

Lista apelurilor disponibile în cadrul Programului de lucru Horizon 2020 pentru perioada 2018-2020

Nr.	Program	Call	Topic	Opening date	Deadline	About the topic	Link
1	Societal Challenges	Blue Growth	Blue Bioeconomy Public-Public Partnership	31 October 2017	13 February 2018	Activities shall pool the necessary financial resources from the participating national and/or regional research programmes with a view to implementing a joint call for proposals with EU co-funding resulting in grants to third parties. Proposers are requested to implement other joint activities, including additional joint calls without EU co-funding. Activities shall address innovative, sustainable and climate-friendly possibilities to produce, harvest and exploit aquatic biomass from different trophic levels for use in food and other value chains. The technical and economic feasibility of these possibilities should be clearly demonstrated by including in the projects industry partners that contribute a concrete and feasible business perspective.	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/bg-02-2018.html
2	Societal Challenges	Blue Growth	Sustainable European aquaculture 4.0: nutrition and breeding	31 October 2017	13 February 2018	Activities shall develop smart breeding programmes and/or tailor feeding formulas and technologies for conventional and organic aquaculture – for marine and/or freshwater - targeting animal health (contributing to disease resistance) and welfare, different production systems, feeding efficiency, resilience and climate change mitigation - when applicable, including related traits and possible links between them (synergies, trade-offs) - zero waste, by-products valorisation following circularity principles and organoleptic and nutritional values of seafood optimisation.	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/dt-bg-04-2018-2019.html
3	Societal Challenges	Rural Renaissance	Closing nutrient cycles - RIA Research and Innovation action	31 October 2017	13 February 2018	Proposals shall address inter-regional and intra-regional imbalances through effective nutrient recovery from by-products of the agro-food or the forestry sectors, and conversion into novel fertilisers. Proposals should include a task to cluster with other projects financed under this topic, under topic SFS-39-2019 and – if possible – with other relevant projects in the field funded by Horizon 2020 (including under the BB JU).	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/ce-rur-08-2018-2019-2020.html
4	Societal Challenges	Rural Renaissance	Building modern rural policies on long-term visions and societal engagement - CSA Coordination and support action	31 October 2017	13 February 2018	Proposed actions shall address one of the following sub-topics: - Rural society-science-policy hub (CSA); - Renewing rural generations, jobs and farms (RIA); - Building resilient mountain value chains delivering private and public goods (RIA).	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/rur-01-2018-2019.html
5	Societal Challenges	Rural Renaissance	Building modern rural policies on long-term visions and societal engagement - RIA Research and Innovation action	31 October 2017	13 February 2018	Proposed actions shall address one of the following sub-topics: - Rural society-science-policy hub (CSA); - Renewing rural generations, jobs and farms (RIA); - Building resilient mountain value chains delivering private and public goods (RIA).	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/rur-01-2018-2019.html
6	Societal Challenges	Rural Renaissance	Realising the potential of regional and local bio-based economies	31 October 2017	13 February 2018	Proposals shall foster cooperation and networking between relevant actors at all levels, so that regional bio-based economies can take off, promote open innovation approaches, and ensure adequate knowledge exchange within and among regions. Emphasis shall be put on increasing the capacities of regional/local authorities and stakeholders, especially in regions with high potential (e.g. underused biomass streams, human capacities), but that have a low number of established biorefineries. Proposals shall ensure proper support and guidance in developing regional strategies and roadmaps through participative approaches, adapted to the local conditions and biomass sources.	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/rur-09-2018.html
7	Societal Challenges	Sustainable Food Security	RIA Research and Innovation action	31 October 2017	13 February 2018	Proposals should address only one of the following sub-topics: - Microclimate management: from field to landscape (RIA); - Efficiency and resilience of mixed farming and agroforestry systems (RIA).	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/lc-sfs-19-2018-2019.html
8	Societal Challenges	Sustainable Food Security	RIA Research and Innovation action	31 October 2017	13 February 2018	Activities will tackle biodiversity from various angles ranging from its supporting functions in agro-ecosystems (e.g. through activities of plant and soil biota), the integration of diversity into farming practices and incentives for wider biodiversity management including native biodiversity. Proposals will consider various temporal and spatial scales when assessing the dynamics of biodiversity and its relationship with farming systems, the surrounding landscapes and throughout value chains.	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/sfs-01-2018-2019-2020.html
9	Societal Challenges	Sustainable Food Security	New and emerging risks to plant health	31 October 2017	13 February 2018	Proposals will target one or more new or emerging plant pests and/or diseases (regulated or non-regulated, introduced or native) that are causing, or likely to cause, significant (socio-economic and/or environmental) losses to EU agriculture/forestry. The choice of target pest and/or disease will consider the potential threat in terms of development and spread, its potential exacerbation under climate change as well as the potential impact on agricultural production, forestry, trade and the wider environment. Proposals will increase knowledge of the biology, development and spread of pests/diseases. They will improve methods and strategies for early detection, prevention and control as well as enlarge the range of tools for integrated and sustainable pest/disease management. International cooperation with countries affected or threatened by the same pest(s)/disease(s) is encouraged. Proposals should fall under the concept of the "multi-actor approach"[1] including a range of actors to ensure that knowledge and needs from various sectors such as research, plant health services and the farming/forestry sector are brought together.	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/sfs-05-2018-2019-2020.html
10	Societal Challenges	Sustainable Food Security	Highly efficient management of soil quality and land resources	31 October 2017	13 February 2018	Harmonising land information is crucial for building common understanding of the resource base, with special regard to prime land. Harmonisation should be based on the Eurasian coverage of the new global soil map, incorporating local soil information. Indicators for sustainable intensification and delineation of both prime agricultural land and problem lands should be defined. Options for a trade-off between ecology and productivity should be demonstrated for both productive and less productive land. Influence of climate change and impact of land use change should be incorporated to the models, especially targeting the loss of prime land. The achievement of a new balance should also consider the socio-economic context. In order to achieve the suitability-based highly-efficient land resources management, focus has to be on soil properties (carbon in particular), nutrient input to soil (N, P, K) and N fixation. Proposals shall promote balanced research and innovation cooperation between the EU and China. China-based entities that will participate in joint projects with European partners under Horizon 2020 have also the possibility to apply for funding under the Chinese co-funding mechanism.	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/sfs-38-2018.html
11	Societal Challenges	Sustainable Food Security	Integrated system innovation in valorising urban biowaste	31 October 2017	13 February 2018	Proposals shall focus on an integrated system innovation approach in urban biowaste recycling and valorisation for the production of high-value bio-based products, including proteins for food and feed. Proposals shall ensure the full integration of the upgraded urban biowaste value chain into the existing local waste/wastewater management schemes. Proposals shall guarantee the active participation of local and regional authorities, waste/wastewater management utilities, (bio-based) industries, the scientific community, local communities and citizens.	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/ce-sfs-25-2018.html
12	Societal Challenges	Sustainable Food Security	Personalized Nutrition	31 October 2017	13 February 2018	Proposals shall deliver innovative solutions for personalized nutrition advice and/or support that will help consumers to achieve their optimal health and well-being and to adopt long-term healthy and sustainable diets. These concepts/tools/products/services shall focus on the consumer benefit and integrate all relevant factors such as health indicators, nutritional requirements, food composition, lifestyle, preferences, environment (i.e. cultural and socio-economic), etc. Moreover, proposals shall address all levels of personalization: from food choice in the shop, to customised production and delivery, to specific advice/warning systems (e.g. new, smart digital/ICT applications).	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/dt-sfs-14-2018.html
13	Industrial Leadership	TRANSFORMING EUROPEAN INDUSTRY	New biotechnologies for environmental remediation (RIA) + other Topics for the same main Call having the same opening date (follow the link)	31 October 2017	25 April 2018	Proposals should include research and innovation for efficient and low cost remediation strategies using microorganisms by means of (bio-)electrochemical systems, or alternate systems that require minimum or zero external energy or chemicals. The work should ensure that an acceptable performance for field applications can be attained. Remediation should cover hydrocarbons and their derivatives, metals, nutrients, antibiotics or micropollutants. Moreover, the system developed should remove different contaminants, including complex mixtures, the remediation time should be accelerated and it should work with mixed microbial communities.	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/calls/h2020-nmbp-tr-ind-2018-2020.html#topics=callIdentifier/H2020-NMBP-TR-IND-2018-2020/1/1/1/default-group&callStatus/Forthcoming/1/1/0/default-group&callStatus/Opened/1/1/0/default-group&v=identifier/desc

14	Industrial Leadership	FOUNDATIONS FOR TOMORROW'S INDUSTRY	Nanoinformatics: from materials models to predictive toxicology and ecotoxicology (RIA) + other Topics for the same main Call having the same opening date (follow the link)	31 October 2017	23 January 2018	Despite the significant amounts of data on physico-chemical and toxicological and ecotoxicological properties of nanomaterials generated over the last decades, detailed knowledge on how these properties are linked to specific physico-chemical characteristics is only beginning to emerge. The challenge is to develop and implement modern methods, more cost effective and less reliant on animal testing, for toxicity investigations in each stage of product innovation, through making best use of joining existing and emerging data with the help of progress in nanoinformatics.	http://ec.europa.eu/research/participants/porta/desktop/en/opportunities/h2020/calls/h2020-nmbp-to-ind-2018-2020.html#callIdentifier/h2020-NMBP-TO-IND-2018-2020/1/1/1/default-group&callStatus/Forthcoming/1/1/0/default-group&callStatus/Open/1/1/0/default-group&callStatus/Closed/1/1/0/default-group&identifier/desc
15	Industrial Leadership	FOUNDATIONS FOR TOMORROW'S INDUSTRY	Accelerating the uptake of materials modelling software (IA) + other Topics for the same main Call having the same opening date (follow the link)	31 October 2017	23 January 2018	European modellers have created a large set of materials modelling software of which a major part remains an untapped and unused source of information while having a large potential for exploitation. Further model development and software engineering is needed to make this available to third parties in order to provide industry ready software solutions.	http://ec.europa.eu/research/participants/porta/desktop/en/opportunities/h2020/calls/h2020-nmbp-to-ind-2018-2020.html#callIdentifier/h2020-NMBP-TO-IND-2018-2020/1/1/1/default-group&callStatus/Forthcoming/1/1/0/default-group&callStatus/Open/1/1/0/default-group&callStatus/Closed/1/1/0/default-group&identifier/desc
16	Industrial Leadership	Information and Communication Technologies	Photonics based manufacturing, access to photonics, datacom photonics and connected lighting + other Topics for the same main Call having the same opening date (follow the link)	31 October 2017	17 April 2018	The development and application of innovative photonics based manufacturing solutions will open new ways of producing more goods with fewer raw materials, less energy and less waste. The challenge is to develop systems which deliver improved accuracy, power and control and which will enable the next generation of manufacturing in a range of industrial sectors.	http://ec.europa.eu/research/participants/porta/desktop/en/opportunities/h2020/calls/h2020-ict-2018-2020.html#callIdentifier/h2020-ICT-2018-2020/1/1/1/default-group&callStatus/Forthcoming/1/1/0/default-group&callStatus/Open/1/1/0/default-group&callStatus/Closed/1/1/0/default-group&identifier/desc
17	Industrial Leadership	Information and Communication Technologies	Big Data technologies and extreme-scale analytics + other Topics for the same main Call having the same opening date (follow the link)	31 October 2017	17 April 2018	Rapidly increasing volumes of diverse data from distributed sources create challenges for extracting valuable knowledge and commercial value from data. This calls for novel methods, approaches and engineering paradigms in analytics and data management. As the success will require not only efficient data processing/management but also sufficient computing capacity and connectivity, a coordinated action with all related areas (e.g. analytics, software engineering, HPC, Cloud technologies, IoT) is necessary and will contribute to a European leadership in these areas.	http://ec.europa.eu/research/participants/porta/desktop/en/opportunities/h2020/calls/h2020-ict-2018-2020.html#callIdentifier/h2020-ICT-2018-2020/1/1/1/default-group&callStatus/Forthcoming/1/1/0/default-group&callStatus/Open/1/1/0/default-group&callStatus/Closed/1/1/0/default-group&identifier/desc
18	Industrial Leadership	INDUSTRIAL SUSTAINABILITY	Efficient recycling processes for plastic containing materials (IA) + other Topics for the same main Call having the same opening date (follow the link)	31 October 2017	22 February 2018	Recycling and redesign of plastics are essential in reusing plastic waste material and avoiding landfill. This also allows utilising plastics as carbon sinks in an optimal way, before using them for energy recovery at the end of life. A major challenge lies in the development of process technologies, utilising plastic waste as starting material (at least in part). A better use of underexploited resource (plastic waste) for the production of added value products (not restricted to plastics but excluding fuels) and process streams would support the circular economy.	http://ec.europa.eu/research/participants/porta/desktop/en/opportunities/h2020/calls/h2020-nmbp-st-ind-2018-2020.html#callIdentifier/h2020-NMBP-ST-IND-2018-2020/1/1/1/default-group&callStatus/Forthcoming/1/1/0/default-group&callStatus/Open/1/1/0/default-group&callStatus/Closed/1/1/0/default-group&identifier/desc
19	Industrial Leadership	EU-Japan Joint Call	Advanced technologies (Security/Cloud/IoT/BigData) for a hyper-connected society in the context of Smart City	31 October 2017	31 January 2018	Both EU and Japan have excellent competences in the fields of cybersecurity systems and visualisation technologies. Especially, security aspects are of increasing importance in these years. There is a need for simple, efficient and trustable systems based on advanced technologies combining Security, Cloud and IoT/Big Data technologies that can provide intelligent detection and countermeasures for device malware attacks, automatic vulnerability discovery and patching, analytics and IoT/Big Data applications. All of these require advanced cloud and edge computing technologies and interoperable IoT devices and platforms.	http://ec.europa.eu/research/participants/porta/desktop/en/opportunities/h2020/topics/euj-01-2018.html
20	Industrial Leadership	EU-Japan Joint Call	5G and beyond	31 October 2017	31 January 2018	The next phase of 5G activities running during the 2018-20 period covers both in EU and in Japan, technologies and systems demonstrations and trials. The challenge is hence to demonstrate technologies and system interoperability for 5G applications of interest in the two regions in early version of the IMT-2020 standards, but also to go further to address long-term challenges beyond 5G. The overall goal is to evaluate in real setup innovative end-to-end 5G systems built on the outcomes of previous phases of the 5G R&I. The optimisation of the frequency bands and their usage with different coverage requirements as well as the validation of geographic interoperability are key targets.	http://ec.europa.eu/research/participants/porta/desktop/en/opportunities/h2020/topics/euj-02-2018.html
21	Industrial Leadership	EU-Korea Joint Call	Cloud, IoT and AI technologies	31 October 2017	31 January 2018	The capability offered by the cloud platforms to deliver on-demand computing power and the ability to process the vast amount of data coming from an abundance of devices/sensors will provide a huge impetus to AI technologies as never realized before. In order to provide AI services on Cloud computing platforms, the harmonious management of computing resources through multi-cloud federation environment as well as huge data management and analytics are necessary. In addition, there is a need for new mechanisms using intelligence to manage the deluge of data from various surroundings; standardizing open IoT data management platforms to enable launching new value-added AI services; data acquisition method using IoT technologies.	http://ec.europa.eu/research/participants/porta/desktop/en/opportunities/h2020/topics/euk-01-2018.html
22	Industrial Leadership	EU-Korea Joint Call	5G	31 October 2017	31 January 2018	The overall goal is to evaluate in real setup innovative end-to-end 5G systems built on the outcomes of the previous phase of the 5G R&I in the earlier joint call with South Korea and focus on demonstrations of applications and use cases in joint pilots in line with the phase 3 targets of 5G-PPP and their validation in a system context and in the context of multiple use cases, with performances well beyond those of early 5G trials planned over the 2018-20 period.	http://ec.europa.eu/research/participants/porta/desktop/en/opportunities/h2020/topics/euk-02-2018.html
23	Societal Challenges	2018-2020 Digitising and Transforming European Industry and Services	Testing, validation and certification procedures for highly automated driving functions under various traffic scenarios based on pilot test data	31 October 2017	04 April 2018	Proposed actions should build on the knowledge and results of on-going projects and other initiatives addressing testing and validation procedures of highly automated driving functions as well as fully leveraging the potential of advanced services offered by EGNOS and Galileo. It will be necessary to catalogue and analyse existing procedures and parameters and to identify gaps and weaknesses and potential synergies. Proposals should look at the possibility of employing new approaches to testing and validation, for example procedures already used successfully in other sectors which could be transferred and adopted to highly automated driving functions. The development of testing and validation procedures should also take into account the needs of type approval.	http://ec.europa.eu/research/participants/porta/desktop/en/opportunities/h2020/topics/dt-art-01-2018.html
24	Societal Challenges	2018-2020 Digitising and Transforming European Industry and Services	Support for networking activities and impact assessment for road automation	31 October 2017	04 April 2018	Besides technological progress in developing new automated driving functions, there are still many challenges and uncertainties related to the deployment of connected and automated vehicles. Many of these challenges can be better addressed when European partners work together and cooperate with international partners. Therefore, a coordinated and harmonised approach to support the deployment of automated driving systems at European and international level is needed. More cooperation is also necessary to assess the impacts of connected and automated driving systems. Several methodologies to assess impacts of connected and automated transport systems have already been developed and applied. However, a commonly agreed methodology to assess the impacts of connected and automated driving systems that would allow for informed decision making does not exist.	http://ec.europa.eu/research/participants/porta/desktop/en/opportunities/h2020/topics/dt-art-02-2018.html
25	Societal Challenges	2018-2020 Mobility for Growth	Building Open Science platforms in transport research + other Topics for the same main Call having the same opening date (follow the link)	31 October 2017	04 April 2018	Actions are expected to lead to setting up a community of transport research organisations willing to work on the basis of a commonly agreed Open Science Code of Conduct. Furthermore, actions should contribute to creating a solid knowledge base on the implementation of Open Science approaches in transport research, and in particular on current constraints and bottlenecks in this field. This should lead, amongst other, to improved efficiency, quality and integrity and, when relevant, interdisciplinarity of transport research, speed up the path from research to innovation and promote citizen's engagement in the scientific process.	http://ec.europa.eu/research/participants/porta/desktop/en/opportunities/h2020/calls/h2020-mg-2018-2019-2020.html#callIdentifier/h2020-MG-2018-2019-2020/1/1/1/default-group&callStatus/Forthcoming/1/1/0/default-group&callStatus/Open/1/1/0/default-group&callStatus/Closed/1/1/0/default-group&identifier/desc
26	Societal Challenges	Building a low-carbon, climate resilient future: Green Vehicles	Virtual product development and production of all types of electrified vehicles and components + other Topics for the same main Call having the same opening date (follow the link)	31 October 2017	04 April 2018	The increasing hybridisation and electrifications (i.e. multi-energy powertrains including for instance, BEVs, PHEVs and FCEVs on the same platform) leads to significant increased number of vehicle variants and increased system complexity requiring a massive front loading of development activities by means of digitalization in order to keep development times at comparable levels as today. Optimisation of the various parameters (for instance, the proportion of power and energy between battery and engine/fuel cell in PHEVs and FCEVs) on such platforms requires advanced simulation capabilities at vehicle level (excluding engine/fuel cell development). Furthermore, by exploiting the potential benefits of digitalization to the full, radically new multi-disciplinary, cross organisational and connectivity-based approaches to electric vehicle design and production should be possible which in turn will enable the development of new vehicle concepts, architectures, and integrated solutions with significant reductions in time-to-market, energy consumption and emissions over the full life-cycle while enabling performance and safety to be improved. The challenge will be that next generation virtual product engineering and manufacturing tools become fully integrated and adaptable across the entire value chain of electrified vehicles including production, operation and maintenance in accordance with the principles of industry 4.0.	http://ec.europa.eu/research/participants/porta/desktop/en/opportunities/h2020/calls/h2020-ic-gv-2018-2019-2020.html#callIdentifier/h2020-IC-GV-2018-2019-2020/1/1/1/default-group&callStatus/Forthcoming/1/1/0/default-group&callStatus/Open/1/1/0/default-group&callStatus/Closed/1/1/0/default-group&identifier/desc

38	Industrial Leadership	FAST TRACK TO INNOVATION (FTI)	Fast Track to Innovation (FTI)	07 November 2017	21 February 2018 31 May 2018	FTI targets relatively mature, ground-breaking new technologies, concepts, processes and business models that need final development to be able to shape a new market and achieve wider deployment. FTI actions are encouraged to be interdisciplinary, cutting across different sector and technologies. Actions supporting innovative concepts that have the potential to disrupt or to create new markets are particularly welcome.	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/calls/h2020-eic-fti-2018-2020.html#topics=callIdentifier/h2020-EIC-FTI-2018-2020/1/1/default-group&callStatus/f/forthcoming/1/1/0/default-group&callStatus/f/0/default-group&callStatus/f/Closed/1/1/0/default-group&+identifier/desc
39	Industrial Leadership	SME Instrument	SME instrument (phase 1+ phase 2)	07 November 2017	08 February 2018 (phase 1) 10 January 2018 (phase 2)	Europe needs more radical, market-creating innovations to improve productivity and international competitiveness and generate new jobs and higher standards of living. These innovations must meet user and customer needs and tackle societal, technological and business challenges in a sustainable way. The SME instrument supports high-risk, high-potential small and medium-sized enterprises to develop and bring to market new products, services and business models that could drive economic growth. The SME instrument is for innovators with ground-breaking concepts that could shape new markets or disrupt existing ones in Europe and worldwide.	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/calls/h2020-eic-smEinst-2018-2020.html#topics=callIdentifier/h2020-EIC-SMEInst-2018-2020/1/1/default-group&callStatus/f/forthcoming/1/1/0/default-group&callStatus/f/0/default-group&callStatus/f/Closed/1/1/0/default-group&+identifier/desc
40	Industrial Leadership	For a better innovation support to SMEs	Cluster facilitated projects for new industrial value chains + other Topics for the same main Call (follow the link)	07 November 2017	12 April 2018	Cross-border and cross-sectoral collaboration, innovation and entrepreneurship across different regions and value chains shall be promoted. The coordination and facilitation shall be led by cluster organisations and other intermediary organisations, by following a systemic approach that combines different resources, tools and instruments. Innovation actors, especially SMEs with mutually reinforcing competences, shall be supported in view of creating new industrial value chains that foster the development of emerging industries in Europe.	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/calls/h2020-innosup-2018-2020.html#topics=callIdentifier/h2020-INNOSUP-2018-2020/1/1/default-group&callStatus/f/forthcoming/1/1/0/default-group&callStatus/f/0/default-group&callStatus/f/Closed/1/1/0/default-group&+identifier/desc
41	Industrial Leadership	For a better innovation support to SMEs	Supporting experimentation in innovation agencies + other Topics for the same main Call (follow the link)	07 November 2017	27 March 2018	With new business models and technologies emerging, it is more important than ever that innovation support agencies constantly adapt and innovate in the way that they provide support. Yet, innovation support agencies rarely engage in policy experimentation - for lack of funds, time pressure to deliver new support, and the fear of a backlash against 'money wasting'. At the same time, there is a linked problem that evidence on the effectiveness of both existing and proposed new support mechanisms is limited and inconclusive. Schemes are continued or introduced with no adequate way of testing their effectiveness. However, there is evidence that SMEs benefitting from support programmes are often dissatisfied with the services received. These two linked issues need to be addressed: growing pressure on public budgets demands that the support schemes become more innovative, effective, efficient, and evidence-based and that scarce resources are allocated to schemes with the greatest impact.	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/calls/h2020-innosup-2018-2020.html#topics=callIdentifier/h2020-INNOSUP-2018-2020/1/1/default-group&callStatus/f/forthcoming/1/1/0/default-group&callStatus/f/0/default-group&callStatus/f/Closed/1/1/0/default-group&+identifier/desc
42	Industrial Leadership	For a better innovation support to SMEs	Design and development of a tool to support and improve the decision making process of investors for financing high-growth potential innovative SMEs	07 November 2017	28 February 2018	A core solution to improve access to risk finance for innovative enterprises should target these informational asymmetries at their source to help investors decision making by signalling positively technologically rigorous and promising projects, and avoiding a mixed equilibrium between non-viable and viable projects leading to higher interest rate and to the migration of very promising projects outside the EU. Hence, such a solution would lower the risk premium as well as the administrative cost for technological assessment that are ultimately paid by innovative project managers, and therefore should reduce the cost of financing for innovative project managers. Such tool could help improving EU Access to Finance conditions for innovators by better selecting projects, making a better allocation of resources, and a better use of EU private existing fundings by channelling them to companies in position to succeed in their projects, therefore participating to the creation of growth and jobs. Such tool could also help improving the reputation of investing in EU and AC innovative companies by increasing the success probability of such investments which could ultimately lead to attract new investors in the field.	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/calls/h2020-innosup-2018-2020.html#topics=callIdentifier/h2020-INNOSUP-2018-2020/1/1/default-group&callStatus/f/forthcoming/1/1/0/default-group&callStatus/f/0/default-group&callStatus/f/Closed/1/1/0/default-group&+identifier/desc
43	Societal Challenges	SOCIOECONOMIC AND CULTURAL TRANSFORMATIONS IN THE CONTEXT OF THE FOURTH INDUSTRIAL REVOLUTION	Transformative impact of disruptive technologies in public services	07 November 2017	13 March 2018	The use of disruptive technologies (such as block-chain, big data analytics, Internet of Things, virtual reality, augmented reality, artificial intelligence, algorithmic techniques, simulations and gamification) in public administrations, public goods, public governance, public engagement, public-private partnerships, public third sector partnerships and policy impact assessment is growing and can be very beneficial. Yet, the real potential impact of such technologies and the ways in which they can disrupt the existing landscape of public services and legal procedures and can replace present solutions and processes are largely unknown. As a result, deploying these disruptive technologies in public administration requires a thorough assessment of their potential impact, benefits and risks for the delivery of public goods.	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/dt-transformations-02-2018-2019-2020.html
44	Societal Challenges	SOCIOECONOMIC AND CULTURAL TRANSFORMATIONS IN THE CONTEXT OF THE FOURTH INDUSTRIAL REVOLUTION	Curator of digital assets and advanced digitisation	07 November 2017	13 March 2018	Digitisation still focuses mainly on capturing the visual appearance of objects, collections or sites. It is also often centralised and static, with an expert performing digitisation and archiving and with digitised cultural resources rarely updated and consolidated. With heritage being both tangible and intangible, the challenge is to design solutions for generating a comprehensive picture of the studied assets, capturing and re-creating not only visual and structural information, but also stories and experiences together with their cultural, historical and social context and their evolution over time.	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/dt-transformations-12-2018-2020.html
45	Societal Challenges	SOCIOECONOMIC AND CULTURAL TRANSFORMATIONS IN THE CONTEXT OF THE FOURTH INDUSTRIAL REVOLUTION	Social platform on endangered cultural heritage and on illicit trafficking of cultural goods	07 November 2017	13 March 2018	Initiatives to protect endangered cultural heritage and to stop their illicit trade are multiplying, with international bodies, the EU, national governments and other institutions developing useful, though mainly uncoordinated, initiatives. The challenge is to take stock of ongoing initiatives, promote mutual learning and coordination, and identify knowledge and intervention gaps. The platform should bring together the research community, public and private actors, and policy makers at national and international levels working on issues related to the illicit trafficking of cultural goods and on the protection, preservation or reconstruction of cultural heritage in danger. Traffic routes, provenance research (including satellite imagery), economic aspects (including links to terrorism), heritage memory preservation (including safe heavens and 3D reconstruction), return and restitution, and other responses such as legislation, training, and awareness raising programmes for specialised communities (art curators, galleries, collectors and dealers) and the general public should be considered.	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/su-transformations-09-2018.html
46	Societal Challenges	SOCIOECONOMIC AND CULTURAL TRANSFORMATIONS IN THE CONTEXT OF THE FOURTH INDUSTRIAL REVOLUTION	Research for inclusive growth: addressing the socioeconomic effects of technological transformations	07 November 2017	13 March 2018	Technological transformations such as automation, robotisation and digitisation have profound socioeconomic effects. They create both opportunities and challenges for the future of work, employment and productivity. At the same time, they have an impact on welfare systems and social security, on the content of skills and their acquisition, on availability and type of jobs, on occupational health and safety, and on issues related to personal and social well-being and distributive fairness. Research is needed to assess the effects of these mutations and to propose policies and interventions aimed at socially inclusive growth. Proposals should comprehensively analyse, Europe-wide and comparatively, the effects of technological transformations on employment and labour markets. They should trace changes in the content of work and the new skills in demand. To this end, they should explore ways of measuring new skills and provide verifiable data of trusted quality. They should look at how education and training systems could be transformed in order to address evolutions in the content and organisation of work.	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/transformations-01-2018.html
47	Societal Challenges	SOCIOECONOMIC AND CULTURAL TRANSFORMATIONS IN THE CONTEXT OF THE FOURTH INDUSTRIAL REVOLUTION	Innovative solutions for inclusive and sustainable urban environments	07 November 2017	13 March 2018	The increasing percentage of people living in urban areas and the impact of digital technologies on public services make good governance, inclusive policies, smart planning and social and environmental sustainability ever more important for ensuring the quality of human life. Urban environments and agglomeration effects provide an ecosystem for economic growth and innovation. While the impact of the recent financial crisis on European urban areas is by no means uniform, it has led in many instances to rising socio-economic inequalities that are affecting social cohesion and resilience. The challenge is to identify the main drivers of inequalities in different urban and peri-urban contexts and to identify best practices and initiatives, including digital solutions and alternative participatory growth models, with potential for upscaling that can promote upward social mobility, social inclusion and cohesion, resilience and sustainable development.	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/transformations-03-2018-2019.html
48	Societal Challenges	SOCIOECONOMIC AND CULTURAL TRANSFORMATIONS IN THE CONTEXT OF THE FOURTH INDUSTRIAL REVOLUTION	Cities as a platform for citizen-driven innovation	07 November 2017	13 March 2018	Proposals should capture successful innovative practices that are emerging in Europe particularly from those urban areas that effectively absorb, develop and create new knowledge and ideas, and then this knowledge into social and economic development. In particular, they should take stock of how citizens are increasingly engaging in the experimentation and the development of new solutions blending technological, non-tech, cultural and social practices, e.g., frugal technologies. The issue is how to scale up these community-driven approaches without compromising their participatory character.	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/transformations-05-2018.html

49	Societal Challenges	SOCIOECONOMIC AND CULTURAL TRANSFORMATIONS IN THE CONTEXT OF THE FOURTH INDUSTRIAL REVOLUTION	Inclusive and sustainable growth through cultural and creative industries and the arts	07 November 2017	13 March 2018	The development of cultural and creative industries (CCIs) is vital for a vibrant economy and as a means of revitalising EU regions. The CCIs employ 7.5% of the EU's workforce and add around EUR 500 billion to GDP. CCIs also contribute significantly to youth employment and were remarkably resilient in the context of the economic crisis. However, they still do not benefit from the support of a comprehensive sectoral policy scheme in most Member States and Associated Countries or at the EU level. Proposals should develop a comprehensive understanding of CCIs, improving indicators at national and at EU level. Using multidisciplinary qualitative and quantitative research approaches as relevant, they should assess knowledge gaps on the role of specific skills (including digital and artistic) and traditional crafts, education and training, and design and creativity. Proposals should explore the conditions for a successful CCI sector, considering business models, resilient strategies and innovative solutions to boost sustainable employment and growth in the sector, and their interactions with research and development processes, especially for the self-employed and micro enterprises.	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/transformations-06-2018.html
50	Societal Challenges	SOCIOECONOMIC AND CULTURAL TRANSFORMATIONS IN THE CONTEXT OF THE FOURTH INDUSTRIAL REVOLUTION	Supply and demand-oriented economic policies to boost robust growth in Europe – Addressing the social and economic challenges in Europe	07 November 2017	13 March 2018	Building on past economic research in the fields of productivity and growth measurement, proposals should analyse the underlying reasons for the "productivity puzzle", together with the impact of globalisation and demographic change on national economies, and the distribution of income flows generated by global value chains (for example by the mobility of intangible assets, the role of Multi-National Firms). Proposals should also examine the degree to which productivity may be inadequately measured due to data problems and conceptual gaps. Furthermore, attention should be paid to both alternative explanations and the micro and macro-economic underpinnings of growth and productivity in a global context. In this vein, the barriers for low entry and weak dynamism (finance, skills, knowledge diffusion, scaling-up) in European SMEs and start-ups should be elucidated. Understanding the role of the government sector and its intangibles for European growth and productivity dynamism is also important.	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/transformations-14-2018.html
51	Societal Challenges	MIGRATION	Addressing the challenge of migrant integration through ICT-enabled solutions	07 November 2017	13 March 2018	An efficient management of migrant integration requires clear understanding of migrants' personal and family situation, including their legal status, origin, cultural background, skills, language skills, medical records, etc. Once such information is available to public authorities, it can improve societal outcomes to the benefit of both host countries and migrants: 1. the management of migrant integration can be facilitated, e.g. by matching their skills with those needed in the Member States and Associated Countries, by designing tailored training programmes or by creating specific decision support tools; 2. better and customised services can be delivered to match the needs of migrants; 3. more efficient integration strategies can be defined and implemented at local level for a sustainable inclusion of migrants and a fact-based public perception of migration.	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/dt-migration-06-2018-2019.html
52	Societal Challenges	MIGRATION	Towards forward-looking migration governance: addressing the challenges, assessing capacities and designing future strategies	07 November 2017	13 March 2018	Global migration governance regimes are emerging. There is a pressing need to identify priority areas and strategies to facilitate orderly, safe, regular and responsible migration and mobility as foreseen in the Sustainable Development Goals of Agenda 2030 and the New York Declaration of 2016. The EU is involved in the global effort to design multilevel migration governance models applicable to the Union and to its Member States, in the context of evolving EU migration governance and EU global migration-related perspectives and responsibilities, proposals should assess governance models, including recently established partnership instruments, as well as the revision of overarching agreements, their limitations and scale-up potential, including the effects of the external dimension of EU migration policies on countries of origin and transit, and the development for governance indicators as well as a framework migration governance's measurement.	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/migration-02-2018.html
53	Societal Challenges	MIGRATION	Mapping and overcoming integration challenges for migrant children	07 November 2017	13 March 2018	At a time where the integration of refugee and migrant children into host societies is most pressing, education systems face multiple challenges due to growing cultural, linguistic and ethnic diversity and to socio-economic inequalities. Proposals should generate quantitative and qualitative data and policy recommendations on the integration in schools of pupils (ISCED 0-3) from existing migration cohorts, children of refugees and asylum seekers, and unaccompanied minors, including those residing in hotspots and reception centres. They should take account of the complexity of pupils' background, including of children who are EU long-term residents with migration background and of newcomers, and should assess issues related to gender, identity, achievement, well-being, home-school links and discrimination among others. Ethnological, cultural, and anthropological perspectives should be included.	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/migration-05-2018-2020.html
54	Societal Challenges	MIGRATION	Addressing the challenge of forced displacement	07 November 2017	13 March 2018	Tens of millions of people live in forced displacement, many of them in protracted refugee and displacement situations for long periods of time and even generations. This is often accepted, albeit reluctantly, as a semi-permanent state of affairs given that return as a solution to forced displacement rarely takes place. The situation affects life trajectories of displaced people and poses multiple challenges for social, economic, urban and environmental services and for local investments and labour markets. Proposals should investigate the medium and long-term socioeconomic dimensions of mass displacement when forcibly displaced persons concentrate in camps and hosting areas or settle in unprotected and underprepared urban settings. They should also consider the socio-psychological dimensions of forced displacement and gender-related issues.	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/migration-08-2018.html
55	Societal Challenges	GOVERNANCE FOR THE FUTURE	New forms of delivering public goods and inclusive public services	07 November 2017	13 March 2018	Governance is being transformed by new approaches to delivering public services which allow for the involvement of citizens and various other actors. The challenge is to critically assess and support as needed this transformation based on an open collaboration and innovation platform supported by ICT ('government as a platform') and on an open environment and ecosystem with clear frameworks and guidelines for modular services quality ('government as a service'). In particular, to deliver better public services, public administrations need to regroup resources together under common infrastructures at the European level that serve the needs of various actors and enable the participation of all relevant communities. In addition, to ensure a cost efficient provision of inclusive digital services, there is a pressing need to identify gaps in accessibility solutions, to establish related best practices, and to promote training, awareness raising and capacity building.	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/dt-governance-05-2018-2019-2020.html
56	Societal Challenges	GOVERNANCE FOR THE FUTURE	Past, present and future of differentiation in European governance	07 November 2017	13 March 2018	Recent challenges faced by the EU raise the question of whether Member States will continue on the same integrationist track. Differentiation, which has been core to the constitutional architecture of the EU, has gained prominence in the light of recent manifestations of centrifugal forces. The challenge is to ascertain whether and how much differentiation is necessary, conducive, sustainable and acceptable as well as how future approaches towards differentiation fare in the light of these findings.	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/governance-02-2018-2019.html
57	Societal Challenges	GOVERNANCE FOR THE FUTURE	Addressing populism and boosting civic and democratic engagement	07 November 2017	13 March 2018	Mainstream political parties are being increasingly perceived as not addressing adequately the challenges faced by the EU and its Member States. At the same time, support for populist parties, movements and ideas is on the rise. The challenge is to analyse the phenomenon of populism and its consequences for European democracies and the European project. In addition, innovative ways of understanding and addressing the causes of populism as well as strategies for strengthening democratic values and practices need to be identified.	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/governance-03-2018.html
58	Societal Challenges	GOVERNANCE FOR THE FUTURE	Trends and forward-looking scenarios in global governance	07 November 2017	13 March 2018	Recent trends in nationalism, protectionism and regionalism are affecting international commitments and policies. They also put added pressure on the political and operational capacities of global governance institutions created in the mid-twentieth century for critical yet partly different purposes. This raises the prospects of shifts, including in responsibility, in global and transnational governance. The challenge is to identify coherent responses and to effectively coordinate their implementation with stakeholders.	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/governance-06-2018.html
59	Societal Challenges	GOVERNANCE FOR THE FUTURE	Partnering for viability assessments of innovative solutions for markets outside Europe	07 November 2017	13 March 2018	New and emerging markets outside Europe offer huge opportunities for the European industry. To compete effectively in these markets, European companies and especially SMEs need to develop partnerships with innovation players in these economies from early on and to develop receptiveness for local success. This is crucial to better understand the specific market context and the consequent needs and demands of emerging users and consumers. The end goal is to bring a new product, service or process to the foreign market, possibly through an innovative application of existing technologies, methodologies, or business processes.	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/governance-08-2018.html
60	Societal Challenges	GOVERNANCE FOR THE FUTURE	ERA-Net Co-fund - Renegotiating democratic governance in times of disruptions	07 November 2017	13 March 2018	There are signs that conventional conceptions of democratic governance are disrupted. The legitimacy of traditional democratic institutions appears challenged by decreasing trust in their capability to provide solutions to pressing societal problems. Also phenomena such as rising populism and extremism, including violent extremism, pose a challenge to sound democratic deliberation and to liberal-democratic norms. There is a need for understanding the underlying dynamics behind these phenomena and to identify and propose means and instruments for sustainable and resilient democratic governance for the future. Activities under this action should analyse what are the major challenges to democratic governance. It should explore the scale and nature of these challenges, their causes and underlying mechanisms, as well as their consequences and effects on democracy. Research should address fundamental issues such as the relation between capitalism and democracy and should explore, also from a historical perspective, the evolution of the democratic institutions of governance at local, national and EU level.	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/governance-14-2018.html

61	Societal Challenges	GOVERNANCE FOR THE FUTURE	Taking lessons from the practices of interdisciplinarity in Europe	07 November 2017	13 March 2018	Interdisciplinarity for this topic means interdisciplinarity between social sciences and humanities (SSH) and other sciences as well as interdisciplinarity between the diverse disciplines within the social sciences, humanities and the arts. Furthermore, the European Commission supports a genuine integration of SSH, meaning that the SSH are not an "add-on" to other sciences but are fully mobilised, like other sciences, in building collectively the relevant scientific interdisciplinary questions for answering Europe's societal challenges. Finally, the Commission recognises that interdisciplinarity between SSH and other sciences is only one among several scientific approaches (i.e. mono-disciplinary and other kinds of interdisciplinarity) and therefore that the policy to support "SSH integration" needs to be justified and selective.	http://ec.europa.eu/research/participants/porta/desktop/en/opportunities/h2020/topics/governance-15-2018.html
62	Societal Challenges	GOVERNANCE FOR THE FUTURE	Extreme ideologies and polarisation	07 November 2017	13 March 2018	Extreme ideologies can lead to social disruption, distrust and lack of empathy, diminished civic capacity, social tensions, clashes, hate speech, hate crime, conflicts and violence. The challenge is to produce a solid knowledge base on how extreme ideologies and accompanying behaviours affect the social fabric, bonds and cohesion of our societies, communities and cities. A better, more operational understanding of why, when and how extreme ideologies lead to societal polarisation is needed. Proposals should take stock of available knowledge, lessons learned and solutions from existing EU, national and local research and practice on extreme and polarising ideologies and societal tendencies towards radicalisation in Europe. They should systematise knowledge on the drivers of these radical ideologies and tendencies, on the possible links with other types of polarisations (e.g. socio-economic inequalities, stigmatisation, discrimination or affective polarisation) and on political, socioeconomic and cultural consequences. Historic and cultural roots of extreme ideologies should also be investigated.	http://ec.europa.eu/research/participants/porta/desktop/en/opportunities/h2020/topics/su-governance-11-2018.html
63	Excellent Science	Marie Skłodowska-Curie Research and Innovation Staff Exchange	Research and Innovation Staff Exchange	22 November 2017	21 March 2018	Support is provided for the development of partnerships in the form of a joint research and innovation project. This is aimed at knowledge sharing via international as well as intersectoral mobility, based on secondments of research and innovation staff (exchanges) with an in-built return mechanism. RISE should exploit complementary competences of the participating organisations, as well as other synergies, and enable networking activities, organisation of workshops and conferences to facilitate sharing of knowledge, new skills acquisition and career development for research and innovation staff members. RISE proposals can focus either on one dimension of mobility (intersectoral / international), or include a combination of both. Exchanges can be for both early-stage and experienced researchers and can also include administrative, managerial and technical staff directly involved in the research and innovation activities of the proposal.	http://ec.europa.eu/research/participants/porta/desktop/en/opportunities/h2020/topics/msca-rise-2018.html
64	Excellent Science	Integrating and opening research infrastructures of European interest	Integrating Activities for Advanced Communities	05 December 2017	22 March 2018	Advanced Communities' are scientific communities whose research infrastructures show an advanced degree of coordination and networking at present, attained, in particular, through Integrating Activities awarded under FP7 or previous Horizon 2020 calls. An Integrating Activity will mobilise a comprehensive consortium of several key research infrastructures in a given field as well as other stakeholders (e.g. public authorities, technological partners, research institutions) from different Member States, Associated Countries and other third countries[1] when appropriate, in particular when they offer complementary or more advanced services than those available in Europe. Funding will be provided to support, in particular, the trans-national and virtual access provided to European researchers (and to researchers from Third Countries under certain conditions[2]), the cooperation between research infrastructures, scientific communities, industry and other stakeholders, the improvement of the services the infrastructures provide, the harmonisation, optimisation and improvement of access procedures and interfaces.	http://ec.europa.eu/research/participants/porta/desktop/en/opportunities/h2020/topics/infra-01-2018-2019.html
65	Excellent Science	Support to policy and international cooperation	Policy and international cooperation measures for research infrastructures	05 December 2017	22 March 2018	In line with the strategy for EU international cooperation in research and innovation (COM(2012)497), international cooperation for research infrastructures is needed with a number of key partners located in third countries/regions seen as strategic both for the development, exploitation and management of world-class research infrastructures and for ensuring the necessary complementarities on the international scene required to address research challenges with a global dimension by optimising the use of the available resources.	http://ec.europa.eu/research/participants/porta/desktop/en/opportunities/h2020/topics/infra-sup-01-2018-2019.html
66	Science with and for Society	Science with and for Society	Innovative methods for teaching ethics and research integrity + other Topics for the same main Call having the same opening date (follow the link)	05 December 2017	10 April 2018	On the basis of existing successful educational practices, the action will develop and test innovative educational student-centred methods (formal and informal) aiming to promote a culture of research integrity and raise awareness of students and early career researchers. The above mentioned code of conduct for research integrity will be the reference document to be used as the basis for the proposed methodology. Different curricula and educational tools and methods should be developed for two groups: the first group will be composed of secondary school students; the second will be composed of undergraduate and graduate students in relevant fields (including technical education students) as well as early career researchers.	http://ec.europa.eu/research/participants/porta/desktop/en/opportunities/h2020/calls/h2020-swafs-2018-2020.html#ec:callIdentifier/H2020-Swafs-2018-2020/1/1/1/default-group&callStatus/f/forthcoming/1/1/0/default-group&callStatus/Opened/1/1/0/default-group&+identifier/desc
67	Excellent Science	Development and long-term sustainability of new pan-European research infrastructures	Individual support to ESFRI and other world-class research infrastructures	05 December 2017	22 March 2018	This topic targets the long-term sustainability of new research infrastructures, ESFRI and other world-class research infrastructures of European interest, with established governance and legal structure, notably on the basis of the European Research Infrastructure Consortium (ERIC) or any other suitable structure with international membership. Infrastructures having submitted a first step application to the Commission for establishing an ERIC may also apply to this topic. Support will be provided to activities aimed at ensuring long-term sustainability, including enlargement of the membership, European coverage, international cooperation, limited pilots of access provision for testing and improving user services to increase reliability and create trust, definition of service level agreements and business/funding plan, outreach, and technology transfer activities. Proposals should explain any synergies and complementarities with previous or current EU grants.	http://ec.europa.eu/research/participants/porta/desktop/en/opportunities/h2020/calls/h2020-infra-dev-2018-2020.html#ec:callIdentifier/H2020-INFRADEV-2018-2020/1/1/1/default-group&callStatus/f/forthcoming/1/1/0/default-group&callStatus/Opened/1/1/0/default-group&+identifier/desc
68	Excellent Science	Implementing the European Open Science Cloud	Connecting ESFRI infrastructures through Cluster projects	05 December 2017	22 March 2018	Proposals will address the stewardship of data handled by the involved research infrastructures according to the FAIR principles and in line with the objectives of Open Science. This will include the definition of domain specific data policies (e.g. acquisition, deposit, curation, preservation, access, sharing and re-use), addressing any legislative or interoperability issues which affect data handling across geographical and discipline borders, as well as the development of appropriate tools for depositing, curating and analysing data. Research infrastructures will have to expose their data and tools under the EOSC catalogue of services and take all the necessary steps to ensure that the used repositories are compliant with the FAIR principles. In doing so proposals should develop synergies and complementarity in data handling between research infrastructures, optimise technological implementation, and ensure integration and interoperability of data and tools within the EOSC.	http://ec.europa.eu/research/participants/porta/desktop/en/opportunities/h2020/calls/h2020-infra-osc-2018-2020.html#ec:callIdentifier/H2020-INFRAOSC-2018-2020/1/1/1/default-group&callStatus/f/forthcoming/1/1/0/default-group&callStatus/Opened/1/1/0/default-group&+identifier/desc
69	Excellent Science	European Data Infrastructure	Centres of Excellence on HPC + other Topics for the same main Call having the same opening date (follow the link)	05 December 2017	22 March 2018	This topic covers two interrelated and synergic areas: (a) Supporting Centres of Excellence (CoE) that promote the use of upcoming exascale and extreme performance computing capabilities in areas where user communities in collaboration with other HPC stakeholders can develop or scale up existing parallel codes towards exascale and extreme scaling performance, resulting in tangible benefits for addressing scientific, industrial or societal challenges. (b) Addressing the fragmentation of activities for excellence in HPC applications, and fostering the widening of the use of HPC codes in the EU, by establishing a focal point for the consulting skills and training available from the CoE, and from other HPC centres or organisations, including PRACE.	http://ec.europa.eu/research/participants/porta/desktop/en/opportunities/h2020/calls/h2020-infra-edi-2018-2020.html#ec:callIdentifier/H2020-INFRAEDI-2018-2020/1/1/1/default-group&callStatus/f/forthcoming/1/1/0/default-group&callStatus/Opened/1/1/0/default-group&+identifier/desc
70	Societal Challenges	EIC Horizon Prize for 'Fuel from the Sun: Artificial Photosynthesis'	EIC Horizon Prize for 'Fuel from the Sun: Artificial Photosynthesis'	06 December 2017	03 February 2021	The challenge is to build a fully functional, bench-scale prototype of an artificial photosynthesis based system which is able to produce a useable synthetic fuel. Artificial photosynthesis is widely considered to be among the most promising new technologies to deliver sustainable alternatives to current fuel supplies. Due to its ability to use a combination of sunlight, water and carbon from the air to produce energy, artificial photosynthesis is regarded as a potential breakthrough energy technology. It can be used to produce hydrogen or carbon-based fuels – collectively referred to as "solar fuels" – which offer an efficient and transportable means of storage of solar energy. Solar energy, in turn, can be used as an alternative to fossil fuels and as a feedstock for a wide range of industrial processes.	http://ec.europa.eu/research/participants/porta/desktop/en/opportunities/h2020/topics/sunfuel-eicprize-2021.html
71	Societal Challenges	BUILDING A LOW-CARBON, CLIMATE RESILIENT FUTURE: SECURE, CLEAN AND EFFICIENT ENERGY	Business case for industrial waste heat/cold recovery + other Topics for the same main Call (follow the link)	25 January 2018	04 September 2018	Energy and fuels represent an important part of the production costs in several Resource and Energy Intensive Industries (REII). While a lot of technical progress has already been done in REII to reduce the energy consumption of the main industrial processes, significant parts of the input-energy are still lost in the form of waste heat/cold by gas, liquid or solid streams. Wide-scale deployment of industrial waste heat/cold recovery is hindered, among others, by the lack of financial/ economic justification for the required equipment and, at times, by the limited industrial applicability (i.e. process re-integration). Often, it is forgotten that directly or after an intermediate transformation step, the sources of heat/cold losses of a given industry can be a valuable resource for other industries and buildings/ District Heating and Cooling operators and that they could be of commercial interest for the waste heat/cold producer.	http://ec.europa.eu/research/participants/porta/desktop/en/opportunities/h2020/calls/h2020-lc-sc3-2018-2019-2020.html#ec:callIdentifier/H2020-LC-SC3-2018-2019-2020/1/1/1/default-group&callStatus/f/forthcoming/1/1/0/default-group&callStatus/Opened/1/1/0/default-group&+identifier/desc

72	Excellent Science	FET Proactive – High Performance Computing	International Cooperation on HPC	01 February 2018	15 May 2018	The aim is to develop strategic partnership in HPC with Brazil and Mexico that enables advancing the work on HPC applications in domains of common interest. Brazilian and Mexican partners will not be funded by the EU and they are expected to participate in the project with their own funding.	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/calls/h2020-fetpc-2018-2020.html#topics=callIdentifier/h2020-FETPC-2018-2020/1/1/1/default-group&callStatus/f/forthcoming/1/1/0/default-group&callStatus/f/Open/1/1/0/default-group&callStatus/f/Closed/1/1/0/default-group&identifier/desc
73	Industrial Leadership	Cybersecurity	Dynamic countering of cyber-attacks + other Topics for the same main Call having the same opening date (follow the link)	15 March 2018	28 August 2018	Proposals should explore how recent progress in artificial intelligence, in deep learning and in other related technologies can be used to provide breakthroughs in the fight against cyber-attacks (e.g. recognition of malicious activities on the network). Deep learning applications may also be used for cyber threat intelligence in anticipation of cyberattacks to identify malicious activity trends in the cyber space and correlate with attackers' information, tools and techniques. Proposals may also cover secure execution environments not only including the execution platforms themselves plus the operating systems, but also the mechanisms (e.g. security supporting services, authentication/access control mechanisms) that ensure an adequate level of security, privacy and accountability in the execution of all processes.	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/calls/h2020-su-ict-2018-2020.html#topics=callIdentifier/h2020-SU-ICT-2018-2020/1/1/1/default-group&callStatus/f/forthcoming/1/1/0/default-group&callStatus/f/Open/1/1/0/default-group&callStatus/f/Closed/1/1/0/default-group&identifier/desc
74	Societal Challenges	Digital Security	Cybersecurity preparedness - cyber range, simulation and economics + other Topics for the same main Call having the same opening date (follow the link)	15 March 2018	23 August 2018	The proposals should develop, test and validate highly customizable dynamic simulators serving as knowledge-based platforms accompanied with mechanisms for real time interactions and information sharing, feedback loops, developments and adjustments of exercises. These simulation platforms will help professionals responsible for cybersecurity in organizations to collaboratively improve their ability in handling and forecasting security incidents, complex attacks and propagated vulnerabilities, based upon targeted scenarios and exercises. Proposals are encouraged to bring shared approaches to express and transform user needs into actual experiments and cyber exercises (e.g. capture-the-flag) and to develop/integrate/parameterise appropriate tools and methods for supporting current and future generated evidence-based simulation scenarios. The proposed cyber range model should be validated across one critical economic sector, involving as many as possible relevant stakeholders from its supply chain. Proposals should consider the specific needs of end-users, private and public security end-users alike.	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/calls/h2020-su-ds-2018-2019-2020.html#topics=callIdentifier/h2020-SU-DS-2018-2019-2020/1/1/1/default-group&callStatus/f/forthcoming/1/1/0/default-group&callStatus/f/Open/1/1/0/default-group&callStatus/f/Closed/1/1/0/default-group&identifier/desc
75	Societal Challenges	Protecting the infrastructure of Europe and the people in the European Smart Cities	Prevention, detection, response and mitigation of combined physical and cyber threats to critical infrastructure in Europe	15 March 2018	23 August 2018	Proposals should cover: forecast, assessment of physical and cyber risks, prevention, detection, response, and in case of failure, mitigation of consequences (including novel installation designs), and fast recovery after incidents, over the life span of the infrastructure, with a view to achieving the security and resilience of all functions performed by the installations, and of neighbouring populations and the environment.	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/calls/h2020-su-infra-2018-2019-2020.html#topics=callIdentifier/h2020-SU-INFRA-2018-2019-2020/1/1/1/default-group&callStatus/f/forthcoming/1/1/0/default-group&callStatus/f/Open/1/1/0/default-group&callStatus/f/Closed/1/1/0/default-group&identifier/desc
76	Societal Challenges	Security	Human factors, and social, societal, and organisational aspects of border and external security	15 March 2018	23 August 2018	Border and external security may depend on a variety of human factors, and social and societal issues including gender. The adoption of appropriate organisational measures and the deeper understanding of how novel technologies and social media impact border control are required. One main challenge is to manage the flow of travellers and goods arriving at our external borders, while at the same time tackling irregular migration and enhancing our internal security. Any novel technology or organisational measure will need to be accepted by the European citizens.	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/su-bes01-2018-2019-2020.html
77	Societal Challenges	Security	Technologies to enhance border and external security	15 March 2018	23 August 2018	Innovation for border and external security may draw, in particular, from novel technologies, provided that they are affordable, accepted by citizens and customized and implemented for the needs of security practitioners.	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/su-bes02-2018-2019-2020.html
78	Societal Challenges	Security	Demonstration of applied solutions to enhance border and external security	15 March 2018	23 August 2018	Solutions at high Technological Readiness Levels to enhance border and external security do exist, but if they are not to remain unused they need to be demonstrated in the context of actual operations or exercises for validation by practitioners. Consortia are invited to propose demonstration of high (6-8) Technology Readiness Levels (TRL) systems applied in the context of border and external security.	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/su-bes03-2018-2019-2020.html
79	Societal Challenges	Security	Human factors, and social, societal, and organisational aspects for disaster-resilient societies	15 March 2018	23 August 2018	The resilience of societies heavily depends on how their citizens behave individually or collectively, and how governments and civil society organisations design and implement policies for mitigating risks, preparing for, reacting to, overcoming, and learning from disasters. The spread of new technologies and media are inducing dramatic changes in how individuals and communities behave, and they are affecting societies in unpredictable ways. Building the resilience of society and citizens requires a better understanding and implementation of these new technologies, media and tools, and their capacity to raise disaster risk awareness, to improve citizen understanding of risks, to build a culture of risks in society, to enable an effective response from affected populations, to improve functional organisation in most fragile and vulnerable environments, and to increase the resilience of health services, social services, education, and governance, in line with target (d) of the Sendai Framework on critical infrastructure and disruption of basic services.	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/su-drs01-2018-2019-2020.html
80	Societal Challenges	Security	Technologies for first responders	15 March 2018	23 August 2018	Resilience is critical to allow authorities to take proper measures in response to severe disasters, both natural (including climate-related extreme events) and man-made. Innovation for disaster-resilient societies may draw from novel technologies, provided that they are affordable, accepted by the citizens, and customized and implemented for the (cross-sectoral) needs of first responders.	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/su-drs02-2018-2019-2020.html
81	Societal Challenges	Security	Pre-normative research and demonstration for disaster-resilient societies	15 March 2018	23 August 2018	A reason for the difficult interaction among practitioners, and for the low levels of interoperability of equipment and procedures implemented by first responders, lies in there being insufficient harmonisation and standardisation, which pre-normative research and demonstrations may address effectively. The security market in Europe is an institutional market that is highly fragmented (because of the lack of standardization and harmonised certification), and with a strong societal dimension (it directly affects in many ways the citizens). In this context, the Mandate M/487 to Establish Security Standards coordinated by the European Committee for Standardization has clearly recognized the whole field of "crisis management and civil protection" as one of the three priorities for establishing standards in the security sector. It has identified the need for crisis management and civil protection standardization activities to facilitate response, effectiveness, efficiency and cooperation as top priorities, especially in what regards to natural hazard emergencies.	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/su-drs03-2018-2019-2020.html
82	Societal Challenges	Security	Human factors, and social, societal, and organisational aspects to solve issues in fighting against crime and terrorism	15 March 2018	23 August 2018	he free and democratic EU society, based on the rule of law, mobility across national borders, globalised communication and finance infrastructure, provides many opportunities to its people. However, the benefits come along with risks related to crime and terrorism, a significant number of which have cross-border impacts within the EU. Security is a key factor to ensure a high quality of life and to protect our infrastructure through preventing and tackling common threats. The EU must play its part to help prevent, investigate and/or mitigate the impact of criminal acts, whilst protecting fundamental rights. The consistent efforts made by EU Member States and the EU to that effect are not enough, especially when criminal groups and their activities extend far beyond national borders.	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/su-ct01-2018-2019-2020.html
83	Societal Challenges	Security	Technologies to enhance the fight against crime and terrorism	15 March 2018	23 August 2018	Organized crime and terrorist organisations are often at the forefront of technological innovation in planning, executing and concealing their criminal activities and the revenues stemming from them. Law Enforcement Agencies (LEAs) are often lagging behind when tackling criminal activities supported by advanced technologies. There is a growing need to focus on technology opportunities provided by new and emerging technologies. To this end, it is necessary to identify new knowledge and targeted technologies for fighting old, new and evolving forms of criminal and terrorist behaviour supported by advanced technologies. Challenges are numerous. In conventional investigations, rapid and near real-time forensics is often crucial for preventing subsequent attacks or crimes. A consequence of the increasing digitisation of society and ever increasing adoption levels is that virtually any type of crime has a digital forensics component, which is a challenge in itself. Money-flow tracking represents yet another challenge. The issues of location and jurisdiction need to be addressed, taking into account highly probable cross-border nature of such crimes.	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/su-ct02-2018-2019-2020.html
84	Societal Challenges	Security	Information and data stream management to fight against (cyber)crime and terrorism	15 March 2018	23 August 2018	Large amounts of data and information from a variety of origins have become available to practitioners involved in fighting crime and terrorism. Full advantage is not currently taken of the most advanced techniques for Big Data analysis, and artificial intelligence. The amount of data generated and gathered in the frame of (cyber)crime investigations increases exponentially, thereby creating a considerable challenge for law enforcement. The effectiveness of law enforcement action depends on capabilities to improve the quality of data, and to convert voluminous and heterogeneous data sets (images, videos, geospatial intelligence, communication data, traffic data, financial transactions related data, etc.) into actionable intelligence. These capabilities could be significantly enhanced by the use of domain-specific tools, i.e. Big Data analysis applications designed for the needs of crime investigators (pre-processing, processing and analysis, visualisation, etc.). Furthermore, predictive analytics would greatly benefit from open source intelligence gathering, social network and darknet data analysis, and allow for resource-efficient, effective and proactive law enforcement.	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/su-ct03-2018-2019-2020.html

85	Societal Challenges	Security	Pan-European networks of practitioners and other actors in the field of security	15 March 2018	23 August 2018	In Europe, practitioners interested in the uptake of security research and innovation are dedicated to performing their duty and are focused on their tasks. In general, however, practitioner organisations have little scope to free workforces from daily operations in order to allocate time and resources to monitor innovation and research that could be useful to them. They have few opportunities to interact with academia or with industry on such issues. All stakeholders – public services, industry, academia – including those who participate in the Security Advisory Group, recognize this as an issue.	http://ec.europa.eu/research/participants/porta/desktop/en/opportunities/h2020/topics/su-gm01-2018-2019-2020.html
86	Societal Challenges	Security	Strategic pre-commercial procurements of innovative, advanced systems to support security	15 March 2018	23 August 2018	Innovative solutions are needed when resources from different countries are required to work more closely together. Such solutions should support the development of the EU's Security Union.	http://ec.europa.eu/research/participants/porta/desktop/en/opportunities/h2020/topics/su-gm02-2018-2020.html
87	Societal Challenges	Security	Pre-commercial procurements of innovative solutions to enhance security	15 March 2018	23 August 2018	Innovative solutions are needed when resources from different countries are required to work more closely together. Such solutions should support the development of the EU's Security Union. Practitioners from several countries are invited to proceed with the procurement of innovative solutions to enhance their operational capability. Practitioner organisations may be private or public entities.	http://ec.europa.eu/research/participants/porta/desktop/en/opportunities/h2020/topics/su-gm03-2018-2019-2020.html
88	Excellent Science	Marie Skłodowska-Curie Individual Fellowships	Individual Fellowships	12 April 2018	12 September 2018	Support is foreseen for individual, trans-national fellowships awarded to the best or most promising researchers of any nationality, for employment in EU Member States or Horizon 2020 Associated Countries. It is based on an application made jointly by the researcher and the beneficiary in the academic or non-academic sectors.	http://ec.europa.eu/research/participants/porta/desktop/en/opportunities/h2020/calls/h2020-msca-if-2018.html#topics=callIdentifier/h2020-MSCA-IF-2018/1/1/1/default-group&callStatus/f/forthcoming/1/1/0/default-group&callStatus/f/Open/1/1/0/default-group&callStatus/f/Closed/1/1/0/default-group&identifier/desc
89	Excellent Science	Marie Skłodowska-Curie Co-funding of regional, national and international programmes	Co-funding of regional, national and international programmes	12 April 2018	27 September 2018	Each proposal funded under the COFUND scheme must have a sole beneficiary that will be responsible for the availability of the necessary complementary funds to execute the proposal. Applicants submit multi-annual proposals for new or existing doctoral programmes or fellowship programmes which are expected to have an impact on enhancing research- and innovation related human resources on regional, national or international level. Proposed programmes are encouraged to cover all research disciplines ("bottom-up"), but can also focus on specific disciplines. In this case the range of covered disciplines should allow reasonable flexibility for the researchers.	http://ec.europa.eu/research/participants/porta/desktop/en/opportunities/h2020/calls/h2020-msca-cofund-2018.html#topics=callIdentifier/h2020-MSCA-COFUND-2018/1/1/1/default-group&callStatus/f/forthcoming/1/1/0/default-group&callStatus/f/Open/1/1/0/default-group&callStatus/f/Closed/1/1/0/default-group&identifier/desc
90	Excellent Science	Widening Fellowships	Widening Fellowships	12 April 2018	11 September 2019	The Marie Skłodowska-Curie actions (MSCA) contribute to boosting jobs, growth and investment by equipping researchers with the new knowledge, skills and international and inter-sectorial exposure to fill the top positions of tomorrow and solve current and future societal challenges. They are based on the principle of mobility, and researchers can receive funding on the condition that they move from one country to another to acquire new knowledge. The results from the first years of MSCA in Horizon 2020 also revealed the existence of a mobility gap across Europe and discrepancies between European countries in their ability to attract funding. To specifically address this gap in participation Widening Fellowships will provide an additional opportunity to researchers of any nationality to acquire and transfer new knowledge and to work on research and innovation in Widening countries.	http://ec.europa.eu/research/participants/porta/desktop/en/opportunities/h2020/topics/wf-01-2018.html
91	Spreading excellence and widening participation	WIDESPREAD	Teaming Phase 2	15 May 2018	15 November 2018	Teaming will support the creation of new centres of excellence or upgrading the existing ones in low R&I performing countries, building on partnerships between leading scientific institutions and partner institutions in low R&I performing countries, that display the willingness to engage together for this purpose.	http://ec.europa.eu/research/participants/porta/desktop/en/opportunities/h2020/topics/widespread-01-2018-2019.html
92	Spreading excellence and widening participation	WIDESPREAD	Support to JPI Urban Europe	15 May 2018	15 November 2018	Proposals should aim to implement a solid opening-up strategy of the JPI Urban Europe, for enlarging participation of more European partner countries getting involved in the JPI initiative, including from Widening countries, and to further enhancing the commitment and broader participation of countries. Proposals should build on the coordination action 'EXPAND – Enhancing co-creation in JPI Urban Europe through widening Member State and stakeholder participation that is expected to establish a Stakeholder Involvement Platform for the widening of participation and capacity building in terms of countries, regions, stakeholders and urban actors.	http://ec.europa.eu/research/participants/porta/desktop/en/opportunities/h2020/topics/widespread-02-2018.html
93	Spreading excellence and widening participation	WIDESPREAD	Twinning	15 May 2018	15 November 2018	Twinning aims at significantly strengthening a defined field of research in a university or research organisation from a Widening country by linking it with at least two internationally-leading research institutions in other Member States or Associated Countries. Successful Twinning proposals will have to clearly outline the scientific strategy for stepping up and stimulating scientific excellence and innovation capacity in a defined area of research as well as the scientific quality of the partners involved in the twinning exercise. This scientific strategy should include arrangements for formulating new (or ongoing) joint research project(s) in the scientific area of choice and describe how Twinning will take this research to a new stage, by enlarging its scope and/or the research partnership. If relevant, any links with sustainable development objectives are to be outlined.	http://ec.europa.eu/research/participants/porta/desktop/en/opportunities/h2020/topics/widespread-03-2018.html
94	Euratom Research and Training Programme 2014-2018	Nuclear Fission, Fusion and Radiation Protection Research	Availability and use of research infrastructures for education, training and competence building + several other topics on nuclear subject	15 May 2018	27 September 2018	Euratom legislation requires education and training to be available in order to maintain nuclear competences, especially for the staff responsible for nuclear safety, so as to obtain, maintain and broaden expertise and skills. A key concern of policy makers, regulators and industry in the EU is that availability of trained staff could be at risk, especially as a result of the expected high level of retirement and lack of interest among young generation. At the same time, due to high costs, the high quality research and training facilities are spread parsimoniously among countries and unevenly distributed. In this context, a scheme offering access to research and training infrastructures is essential to ensure adequate supply of suitable personnel for many nuclear domain disciplines and for the strengthening of the nuclear safety culture.	http://ec.europa.eu/research/participants/porta/desktop/en/opportunities/h2020/calls/nfrp-2018.html#topics=callIdentifier/f/NFRP-2018/1/1/1/default-group&callStatus/f/forthcoming/1/1/0/default-group&callStatus/f/Open/1/1/0/default-group&callStatus/f/Closed/1/1/0/default-group&identifier/desc
95	Spreading excellence and widening participation	WIDESPREAD	ERA Chairs	26 July 2018	15 November 2018	The ERA Chairs actions will support universities or research organisations with the objective of attracting and maintaining high quality human resources under the direction of an outstanding researcher and research manager (the "ERA Chair holder") and in parallel implement structural changes to achieve excellence on a sustainable basis. Research organisations interested in establishing an ERA Chair shall submit a proposal based on a strengths, weaknesses, opportunities, and threats (SWOT) analysis, aimed at structural change in the institution and ensuring that the conditions are in place to foster excellent research.	http://ec.europa.eu/research/participants/porta/desktop/en/opportunities/h2020/topics/widespread-04-2019.html
96	Industrial Leadership	Information and Communication Technologies	HPC and Big Data enabled Large-scale Test-beds and Applications + other Topics for the same main Call having the same opening date (follow the link)	26 July 2018	14 November 2018	The Internet of Things and the convergence of HPC, Big Data and Cloud computing technologies are enabling the emergence of a wide range of innovations. Building industrial large-scale application test-beds that integrate such technologies and that make best use of currently available HPC and data infrastructures will accelerate the pace of digitization and the innovation potential in Europe's key industry sectors (for example, healthcare, manufacturing, energy, finance & insurance, agri-food, space and security).	http://ec.europa.eu/research/participants/porta/desktop/en/opportunities/h2020/calls/h2020-ict-2018-2020.html#topics=callIdentifier/h2020-ICT-2018-2020/1/1/1/default-group&callStatus/f/forthcoming/1/1/0/default-group&callStatus/f/Open/1/1/0/default-group&callStatus/f/Closed/1/1/0/default-group&identifier/desc
97	Industrial Leadership	Digitising and transforming European industry and services: digital innovation hubs and platforms	Interoperable and smart homes and grids + other Topics for the same main Call having the same opening date (follow the link)	26 July 2018	14 November 2018	The aim of the pilot is to exploit IoT reference architectures models that allow for combining services for home or building comfort and energy management, based on platforms that enable the integration of relevant digital technologies like IoT, AI, cloud and big data services and where applicable, combined with blockchain technologies. Energy services, where appropriate, can be combined with additional non-energy services and foster the take-up of smart energy communities (in particular peer-to-peer energy markets). The aim is also to demonstrate platforms through a large-scale pilot for experimentation and co-creation with users under real-life conditions in interaction with the electricity and wider energy system, and to demonstrate the benefits of energy management through IoT application and services for the users.	http://ec.europa.eu/research/participants/porta/desktop/en/opportunities/h2020/calls/h2020-dt-2018-2020.html#topics=callIdentifier/f/H2020-DT-2018-2020/1/1/1/default-group&callStatus/f/forthcoming/1/1/0/default-group&callStatus/f/Open/1/1/0/default-group&callStatus/f/Closed/1/1/0/default-group&identifier/desc
98	Societal Challenges	Better Health and care, economic growth and sustainable health systems	Mental health in the workplace + other Topics for the same main Call having the same opening date (follow the link)	26 July 2018	02 October 2018	Proposals should develop and implement intervention(s) that an employer/organization can take to promote good mental health and prevent mental illness in the workplace. These interventions can be newly developed or improvements on existing ones. They should address challenges in mental health in the workplace in the EU. The interventions should be assessed in terms of direct and indirect individual and collective health outcomes and cost-effectiveness, implementation facilitators and barriers.	http://ec.europa.eu/research/participants/porta/desktop/en/opportunities/h2020/calls/h2020-sc1-bhc-2018-2020.html#topics=callIdentifier/h2020-SC1-BHC-2018-2020/1/1/1/default-group&callStatus/f/forthcoming/1/1/0/default-group&callStatus/f/Open/1/1/0/default-group&callStatus/f/Closed/1/1/0/default-group&identifier/desc
99	Societal Challenges	Trusted digital solutions and Cybersecurity in Health and Care	Smart and healthy living at home	26 July 2018	14 November 2018	Citizens in a rapidly ageing European population are at greater risk of cognitive impairment, frailty and multiple chronic health conditions with considerable negative consequences for their independence, quality of life and for the sustainability of health and care systems. The challenge is to foster large-scale deployment of integrated digital solutions which will bring improved quality of life to citizens while demonstrating significant efficiency gains in health and care delivery across Europe.	http://ec.europa.eu/research/participants/porta/desktop/en/opportunities/h2020/topics/dt-dts-01-2019.html

100	Societal Challenges	2018-2020 Mobility for Growth	Innovative applications of drones for ensuring safety in transport + other Topics for the same main Call having the same opening date (follow the link)	05 September 2018	16 January 2019	The EU can strengthen its internal market and bolster its global market share by boosting in a consistent manner the development and safe and secure use of drones for civil and commercial purposes in the EU, notably allowing them to fly in the Single European Sky, including over European waters (e.g. sea route and harbours) or to sail in European waterways and coastal areas. The development of vertical spatial + transport planning tools/methodologies and the development of technologies that help authorities in charge (e.g. city police officers) to ensure the enforcement of rules and to prevent abuse of drones for unwanted purposes can help to safely integrate drones in concepts for the last mile delivery in cities or rural areas.	http://ec.europa.eu/research/participants/porta/desktop/en/opportunities/h2020/calls/h2020-mg-2018-2019-2020.html#topics=callIdentifier/H2020-MG-2018-2019-2020/1/1/default-group&callStatus/Forthcoming/1/1/0/default-group&callStatus/Open/1/1/0/default-group&callStatus/Closed/1/1/0/default-group&identifier/desc
101	Excellent Science	Marie Skłodowska-Curie Innovative Training Networks	Innovative Training Networks	13 September 2018	15 January 2019	The Innovative Training Networks (ITN) aim to train a new generation of creative, entrepreneurial and innovative early-stage researchers, able to face current and future challenges and to convert knowledge and ideas into products and services for economic and social benefit. ITN will raise excellence and structure research and doctoral training in Europe, extending the traditional academic research training setting, incorporating elements of Open Science and equipping researchers with the right combination of research-related and transferable competences. It will provide enhanced career perspectives in both the academic and non-academic sectors through international, interdisciplinary and intersectoral mobility combined with an innovation-oriented mind-set.	http://ec.europa.eu/research/participants/porta/desktop/en/opportunities/h2020/topics/msca-itn-2019.html
102	Societal Challenges	Blue Growth	Sustainable solutions for bio-based plastics on land and sea	16 October 2018	23 January 2019	Activities shall focus on sustainability strategies and solutions for bio-based products. They shall include innovative product design and business models facilitating efficient reuse and recycling strategies and solutions, including ensuring the safety of recycled materials when used for toys or packaging food stuffs. They shall address the technical and economic barriers to bio-based plastics recycling as regards established and/or alternative recycling options.	http://ec.europa.eu/research/participants/porta/desktop/en/opportunities/h2020/topics/ce-bg-06-2019.html
103	Societal Challenges	Blue Growth	Sustainable European aquaculture 4.0: nutrition and breeding	16 October 2018	23 January 2019	Activities shall develop smart breeding programmes and/or tailor feeding formulas and technologies for conventional and organic aquaculture – for marine and/or freshwater - targeting animal health (contributing to disease resistance) and welfare, different production systems, feeding efficiency, resilience and climate change mitigation - when applicable, including related traits and possible links between them (synergies, trade-offs) -, zero waste, by-products valorisation following circularity principles and organoleptic and nutritional values of seafood optimisation.	http://ec.europa.eu/research/participants/porta/desktop/en/opportunities/h2020/topics/dt-bg-04-2018-2019.html
104	Societal Challenges	Rural Renaissance	Closing nutrient cycles - IA Innovation action	16 October 2018	23 January 2019	Proposals shall address inter-regional and intra-regional imbalances through effective nutrient recovery from by-products of the agro-food or the forestry sectors, and conversion into novel fertilisers. Proposals should include a task to cluster with other projects financed under this topic, under topic SFS-39-2019 and – if possible – with other relevant projects in the field funded by Horizon 2020 (including under the BBI JU).	http://ec.europa.eu/research/participants/porta/desktop/en/opportunities/h2020/topics/ce-rur-08-2018-2019-2020.html
105	Societal Challenges	Rural Renaissance	Building modern rural policies on long-term visions and societal engagement - RIA Research and Innovation action	16 October 2018	23 January 2019	Proposed actions shall address one of the following sub-topics: - Rural society-science-policy hub (CSA); - Renewing rural generations, jobs and farms (RIA); - Building resilient mountain value chains delivering private and public goods (RIA).	http://ec.europa.eu/research/participants/porta/desktop/en/opportunities/h2020/topics/rur-01-2018-2019.html
106	Societal Challenges	Sustainable Food Security	Alternative proteins for food and feed	16 October 2018	23 January 2019	Proposals shall identify and assess new or alternative protein sources for food and/or feed and develop/validate efficient production and processing approaches to convert/integrate them into high quality, safe, healthy, and sustainable products or ingredients. Proposals shall focus on the characterisation of nutritional values, functional and sensory properties of new and alternative proteins, as well as on the deepening of the understanding of protein-protein interactions for knowledge-based (re)formulations of protein blends that partly or fully could substitute traditional sources.	http://ec.europa.eu/research/participants/porta/desktop/en/opportunities/h2020/topics/ce-sfs-17-2019.html
107	Societal Challenges	Sustainable Food Security	RIA Research and Innovation action	16 October 2018	23 January 2019	Proposals should address only one of the following sub-topics: - Microclimate management: from field to landscape (RIA); - Efficiency and resilience of mixed farming and agroforestry systems (RIA).	http://ec.europa.eu/research/participants/porta/desktop/en/opportunities/h2020/topics/ce-sfs-19-2018-2019.html
108	Societal Challenges	Sustainable Food Security	RIA Research and Innovation action	16 October 2018	23 January 2019	Activities will tackle biodiversity from various angles ranging from its supporting functions in agro-ecosystems (e.g. through activities of plant and soil biota), the integration of diversity into farming practices and incentives for wider biodiversity management including nature biodiversity. Proposals will consider various temporal and spatial scales when assessing the dynamics of biodiversity and its relationship with farming systems, the surrounding landscapes and throughout value chains.	http://ec.europa.eu/research/participants/porta/desktop/en/opportunities/h2020/topics/sfs-01-2018-2019-2020.html
109	Societal Challenges	Sustainable Food Security	New and emerging risks to plant health	16 October 2018	23 January 2019	Proposals will target one or more new or emerging plant pests and/or diseases (regulated or non-regulated, introduced or native) that are causing, or likely to cause, significant (socio-)economic and/or environmental losses to EU agriculture/forestry. The choice of target pest and/or disease will consider the potential threat in terms of development and spread, its potential exacerbation under climate change as well as the potential impact on agricultural production, forestry, trade and the wider environment. Proposals will increase knowledge of the biology, development and spread of pests/diseases. They will improve methods and strategies for early detection, prevention and control as well as enlarge the range of tools for integrated and sustainable pest/disease management. International cooperation with countries affected or threatened by the same pest(s)/disease(s) is encouraged. Proposals should fall under the concept of the 'multi-actor approach including a range of actors to ensure that knowledge and needs from various sectors such as research, plant health services and the farming/forestry sector are brought together.	http://ec.europa.eu/research/participants/porta/desktop/en/opportunities/h2020/topics/sfs-05-2018-2019-2020.html
110	Societal Challenges	Sustainable Food Security	Integrated approaches to food safety controls across the food chain	16 October 2018	23 January 2019	Proposals should look at the development of an integrated approach for detecting, assessing and mitigating food safety risks from biological and chemical hazards (whether emerging or not) through the entire food chain/s (from primary production to consumers) and include common risks such as environmental contamination, process contamination, contamination through packaging and misuse or adulteration. They should tackle specific sector/s while taking into account the diversity of the supply chains within sector(s). The research activities should gather relevant data to assess risks and deliver practical solutions (technology and management related) in order to control those hazards and their combinations at specific stages of the food chain where interventions can deliver the most efficient and greatest possible impact on public health.	http://ec.europa.eu/research/participants/porta/desktop/en/opportunities/h2020/topics/sfs-37-2019.html
111	Societal Challenges	Sustainable Food Security	High-quality organic fertilisers from biogas digestate	16 October 2018	23 January 2019	Projects shall develop treatment technologies to convert digestate into a suitable fertiliser or soil amendement. They could focus on a specific digestate type or develop a flexible process covering a variety of digestates. These treatments shall (i) reduce risks linked to biological and chemical hazards (including AMR) to acceptable levels, (ii) improve fertilising properties and (iii) address issues related to format, formulation and handling. Proper solutions must be sought for the liquid phase to avoid pollution.	http://ec.europa.eu/research/participants/porta/desktop/en/opportunities/h2020/topics/ce-sfs-39-2019.html
112	Industrial Leadership	TRANSFORMING EUROPEAN INDUSTRY	Microorganism communities for plastics bio-degradation (RIA) + other Topics for the same main Call having the same opening date (follow the link)	16 October 2018	24 April 2019	Proposals will develop environmentally friendly and sustainable solutions for managing the waste of plastics mixtures based on the use of communities of microorganisms with a set of complementary enzymes. The enzymes may be native or engineered using state of the art biotechnologies. The microbial organisms will turn plastic mixtures into chemical constituents facilitating mineralisation, composting of otherwise recalcitrant and toxic polymers and facilitating production of high value products. Polymers such as polystyrene can also be included in the proposals.	http://ec.europa.eu/research/participants/porta/desktop/en/opportunities/h2020/calls/h2020-nmbp-tr-ind-2018-2020.html#topics=callIdentifier/H2020-NMBP-TR-IND-2018-2020/1/1/default-group&callStatus/Forthcoming/1/1/0/default-group&callStatus/Open/1/1/0/default-group&callStatus/Closed/1/1/0/default-group&identifier/desc
113	Industrial Leadership	FOUNDATIONS FOR TOMORROW'S INDUSTRY	Open Innovation Test Beds for nano-enabled surfaces and membranes (IA) + other Topics for the same main Call having the same opening date (follow the link)	16 October 2018	22 January 2019	Nano-enabled surfaces and membranes have a vast range of applications in final products across many industry sectors. The challenge is to enable a cost effective and sustainable industrial upscaling and deployment of nano-enabled surface and membrane technologies, including thin film architecture, coating, surface structuration for improved properties (optical, surface energy, durability, reduced friction, etc.), and nanostructured membrane functionalities. This will require the integration of state-of-the-art nano-scale processes for modification, functionalisation, and structuring/coating of surfaces or membranes.	http://ec.europa.eu/research/participants/porta/desktop/en/opportunities/h2020/calls/h2020-ict-2018-2020.html#topics=callIdentifier/H2020-ICT-2018-2020/1/1/default-group&callStatus/Forthcoming/1/1/0/default-group&callStatus/Open/1/1/0/default-group&callStatus/Closed/1/1/0/default-group&identifier/desc
114	Industrial Leadership	Information and Communication Technologies	Cloud Computing + other Topics for the same main Call having the same opening date (follow the link)	16 October 2018	28 March 2019	Develop competitive cloud solutions based on advanced cloud platforms and services and cloud-based software and data applications, as well as the opportunities brought by considering the edge devices capacities. Such solutions should also address stringent security, data protection, performance, resilience and energy-efficiency requirements to respond to the future digitisation needs of industry and the public sector. Addressing these challenges will also be part of and contribute to the technological ambitions for the Next Generation Internet (NGI) and the Internet of Things (IoT).	http://ec.europa.eu/research/participants/porta/desktop/en/opportunities/h2020/calls/h2020-ict-2018-2020.html#topics=callIdentifier/H2020-ICT-2018-2020/1/1/default-group&callStatus/Forthcoming/1/1/0/default-group&callStatus/Open/1/1/0/default-group&callStatus/Closed/1/1/0/default-group&identifier/desc

115	Industrial Leadership	Information and Communication Technologies	Computing technologies and engineering methods for cyber-physical systems of systems + other Topics for the same main Call having the same opening date (follow the link)	16 October 2018	28 March 2019	The focus is on dependable physically-entangled systems for applications in industrial sectors. Work is complementary to the initiative on European low-power microprocessor technologies, which addresses technology for HPC applications, and to the ECSEL programme, which addresses computing for CPSoS at higher TRL.	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/calls/h2020-ict-2018-2020.html#topics-callidentifier/h2020-ICT-2018-2020/1/1/1/default-group&callStatus/f/forthcoming/1/1/0/default-group&callStatus/f/Opened/1/1/0/default-group&identifier/desc
116	Industrial Leadership	INDUSTRIAL SUSTAINABILITY	Digital technologies for improved performance in cognitive production plants (IA) + other Topics for the same main Call having the same opening date (follow the link)	16 October 2018	21 February 2019	Proposals need to develop new technologies to realise cognitive production plants, with improved efficiency and sustainability, by use of smart and networked sensor technologies, intelligent handling and online evaluation of various forms of data streams as well as new methods for self-organizing processes and process chains. Furthermore, proposals should cover the full digital transformation of a complete plant or site(s) including e.g. data acquisition, communication, automation, analytics, modelling, prediction and standardisation of relevant data interfaces.	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/calls/h2020-nmbp-st-ind-2018-2020.html#topics-callidentifier/h2020-NMBP-ST-IND-2018-2020/1/1/1/default-group&callStatus/f/forthcoming/1/1/0/default-group&callStatus/f/Opened/1/1/0/default-group&identifier/desc
117	Societal Challenges	Digital transformation in Health and Care	Big data and Artificial Intelligence for monitoring health status and quality of life after the cancer treatment + other Topics for the same main Call having the same opening date (follow the link)	16 October 2018	24 April 2019	Proposals should focus and deliver on how to better acquire, manage, share, model, process and exploit big data using, if appropriate, high performance computing to effectively monitor health status of individual patients, provide overall actionable insights at the point of care and improve quality of life after the cancer treatment. Relevant solutions include for example systems for determining and monitoring (taking also in account gender differences) the combined effects of cancer treatment, environment, lifestyle and genetics on the quality of life, enabling early identification of effects that can cause development of new medical conditions and/or impair the quality of life. Proposals preferably address relevant health economic issues, use patient reported outcome and experience measures (PROMs and PREMs) and take into account the relevant social aspects of health status and quality of life after cancer treatment. Integrated solutions should include suitable approaches towards security and privacy issues.	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/calls/h2020-ict-dth-2018-2020.html#topics-callidentifier/h2020-SC1-DTH-2018-2020/1/1/1/default-group&callStatus/f/forthcoming/1/1/0/default-group&callStatus/f/Opened/1/1/0/default-group&identifier/desc
118	Excellent Science	Implementing the European Open Science Cloud	Prototyping new innovative services	16 October 2018	29 January 2019	Research and Innovation Actions that target gaps in the service offering of the EOSC hub and develop innovative services that address relevant aspects of the research data cycle (from inception to publication, curation, preservation and reuse), for example allowing implementation of new scientific data-related developments and intelligent linking and discovering of all research artefacts.	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/calls/h2020-nfrfrase-2018-2020.html#topics-callidentifier/h2020-NFRFRASE-2018-2020/1/1/1/default-group&callStatus/f/forthcoming/1/1/0/default-group&callStatus/f/Opened/1/1/0/default-group&identifier/desc
119	Excellent Science	Demonstrating the role of Research Infrastructures in the translation of open science into open innovation	Stimulate the innovation potential of SMEs	16 October 2018	29 January 2019	Proposals are expected to propose an outreach approach for identifying and attracting SMEs whose innovation potential could be increased as users of advanced HPC services, and a mechanism involving financial support to third parties which will adequately stimulate such innovation potential of SMEs participating in the action. The focus of the action should be in the areas addressed by the selected Centres of Excellence in the topic INFRAEDI-02-2018: HPC PPP - Centres of Excellence on HPC, and complementary to the sectors already addressed by other Horizon 2020 activities – i.e. manufacturing SMEs are already covered in I4MS.	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/calls/h2020-nfrinnov-2019-2020.html#topics-callidentifier/h2020-NFRINNNOV-2019-2020/1/1/1/default-group&callStatus/f/forthcoming/1/1/0/default-group&callStatus/f/Opened/1/1/0/default-group&identifier/desc
120	Industrial Leadership	Digitising and transforming European industry and services: digital innovation hubs and platforms	Big data solutions for energy + other Topics for the same main Call having the same opening date (follow the link)	16 October 2018	02 April 2019	The aim is to develop/pilot and deploy a reference architecture for large-scale multi-party data exchange, management & governance and real-time processing (including distributed/edge processing) in the electricity sector and to translate this reference architecture into an open, modular data analytics toolbox for the safe and effective operation of grids and provision of innovative energy services. Proposers should demonstrate that they have access to appropriate large-scale and realistic datasets, and should involve as many as necessary of the following types of participants: network operators, suppliers, independent aggregators, ESCO's, power exchanges, building management and renovation sectors, software integrators/developers. Proposals should address, as appropriate, analytics, simulation, prediction, cloud computing.	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/calls/h2020-ict-2018-2020.html#topics-callidentifier/h2020-DI-2018-2020/1/1/1/default-group&callStatus/f/forthcoming/1/1/0/default-group&callStatus/f/Opened/1/1/0/default-group&identifier/desc
121	Industrial Leadership	Space 2018-2021	Space hubs (support to start-ups) + other Topics for the same main Call having the same opening date (follow the link)	16 October 2018	05 March 2019	The challenge is to increase the number of initiatives for start-ups, scale-ups and entrepreneurs in the space downstream and upstream sectors (such as Incubators, Accelerators, Hackathons or AppCamps), provide solutions to accelerate the growth of space scale-ups and the commercialisation of their products, engage small and medium enterprises in space innovation, especially those not traditionally involved in it, and reduce as much as possible the entry barriers to SMEs for Horizon 2020 to develop space-enabled solutions. To organise effective initiatives at local level to support start-ups, scale-ups and entrepreneurs in the areas of applications, especially in connection to Galileo and Copernicus (although not exclusively), spinning-in/out (i.e. application of marine, atmosphere and terrestrial solutions to challenges in space and vice versa) and solutions in support of the commercialisation of space.	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/calls/h2020-space-2018-2020.html#topics-callidentifier/h2020-SPACE-2018-2020/1/1/1/default-group&callStatus/f/forthcoming/1/1/0/default-group&callStatus/f/Opened/1/1/0/default-group&identifier/desc
122	Industrial Leadership	EGNSS market uptake 2019-2020	EGNSS applications fostering digitisation	16 October 2018	05 March 2019	Actions should deliver new innovative applications, with commercial impact and a clear market uptake perspective. The proposed EGNSS applications may integrate digital technologies like Internet of Things (IoT), cloud computing, big data and robotics. The areas which are identified as especially promising for further EGNSS applications development are commercial Location Based Services, e.g. secure financial transactions; mobile workforce management, tracking solutions and augmented reality, as well as future telecommunication networks. The applications related to the concept of Smart Cities are also within the scope of this topic.	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/dt-space-egns-2-2019-2020.html
123	Industrial Leadership	EGNSS market uptake 2019-2021	EGNSS applications fostering green, safe and smart mobility	16 October 2018	05 March 2019	The specific challenge of this topic is to develop innovative EGNSS based applications. These should lead to low emission (CO2 and air pollutants), safer, more secure, lower cost and higher performance mobility, and transport solutions that respond to the increased mobility needs of people and goods whilst improving transport service continuity.	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/lc-space-egns-1-2019-2020.html
124	Industrial Leadership	EGNSS market uptake 2019-2022	Awareness Raising and capacity building	16 October 2018	05 March 2019	Extensive GNSs applications combined with other technologies require innovation as well as the establishment of standards and rules. The challenge is to build a mechanism to leverage EGNSS excellence in particular of SMEs and universities, facilitate EGNSS investments and to foster market uptake. Exploiting the potential of EGNSS products by maximising and spreading the benefits of EGNSS innovation is vital for Europe's competitiveness and its ability to address societal challenges in the future. The capacity building and awareness raising around EGNSS applications, creation of strategic partnership towards commercialisation and achieving a critical mass of EGNSS applications success stories would attract investment from Europe and beyond. The main aim of this topic is to support building of industrial relationships by gathering private and public institutions around services offered by EGNSS and related applications.	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/space-egns-4-2019.html
125	Industrial Leadership	EGNSS market uptake 2019-2023	EGNSS applications fostering societal resilience and protecting the environment	16 October 2018	05 March 2019	The aim of this topic is to develop innovative EGNSS applications to support societal resilience, safeguard the wellbeing of EU citizens, improve emergency and disaster management as a response to climate related, natural and man-made disasters and ensure green growth that protect the environment while generating economic growth. The challenge is to make these applications more affordable, easy to use and integrated with other solutions and technologies, including for example earth observation, e.g. Copernicus services, in order to enable new targeted innovative solutions.	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/su-space-egns-3-2019-2020.html
126	Societal Challenges	SOCIOECONOMIC AND CULTURAL TRANSFORMATIONS IN THE CONTEXT OF THE FOURTH INDUSTRIAL REVOLUTION	Transformative impact of disruptive technologies in public services	06 November 2018	14 March 2019	The use of disruptive technologies (such as block-chain, big data analytics, Internet of Things, virtual reality, augmented reality, artificial intelligence, algorithmic techniques, simulations and gamification) in public administrations, public goods, public governance, public engagement, public-private partnerships, public third sector partnerships and policy impact assessment is growing and can be very beneficial. Yet, the real potential impact of such technologies and the ways in which they can disrupt the existing landscape of public services and legal procedures and can replace present solutions and processes are largely unknown. As a result, deploying these disruptive technologies in public administration requires a thorough assessment of their potential impact, benefits and risks for the delivery of public goods.	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/dt-transformations-02-2018-2019-2020.html
127	Societal Challenges	SOCIOECONOMIC AND CULTURAL TRANSFORMATIONS IN THE CONTEXT OF THE FOURTH INDUSTRIAL REVOLUTION	The impact of technological transformations on children and youth	06 November 2018	14 March 2019	The time children and young people spend on ICT has been increasing in school, at home and for leisure. However, research on the impact of ICT on health, lifestyles, wellbeing, safety and security has identified potential threats. Moreover, the quantity and quality of digital media use vary according to family backgrounds, with the risk of widening the educational divide between children from favoured and disadvantaged groups. The challenge is to develop a solid and independent multidisciplinary and longitudinal knowledge base that explains under which circumstances harmful versus beneficial effects occur so that effective social, educational, health and online safety policies, practices and market regulation can be developed.	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/dt-transformations-07-2019.html

128	Societal Challenges	SOCIOECONOMIC AND CULTURAL TRANSFORMATIONS IN THE CONTEXT OF THE FOURTH INDUSTRIAL REVOLUTION	Collaborative approaches to cultural heritage for social cohesion	06 November 2018	14 March 2019	While a key mission of the cultural heritage sector is to provide inclusive access, some socio-cultural groups are still not sufficiently integrated in cultural heritage experiences. The challenge is to improve the design of cultural experiences by enhancing participatory and collaborative approaches and by fostering mutual cultural understanding and resilient strategies. Proposals should develop strategies for fostering collaborative and participative approaches to cultural encounters via communication channels such as social media platforms, participatory approaches, art and co-designed activities. Proposals should consider both tangible and intangible heritage, researching new applications and tools that allow for a more inclusive approach such as digital tagging of objects or co-authoring of societal and place-based memories.	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/dt-transformations-11-2019.html
129	Societal Challenges	SOCIOECONOMIC AND CULTURAL TRANSFORMATIONS IN THE CONTEXT OF THE FOURTH INDUSTRIAL REVOLUTION	Innovative solutions for inclusive and sustainable urban environments	06 November 2018	14 March 2019	The increasing percentage of people living in urban areas and the impact of digital technologies on public services make good governance, inclusive policies, smart planning and social and environmental sustainability ever more important for ensuring the quality of human life. Urban environments and agglomeration effects provide an ecosystem for economic growth and innovation. While the impact of the recent financial crisis on European urban areas is by no means uniform, it has led in many instances to rising socio-economic inequalities that are affecting social cohesion and resilience. The challenge is to identify the main drivers of inequalities in different urban and peri-urban contexts and to identify best practices and initiatives, including digital solutions and alternative participatory growth models, with potential for upscaling that can promote upward social mobility, social inclusion and cohesion, resilience and sustainable development.	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/transformations-03-2018-2019.html
130	Societal Challenges	SOCIOECONOMIC AND CULTURAL TRANSFORMATIONS IN THE CONTEXT OF THE FOURTH INDUSTRIAL REVOLUTION	Innovative approaches to urban and regional development through cultural tourism	06 November 2018	14 March 2019	The various forms of cultural tourism in Europe are important drivers of growth, jobs and economic development of European regions and urban areas. They also contribute, by driving intercultural understanding and social development in Europe through discovering various types of cultural heritage, to the understanding of other peoples' identities and values. However, although cultural tourism by its nature invites cross border regional and local cooperation, its full innovation potential in this respect is not yet fully explored and exploited. The level of development of cultural tourism between certain regions and sites is still unbalanced, with deprived remote, peripheral or deindustrialised areas lagging behind whereas high demand areas being overexploited in an unsustainable manner. There is also a significant knowledge gap in terms of availability of both quantitative and qualitative data on the phenomenon of cultural heritage tourism and on understanding its contribution towards cultural Europeanisation and economic and social development in Europe.	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/transformations-04-2019-2020.html
131	Societal Challenges	SOCIOECONOMIC AND CULTURAL TRANSFORMATIONS IN THE CONTEXT OF THE FOURTH INDUSTRIAL REVOLUTION	The societal value of culture and the impact of cultural policies in Europe	06 November 2018	14 March 2019	Proposals should assess and develop appropriate methodologies and perform comparative qualitative, participative and statistical analyses at national and EU level to map the various forms of cultural engagement, assess the role of cultural participation as a source of wellbeing, and identify the benefits of cultural engagement across population segments. The historical role of culture in integrating and dividing Europe should be addressed with a view to learning more about the specific conditions in which cultural integration occurs. The nature and degree of the contributions stemming from cultural engagement to intercultural dialogue, cultural identity and community building should also be assessed. On the basis of innovative approaches and a representative geographic coverage of different parts of Europe, proposals should explain how cultural values are constructed in the age of social media, internet and television across different socio-economic groups. They should also investigate how urbanisation, spatial and social segregation, gender and rising diversity in European societies influence the formation of cultural values.	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/transformations-08-2019.html
132	Societal Challenges	SOCIOECONOMIC AND CULTURAL TRANSFORMATIONS IN THE CONTEXT OF THE FOURTH INDUSTRIAL REVOLUTION	Using big data approaches in research and innovation policy making	06 November 2018	14 March 2019	Many of the advanced economies have, since the crisis, been faced with a productivity paradox: while the pace of innovation continues to accelerate, productivity growth has come to a quasi-standstill. The reasons for this have been the subject of intense debate over the past years and evidence increasingly points to the importance of the links between productivity growth and research and innovation. Seminal work by the OECD has pointed to the importance of technology diffusion in this respect, which could also be linked to the changing nature of the innovation process itself, which is going through profound changes, with notably digitalisation leading to increasing complexity, stronger networking effects and a growing importance of winner takes all characteristics.	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/transformations-08-2019.html
133	Societal Challenges	MIGRATION	Addressing the challenge of migrant integration through ICT-enabled solutions	06 November 2018	14 March 2019	An efficient management of migrant integration requires clear understanding of migrants' personal and family situation, including their legal status, origin, cultural background, skills, language skills, medical records, etc. Once such information is available to public authorities, it can improve societal outcomes to the benefit of both host countries and migrants: 1. the management of migrant integration can be facilitated, e.g. by matching their skills with those needed in the Member States and Associated Countries, by designing tailored training programmes or by creating specific decision support tools; 2. better and customised services can be delivered to match the needs of migrants; 3. more efficient integration strategies can be defined and implemented at local level for a sustainable inclusion of migrants and a fact-based public perception of migration.	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/dt-migration-06-2018-2019.html
134	Societal Challenges	MIGRATION	Understanding migration mobility patterns: elaborating mid and long-term migration scenarios	06 November 2018	14 March 2019	Patterns, motivations and modalities of migration should be explored, with a focus on new geographies and temporalities. This may include among others the changing nature of flows and factors such as international demand for and supply of labour, sector policies in countries of origin and destination, aging population in industrialised countries, demographic trends in countries of origin, migration propensity, transnational networks, the impact of corruption, shifting representations of Europe, temporary migration and return (both voluntary and forced) and forced movements linked to conflicts, environment-related threats, other relevant geopolitical factors, international development and regional policies, as well as livelihood opportunities (e.g. inequalities, income levels, poor job opportunities, working conditions, traditional gender roles).	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/migration-01-2019.html
135	Societal Challenges	MIGRATION	Social and economic effects of migration in Europe and integration policies	06 November 2018	14 March 2019	A greater understanding of the social and economic effects and impacts of migration in Europe is needed in order to obtain an objective overview of developments and to address misperceptions. In light of recent and current migratory flows, an assessment of integration policies and efforts is equally important for ensuring their effectiveness in promoting the integration and inclusion of migrants in host societies. Proposals should take stock of the long-term effects of migration at EU aggregate and cross-national level on economic growth and productivity, employment levels and wages, entrepreneurship, and fiscal and welfare impacts. They should analyse policies related to the integration of migrants, including refugees.	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/migration-03-2019.html
136	Societal Challenges	MIGRATION	International protection of refugees in a comparative perspective	06 November 2018	14 March 2019	While policy areas such as development or trade benefit from global governance structures, a global refugee governance regime is still in its infancy. The challenge is to safeguard international law standards on the treatment of asylum seekers and internally displaced persons, address imbalances in sharing responsibilities, and ensure the EU plays a key role globally while also aligning the reform of its common asylum system to feed into the emerging regime of global asylum governance. Proposals should examine the processes and content of the emerging international protection system, e.g. following the United Nations commitment for the adoption of a global asylum compact as well as its implementation in comparative perspective, with special focus on the EU's role and engagement. They should examine how sharing responsibilities, transferring skills and capabilities, can be organised as well as the compatibility of the emerging global asylum regime with international law, including international conventions on refugees and human rights.	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/migration-07-2019.html
137	Societal Challenges	GOVERNANCE FOR THE FUTURE	New forms of delivering public goods and inclusive public services	06 November 2018	14 March 2019	Governance is being transformed by new approaches to delivering public services which allow for the involvement of citizens and various other actors. The challenge is to critically assess and support as needed this transformation based on an open collaboration and innovation platform supported by ICT ('government as a platform') and on an open environment and ecosystem with clear frameworks and guidelines for modular services quality ('government as a service'). In particular, to deliver better public services, public administrations need to regroup resources together under common infrastructures at the European level that serve the needs of various actors and enable the participation of all relevant communities. In addition, to ensure a cost efficient provision of inclusive digital services, there is a pressing need to identify gaps in accessibility solutions, to establish related best practices, and to promote training, awareness raising and capacity building.	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/dt-governance-05-2019-2020.html
138	Societal Challenges	GOVERNANCE FOR THE FUTURE	Pilot on using the European cloud infrastructure for public administrations	06 November 2018	14 March 2019	Given the complexity of our societies, public authorities need innovative means and tools that can enable them to develop better evidence-based policies. The development of such policies needs to involve local actors such as citizens and businesses, in order to better inform policy-making while ensuring higher levels of acceptance for policies and of trust in the authorities. Data analytics and usage of cloud infrastructure to gain access to shared data can help improving policy making at all levels, national but also local. Moreover, engaging citizens and local actors in the generation of data or in the analysis of 'big data' and its ethical issues can assist local governance.	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/dt-governance-12-2019-2020.html

139	Societal Challenges	GOVERNANCE FOR THE FUTURE	Digitisation, Digital Single Market and European culture: new challenges for creativity, intellectual property rights and copyright	06 November 2018	14 March 2019	The consequences of digitisation and of the implementation of the Digital Single Market on cultural diversity, on access to culture and on the creation of cultural value need to be better monitored and understood, also through joint efforts by researchers, practitioners and policy-makers. Beyond the issue of portability of cultural content, coping strategies related to legislation on intellectual property rights (IPR) and copyright at European and national levels are at the heart of current creative practices and business opportunities in the cultural and creative sectors and, as such, deserve in-depth scrutiny. Innovative solutions for measuring the impact of digitisation and of the digital market on culture are also needed. In addition, an important knowledge gap exists when it comes to the adaptive or alternative strategies of different cultural institutions and of various creative and artistic communities.	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/dt-governance-13-2019.html
140	Societal Challenges	GOVERNANCE FOR THE FUTURE	Trust in governance	06 November 2018	14 March 2019	Trust is a fundamental condition for a fair and cooperative society. It also plays an important part in contributing to social capital. While a degree of distrust may be required for a well-functioning democracy, waning trust in governments and other institutions and in the EU can impact European governance in multiple ways. The challenge is to restore and improve trust as a basis for sustainable and legitimate governance.	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/governance-01-2019.html
141	Societal Challenges	GOVERNANCE FOR THE FUTURE	Past, present and future of differentiation in European governance	06 November 2018	14 March 2019	Recent challenges faced by the EU raise the question of whether Member States will continue on the same integrationist track. Differentiation, which has been core to the constitutional architecture of the EU, has gained prominence in the light of recent manifestations of centrifugal forces. The challenge is to ascertain whether and how much differentiation is necessary, conducive, sustainable and acceptable as well as how future approaches towards differentiation fare in the light of these findings.	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/governance-02-2018-2019.html
142	Societal Challenges	GOVERNANCE FOR THE FUTURE	Enhancing social rights and EU citizenship	06 November 2018	14 March 2019	Boosting social rights can help address divergence in social trends among Member States and reduce the risk of socio-economic shocks. At the same time, social rights are essential for the full realisation of EU citizenship and reaching the EU's targets in reducing poverty and social exclusion. By mitigating social risks and by assisting people with transitions and vulnerabilities, social rights can boost trust to public governance. The challenge is to integrate the social dimension into European policies and to connect it with European citizenship going beyond the traditional focus on mobile citizens to look also at those who are "immobile". Proposals should examine how European citizens have been exercising social rights (e.g. to social protection, housing, health, education, access to labour markets, working conditions, including health and safety at work, mobility) in the wake of the economic crisis. The role of the Member States in protecting social rights should be considered as well as the situation of underrepresented and vulnerable groups, including gender aspects.	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/governance-04-2019.html
143	Societal Challenges	GOVERNANCE FOR THE FUTURE	Drivers and contexts of violent extremism in the broader MENA region and the Balkans	06 November 2018	14 March 2019	Parts of the broader Middle East and North Africa (MENA) region and of the Balkans have been experiencing ethnic, religious and territorial conflicts and civil wars as well as a rise in violent extremism fuelled or justified by religious interpretations. More empirical and interdisciplinary research is needed to understand the various historical, geopolitical, socioeconomic, ideological, cultural, psychological, and demographic factors that drive these conflicts and violent extremism in these regions. The various ways in which these phenomena impact Europe also need closer scrutiny. Proposals should produce country and regional analyses of the interplay between religion, politics and identity. This should include country and regional comparisons. Religious extremism in particular should be addressed from angles such as drivers, narratives, authority figures and formal leadership.	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/su-governance-10-2019.html
144	Excellent Science	Integrating and opening research infrastructures of European interest	Integrating Activities for Advanced Communities	14 November 2018	20 March 2019	Advanced Communities' are scientific communities whose research infrastructures show an advanced degree of coordination and networking at present, attained, in particular, through Integrating Activities awarded under FP7 or previous Horizon 2020 calls. An Integrating Activity will mobilise a comprehensive consortium of several key research infrastructures in a given field as well as other stakeholders (e.g. public authorities, technological partners, research institutions) from different Member States, Associated Countries and other third countries[1] when appropriate, in particular when they offer complementary or more advanced services than those available in Europe. Funding will be provided to support, in particular, the trans-national and virtual access provided to European researchers (and to researchers from Third Countries under certain conditions[2]), the cooperation between research infrastructures, scientific communities, industry and other stakeholders, the improvement of the services the infrastructures provide, the harmonisation, optimisation and improvement of access procedures and interfaces.	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/infraia-01-2018-2019.html
145	Excellent Science	Support to policy and international cooperation	Policy and international cooperation measures for research infrastructures	14 November 2018	20 March 2019	In line with the strategy for EU international cooperation in research and innovation (COM(2012)497), international cooperation for research infrastructures is needed with a number of key partners located in third countries/regions seen as strategic both for the development, exploitation and management of world-class research infrastructures and for ensuring the necessary complementarities on the international scene required to address research challenges with a global dimension by optimising the use of the available resources.	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/infra-sup-01-2018-2019.html
146	Societal Challenges	Building a low-carbon, climate resilient future: climate action in support of the Paris agreement	Inter-relations between climate change, biodiversity and ecosystem services + other Topics for the same main Call having the same opening date (follow the link)	14 November 2018	19 February 2019	Actions should investigate at all relevant spatial and temporal scales the way that ecological processes, biodiversity (including terrestrial and/or marine ecosystems as appropriate) and ecosystem services are impacted, both directly and indirectly, by climate change. Actions should consider the interactions and feedbacks between climate change and biodiversity, ecosystem functions and services. The vulnerability of biodiversity and ecosystems functions and services to climate change should be investigated and modelled across a range of European (including other European territories) climatic and ecological regions; this includes human activities with relevance to climate change.	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/calls/h2020-4-cla-2018-2019-2020.html#topics=callIdentifier/h2020-LC-CLA-2018-2019-2020/1/1/1/default-group&callStatus/Forthcoming/1/1/0/default-group&callStatus/Open/1/1/0/default-group&callStatus/Closed/1/1/0/default-group&Identifier/desc
147	Societal Challenges	Greening the economy in line with the Sustainable Development Goals (SDGs)	Transforming historic urban areas and/or cultural landscapes into hubs of entrepreneurship and social and cultural integration + other Topics for the same main Call having the same opening date (follow the link)	14 November 2018	19 February 2019	Actions should develop, demonstrate and document strategies, approaches and solutions to re-activate and re-generate historic urban areas and/or cultural landscapes. They should foster innovation by relevant start-ups, cultural and creative industries, including from the digital technologies sector, small scale advanced manufacturing producers and local makers, craft workshops, etc. for adaptive re-use and leverage of heritage assets and social integration. Solutions should be co-created, co-managed and co-implemented at the appropriate scale (e.g. for districts, buildings, public spaces etc.) within the broader context of urban and regional development, and involving local populations, research centres, appropriate authorities, innovators, universities, city-makers movements and, where relevant, new population groups. Systemic approaches and methodologies to identify the latent capacities of historic urban areas and to activate them may be developed. They should assess cultural and heritage values, respect the identity of the places and promote social innovation, also accounting for the gender dimension, economic sustainability, inclusiveness, social cohesion and integration in the long term. Innovation in its various forms (e.g. regulatory, governance, business, finance) should be considered. Synergies with other ongoing relevant projects, such as the European Creative Hubs Network, should be sought where appropriate.	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/calls/h2020-c4-2018-2019-2020.html#topics=callIdentifier/h2020-SCS-2018-2019-2020/1/1/1/default-group&callStatus/Forthcoming/1/1/0/default-group&callStatus/Open/1/1/0/default-group&callStatus/Closed/1/1/0/default-group&Identifier/desc
148	Excellent Science	Implementing the European Open Science Cloud	Enhancing the EOSC portal and connecting thematic clouds	14 November 2018	20 March 2019	The proposals will build on the work produced by the infraCentral project and provide additional support for the implementation of the EOSC hub to further develop and optimise the functions and interface offered via the EOSC portal. In particular, the successful proposal should incorporate existing scientific gateways and thematic portals developed under FP7 and Horizon 2020 across all work programmes. As the scope of this activity is to provide a single user interface to the EOSC services, at most one proposal is expected to be funded in this area.	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/calls/h2020-infraesc-2018-2020.html#topics=callIdentifier/h2020-NFRAESC-2018-2020/1/1/1/default-group&callStatus/Forthcoming/1/1/0/default-group&callStatus/Open/1/1/0/default-group&callStatus/Closed/1/1/0/default-group&Identifier/desc
149	Excellent Science	Demonstrating the role of Research Infrastructures in the translation of open science into open innovation	Network of research infrastructure Industrial Liaison and Contact Officers	14 November 2018	20 March 2019	Proposals will aim at establishing a European network of Industrial Liaison and Contact Officers (ILOs/ICOs) of pan-European research infrastructures, including ESFRI landmarks and projects, as well as of other relevant world class research infrastructures of European interest. ILOs/ICOs, with different degrees of experience and representing a broad range of scientific domains should be actively involved in the action.	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/calls/h2020-infranov-2019-2020.html#topics=callIdentifier/h2020-INFRAINNOV-2019-2020/1/1/1/default-group&callStatus/Forthcoming/1/1/0/default-group&callStatus/Open/1/1/0/default-group&callStatus/Closed/1/1/0/default-group&Identifier/desc
150	Societal Challenges	2018-2020 Digitising and Transforming European Industry and Services	Human centred design for the new driver role in highly automated vehicles	04 December 2018	24 April 2019	Proposals for research and innovation should focus on the design of safe human-machine interfaces for vehicles with highly automated driving functions and the safe and controlled transfer between use cases of different SAE automation levels (between level 4 to/from levels 3 or 2) for all types of drivers.	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/dt-art-03-2019.html

151	Societal Challenges	2018-2020 Digitising and Transforming European Industry and Services	Developing and testing shared, connected and cooperative automated vehicle fleets in urban areas for the mobility of all	04 December 2018	24 April 2019	Shared, connected and cooperative automated vehicles may become a game changer for urban mobility. They can provide seamless door-to-door mobility of people and freight delivery services, which can lead to healthier, more accessible, greener and more sustainable cities, as long as they are integrated in an effective public transport system. Since a few years the development of shared automated vehicle pilots are emerging around the world. Today, most of these pilots are small-scale and involve either on-demand ride services or low-speed shuttles operating in controlled environments. In order to accelerate the uptake of high quality and user oriented mobility services, based on shared, connected and cooperative automated vehicles, there is a need for demonstrating these services in real life conditions to test the performance, safety and viability of these systems and services and to prove that they are attractive for and accepted by users. Furthermore, the potential impacts on reducing CO2 emissions and pollutants, safety and overall transport system costs need to be assessed.	http://ec.europa.eu/research/participants/porta/desktop/en/opportunities/h2020/topics/dt-art-04-2018.html
152	Societal Challenges	2018-2020 Mobility for Growth	An inclusive digitally interconnected transport system meeting citizens' needs + other Topics for the same main Call having the same opening date (follow the link)	04 December 2018	24 April 2019	Research will help policy-makers design appropriate regulatory frameworks and social and educational strategies in order to create the best possible conditions for an inclusive, user friendly digital transport system, taking into account the needs and characteristics of all parts of society, with particular attention to vulnerable to exclusion citizens. Moreover, research will also help regional authorities and businesses in designing digital transport solutions that are better tailored to citizens' individual needs.	http://ec.europa.eu/research/participants/porta/desktop/en/opportunities/h2020/calls/h2020-mg-2018-2019-2020.html#topics-callIdentifier/h2020-MG-2018-2019-2020/1/1/1/default-group&callStatus/f/forthcoming/1/1/0/default-group&callStatus/Opened/1/1/0/default-group&Identifier/Desc
153	Societal Challenges	Building a low-carbon, climate resilient future: Green Vehicles	InCo flagship on "Urban mobility and sustainable electrification in large urban areas in developing and emerging economies" + other Topics for the same main Call having the same opening date (follow the link)	04 December 2018	24 April 2019	Although cities cover only 2% of the earth's surface, 50% of the world's population lives in cities, but they are responsible for three-quarters of the global energy consumption as well as approximately 80% of the global greenhouse gas emissions. While the trend towards urbanization and the associated increase of personal and freight transport creates massive challenges, in particular in developing and emerging economies, it also offers the unique opportunity to shape energy use especially in the transport and urban form towards a low carbon pathway. Moving towards sustainable mobility will also help addressing urban congestion, access to jobs and public services, and local air pollution. This is why urbanisation requires integrated mobility solutions that bring together technology opportunities with local and national policy, including land use and mobility planning. Efficient transport and mobility, based on a balanced mix of public and private transport and dependent on the characteristics of each city, is and will continue to be the backbone of cities' growth and competitiveness.	http://ec.europa.eu/research/participants/porta/desktop/en/opportunities/h2020/calls/h2020-lc-gv-2018-2019-2020.html#topics-callIdentifier/h2020-LC-GV-2018-2019-2020/1/1/1/default-group&callStatus/f/forthcoming/1/1/0/default-group&callStatus/Opened/1/1/0/default-group&Identifier/Desc
154	Science with and for Society	Science with and for Society	Supporting the development of territorial Responsible Research and Innovation + other Topics for the same main Call having the same opening date (follow the link)	11 December 2018	02 April 2019	For the present topic, 'territory' should be understood broadly. Territories may be defined by any particular area characterised by certain geographical features, or any area with shared cultural, environmental or economic ties. Consortia should focus activities in more than one territory in Europe (and possibly also in Third Countries), with a view to developing and promoting shared learning and diffusion of governance innovations. Local and regional authorities should be active partners of the consortia, in particular those institutions or parts of institutions responsible for research and innovation. The RI approach should be integrated in regional development policies, e.g. spatial planning, land use planning, coastal planning, urban development and urban structuring activities (fit not exhaustive). Consortia should make strong efforts to ensure the involvement of all kind of citizens, irrespective of their age, gender, ethnicity and socio-economic background.	http://ec.europa.eu/research/participants/porta/desktop/en/opportunities/h2020/calls/h2020-swafs-2018-2020.html#topics-callIdentifier/h2020-Swafs-2018-2020/1/1/1/default-group&callStatus/f/forthcoming/1/1/0/default-group&callStatus/Opened/1/1/0/default-group&Identifier/Desc
155	Science with and for Society	Science with and for Society	Research innovation needs & skills training in PhD programmes + other Topics for the same main Call having the same opening date (follow the link)	11 December 2018	02 April 2019	A broad package of skills-related training, integration and intelligence for researchers and scientists in all career stages will need to be developed. Preferably pilots will be organised by (or in cooperation with) experienced projects which already received EU funding or are currently funded under Erasmus+, Horizon2020, ITN, MSCA. In all cases, partners should be able to demonstrate proof of concept and initial impact of the PhD training and reasoning for improving and formally integrating skills training. Initial postgraduate tracking exercises have to be integrated in the proposal, to demonstrate ability to trace postgraduates during employment (including sex-disaggregated data). Counselling initiatives of PhD candidates and PhD graduates into focussed careers in and outside academia should be provided.	http://ec.europa.eu/research/participants/porta/desktop/en/opportunities/h2020/calls/h2020-swafs-2018-2020.html#topics-callIdentifier/h2020-Swafs-2018-2020/1/1/1/default-group&callStatus/f/forthcoming/1/1/0/default-group&callStatus/Opened/1/1/0/default-group&Identifier/Desc
156	Industrial Leadership	For a better innovation support to SMEs	European Open Innovation network in advanced technologies + other Topics for the same main Call (follow the link)	05 February 2019	01 August 2019	Open innovation today is a well-known concept in large companies. However, SMEs are less aware of the opportunities offered by open innovation. Innovation intermediaries such as technology centres can help SME solution providers get closer to large industrial users to co-create new products/services through a better anticipation of their needs. One major role of technology centres is "to bridge the gap between internal and external know-how". They are thus well-positioned as innovation intermediaries in an open innovation context. Technology centres help companies move technologies (such as digital and other key enabling technologies) from lab to market. They often achieve innovation by adapting existing ideas and concepts to other industrial ambits and usually collaborate with both large companies and SMEs.	http://ec.europa.eu/research/participants/porta/desktop/en/opportunities/h2020/calls/h2020-innosp-2018-2020.html#topics-callIdentifier/h2020-INNOSP-2018-2020/1/1/1/default-group&callStatus/f/forthcoming/1/1/0/default-group&callStatus/Opened/1/1/0/default-group&Identifier/Desc
157	Societal Challenges	Digital Security	Digital Security and privacy for citizens and Small and Medium Enterprises and Micro Enterprises + other Topics for the same main Call having the same opening date (follow the link)	14 March 2019	22 August 2019	In order to protect the freedom, security and privacy, and ensure personal data protection of the citizens in Europe, citizens should be enabled to assess the risk involved in their digital activities and configure their own security, privacy and personal data protection settings and controls across these services. Citizens need to be fully aware that their informed consent is necessary in many situations and become capable in providing their permission/consent for allowing accessing their personal data/devices/terminals with an increased level of granularity. Additionally there is a need for increased citizens' capacity to modulate the level and accuracy of the monitoring tools used by services (e.g. via cookies, positioning, tokens). Most Small and Medium-sized Enterprises and Micro Enterprises (SMEs&MSEs) lack sufficient awareness and can only allocate limited resources - both technical and human - to counter cyber risks. Hence they are an easier target (e.g. of ransomware attacks) compared to large organizations. Security professionals and experts working for SMEs&MSEs need to be in a constant learning process since cybersecurity is a significantly complex and fast-evolving field. Taking into account the significant economic role of SMEs&MSEs in the EU, tailored research to innovation should support cybersecurity for SMEs&MSEs.	http://ec.europa.eu/research/participants/porta/desktop/en/opportunities/h2020/calls/h2020-su-ds-2018-2019-2020.html#topics-callIdentifier/h2020-SU-DS-2018-2019-2020/1/1/1/default-group&callStatus/f/forthcoming/1/1/0/default-group&callStatus/Opened/1/1/0/default-group&Identifier/Desc
158	Societal Challenges	Protecting the infrastructure of Europe and the people in the European Smart Cities	Security for smart and safe cities, including for public spaces	14 March 2019	22 August 2019	The security and good operation of a smart and safe city relies on interconnected, complex and interdependent networks and systems: public transportation networks, energy, communication, transactional infrastructure, civil security and law enforcement agencies, road traffic, public interest networks and services. Such networks provide with an efficient infrastructure for detection resources and "big data" collection. The screening of such data are being used by security practitioners to enhance their capabilities and performances. For instance, crowd protection and the security of public and government buildings can be improved through the identification of threats or of crime perpetrators, and the early detection of dangerous devices or products; first responders may get quicker on site by calculating in real time the shorter possible route to the scene of disaster. Proposals under this topic should develop and integrate experimentally, in situ, the components of an open platform for sharing and managing information between public service operators and security practitioners of a large, smart city.	http://ec.europa.eu/research/participants/porta/desktop/en/opportunities/h2020/calls/h2020-su-ifra-2018-2019-2020.html#topics-callIdentifier/h2020-SU-IFRA-2018-2019-2020/1/1/1/default-group&callStatus/f/forthcoming/1/1/0/default-group&callStatus/Opened/1/1/0/default-group&Identifier/Desc
159	Societal Challenges	Security	Human factors, and social, societal, and organisational aspects of border and external security	14 March 2019	22 August 2019	Border and external security may depend on a variety of human factors, and social and societal issues including gender. The adoption of appropriate organisational measures and the deeper understanding of how novel technologies and social media impact border control are required. One main challenge is to manage the flow of travellers and goods arriving at our external borders, while at the same time tackling irregular migration and enhancing our internal security. Any novel technology or organisational measure will need to be accepted by the European citizens.	http://ec.europa.eu/research/participants/porta/desktop/en/opportunities/h2020/topics/su-bed01-2018-2019-2020.html
160	Societal Challenges	Security	Technologies to enhance border and external security	14 March 2019	22 August 2019	Innovation for border and external security may draw, in particular, from novel technologies, provided that they are affordable, accepted by citizens and customized and implemented for the needs of security practitioners.	http://ec.europa.eu/research/participants/porta/desktop/en/opportunities/h2020/topics/su-bed02-2018-2019-2020.html
161	Societal Challenges	Security	Demonstration of applied solutions to enhance border and external security	14 March 2019	22 August 2019	Solutions at high Technological Readiness Levels to enhance border and external security do exist, but if they are not to remain unused they need to be demonstrated in the context of actual operations or exercises for validation by practitioners. Consortia are invited to propose demonstration of high (6-8) Technology Readiness Levels (TRL) systems applied in the context of border and external security.	http://ec.europa.eu/research/participants/porta/desktop/en/opportunities/h2020/topics/su-bed03-2018-2019-2020.html
162	Societal Challenges	Security	Human factors, and social, societal, and organisational aspects for disaster-resilient societies	14 March 2019	22 August 2019	The resilience of societies heavily depends on how their citizens behave individually or collectively, and how governments and civil society organisations design and implement policies for mitigating risks, preparing for, reacting to, overcoming, and learning from disasters. The spread of new technologies and media are inducing dramatic changes in how individuals and communities behave, and they are affecting societies in unpredictable ways. Building the resilience of society and citizens requires a better understanding and implementation of these new technologies, media and tools, and their capacity to raise disaster risk awareness, to improve citizen understanding of risks, to build a culture of risks in society, to enable an effective response from affected populations, to improve functional organisation in most fragile and vulnerable environments, and to increase the resilience of health services, social services, education, and governance, in line with target (d) of the Sendai Framework on critical infrastructure and disruption of basic services.	http://ec.europa.eu/research/participants/porta/desktop/en/opportunities/h2020/topics/su-drs01-2018-2019-2020.html

163	Societal Challenges	Security	Technologies for first responders	14 March 2019	22 August 2019	Resilience is critical to allow authorities to take proper measures in response to severe disasters, both natural (including climate-related extreme events) and man-made. Innovation for disaster-resilient societies may draw from novel technologies, provided that they are affordable, accepted by the citizens, and customized and implemented for the (cross-sectoral) needs of first responders.	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/su-drs02-2018-2019-2020.html
164	Societal Challenges	Security	Pre-normative research and demonstration for disaster-resilient societies	14 March 2019	22 August 2019	A reason for the difficult interaction among practitioners, and for the low levels of interoperability of equipment and procedures implemented by first responders, lies in there being insufficient harmonisation and standardisation, which pre-normative research and demonstrations may address effectively. The security market in Europe is an institutional market that is highly fragmented (because of the lack of standardization and harmonised certification), and with a strong societal dimension (it directly affects in many ways the citizens). In this context, the Mandate M/487 to Establish Security Standards coordinated by the European Committee for Standardization has clearly recognized the whole field of "crisis management and civil protection" as one of the three priorities for establishing standards in the security sector. It has identified the need for crisis management and civil protection standardization activities to facilitate response, effectiveness, efficiency and cooperation as top priorities, especially in what regards to natural hazard emergencies.	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/su-drs03-2018-2019-2020.html
165	Societal Challenges	Security	Chemical, biological, radiological and nuclear (CBRN) cluster	14 March 2019	22 August 2019	In 2019 and 2020 the Commission will select several RIA's aiming at research and development of novel CBRN technologies and innovations identified in the catalogue that is updated by the ENCIRCLE project on a regular basis. Each of these actions will be led by an SME. Each consortium implementing such a RIA must not only establish a consortium agreement among its members, but also an agreement with the participants in the ENCIRCLE project which must settle how the results from the RIA will be exploited and integrated into platforms managed by ENCIRCLE. Where applicable, the complementarity of the proposed activities with activities supported by the European Defence Agency (EDA) should be described comprehensively.	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/su-drs04-2019-2020.html
166	Societal Challenges	Security	Demonstration of novel concepts for the management of pandemic crises	14 March 2019	22 August 2019	Large-scale pandemics constitute an ever growing threat in today's globalised society, given the increasing flows of goods and people among continents. This challenge ought to be addressed internationally, and with the involvement of a large variety of practitioners and stakeholders, from planners in national health systems, to first responders. The Horizon 2020 work programme separately includes an EIC Horizon Prize for 'Early Warning for Epidemics' that is relevant for preparedness and response specifically to vector-borne disease outbreaks.	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/su-drs05-2019.html
167	Societal Challenges	Security	Human factors, and social, societal, and organisational aspects to solve issues in fighting against crime and terrorism	14 March 2019	22 August 2019	Free and democratic EU society, based on the rule of law, mobility across national borders, globalised communication and finance infrastructure, provides many opportunities to its people. However, the benefits come along with risks related to crime and terrorism, a significant number of which have cross-border impacts within the EU. Security is a key factor to ensure a high quality of life and to protect our infrastructure through preventing and tackling common threats. The EU must play its part to help prevent, investigate and/or mitigate the impact of criminal acts, whilst protecting fundamental rights. The consistent efforts made by EU Member States and the EU to that effect are not enough, especially when criminal groups and their activities extend far beyond national borders.	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/su-ct01-2018-2019-2020.html
168	Societal Challenges	Security	Technologies to enhance the fight against crime and terrorism	14 March 2019	22 August 2019	Organized crime and terrorist organisations are often at the forefront of technological innovation in planning, executing and concealing their criminal activities and the revenues stemming from them. Law Enforcement Agencies (LEAs) are often lagging behind when tackling criminal activities supported by advanced technologies. There is a growing need to focus on technology opportunities provided by new and emerging technologies. To this end, it is necessary to identify new knowledge and targeted technologies for fighting old, new and evolving forms of criminal and terrorist behaviour supported by advanced technologies. Challenges are numerous. In conventional investigations, rapid and near real-time forensics is often crucial for preventing subsequent attacks or crimes. A consequence of the increasing digitisation of society and ever increasing adoption levels is that virtually any type of crime has a digital forensics component, which is a challenge in itself. Money-flow tracking represents yet another challenge. The issues of location and jurisdiction need to be addressed, taking into account highly probable cross-border nature of such crimes.	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/su-ct02-2018-2019-2020.html
169	Societal Challenges	Security	Information and data stream management to fight against cybercrime and terrorism	14 March 2019	22 August 2019	Large amounts of data and information from a variety of origins have become available to practitioners involved in fighting crime and terrorism. Full advantage is not currently taken of the most advanced techniques for Big Data analysis, and artificial intelligence. The amount of data generated and gathered in the frame of (cyber)crime investigations increases exponentially, thereby creating a considerable challenge for law enforcement. The effectiveness of law enforcement action depends on capabilities to improve the quality of data, and to convert voluminous and heterogeneous data sets (images, videos, geospatial intelligence, communication data, traffic data, financial transactions related data, etc.) into actionable intelligence. These capabilities could be significantly enhanced by the use of domain-specific tools, i.e. Big Data analysis applications designed for the needs of crime investigators (pre-processing, processing and analysis, visualisation, etc.). Furthermore, predictive analytics would greatly benefit from open source intelligence gathering, social network and darknet data analysis, and allow for resource-efficient, effective and proactive law enforcement.	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/su-ct03-2018-2019-2020.html
170	Societal Challenges	Security	Pan-European networks of practitioners and other actors in the field of security	14 March 2019	22 August 2019	In Europe, practitioners interested in the uptake of security research and innovation are dedicated to performing their duty and are focused on their tasks. In general, however, practitioner organisations have little scope to free workforces from daily operations in order to allocate time and resources to monitor innovation and research that could be useful to them. They have few opportunities to interact with academia or with industry on such issues. All stakeholders – public services, industry, academia – including those who participate in the Security Advisory Group, recognize this as an issue.	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/su-gm01-2018-2019-2020.html
171	Societal Challenges	Security	Pre-commercial procurements of innovative solutions to enhance security	14 March 2019	22 August 2019	Innovative solutions are needed when resources from different countries are required to work more closely together. Such solutions should support the development of the EU's Security Union. Practitioners from several countries are invited to proceed with the procurement of innovative solutions to enhance their operational capability. Practitioner organisations may be private or public entities.	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/su-gm03-2018-2019-2020.html
172	Excellent Science	Widening Fellowships	Widening Fellowships	11 April 2019	12 September 2018	The Marie Skłodowska-Curie actions (MSCA) contribute to boosting jobs, growth and investment by equipping researchers with the new knowledge, skills and international and inter-sectoral exposure to fill the top positions of tomorrow and solve current and future societal challenges. They are based on the principle of mobility, and researchers can receive funding on the condition that they move from one country to another to acquire new knowledge. The results from the first years of MSCA in Horizon 2020 also revealed the existence of a mobility gap across Europe and discrepancies between European countries in their ability to attract funding. To specifically address this gap in participation Widening Fellowships will provide an additional opportunity to researchers of any nationality to acquire and transfer new knowledge and to work on research and innovation in Widening countries.	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/wf-01-2018.html
173	Excellent Science	Marie Skłodowska-Curie Co-funding of regional, national and international programmes	Co-funding of regional, national and international programmes	04 April 2019	26 September 2019	The COFUND scheme aims to stimulate regional, national or international programmes to foster excellence in researchers' training, mobility and career development, spreading the best practices of the Marie Skłodowska-Curie actions. This will be achieved by co-funding new or existing regional, national, and international programmes to open up to, and provide for, international, intersectoral and interdisciplinary research training, as well as transnational and cross-sectoral mobility of researchers at all stages of their career.	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/msca-cofund-2019.html
174	Excellent Science	FET Proactive – High Performance Computing	Extreme scale computing technologies, methods and algorithms for key applications and support to the HPC ecosystem	07 May 2019	24 September 2019	To develop world-class extreme scale, power-efficient and highly resilient High Performance Computing and data technologies, and to provide support for a sustainable exascale HPC ecosystem in Europe, enabling collaborations among the relevant stakeholders.	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/calls/h2020-fetpc-2018-2020.html#callIdentifier/H2020-FETPC-2018-2020/1/1/1/default-group&callStatus/f/forthcoming/1/1/0/default-group&callStatus/f/0pen/1/1/0/default-group&callStatus/t/Closed/1/1/0/default-group&v=identifier/desc

175	Excellent Science	Development and long-term sustainability of new pan-European research infrastructures	Design Studies	25 July 2019	12 November 2019	The main output of a design study will be the 'conceptual design report' for a new or upgraded research infrastructure, showing the maturity of the concept and forming the basis for identifying and constructing the next generation of Europe's and the world's leading research infrastructures. Conceptual design reports will present major choices for design alternatives and associated cost ranges, both in terms of their strategic relevance for meeting today's and tomorrow's societal challenges, and (where applicable) in terms of the technical work underpinning the development of new or upgraded research infrastructures of strategic importance for Europe.	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/calls/h2020-infradev-2018-2020.html#topics=call&identifier/H2020-INFRADEV-2018-2020/1/1/1/default-group&callStatus/f/forthcoming/1/1/0/default-group&callStatus/f/Open/1/1/0/default-group&callStatus/f/Closed/1/1/0/default-group&+identifier/desc
176	Industrial Leadership	Cybersecurity	Building blocks for resilience in evolving ICT systems	25 July 2019	19 November 2019	Algorithms, software and hardware systems must be designed having security, privacy, data protection and accountability in mind from their design phase in a measurable manner. Relevant challenges include: (a) to develop mechanisms that measure the performance of ICT systems with regards to cybersecurity and privacy and (b) to enhance control and trust of the consumer of digital products and services with innovative tools aiming to ensure the accountability of the security and privacy levels in the algorithms, in the software, and ultimately in the ICT systems, products and services across the supply chain.	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/su-ict-02-2020.html

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