

## PREDSTAVITEV AKTUALNIH RAZPISOV

Razpisi, ki štejejo kot pogoj za pridobitev stabilnega financiranja (iz ZZrID) so navedeni v Programu HORIZON EUROPE.

Kazalo vsebine aktualnih razpisov:

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## PROGRAM HORIZON EUROPE:

1. Better understanding of citizens' behavioural and psychological reactions in the event of a disaster or crisis situation

TOPIC ID: HORIZON-CL3-2022-DRS-01-04

### General information

Programme

**Horizon Europe Framework Programme (HORIZON)**

Call

[Disaster-Resilient Society 2022 \(HORIZON-CL3-2022-DRS-01\)](#)

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Type of action

**HORIZON-RIA HORIZON Research and Innovation Actions**

Type of MGA

**HORIZON Action Grant Budget-Based [HORIZON-AG]**

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Deadline model

**single-stage**

Planned opening date

**30 June 2022**

Deadline date

**23 November 2022 17:00:00 Brussels time**

### Topic description

Expected Outcome:

Project results are expected to contribute to some of the following expected outcomes:

- Qualitative and quantitative analyses on the behaviour of diverse society groups affected by a natural and man-made disaster or crisis situation, during and after an event occurs, based on real cases and testimonies, lessons learned from past disasters or crisis and recommendations from citizens and local authorities. Examine how this analysis could be integrated into preparedness plans and processes to include cultural, historical, and ethical perspectives on what defines disasters and how they are responded to.

- Analyses of human behaviour as triggering or cascading factors of disasters or crisis situations, and transformation of qualitative data into quantitative information to improve vulnerability and exposure analyses.
- Development of community-centred (vis-à-vis victim- or patient-centred) approaches and corresponding preparedness plans: in view of limited emergency response capacities and threat of systems collapses (e.g. health system, food distribution, supply chains) in large-scale disaster scenarios, analyse what community practices and communication strategies can help mitigate the latter and enable the public to be a capable partner in emergency planning and response.
- Specific measures to better address the needs and requirements of most vulnerable groups (chronic sufferers, persons with disabilities, children, elderly persons, economically and social deprived persons, refugees and irregular migrants in emergency planning and recovery measures.
- Analyses of the nature and scope of mental health issues of the affected populations and of first-responders arising during and following natural or man-made disasters or crisis situations and their implications for response and recovery, and options to address these issues, including through social and health services such as emergency psycho-social support.
- Analyses of mechanisms and factors that can lead to false alarms and misdirected actions, and of the direct consequences on both population and decision-makers.

#### Scope:

Human actions and behaviour may strongly influence the effects and dynamics of a disaster or crisis situation and on the response, potentially modifying the vulnerability of the population. For example, inadequate design of technological systems may favour cascading consequences due to limited consideration of human performance, and insufficient planning. Linked to this, due to extreme time pressure, crisis managers are often forced to make decisions on the basis of inadequate information. The behaviour of the general public, mostly influenced by demographic factors (e.g. gender, age, income, education, risk-tolerance, social connectivity etc.) and the perception of risks, depends on the availability, form and access to information about the crisis and management of trade-offs (e.g. efficiency and thoroughness trade-offs). Social media play an important role here being a means of disinformation and misinformation.

Recent disasters related either to natural causes (including climate-related and geological hazards), man-made causes (including industrial accidents or terrorist attacks) or the COVID-19 pandemic crisis have shown the lack of sufficient knowledge in the way citizens react in case of disasters or crisis situations, with implications on policy design and implementation for example in the form of preparedness plans. In this respect, taking into account the knowledge gathered by projects funded in Horizon 2020 and ensuring complementarity, behavioural and psychological research on how citizens behave in the event of a disaster or crisis situation is needed to better understand how to best raise awareness in the population and develop tools to facilitate this.

It is hence necessary to better investigate how historical, cultural and emotional factors (e.g. anxiety, panic etc.) during a disaster or a crisis influence rational actions, evaluations of options and information seeking. In addition, the impact of disasters on health also requires looking into the short and long-term consequences of exposure to high stress/threat levels bears, in particular for mental health.

## 2. AI for human empowerment (AI, Data and Robotics Partnership) (RIA)

TOPIC ID: HORIZON-CL4-2022-HUMAN-02-01

### General information

Programme

**Horizon Europe Framework Programme (HORIZON)**

Call

[A HUMAN-CENTRED AND ETHICAL DEVELOPMENT OF DIGITAL AND INDUSTRIAL TECHNOLOGIES 2022 \(HORIZON-CL4-2022-HUMAN-02\)](#)

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Type of action

**HORIZON-RIA HORIZON Research and Innovation Actions**

Type of MGA

**HORIZON Action Grant Budget-Based [HORIZON-AG]**

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Deadline model

**single-stage**

Planned opening date

**16 June 2022**

Deadline date

**16 November 2022 17:00:00 Brussels time**

### Topic description

Expected Outcome:

Proposal results are expected to contribute to at least one of the following expected outcomes:

- Truly mixed human-AI initiatives for human empowerment
- Trustworthy hybrid decision-support systems

Scope:

Build the next level of **perception, visualisation, interaction and collaboration** between humans and AI systems working together as partners to achieve common goals, sharing mutual understanding and learning of each other's abilities and respective roles.

Innovative and promising approaches are encouraged, including human-in the loop approaches for truly mixed human-AI initiatives combining the best of human and machine knowledge and

capabilities, tacit knowledge extraction (to design the next generation AI-driven co-creation and collaboration tools embodied e.g. in industrial/working spaces environments).

Each proposal will focus on one of the two following research objectives, and clearly identify it:

1. Reach truly mixed human-AI initiatives for human empowerment. The approaches should combine the best of human and machine knowledge and capabilities including shared and sliding autonomy in interaction, addressing reactivity, and fluidity of interaction and making systems transparent, fair and intuitive to use, which will play a key role in acceptance. The systems should adapt to the user rather than the opposite, based on analysis, understanding and anticipation about human behaviour and expectations.
2. Trustworthy hybrid decision-support, including approaches for mixed and sliding decision-making, for context interpretation, for dealing with uncertainty, transparent anticipation, reliability, human-centric planning and decision-making, interdependencies, and augmented decision-making. Transparency, fairness, technical accuracy and robustness will be the key, together with validation strategies assessing also the quality of the decision of the AI supported socio-technical system.

All proposals should adopt a human-centred development of trustworthy AI and investigate and optimise ways of human-AI interaction, key for acceptance and democratisation of AI, to allow any user to take full advantage of the huge benefits such technology can offer, regardless of their age, race, gender or capabilities. This includes development of methods to improve transparency, in particular for human users, in terms of explainability, expected levels of performance which are guaranteed/verifiable and corresponding confidence levels, accountability and responsibility, as well as perceived trust and fairness. AI could also be used to empower humans in supporting them to improve responsible behaviours, where appropriate, but this should be done in full respect of the requirements ensuring trustworthy AI, including human autonomy.

Innovative scientific approach towards human-centric approaches will require multidisciplinary and trans-disciplinary approaches paying particular attention to intersectional factors (gender, ethnicity, age, socioeconomic status, disability) including SSH<sup>[1]</sup> and other disciplines relevant to stimulate novel research avenues, and eventually improve user-acceptance. Collaborative design and evaluation with users involvement should also be considered.

As a pilot activity, proposals in this topic will dedicate part of their activities on investigating novel ways of engagement by citizens or citizen representatives with AI development, with a view of optimising experience towards improving usability and experience for citizens (both at professional or daily life environment).

All proposals should contribute to build the next level of perception, visualisation, interaction and collaboration, and understanding between humans and AI systems working together as partners to achieve common goals, sharing mutual understanding of each other's abilities and respective roles.

All proposals are expected to embed mechanisms to assess and demonstrate progress (with qualitative and quantitative KPIs, benchmarking and progress monitoring, as well as illustrative application use-cases demonstrating concrete potential added value), and share results with the European R&D community, through the AI-on-demand platform<sup>[2]</sup>, a public community resource, to maximise re-use of results, either by developers, or for uptake, and optimise efficiency of funding. Activities are expected to achieve TRL 4-5 by the end of the project.

This topic implements the co-programmed European Partnership on AI, Data and Robotics.

All proposals are expected to allocate tasks to cohesion activities with the PPP on AI, Data and Robotics and funded actions related to this partnership, including the CSA HORIZON-CL4-2021-HUMAN-01-02.

Specific Topic Conditions:

Activities are expected to start at TRL 2-3 and achieve TRL 4-5 by the end of the project – see General Annex B.

Cross-cutting Priorities:

[Co-programmed European Partnerships](#)

Artificial Intelligence

Digital Agenda

Social sciences and humanities

### 3. Implementing digital services to empower neuroscience research for health and brain inspired technology via EBRAINS

TOPIC ID: HORIZON-INFRA-2022-SERV-01-01

#### **General information**

Programme

**Horizon Europe Framework Programme (HORIZON)**

Call

[Research infrastructure services to support health research and accelerate the digital transformation \(2022\) \(HORIZON-INFRA-2022-SERV-01\)](#)

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Type of action

**HORIZON-RIA HORIZON Research and Innovation Actions**

Type of MGA

**HORIZON Action Grant Budget-Based [HORIZON-AG]**

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Deadline model

**single-stage**

Planned opening date

**01 June 2022**

Deadline date

**21 September 2022 17:00:00 Brussels time**

## Topic description

Expected Outcome:

Project results are expected to contribute to all the following outcomes:

- integrated multi-disciplinary collaborative tools and services widely serving the European neuroscientific community, providing them with FAIR data indexing and archival, multilevel data mining and modelling/simulation of brain functions, and empowering workflows for reproducible research;
- a rich collection of multilevel human brain models, atlases and workflows, directly supporting the research and development for personalised brain medical treatments e.g. target binding drugs, precise neuro-stimulation positioning and guided surgery, regarding brain diseases such as epilepsy, Parkinson, consciousness disorders, or rare or multi-factor diseases;
- a comprehensive set of cognitive brain model scaffolds and associated modular / large-size neuromorphic and neurobotic facilities for assisting the design and validation of applicative cognitive technologies benefitting from neurosciences latest knowledge, as enablers for autonomous and adaptive robotics approaches that use fast sensory processing and decision-making capabilities;
- supplementary population of EBRAINS facilities with multidisciplinary services/applications that answer well-identified new neuroscience related S&T needs, in correlation with national and European research priorities for neuroscience, brain medicine and cognitive-technologies;
- integration of EBRAINS with EOSC and linkage with common European data spaces in the life science and health sector;
- better-aligned national investments in neuroscience across Europe, building on the Member States' and Associated Countries' specialised competence centres, which in turn will help creating additional synergies and enabling further research activities around the EBRAINS services.

Scope:

Building on the EBRAINS architecture and base facilities developed under Horizon 2020, the scope of this action is to:

1. To implement a user-friendly service infrastructure along the principles of Infrastructure as a Service (IaaS) and Platform as a Service (PaaS) to widely serve the research communities in neurosciences, brain medicine and brain-inspired cognitive technologies. This includes the following dimensions:
  - Enabling the EBRAINS research infrastructure digital facilities supporting neuroscience dedicated tools and services, with a high quality of service including robustness, security, scalability, flexibility, usability and user-centricity. This includes a sustainable system for allocation and management of data capacities and of simulation and computing service resources.
  - Establishing in-depth collaboration with teams from other European research and testing infrastructures and of EOSC, in order to ensure efficiency and harmonisation, e.g. regarding

Authorisation, Authentication and Identification (AAI), Persistent Identifiers (PID), discovery ontologies and API for both services and data.

- Directly interfacing with the European HPC capacities towards exascale, deployed in EuroHPC and capitalising on the FENIX[1] developments for big-data integration and interactive use.
- Delivering an efficient Europe-wide service to researchers, based on promoting excellence and innovation, and supporting users' digital experiments with the assistance of high-level support teams and feedback mechanisms, and guiding communities in developing novel software solutions that build on the EBRAINS base offering.
- Deploying an open metrics framework to assess the EBRAINS performances reached, the efficiency of the facilities offered in particular regarding the human-based services, and the uptake especially regarding the enabled science excellence and related results and the medical and technological innovation empowerment.

2. To develop, integrate in EBRAINS, and operate:

- Constantly improving open science services/applications that respond to up-to-date and upcoming identified needs of the neuroscientific community, with a co-design approach and in-depth engagement with scientific, medical and industrial stakeholders and the establishment of an appropriate and transparent prioritisation mechanism. This includes ensuring openness to other research groups and new applications; reaching out to scientific and industrial communities, including with tailored training and skills development programmes.
- The deployment of complementary S&T services from regional or national competence nodes, supporting and enriching the cloud-based deliveries and facilitating the sharing of produced data and use of national resources.

In addition to the above, EBRAINS should open its approaches to other communities, going beyond neuroscience, for example by supporting compute-intensive simulation to identify candidate drugs addressing new disease targets in other explicit medical domains where this approach is justified.

The financial support to third parties mechanism (see specific call conditions) can be used to design and develop new services (under item 2) and/or to facilitate the co-design approaches and/or the targeted involvement of broader stakeholders, user communities and competence nodes.

## 4. Marie Skłodowska-Curie Actions:

### 4.1 MSCA Postdoctoral Fellowships 2022

TOPIC ID: HORIZON-MSCA-2022-PF-01-01

#### **General information**

Programme

**Horizon Europe Framework Programme (HORIZON)**

Call

**[MSCA Postdoctoral Fellowships 2022 \(HORIZON-MSCA-2022-PF-01\)](#)**



Type of action

**HORIZON-TMA-MSCA-PF-EF HORIZON TMA MSCA Postdoctoral Fellowships - European Fellowships**

Type of MGA

**HORIZON Unit Grant [HORIZON-AG-UN]**

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Deadline model

**single-stage**

Planned opening date

**13 April 2022**

Deadline date

**14 September 2022 17:00:00 Brussels time**

**Topic description**

Expected Outcome:

Project results are expected to contribute to the following outcomes:

For supported postdoctoral fellows

- Increased set of research and transferable skills and competences, leading to improved employability and career prospects of MSCA postdoctoral fellows within academia and beyond;
- New mind-sets and approaches to R&I work forged through interdisciplinary, inter-sectoral and international experience;
- Enhanced networking and communication capacities with scientific peers, as well as with the general public that will increase and broaden the research and innovation impact.

For participating organisations

- Increased alignment of working conditions for researchers in accordance with the principles set out in the European Charter for Researchers and the Code of Conduct for the Recruitment of Researchers;
- Enhanced quality and sustainability of research training and supervision;
- Increased global attractiveness, visibility and reputation of the participating organisation(s);
- Stronger R&I capacity and output among participating organisations; better transfer of knowledge;
- Regular feedback of research results into teaching and education at participating organisations.

Scope:

Fellowships will be provided to excellent researchers, undertaking international mobility either to or between EU Member States or Horizon Europe Associated Countries, as well as to non-associated Third Countries. Applications will be made jointly by the researcher and a beneficiary in the academic or non-academic sector.

Postdoctoral Fellowships either can take place in Europe (i.e. in an EU Member State or a Horizon Europe Associated Country) or in a Third Country not associated to Horizon Europe:

- European Postdoctoral Fellowships are open to researchers of any nationality who wish to engage in R&I projects by either coming to Europe from any country in the world or moving within Europe. The standard duration of these fellowships must be between 12 and 24 months.
- Global Postdoctoral Fellowships are open to European nationals or long-term residents<sup>[1]</sup> who wish to engage in R&I projects with organisations outside EU Member States and Horizon Europe Associated Countries. These fellowships require an outgoing phase of minimum 12 and maximum 24 months in a non-associated Third Country, and a mandatory 12-month return phase to a host organisation based in an EU Member State or a Horizon Europe Associated Country.

Specific eligibility conditions apply to MSCA Postdoctoral Fellowships in the research areas covered by the Euratom Research and Training Programme 2021-2025<sup>[1]</sup>.

#### *Secondments*

Researchers receiving a Postdoctoral Fellowship may opt to include a secondment phase, within the overall duration of their fellowship in any country worldwide. The secondment phase can be a single period or be divided into shorter mobility periods.

For European Postdoctoral Fellowships, secondments cannot exceed one third of the standard fellowship duration and should be in line with the project objectives, adding significant value and impact to the fellowship.

For Global Postdoctoral Fellowships, optional secondments are permitted for up to one third of the outgoing phase. A maximum of three months can be spent at the start of the project at the beneficiary (or any other organisation mentioned in the description of the action), allowing the researcher to spend time there before going to the associated partner in the Third Country. Secondments cannot take place during the mandatory twelve-month return period to the host organisation in an EU Member State or Horizon Europe Associated Country.

#### *Placements in the non-academic sector*

Postdoctoral Fellowships can provide an additional period of up to six months to support researchers seeking a placement at the end of the project to work on R&I projects in an organisation from the non-academic sector established in an EU Member State or Horizon Europe Associated Country<sup>[3]</sup>. While this possibility is also available to fellows recruited in the non-academic sector, such a placement must be implemented at a different non-academic host organisation established in an EU Member State or Horizon Europe Associated Country<sup>[4]</sup>. The request for such a placement must be an integral part of the proposal, explaining the added-value for the project and for the career development of the researcher, and will be subject to evaluation. It must be substantiated by a letter of commitment from the European non-academic organisation where the placement takes place<sup>[5]</sup>. This incentive aims at promoting career moves between sectors and organisations and thereby stimulate innovation and knowledge transfer while expanding career opportunities for researchers.

#### *Training activities*

The training activities implemented under the Postdoctoral Fellowships should include training for key transferable skills<sup>[6]</sup>, foster innovation and entrepreneurship, (e.g. commercialisation of results, Intellectual Property Rights, communication, public engagement and citizen science) and promote Open Science practices (open access to publications and to research data, FAIR data management, etc.).

### *Career Development Plan*

In order to equip MSCA postdoctoral fellows with skills that enhance and expand their career opportunities inside and outside academia, a Career Development Plan should be established jointly by the supervisor(s) and the researcher. In addition to research objectives, this plan should comprise the researcher's training and career needs, including training on transferable skills, teaching, planning for publications and participation in conferences and events aiming at opening science and research to citizens. The Plan will have to be submitted as a project deliverable at the beginning of the action and can be updated when needed.

### *Euratom*

Aiming to enhance nuclear expertise and excellence as well as synergies between Programmes, organisations active in nuclear research established in one of EU Member States or countries associated to the Euratom Research and Training programme 2021-2025<sup>[7]</sup>, are eligible to participate. MSCA Postdoctoral Fellowships in this area of research will be supported by the Euratom Research and Training Programme 2021-2025 through an indicative annual financial contribution of EUR 1 million to the MSCA Postdoctoral Fellowships call<sup>[8]</sup>.

### *ERA Fellowships*

The ERA Fellowships implemented through Work Programme Annex 11, Widening Participation and Strengthening the European Research Area, provide specific support to researchers to undertake their fellowship in a widening country<sup>[9]</sup>. This will help spread excellence and contribute to fostering balanced brain circulation in widening countries.

[1] See eligibility conditions at the end of this Work Programme part.

[2] See eligibility conditions at the end of this Work Programme part.

[3] For proposals in the research areas covered by the Euratom Research and Training Programme, the organisation from the non-academic sector must be established in an EU Member State or a country associated to the Euratom Research and Training Programme 2021-2025

[4] idem

[5] In the grant agreement, these non-academic organisations must be identified as associated partners.

[6] As an illustration, Eurodoc published a list of such transferable skills at: <http://eurodoc.net/skills-report-2018.pdf>

[7] See eligibility conditions at the end of this Work Programme part

[8] As indicated in the Euratom Work Programme

[9] These countries are aligned with Work Programme part 11, Widening Participation and Strengthening the European Research Area

## **Destination**

### **MSCA Postdoctoral Fellowships**

The goal of MSCA Postdoctoral Fellowships is to enhance the creative and innovative potential of researchers holding a PhD and who wish to acquire new skills through advanced training, international, interdisciplinary and inter-sectoral mobility. MSCA Postdoctoral Fellowships will be open to excellent researchers of any nationality. The scheme also encourages researchers to work on research and innovation projects in the non-academic sector and is open to researchers wishing to reintegrate in Europe, to those who are displaced by conflict, as well as to researchers with high potential who are seeking to restart their careers in research.

Through the implementation of an original and personalised research project, MSCA Postdoctoral Fellowships aim to foster excellence through training and mobility and to equip researchers with new skills and competences in order to identify solutions to current and future challenges. Postdoctoral researchers are encouraged to reach out to society at large to make the results of their research visible to citizens.

## Expected impact

Proposals under this Action should contribute to the following expected impacts:

- Enhance the creative and innovative potential of researchers holding a PhD and wishing to diversify their individual competences and skills through advanced training, international, interdisciplinary and inter-sectoral mobility while implementing excellent research projects across all sectors of research;
- Strengthen Europe's human capital base in R&I with better trained, innovative and entrepreneurial researchers;
- Enhance the quality of R&I contributing to Europe's competitiveness and growth;
- Contribute to Europe's attractiveness as a leading destination for R&I and for good working conditions of researchers;
- Facilitate knowledge transfer and brain circulation across the ERA;
- Foster the culture of open science, innovation and entrepreneurship.

## 4.2 MSCA Doctoral Networks 2022

TOPIC ID: HORIZON-MSCA-2022-DN-01-01

### **General information**

Programme

**Horizon Europe Framework Programme (HORIZON)**

Call

**[MSCA Doctoral Networks 2022 \(HORIZON-MSCA-2022-DN-01\)](#)**

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Type of action

**HORIZON-TMA-MSCA-DN HORIZON TMA MSCA Doctoral Networks**

Type of MGA

**HORIZON Unit Grant [HORIZON-AG-UN]**

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Deadline model

**single-stage**

Planned opening date

**03 May 2022**

Deadline date

**15 November 2022 17:00:00 Brussels time**

### **Topic description**

Expected Outcome:

Project results are expected to contribute to the following outcomes:

For supported doctoral candidates

- New research and transferable skills and competences, leading to improved employability and career prospects within and outside academia;
- New knowledge allowing the conversion of ideas into products and services, where relevant;
- Enhanced networking and communication capacities with scientific peers, as well as with the general public that will increase and broaden the research and innovation impact.

For participating organisations

- Improved quality, relevance and sustainability of doctoral training programmes and supervision arrangements;
- Enhanced cooperation and transfer of knowledge between sectors and disciplines;
- Increased integration of training and research activities between participating organisations;
- Boosted R&I capacity;
- Increased internationalisation and attractiveness;
- Regular feedback of research results into teaching and education at participating organisations.

Scope:

MSCA Doctoral Networks will implement doctoral programmes, by partnerships of universities, research institutions and research infrastructures, businesses including SMEs, and other socio-economic actors from different countries across Europe and beyond. MSCA Doctoral Networks are indeed open to the participation of organisations from third countries, in view of fostering strategic international partnerships for the training and exchange of researchers.

These doctoral programmes will respond to well-identified needs in various R&I areas, expose the researchers to the academic and non-academic sectors, and offer training in research-related, as well as transferable skills<sup>[1]</sup> and competences relevant for innovation and long-term employability (e.g. entrepreneurship, commercialisation of results, Intellectual Property Rights, communication). Proposals for doctoral networks can reflect existing or planned research partnerships among the participating organisations.

The selection procedure for doctoral candidates must be open, transparent and merit-based, in line with the Code of Conduct for the Recruitment of Researchers. The vacancy notice (to be widely advertised internationally, including on the EURAXESS<sup>[2]</sup> website) must include the gross salary (not including employer's social contributions) offered to the researcher.

MSCA Doctoral Networks are encouraged to lead to Industrial or Joint Doctorates.

#### *Industrial Doctorates*

Through Industrial Doctorates, doctoral candidates will step outside academia and develop skills in industry and business by being jointly supervised by academic and non-academic organisations, both of which can be established in the same EU Member State or Horizon Europe Associated Country.

#### *Joint Doctorates*

Joint Doctorates represent a highly integrated type of international, inter-sectoral and multi/interdisciplinary collaboration in doctoral training. They lead to the delivery of joint, double or multiple doctoral degrees<sup>[3]</sup> recognised in at least two EU Member States or Horizon Europe Associated Countries.

### *Steering Board*

Each MSCA Doctoral Network should have a clearly identified steering board co-ordinating network-wide training and research activities and establishing continuous communication and exchange of best practice among the participating organisations to maximise the benefits of the partnership.

### *Training activities*

MSCA Doctoral Networks should exploit complementarities between participating organisations and foster sharing of knowledge and networking activities for example through the organisation of workshops and conferences. Proposed training activities should respond to well identified needs in various R&I areas, with appropriate references to inter- and multidisciplinary fields and follow the EU Principles for Innovative Doctoral Training<sup>[4]</sup>. They should be primarily focused on developing new scientific knowledge through original research on personalised projects.

Inter-sectoral secondments of researchers to other participating organisations, including in third countries, are encouraged when relevant, feasible and beneficial for the researchers and in line with the project objectives. This will increase the employability of the researchers outside academia. Doctoral Networks should develop substantial training modules, including digital ones, addressing key transferable skills and competences common to all fields and fostering the culture of Open Science, innovation and entrepreneurship. In particular, Doctoral Networks should adequately prepare doctoral candidates for increased research collaboration and information-sharing made possible by new (digital) technologies (e.g. collaborative tools, opening access to publications and to research data, FAIR data management, public engagement and citizen science, etc.).

### *Supervision*

Particular attention is paid to the quality of supervision and mentoring arrangements as well as career guidance. Joint supervision of the researchers is mandatory for Industrial and Joint Doctorates.

### *Career Development Plan*

A Career Development Plan must be established jointly by the supervisor and each recruited doctoral candidate. In case of joint supervision, such a plan should be established involving all supervisors. In addition to research objectives, this plan comprises the researcher's training and career needs, including training on transferable skills, teaching, planning for publications and participation in conferences and events aiming at opening science and research to citizens. The plan, established at the beginning of the recruitment, should be revised (and updated where needed) within 18 months.

[1]As an illustration, Eurodoc published a list of such transferable skills at: <http://eurodoc.net/skills-report-2018.pdf>

[2]<https://euraxess.ec.europa.eu/>

[3]Every time this Work Programme part refers to doctoral degrees, this means that the degrees have to be recognised as such by the relevant authorities of the country or countries concerned.

[4][https://euraxess.ec.europa.eu/sites/default/files/policy\\_library/principles\\_for\\_innovative\\_doctoral\\_training.pdf](https://euraxess.ec.europa.eu/sites/default/files/policy_library/principles_for_innovative_doctoral_training.pdf)

## **Destination**

### **MSCA Doctoral Networks**

The MSCA Doctoral Networks aim to train creative, entrepreneurial, innovative and resilient doctoral candidates, able to face current and future challenges and to convert knowledge and ideas into products and services for economic and social benefit.

The MSCA Doctoral Networks will raise the attractiveness and excellence of doctoral training in Europe. They will equip researchers with the right combination of research-related and transferable competences and provide them with enhanced career perspectives in both the academic and non-

academic sectors through international, interdisciplinary and inter-sectoral mobility combined with an innovation-oriented mind-set.

#### Expected impact

Proposals under this Action should contribute to the following expected impacts:

- Strengthen Europe's human capital base in R&I by training highly-skilled doctoral candidates,
- Improve the attractiveness of researchers' careers notably through better working and employment conditions of doctoral candidates in Europe
- Enhance talent and knowledge circulation across the R&I landscape, through inter-sectoral, interdisciplinary and international mobility
- Increase Europe's attractiveness as a leading research destination
- Enhance the quality of R&I contributing to Europe's sustainable competitiveness
- Establish sustainable collaboration between academic and non-academic organisations
- Foster the culture of open science, innovation and entrepreneurship.