in ICPeMed and expanding the membership to new interested and complementary partners as well as maintaining communication with all EC funded activities related to ICPeMed (2020 call).

For grants awarded under this topic for Coordination and Support Actions it is expected that results could contribute to European or international standards. Therefore, the respective option of Article 28.2 of the Model Grant Agreement will be applied.

The Commission considers that proposals requesting a contribution from the EU of between EUR 1.5 and 2 million would allow this specific challenge to be addressed appropriately. Nonetheless, this does not preclude submission and selection of proposals requesting other amounts.

**Expected Impact:** Contributing to the implementation and reach of the ICPeMed initiative; furthermore:

- International aspect: Integrating the country/group of countries into ICPeMed activities. Support wider adoption of standards developed in Europe. Support the EU-AU policy dialogues relevant to research and health (2020 call). Contribute towards the UN Sustainable Development Goal 3: Ensure healthy lives and promote well-being for all at all ages.
- Regional aspect: Strengthened links between European regions setting up or planning personalised medicine healthcare approaches. Aligning research funding with ongoing and foreseen investments e.g. from Structural Funds. Recommendations on best practice in implementing PM at regional level.
- Healthcare- and pharma-economic models: Increased understanding of personalised medicine perspectives on how to capture value, develop institutional support and design relevant payment models. Recommendations for faster translation from discovery to patients'/citizens' access. Contributing to understanding of trends and dynamics in the pharmaceutical markets in relation to increased emphasis of research and development efforts on PM. Suggestions on how savings through prevention can be included in payment and reward models and contribute to the sustainability of public health

systems in the EU. Improved knowledge and understanding among healthcare professionals and the wider public of potential benefits of PM approaches.

- Standardisation for clinical study design: Contribute to standardisation of PM clinical trial design. Demonstrate feasibility and importance of PM approaches. Underpin accelerated market uptake. Improved knowledge and understanding among healthcare professionals, regulatory authorities and industry how best to adapt clinical trials designs to stratified patient populations.
- ICPeMed secretariat (2020 Call): Ensure continuity of the operations of ICPeMed beyond 2020. Increase the visibility of the consortium and ensure openness of the structure. Provide harmonised vision for the further development of personalised medicine. Contribute to the convergence of members' approaches to personalised medicine and further alignment of research efforts in the field.

**Cross-cutting Priorities:** Gender, International cooperation, Socio-economic science and humanities

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[1] <http://icpermed.eu>

[2] H2020 Grant Agreement 731366

[3] Antigua and Barbuda, Argentina, Bahamas, Barbados, Belize, Bolivia, Brazil, Chile, Colombia, Costa Rica, Cuba, Dominica, Dominican Republic, Ecuador, El Salvador, Guatemala, Haiti, Grenada, Guyana, Jamaica, Honduras, Mexico, Nicaragua, Panama, Paraguay, Peru, Saint Lucia, Saint Kitts and Nevis, Saint Vincent and the Grenadines, Suriname, Trinidad and Tobago, Uruguay, Venezuela

[4] African Union Member States

[5] <https://www.africa-eu-partnership.org/en/stay-informed/news/european-commission-unveils-new-africa-europe-alliance-sustainable-investment-and>

[6] European Network for Health Technology Assessment: <http://www.eunetha.eu/>

[7] European Medicines Agency: <https://www.ema.europa.eu>

[8] Heads of Medicines Agencies: <http://www.hma.eu/>

[9] Especially the clinical trials regulation (EU) No 536/2014 and the data protection regulation (EU) 2016/679

<b>Horizon 2020 Pillar:</b>	Societal Challenges
<b>Programme:</b>	Food security, sustainable agriculture and forestry, marine and maritime and inland water research
<b>Call Title:</b>	Sustainable Food Security
<b>Call Identifier:</b>	h2020-sfs-2018-2020
<b>Topic Title:</b>	Healthy terrestrial livestock microbial ecosystems for sustainable production
<b>Topic Identifier:</b>	SFS-02-2020
<b>Type of Action:</b>	RIA Research and Innovation action
<b>Deadline(s):</b>	22.01.2020, 08.09.2020 (two-stage)

**Participant Portal Weblink:**

<https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/sfs-02-2020>

**Specific Challenges:** Research is increasingly paying attention to the importance of interactions between the animal host and microbiota and their effects on the production efficiency, and the health and welfare of animals. These interactions are highly dynamic and influenced not only by genetics, but also by external factors such as environment, nutrition/feeding and management. Recent developments in omics science and technologies have opened new avenues for understanding not only the biology and genetics of animals, but also the ecosystems in which they function and those which they harbour, i.e. microbiomes. This is particularly relevant for micro-organisms that are currently non-culturable. Research on the interplay between the animals and their microbial ecosystems is needed to contribute to the improvement of sustainable livestock production.

**Scope:** Activities shall address relevant microbial ecosystems of terrestrial livestock, and their effects on the production, health and welfare of animals. They should look in a balanced way at the characterisation of microbial ecosystems (including microbial communities and microbe-derived metabolites), assessing variability within and between breeds in relation to variability of production systems and diet; at microbial behaviour (e.g. interactions between microbiota, evolution with age of animals, transmission); at microbial functions and interactions with host, environment and management practices, including feeding where relevant; and at possible ways in which those ecosystems can be managed, including socio-economic aspects, in order to reduce environmental impact, improve production and its quality, and/or health in particular during challenging periods

such as early life, weaning or after disturbances. Activities will include the incorporation of data on microbial ecosystems in the models used to analyse phenotypic variability and to perform genetic evaluations. The activities shall address either ruminants, or monogastrics. Gut microbiome of pigs or poultry can be addressed only in so far as the activities are complementary to those in related projects selected under LC-SFS-03-2018. Proposals may cover one or more species and one or more microbial ecosystem.

Research on anti-microbial resistance can be included as long as it is not the main objective of the project (see topic SFS-12-2018/2019). Research on single animal pathogens is not the focus of the topic. The projects are encouraged to interact as appropriate with relevant collaborative projects in Europe as appropriate and with international initiatives such as the rumen microbial genomics network of the **Global Research Alliance on Agricultural Greenhouse Gases**<sup>[1]</sup>.

The Commission considers that proposals requesting a contribution from the EU of up to EUR 10 million would allow this specific challenge to be addressed appropriately. Nonetheless, this does not preclude submission and selection of proposals requesting other amounts. Funding will allow support for at least one project relating to ruminants and one to monogastrics.

**Expected Impact:** Funded activities will contribute to deciphering the characteristics and functions of the livestock microbial ecosystems and understand the ways in which they influence production, health and/or welfare of animals. They will provide standardised methodologies for further application in livestock production to the greatest extent possible, including socio-economic aspects.

In the short- to medium term, the application of the knowledge and solutions developed will, as appropriate:

- enable inclusion of data on microbial ecosystems in the models used to analyse phenotypic variability and to perform genetic evaluations;
- improve resource use and environmental impact of terrestrial livestock production;
- improve robustness and health of terrestrial livestock, in relation to productive functions;
- reinforce collaborations with initiatives in related domains to promote coherence and applicability of research on microbial ecosystems.

In the longer term, the funded activities will contribute to more resilient production systems.

**Delegation Exception Footnote:** This topic is part of a microbiome cluster. For complementary activities see also SC2 topics SFS-01-2018/19/20, SFS-03-2018 and BG-06-2018 on Marine Microbiomes as SC1 topic SC1-BHC-03-2018

**Cross-cutting Priorities:** International cooperation

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<sup>[1]</sup> <https://globalresearchalliance.org/research/livestock/networks/rumen-microbial-genomics-network>

<b>Horizon 2020 Pillar:</b>	Societal Challenges
<b>Programme:</b>	Climate action, environment, resource efficiency and raw materials
<b>Call Title:</b>	Building a low-carbon, climate resilient future: climate action in support of the Paris Agreement
<b>Call Identifier:</b>	h2020-lc-cla-2018-2019-2020
<b>Topic Title:</b>	Polar climate: understanding the polar processes in a global context in the Arctic and Antarctic Regions
<b>Topic Identifier:</b>	LC-CLA-17-2020
<b>Type of Action:</b>	RIA Research and Innovation action
<b>Deadline(s):</b>	13.02.2020, 03.09.2020 (two-stage)

**Participant Portal Weblink:**

<https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/lc-cla-17-2020>

**Specific Challenges:** Many of the natural physical processes occurring in the polar atmosphere and oceans are potentially of profound significance in controlling conditions across the globe and affecting lives and livelihoods across the world, in the Polar, sub-Polar, temperate, and tropical regions. Understanding the interacting nature and feedback of polar processes and addressing their consequences in a global context will benefit the people, policy and businesses well beyond the Polar Regions.

**Scope:** Proposals should aim at developing innovative approaches, building on existing data resources and infrastructures, the latest observational products (including in-situ observations), and state-of-the-art climate models, to assess the key physical and chemical processes in the ocean and atmosphere and the key ocean-atmosphere-ice interactions. Proposals should cooperate with relevant projects funded by the ESA Earth Observation Programme. In addition, they are encouraged to join the EU Arctic Cluster in order to build synergies and maximise the complementarity of the different actions in the Cluster. Proposals should build upon previous actions funded under Horizon 2020 and avoid duplication or overlap.

In line with the strategy for EU international cooperation in research and innovation (COM(2012)497), international cooperation is encouraged, in particular with countries – beyond the EU Member States and countries associated to Horizon 2020 – that took part in the Arctic Science Ministerial meetings of 28 September 2016 and 25-26 October 2018<sup>[1]</sup>.

The Commission considers that proposals requesting a contribution from the EU in the range of EUR 7-8 million would allow this specific challenge to be addressed appropriately. Nonetheless, this does not preclude submission and selection of proposals requesting other amounts.

**Expected Impact:**

The project results are expected to contribute to:

- improved understanding of how the changing polar climate systems affect and are affected by lower latitudes through ocean and atmospheric circulation;
- improved understanding of the key ocean-atmosphere-ice interactions;
- improved understanding of the fully coupled physical climate system (atmosphere-ocean-ice) on diverse space and time scales;
- improved understanding of the key physical and chemical processes in the ocean and in the atmosphere;
- improved projections of future polar and global climate, including feedbacks and impacts
- improved capability to respond to the impact of climatic change on the environment and human activities in the Polar Regions (with a focus on the Arctic), both in the short and longer term;
- the IPCC scientific assessments, the consolidation phase of the Year Of Polar Prediction (YOPP) and to the Copernicus Climate Change (C3S) services.
- supporting the assessment of regional climate impacts.

**Cross-cutting Priorities:** International cooperation, Blue Growth

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[1] i.e. the United States of America, Canada, the People's Republic of China, Japan, the Russian Federation, South Korea, **New Zealand**, India, Singapore, and Greenland; see <https://www.arcticsscienceministerial.org/en>

<b>Horizon 2020 Pillar:</b>	Societal Challenges
<b>Programme:</b>	Climate action, environment, resource efficiency and raw materials
<b>Call Title:</b>	Building a low-carbon, climate resilient future: climate action in support of the Paris Agreement
<b>Call Identifier:</b>	h2020-lc-cla-2018-2019-2020
<b>Topic Title:</b>	Supporting the implementation of GEOSS in the Arctic in collaboration with Copernicus
<b>Topic Identifier:</b>	LC-CLA-20-2020
<b>Type of Action:</b>	RIA Research and Innovation action
<b>Deadline(s):</b>	13.02.2020, 03.09.2020 (two-stage)

**Participant Portal Weblink:**

<https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/lc-cla-20-2020>

**Specific Challenges:** In order to gain more insight in the fast rate of climate, ecological and environmental change taking place in the Arctic and to facilitate well-informed decisions, there is a need to develop coordinated Earth observations and information services specifically targeting this region, also building on the essential contribution of indigenous knowledge and community-based monitoring systems. These observations and services need to be delivered in order to support a sustainable development in the Arctic, particularly for responding to the needs of the people who live there. Observations and services are also necessary to improve the monitoring and predicting capabilities on changes that may affect other parts of the planet, and in particular the Northern hemisphere. The challenge and suitable actions to alleviate adverse consequences were identified in the 2nd Arctic Science Ministerial Joint Statement of Ministers.<sup>[1]</sup>

**Scope:** The action should aim at:

- (i) advancing the operationalisation of an integrated pan-Arctic Observing System in preparation for a possible future ArcticGEOSS initiative;
- (ii) improving and extending the terrestrial, marine and cryospheric in-situ measurements and the community-based monitoring systems necessary for the monitoring of the Arctic;
- (iii) setting up pilot services and implementing the coordinated network of those services necessary for the adaptation to climate change in the region;

- (iv) contributing to the interoperability of Arctic Data systems; and
- (v) to make a positive contribution to national, regional and international decision-making processes and science strategies.

The action should help to build an Arctic “window”<sup>[2]</sup> of Copernicus by bringing together all Arctic relevant observations deriving from different Copernicus services and promoting access to relevant Copernicus datasets.

The action should coordinate with projects stemming from the NSFs Arctic portfolio, such as the "Navigating the New Arctic" programme, and other actions of the Transatlantic Ocean Research Alliance, by establishing joint operational activities, in order to support the mission and objectives of the international initiative on Arctic observations brought forward by the Sustaining Arctic Observing Networks (SAON).

In line with the strategy for EU international cooperation in research and innovation (COM(2012)497), international cooperation is encouraged, in particular with the countries and Indigenous Peoples organisations participating in the 2nd Arctic Science Ministerial<sup>[3]</sup>.

The action should build on the outcomes of previous EU-funded projects in the framework of GEO and Copernicus, create synergies and avoiding un-necessary duplications also by joining the EU Arctic Research Cluster. Likewise, the action should cooperate with relevant projects funded by the ESA Earth Observation Programme. To this end, proposals should foresee a dedicated work package and /or task and earmark the appropriate resources accordingly.

The pilot services should fall into the scope of EuroGEOSS and follow the direction of the EuroGEOSS initiative. Data and services produced through the projects should be registered in the GEOSS Common Infrastructure (GCI).

The Commission considers that proposals requesting a contribution from the EU in the range of EUR 15 million would allow this specific challenge to be addressed appropriately. Nonetheless, this does not preclude submission and selection of proposals requesting other amounts.

#### **Expected Impact:**

The project results are expected to contribute to:

- the implementations the GEO-Cold Region Initiative with a specific emphasis on the Arctic, and the initiating of an ArcticGEOSS initiative;
- sound and effective decision-making by policy makers in the Arctic regions through the use of reliable and science-based Earth observation and information;
- supporting of the 2030 Agenda for Sustainable Development, the Paris Agreement and Sendai Framework for Disaster Risk Reduction 2015-2030;
- strengthening Earth observation capacity focused on the European region;
- delivering EuroGEOSS services for the Arctic;
- improved handling, archiving and interoperability of environmental data in polar regions;
- a coherent data management, through the use of GEOSS Data Management Principles and best practices (aligning with INSPIRE).

**Cross-cutting Priorities:** Blue Growth, International cooperation

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- [1] Joint Statement of Ministers, 2nd Arctic Science Ministerial, Berlin 2018, [https://www.arcticsscienceministerial.org/files/ASM2\\_Joint\\_Statement.pdf](https://www.arcticsscienceministerial.org/files/ASM2_Joint_Statement.pdf)
- [2] <https://www.copernicus.eu/en/copernicus-services-information-and-sentinel-products-arctic-region>
- [3] i.e. the United States of America, Canada, the People's Republic of China, Japan, the Russian Federation, South Korea, **New Zealand**, India, Singapore, and Greenland; see <https://www.arcticsscienceministerial.org/en>