



The EU Framework Programme
for Research and Innovation

HORIZON 2020



H2020 Programme

Guide for Applicants

Marie Skłodowska-Curie Actions - Innovative Training Networks (ITN)

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Disclaimer

This guide aims to facilitate potential applicants. It is provided for information purposes only and is not intended to replace consultation of any applicable legal sources. Neither the European Commission nor the Research Executive Agency (or any person acting on their behalf) can be held responsible for the use made of this guidance document. The guidance provided in the Annotated Model Grant Agreement shall prevail in case of discrepancies.



History of changes

Version	Date	Change	Page
1.0 2016.2	15.10.2015	<ul style="list-style-type: none"> ▪ Initial version (2016 call) 	
2.0 2017.1	15.09.2016	<ul style="list-style-type: none"> ▪ Addition of the definition "Action" ▪ Addition of an example in the description of EJD ▪ Re-writing of the section "2.1 Beneficiaries" for clarification and addition of an example ▪ Addition of a clarification about refugees in the section "3.4 Conditions of mobility of researchers" ▪ Addition of a paragraph about open science in the section "4.1 Research and training activities" ▪ Clarifications about open access and open data in the section "4.4 Communication and dissemination" ▪ Addition of the "4.6 refugees" section ▪ Removal of section "5.7 Research costs at premises other than those of the beneficiary" ▪ Other minor corrections ▪ hyperlinks have been embedded in the text (where relevant) 	5 10-11 11 17 18 21 22 25

Note:

National Contact Points (NCPs) have been set up across Europe by the national governments to provide information and personalised support to H2020 applicants in their native language. The mission of the NCPs is to raise awareness, inform and advise on H2020 funding opportunities as well as to support potential applicants in the *preparation, submission and follow-up* of the grant applications. For details on the NCP in your country please consult the [National Contact Points page](#). Additionally, you may also consult the website of the [EU-funded Network of MSCA NCPs](#).

The Marie Skłodowska-Curie Actions in Horizon 2020

Call Identifier: H2020-MSCA-ITN-2017

**Closing Date: 10 January 2017 at 17:00:00
(Brussels local time)**

The Marie Skłodowska-Curie actions (MSCA) aim to support the career development and training of researchers – with a focus on innovation skills – in all scientific disciplines through international and intersectoral mobility.

The MSCA are expected to finance around 65,000 researchers between 2014 and 2020, including 25,000 doctoral candidates. The actions will address several objectives of the Europe 2020 strategy, including the Innovation Union flagship initiative. This states that the EU will need at least one million new research jobs if it is to reach the target of spending 3% of EU GDP on research and development by 2020.

By funding excellent research and offering attractive working conditions, the MSCA offer high quality professional opportunities open to researchers of any age, nationality or discipline.

The 2017 Marie Skłodowska-Curie Actions are:

- **Innovative Training Networks (ITN)**
Innovative doctoral-level training providing a range of skills in order to maximise employability
- **Individual Fellowships (IF)**
Support for experienced researchers undertaking mobility between countries, and also to the non-academic sector
- **Research and Innovation Staff Exchange (RISE)**
International and intersectoral collaboration through the exchange of research and innovation staff
- **Co-funding of regional, national and international programmes (COFUND)**
Co-financing high-quality fellowship or doctoral programmes with transnational mobility

The Coordination and Support Action **European Researchers' Night (NIGHT)**, funded under the MSCA, is a Europe-wide public event to stimulate interest in research careers, especially among young people.

Guides for Applicants for all of the MSCA can be found on the [Participant Portal](#).

Find further information at [MSCA website](#).

This Guide is based on the rules and conditions contained in the legal documents relating to Horizon 2020 (in particular the Horizon 2020 Framework Programme and Specific Programme, the Rules for Participation, and the Work Programmes), all of which can be consulted via the Participant Portal.

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Definitions used throughout this Guide:

Action: under Horizon 2020, "action" refers to the specific project to be implemented by the beneficiaries.

Early-Stage Researchers (ESRs) must, at the date of recruitment by the beneficiary, be in the first four years (*full-time equivalent research experience*) of their research careers and have not been awarded a doctoral degree.

Date of Recruitment means the first day of the employment of the researcher for the purposes of the action (i.e. the starting date indicated in the employment contract or equivalent direct contract).

Full-Time Equivalent Research Experience is measured from the date when the researcher obtained the degree entitling him/her to embark on a doctorate (either in the country in which the degree was obtained or in the country in which the researcher is recruited, even if a doctorate was never started or envisaged).

Mobility Rule: researchers must not have resided or carried out their main activity (work, studies, etc.) in the country of the recruiting beneficiary for more than 12 months in the 3 years immediately before the recruitment date. Compulsory national service, short stays such as holidays, and time spent as part of a procedure for obtaining refugee status under the Geneva Convention¹ are not taken into account. For international European interest organisations or international organisations, recruited researchers must not have spent more than 12 months in the 3 years immediately before the recruitment date at the same appointing organisation.

Academic Sector means public or private higher education establishments awarding academic degrees, public or private non-profit research institutes whose primary mission is to pursue research, and international European interest organisations as they are defined in Article 2.1(12) of the Horizon 2020 Rules for Participation Regulation No. 1290/2013.

Non-Academic Sector means any socio-economic actor not included in the academic sector and fulfilling the requirements of the Horizon 2020 Rules for Participation Regulation No. 1290/2013.

Member States (MS) are member states of the European Union (EU), including their overseas departments.

Associated Country (AC) means a third country which is party to an international agreement with the Union, as identified in Article 7 of Regulation (EU) No 1291/2013. http://ec.europa.eu/research/participants/data/ref/h2020/grants_manual/hi/3cpart/h2020-hi-list-ac_en.pdf

Non-Associated Third Countries (TC) are countries which are neither EU Member States (MS) nor associated to Horizon 2020 (AC). Some TC are included in the list of countries eligible for funding, provided in the General Annex A to the Work Programme.

Coordinator is the beneficiary which is the central contact point for the Research Executive Agency (REA) and represents the consortium towards REA.

Beneficiaries are the legal entities that sign the Grant Agreement and have the responsibility for the proper implementation of the action. They contribute directly to the implementation of the research, transfer of knowledge and training activities by recruiting, supervising, hosting, training and seconding researchers.

Partner Organisations contribute to the implementation of the action, but do not sign the Grant Agreement. Partner organisations do not employ the researchers under the action.

MSCA Work Programme: Part 3 of the Horizon 2020 Work Programme 2016-2017 ("Marie Skłodowska-Curie Actions"), European Commission Decision C(2016)4614 of 25 July 2016. Applicants should also refer to the Introduction and General Annexes.

¹ 1951 Refugee Convention and the 1967 Protocol.

European Charter and Code for Researchers: Commission Recommendation of 11 March 2005 on the European Charter for Researchers and on a Code of Conduct for the Recruitment of Researchers, C(2005)576 of 11 March 2005.

NB: *Links to documents referred to in this Guide are provided in Annex 1*

1. General Aspects

1.1. Purpose

The specific objectives of the Marie Skłodowska-Curie Innovative Training Networks (ITN) are:²

- 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
- to raise excellence and structure research and doctoral training, extending the traditional academic research training setting, incorporating the elements of Open Science and equipping researchers with the right combination of research-related and transferable competences
- to 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.

Institutions which are actively involved in research and (research) training (e.g. universities, public or private non-commercial research centres, large enterprises, SMEs, non-profit or charitable organisations, etc.) can propose a research training network and apply for funding. If selected they will cooperate to recruit researchers and provide them with opportunities to undertake research in the context of **a joint research training or doctoral programme**. These programmes should respond to well-identified multi- and inter-disciplinary needs in defined scientific or technological areas, **expose the researcher to the academic and non-academic sectors**, and offer a comprehensive set of **transferable skills** relevant for innovation and long-term employability (entrepreneurship, commercialisation of results, Intellectual Property Rights (IPR), communications etc.). Proposals should reflect existing or planned research cooperation among the participating organisations in which the researchers will take part through **individual, personalised research projects**.

1.2 Structure

ITN proposals may take one of three forms, each with different participation requirements:

- | | |
|----|--------------------------------------|
| 1. | European Training Networks (ETN) |
| 2. | European Industrial Doctorates (EID) |
| 3. | European Joint Doctorates (EJD) |

▪ European Training Networks (ETN)

The largest share of the ITN call budget is made available for ETN. These networks have the objective of training highly-skilled early-stage researchers and stimulating entrepreneurship, creativity and innovation in Europe. An ETN must be composed **of at least three beneficiaries established in at least three different MS or AC**. All three legal entities must be independent of each other.³ Above this minimum, the participation of other legal entities, including international European interest

² See also *Principles for Innovative Doctoral Training*:

http://ec.europa.eu/euraxess/pdf/research_policies/Principles_for_Innovative_Doctoral_Training.pdf

³ As defined in Article 8 of Regulation (EU) No 1290/2013 of 11 December 2013 laying down the rules for participation and dissemination in "Horizon 2020 – the Framework Programme for Research and Innovation (2014-2020)" and repealing Regulation (EC) No 1906/2006.

organisations and entities from TC, is possible under the conditions provided by the Horizon 2020 Rules for Participation (see more details below). There is no pre-defined size for these multi-partner networks. However, **it is recommended to keep the size of the consortium between 6 and 10 beneficiaries** since previous experience has shown this to be a manageable size.

Although not a formal eligibility requirement, it is expected that beneficiaries will be drawn from different sectors and that ETN proposals will offer intersectoral and interdisciplinary research training as well as high-quality supervision arrangements. Joint supervision of the researcher is encouraged.

Example: a consortium composed of universities in Greece, Israel, Malta, the UK and Italy, and a manufacturer of radiocarbon dating equipment based in France, proposes an ETN in the field of archaeology examining trading routes in ancient Europe. Partner organisations in Lebanon, Cyprus and Tunisia will complement the training and offer secondment opportunities. Each fellow will receive training in advanced radiocarbon dating techniques at the industrial beneficiary, and will undertake secondments to the partner organisations for their field work, up to a maximum of 30% of their recruitment period. In addition to local training courses at the fellows' respective hosts, the consortium will offer network-wide training modules, including transferable skills training. Two Summer Schools will provide in-depth training and networking opportunities, while a final conference will offer dissemination and outreach opportunities.

▪ **European Industrial Doctorates (EID)**

EID aims to meet the objectives of ITN in particular by involving the non-academic sector in doctoral training so that skills better match public and private sector needs. **An EID must be composed of at least two independent beneficiaries established in two different MS or AC. At least one beneficiary must come from the academic sector and at least one beneficiary from the non-academic sector, primarily enterprises (including SMEs).** 'Non-academic sector' means any socio-economic actor not included in the academic sector and fulfilling the requirements of the Horizon 2020 Rules for Participation. This includes all fields of future workplaces of researchers, from industry to business, government, civil society organisations, cultural institutions, etc. Additional beneficiaries and partner organisations can come from any sector. However, should none of the academic beneficiaries be entitled to award a doctoral degree⁴ a university or a consortium/grouping of academic/research institutions entitled to award a doctoral degree must be associated as a partner organisation.

Each recruited researcher must:

- Spend at least 50% of their time in the non-academic sector (at beneficiaries or partner organisations). This intersectoral mobility must be between participating organisations located in different countries. The specific percentage of time that each researcher will spend at each institution should therefore be indicated in the proposal
- Be enrolled in a doctoral programme at one of the academic beneficiaries or partner organisations

⁴ References in this document to "doctoral degrees" mean degrees recognised as such by the relevant authorities of the country or countries concerned.

- be jointly supervised by at least two supervisors, one from each sector (academic and non-academic).

The creation of a joint governance structure for the EID - with joint selection, supervision, monitoring and assessment procedures - is mandatory.

The research conducted in each participating entity must be within the framework of the doctoral programme and should aim to support long-term, industry-oriented research (fundamental or applied).

Example: an academic research institution in Austria, a university in Sweden and a research-performing enterprise in Cyprus propose an EID in the field of medical devices based on nanotechnology. The academic research institution in Austria cannot award doctoral degrees therefore the ESRs will be enrolled at the university in Sweden. The researchers will spend 50% of their time at the enterprise in Cyprus with their remaining time split between the research institution in Austria and the university in Sweden. Training will be offered by all three beneficiaries, with short-term secondment opportunities and transferable skills training offered by a number of other partner organisations.

EID proposals will be ranked in a separate multidisciplinary panel with a dedicated budget of €28 million.

▪ **European Joint Doctorates (EJD)**

EJD has the objective of promoting international, intersectoral and multi/inter-disciplinary collaboration in doctoral-level training in Europe through the creation of joint doctoral programmes, leading to the **delivery of joint, double or multiple doctoral degrees**. An EJD must be composed of **at least three independent beneficiaries entitled to award doctoral degrees from three different MS or AC**. At least two institutions conferring a joint, double or multiple doctoral degree must be established in an MS or AC.

A beneficiary from the academic sector which has transferred the right to award a doctoral degree to a consortium/grouping of academic/research institutions to which it belongs may also participate as a beneficiary (and would still count as a beneficiary entitled to award a doctoral degree):

Example: Through a reform of the French Higher Education and Research system in 2013, new legal structures were created. These COMUEs (Communautés d'universités et établissements) are entities that deliver diplomas on behalf of their members. However, the recruitment, hosting and training of researchers continues to take place at the individual participants of the COMUE, with only the awarding of the degree being outsourced. In this case, the individual members of the COMUE from the academic sector may apply for an EJD as beneficiaries, even though a different legal entity formally awards the degree.

A **joint degree** refers to a single diploma issued by at least two higher education institutions offering an integrated programme and recognised officially in the countries where the degree-awarding institutions are located. A **double or multiple degree** refers to two or more separate national diplomas issued by two or more higher

education institutions and recognised officially in the countries where the degree-awarding institutions are located. The final degree must be awarded by institutions from at least two different countries.

The joint supervision of fellows is mandatory, as is the creation of a **joint governance structure** with joint admission, selection, supervision, monitoring and assessment procedures.

Each recruited researcher must:

- be selected, supervised, monitored and assessed through a joint governance structure
- be enrolled on a joint doctoral programme.

The consortium should propose a joint doctoral programme aiming at overcoming national, sectoral and inter-disciplinary boundaries in doctoral research, promoting the mobility of doctoral candidates, and leading to lasting doctoral-level cooperation between the beneficiaries. The joint doctoral programme should also contribute to reinforcing links between universities/research organisations and the non-academic sector in order to strengthen the transmission and exploitation of knowledge and to enhance the innovation process. Beneficiaries and/or partner organisations from the non-academic sector may therefore also participate in an EJD. Proposals should provide for a coherent doctoral programme, clearly indicating those elements common for all researchers and those which will be tailored to the individual fellows. Proposals should also demonstrate how the joint programme will be embedded within existing doctoral and research training programmes, and should also include a tentative list of the individual research projects to be completed in the framework of the action.

The participating organisations must demonstrate clearly that the joint scheme will become a reference at European level, thus contributing to improving the overall quality of doctoral education and research in Europe, and will lead to the award of a joint, double or multiple degree recognised or accredited by the respective national authorities. As such, **letters of institutional commitment signed by an authorised legal representative must be included in Part B.7 of the proposal from each of the beneficiaries that would award the (joint, double or multiple) doctoral degrees** stating their agreement to ensure the provision of such degrees should the proposal receive funding. **If successful, a copy of the final agreement** between the institutions **will be requested as a deliverable** after the start of the action.

Example: a consortium composed of academic institutions entitled to deliver doctoral degrees based in Italy, Luxembourg, Ireland, Poland and Hungary proposes an EJD in political science examining the rise of regional parties in Europe. Partner organisations in three other countries offer additional secondment opportunities and transferable skills training. Each recruited fellow will be supervised by experts from at least two different beneficiaries and/or partner organisations and will participate both in common, programme-wide training courses as well as specialised, tailored courses specific to their needs. Secondments will be targeted according to the expertise available at each of the beneficiaries and will be used to gather data and conduct expert interviews as well as to attend courses and training modules not available at other institutions. Skills training will include modules on qualitative and quantitative research methods, presentation skills, and consulting methodologies. The fellows' research will be

recognised by two of the academic beneficiaries and will lead to the award of a joint doctoral degree.

EJD proposals will be ranked in a separate multidisciplinary panel with a dedicated budget of €32 million.

The overall EU contribution per grant agreement is limited to a maximum of:

- **540 person-months per network for ETN and EJD, as well as for an EID with more than 2 beneficiaries**
- **180 person-months per network for an EID with 2 beneficiaries.**

Failure to respect these limits will result in the proposal being declared ineligible.

Note that the expert evaluators will carefully consider the requested number of person-months with respect to the coherence of the proposal and the capacities of the hosts.

2. Participating Organisations

2.1 Beneficiaries

Beneficiaries are legal entities that contribute directly to the implementation of the research training programme of the network **by recruiting, supervising, hosting and training researchers**. They may also provide secondment opportunities. **Beneficiaries are signatories to the grant agreement**, receive funding, claim costs, and take complete responsibility for the proper implementation of the proposed research training programme.

Regardless of their size, all beneficiaries must be able to **physically host at their premises**, provide all necessary infrastructure and equipment, and offer appropriate supervision to the recruited researchers. The expert evaluators will therefore be asked to give an opinion on whether each beneficiary is able to offer a hosting environment commensurate with its role and involvement in the action (see Annex 2.3 below).

Where necessary, entities with a capital or legal link to the beneficiaries⁵ may implement the tasks of hosting and training of researchers as described in Annex 1 of the Grant Agreement. The involvement of such entities must be clearly described and justified in the proposal and will be assessed as part of the evaluation. Note, however, that only beneficiaries can recruit researchers and the recruiting beneficiary remains fully responsible for the correct implementation of the action, for ensuring the eligibility of the recruited fellow, etc.

Example: A university clinic depends on the regional health system and does not have legal personality of its own. The hospital has a foundation under its control and this foundation contracts researchers working at the

⁵ And where this capital or legal link is neither limited to the action nor established for the sole purpose of its implementation. Examples of such entities include joint research units (JRU), "Unités mixtes de recherché" (UMRs), linked foundations, university hospitals and subsidiaries.

university clinic. In this case, the foundation should apply as a beneficiary, describing the set-up and the competence of the university clinical hospital (entity with a legal link to the beneficiary) where the research training activities described in the proposal will be implemented.

Attention: Research training performed at entities with a capital or legal link to the beneficiary is not considered as a secondment. A secondment is research training which takes place at a different beneficiary or partner organisation which does not have a capital or legal link with the beneficiary. The duration of a **secondment is limited to a maximum of 30%** of the research training (except for EID and EJD where time spent at other participating organisations, in line with the proposal description, is not affected by this limitation). The **work performed at an entity with a capital or legal link can be up to 100%** of the planned research training.

Please note that the involvement of entities with a capital or legal link to the beneficiaries must not be used to circumvent the eligibility conditions stated in the MSCA Work Programme.

2.2 Partner Organisations

Partner organisations complement the research training programme but **do not recruit any researchers**. They provide additional research and transferable skills training and/or secondment opportunities. Partner organisations can be academic or non-academic organisations, located in any country. **They are not signatories to the grant agreement.**

Partner organisations **cannot directly claim any costs**. Instead, the costs they incur for activities in the research training programme are to be covered by the unit costs paid to the beneficiaries.

Each partner organisation must **include an up-to-date letter of commitment in Part B.7 of the proposal** to ensure their real and active participation in the proposed network. The expert evaluators will disregard the contribution of any partner organisation for which no letter of commitment is submitted. The precise role of each partner organisation should also be clearly described in the proposal. There is no pre-defined number of partner organisations. When partner organisations are involved, beneficiaries are encouraged to include them in the consortium agreement (for the internal relationship between participating organisations).

Both academic and non-academic organisations can take part in an ITN either as a beneficiary or as a partner organisation.

Minimum Number of Participating Organisations			
Network Status	ETN	EID	EJD
Beneficiary	3	2 1 academic; 1 non-academic ⁶	3 doctoral degree-awarding
Partner	No minimum	No minimum	No minimum

⁶ Should none of the academic beneficiaries be entitled to award a doctoral degree, a university entitled to award a doctoral degree must be associated to the action as a partner organisation.

Organisation⁷			
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Summary of Tasks				
Network Status	Recruitment of Researchers	Training and/or Hosting of Seconded Researchers	Participation in Supervisory Board	Directly Claims Costs
Beneficiary	✓	✓	✓	✓
Partner organisation	x	✓	✓	x

2.3 Eligible Applicants

Before applying, each entity has to register on the Horizon 2020 Participant Portal and is automatically classified in one of the two sectors (academic or non-academic) on the basis of the information provided during the legal validation process.⁸ In the Rules for Participation some categories of organisations are defined (i.e. SME, international European interest organisation (IEIO), non-profit legal entity).

For the purposes of ITN, participating organisations can be divided into two sectors: academic and non-academic (see below).

2.4 Academic Sector

For the definition of the academic sector see [Definitions](#).

2.5 Non-Academic Sector

For the definition of the non-academic sector see [Definitions](#).

ITN aims to improve the employability of researchers through exposure to organisations in the academic and non-academic sectors, thereby broadening the traditional academic research training setting and eliminating cultural and other barriers to mobility. **An essential part of any ITN is therefore the involvement of organisations from different sectors.** For EID, note that the participation of the non-academic sector as a beneficiary is an eligibility criterion.

In all cases, **the involvement of the non-academic sector must be meaningful and appropriate to the implementation mode and research field.** The quality and degree of involvement of organisations from the non-academic sector will be assessed by the expert evaluators according to the evaluation criteria.

⁷ It is recommended that the number of partner organisations is reasonable and commensurate with the size of the network.

⁸ Legal entities having a valid PIC number under FP7 maintain their PIC in H2020. The details of all validated organisations are stored in the Unique Registration Facility (URF). For the confirmation and, **if necessary, revision** of the data stored in the URF, the Commission asks each organisation to nominate a Legal Entity Appointed Representative (LEAR). The LEARs can view their organisations' legal and financial data online and ask for corrections and changes through the Participant Portal. Please note that under H2020, each participating organisation must provide documents nominating the LEAR before a Grant Agreement can be signed. More information can be found on the Participant Portal.

The **non-academic sector** includes all non-academic workplaces of researchers, from industry to business (including SMEs), government, civil society organisations (NGOs, trusts, foundations, etc.), some cultural institutions, museums, hospitals, international organisations (like the UN or WHO), etc. Please note that the status of an organisation is ultimately determined by the legal validation of the entity (PIC number).

Example: If an organisation has a "non-profit research organisation" status, it may be classified in the academic sector depending on its statute (e.g. in the case of some museums, hospitals, cultural institutions, etc.).

2.6 Eligible Countries and their Role in an ITN

For the purposes of ITN, three main categories of countries can be distinguished:

- EU Member States (MS)
- Associated Countries (AC)⁹
- Non-Associated Third Countries (TC)

Please note that entities from Overseas Countries and Territories (OCT) linked to the Member States are eligible for funding under the same conditions as entities from the Member States to which the OCT in question is linked.

TCs are neither EU Member States nor countries associated to Horizon 2020 (Associated Countries), see [Definitions](#) above.

Minimum Country Participation in an ITN

Implementation Mode	Country of beneficiaries	
European Training Networks (ETN)	Minimum: 3 different countries: MS or AC	
European Industrial Doctorates (EID)	EID with 2 beneficiaries	Minimum: 2 different countries: MS or AC
	EID > 2 beneficiaries	Minimum: 2 different countries: MS or AC
European Joint Doctorates (EJD)	Minimum: 3 different countries: MS or AC	
<p>Additional beneficiaries can be established in MS, AC or TC included in the list of countries eligible for funding provided in General Annex A to the Work Programme (see TC exceptional cases below). Partner organisations can be established anywhere in the world.</p> <p>EID > 2 beneficiaries: Please note that beneficiaries of an EID with more than 2 beneficiaries, must be established in more than 2 MS or AC in order to respect the 40.0% rule (see below).</p>		

- **International European Interest Organisations (IEIO)**

⁹ For a list of countries associated to Horizon 2020, see: http://ec.europa.eu/research/participants/data/ref/h2020/grants_manual/hi/3cp/h2020-hi-list-ac_en.pdf

An "international European interest organisation" is defined in Article 2.1(12) of the Horizon 2020 Rules for Participation as "an international organisation, the majority of whose members are Member States or Associated countries, and whose principal objective is to promote scientific and technological cooperation in Europe". For the purposes of ITN, IEIO are considered as legal entities established in a MS or AC other than those in which the other beneficiaries in the network are established. The same applies to the European Commission's Joint Research Centre (JRC) or an 'entity created under Union law' (see Article 9(2) of the Horizon 2020 Rules for Participation Regulation). Examples of IEIO include CERN and EMBL. All members of *EIROForum* are considered international European interest organisations.

Example: The European Southern Observatory (ESO) is an international European interest organisation providing state-of-the-art research facilities to astronomers. The ESO's Headquarters are situated in Garching, Germany, and will be eligible to participate in an ETN together with two other beneficiaries from Portugal and Germany. Although it is physically located in Germany, it will not count as a German beneficiary and thus the minimum requirement for the participation of 3 institutions coming from 3 different MS/AC is fulfilled.

• **Non-Associated Third Countries and International Organisations**

Above the minimum number of MS and AC, legal entities established in TC included in the list of countries eligible for funding, provided in General Annex A to the Work Programme, are eligible to receive funding in an ITN as beneficiaries. For these TC funding may be granted on the same terms as for MS and AC, providing that the minimum participation requirements have been met.

In **exceptional cases**, an international organisation or an entity established in a TC *not* listed in General Annex A to the Work Programme may be entitled to participate as a beneficiary. **Expert evaluators** must endorse that at least one of the following conditions is fulfilled:

- the participation is deemed essential for carrying out the action by the Commission or the relevant funding body
- such funding is provided for under a bilateral scientific and technological agreement or any other arrangement between the Union and the international organisation or, for entities established in third countries, the country in which the legal entity is established.¹⁰

Where institutions based in a TC *not* listed in General Annex A to the Work Programme wish to participate in an ITN, and where this does not fulfil the conditions outlined above, it is suggested that such institutions participate as partner organisations (there are no limits on the participation of legal entities established in TC as partner organisations).

Note that a list of institutions based in third countries that are willing to cooperate with European partners in ITN and other MSCA is available on the MSCA website.¹¹

Note: In the context of the consortium's composition, applicants should take into account that for **all ITN** (except for EID with only two beneficiaries), **no more than 40.0% of the total EU financial contribution** may be allocated to beneficiaries in

¹⁰ A list of such agreements is available at: <http://ec.europa.eu/research/iscp/index.cfm?pg=countries>.

¹¹ http://ec.europa.eu/research/mariecurieactions/apply-now/find-partners_en.htm

the same country or to any one international European interest organisation or international organisation. This concerns the total amount of the budget allocated to a country and not the number of person-months. Proposals not complying with this condition will be considered ineligible.¹²

3. Implementation of an ITN

3.1 The Topic of the Action

All MSCA have a **bottom-up approach**, i.e. proposals in all domains of research and technological development are eligible for funding, except for areas of research covered by the EURATOM Treaty. Applicants will be required to define in the proposal the scientific and technological area within which the individualised research projects of the recruited researchers will be developed.

All research activities supported by Horizon 2020 should respect fundamental ethical principles (see below).

3.2 Recruitment

European Training Networks (ETN)

- Every beneficiary must host at their premises and supervise at least 1 recruited researcher¹³

European Industrial Doctorates (EID) and European Joint Doctorates (EJD)

Two possibilities exist:

- i. a researcher is employed 100% by a beneficiary and sent to other beneficiaries or partner organisations for the share of time foreseen under the implementation mode in question, or
- ii. a researcher is recruited separately by each beneficiary for the period of time they spend there.

For EID, however, recruited researchers must spend at least 50% of their time in the non-academic sector. This intersectoral mobility must be between beneficiaries and/or partner organisations located in different countries.

Note that the mobility rule (see point 3.4 below) applies to the beneficiary where the researcher is recruited. If the researcher has a recruitment contract with more than one beneficiary, however, the mobility rule will apply to the beneficiary where the researcher is recruited for the first time in the action.

The choice of recruitment option and location of the premises of the recruiting beneficiary will have an influence on the fellow's salary in view of the different country correction coefficients (see Table 2, p.69 and 70 of the MSCA Work Programme 2016-2017). It may also affect the eligibility of the proposal (see 40.0% rule above).

The beneficiaries will be responsible for the selection and recruitment of the eligible researchers. An important aspect of the Commission's policy towards researchers is to improve their working and living conditions and to promote mobility in order to open

¹² Note that an EID proposal with 3 beneficiaries from 2 different MS/AC would therefore also be considered ineligible.

¹³ With the exception of entities with a capital or legal link to a beneficiary, as outlined in point 2.1 above, where researchers can be hosted. Note, however, that only beneficiaries can recruit researchers.

up new perspectives for research careers within Europe. The MSCA aim to act as a catalyst in this respect. The beneficiaries will therefore be required to meet certain conditions relating to the publishing of vacancies, recruitment and length of appointment of researchers and which should be in line with the principles set out in **the European Charter and Code for Researchers** (see [Definitions](#)). Note that a beneficiary may not recruit a researcher via an employment agency.

3.3 Eligible Researchers

All researchers recruited in an ITN must be **Early-Stage Researchers** (ESRs) and undertake transnational mobility (see point 3.4 below). For all recruitments, the eligibility of the researcher will be determined at the date of their **first recruitment** in the action. The status of the researcher will not evolve over the life-time of the action, even if they are re-recruited at another beneficiary.

3.4 Conditions of Mobility of Researchers

Researchers can be of **any nationality**. They are required to undertake physical, transnational mobility (i.e. move from one country to another) when taking up their appointment (see mobility rule in [Definitions](#)).

Nationality is therefore not a criterion. Rather the location of the researcher's residence or main activity during the 3 years prior to their recruitment is determining.

Example: UK nationals can be eligible for recruitment at a beneficiary located in the UK if they have resided or carried out their main activity outside of the UK for more than 24 months in the 3 years immediately prior to their recruitment.

Note that the mobility rule applies to the (first) beneficiary **where the researcher is recruited**, and not to beneficiaries to which the researcher is sent or seconded. It is also **only determined at one point in time**: that of the fellow's first recruitment in the action (see also points 3.2 and 3.3 above).

Refugees

Researchers with refugee status, as defined by the Geneva Convention, benefit from a less restrictive mobility rule: the refugee procedure (i.e. before refugee status is conferred) will not be counted as a period of residence/activity in the country of the beneficiary.

3.5 Duration of the Action and of the Recruitments

The duration of the action is limited to **48 months from the start date of the action set out in the grant agreement**. The recruitment of each individual **ESR will be supported for a minimum of 3 months and up to a maximum of 36 months**. However, researchers enrolled in a doctoral programme are expected to be appointed for the maximum 36 months. Given the time required at the beginning of the action to advertise the vacancies and to recruit researchers, the 48 month duration offers a sufficient margin to ensure that the researchers can remain in place for the full 36 month period.

3.6 The Supervisory Board

Each action must have a clearly identified **Supervisory Board** co-ordinating the network-wide training activities.

Composition

The Supervisory Board will be composed of representatives of all beneficiaries and partner organisations and may also include any other stakeholders of relevance to the research training programme, including those from the non-academic sector. An appropriate gender balance should be respected in the board's composition. It is also considered best practice to include a representative from among the recruited ESRs.

Tasks

The board will oversee the quality of the programme and ensure an adequate balance between scientific/technological and transferable skills training. This shall be achieved through personalised research projects and training, appropriate to the needs of each recruited researcher. Involvement of the non-academic sector in the supervisory board aims to ensure that the skills acquired by researchers fulfil the needs of both academia and the non-academic sector and enhance the intersectoral employability of the researchers. The Supervisory Board will also establish an active and continuous communication and exchange of best practice among the participating organisations to maximise the benefits of the partnership. Finally, it will also oversee the quality and quantity of supervision of the ESRs.

3.7 Management and Consortium Agreement

Beneficiaries in all ITNs are **required to conclude a consortium agreement outlining their cooperation in the action**, in principle prior to the signature of the grant agreement. This agreement should, *inter alia*, cover the selection and recruitment procedures and principles, IPR, and the supervision arrangements, including qualifications of supervisors, etc. It should also outline any redistribution of institutional unit costs between the beneficiaries. The final consortium agreement must be provided to the REA as a management deliverable during implementation.

The cooperation and communication within the action shall be as open and efficient as possible, with the appropriate involvement of recruited researchers (for the organisation of meetings and identification of training needs, for example).

4. Typical Activities of an Innovative Training Network

4.1 Research and Training Activities

Applicants must primarily propose a dedicated and high-level joint research training programme that focuses on promoting scientific excellence and exploiting the specific research expertise and infrastructure of the beneficiaries and of the collective expertise of the network as a whole. These training programmes will address in particular the development and broadening of the research competences of the ESRs. Such training activities might include:

- **Training through research** by means of individual, personalised projects, including meaningful exposure to different sectors;
- **Development of network-wide training activities** (e.g. workshops, summer schools) that exploit the inter/multi-disciplinary and intersectoral aspects of the action and expose the researchers to different schools of thought. Such events

could also be open to external researchers. For doctoral programmes (i.e. EID and EJD), the broad structure of the curriculum should be outlined and preferably quantifiable by ECTS¹⁴ points;

- **Provision of structured training courses** (e.g. tutorials, lectures) that are available either locally or at another participating organisation. Training programmes between the participating organisations are expected to be coordinated to maximise added value (e.g. joint syllabus development, opening up of local training to other network teams, joint PhD programmes, etc.);
- **Exchanging knowledge with the members of the network** through undertaking intersectoral visits and secondments. A strong networking component is expected in each proposal;
- **Invitation of visiting researchers** originating from the academic or non-academic sector. This would be aimed at improving the skills and know-how of the recruited researchers and should be clearly described in the proposal and **duly justified** in the context of the training programme. The network can cover costs of visiting researchers under the Research, Training and Networking cost category.

Further training activities with a particular view to widening the career prospects of the researchers would include **transferable skills training** both within and outside the network. Topics of interest could include:

- Training related to research and innovation: management of IPR, take up and exploitation of research results, communication, standardisation, ethics, scientific writing, personal development, team skills, multicultural awareness, gender issues, research integrity, etc.
- Training related to management or grant searching: involvement in the organisation of network activities, entrepreneurship, management, proposal writing, enterprise start-up, task co-ordination, etc.

Each recruited researcher will establish, together with her/his personal supervisor(s) in the host organisation/s, **a personal Career Development Plan**. In addition to research objectives, this plan should include the researcher's training and career needs, as well as planning for publications and participation in conferences. Attention should be paid to the quality of the joint research training programme, with provision for supervision and mentoring arrangements and career guidance. Furthermore, the **meaningful exposure of each researcher to other disciplines and sectors** represented in the network through visits, secondments and other training events shall also be ensured.

Although mutual recognition is mandatory only for EJD joint degrees, it is expected that both beneficiaries and partner organisations will **mutually recognise the quality of the research and training** and, if possible, of diplomas and other certificates awarded. The size of the joint research training programme and of the network will depend on the nature and scope of the training activities to be undertaken by the network, as well as on considerations regarding management and effective interaction among the participating organisations.

Open Science under Horizon 2020

Applicants and beneficiaries should respect the Horizon 2020 strategic priority of Open Science. Open Science describes the on-going evolution in the *modus operandi* of

¹⁴ ECTS: European Credit Transfer and Accumulation System.
http://ec.europa.eu/education/ects/users-guide/docs/ects-users-guide_en.pdf

doing research and organising science. These changes in the dynamics of science and research are enabled by digital technologies and driven by the globalisation of the scientific community. They have an impact on the way research is produced, accessed and utilised.

Open Science is an inclusive process aimed at promoting diversity in science across the European Union and opening it to the general public, in order to better address the H2020 societal challenges and ensure that science becomes more responsive both to socio-economic demands and to those of European citizens. Open Science also provides significant new opportunities for researchers to disseminate, share, explore and collaborate with other researchers.

Thus, the emergence of Open Science and its future growth should be taken into account in the training of doctoral candidates.

4.2 Secondments

In ETN, each recruited researcher can be seconded to other beneficiaries and/or to partner organisations for **a duration of up to 30% of his/her recruitment period**. Normal practice during secondments is for the researchers to keep their contract with the sending institution, which also pays their travel and subsistence expenses (e.g. accommodation) from the institutional unit costs. During their secondment, researchers receive supervision and training at the premises of the receiving beneficiary or partner organisation. Secondments should be differentiated from short visits, i.e. of a few days.

Example: an ESR recruited in an ETN for a period of 36 months by an astrophysics institute in Spain will spend two periods of secondment each of 5 months at two partner organisations from the private sector in order to profit from specific training facilities, one located in South America and another one in Italy. The institute in Spain will continue paying the researcher's allowances during the entire recruitment period, including the secondments.

In EID, all recruited ESRs must spend at least 50% of their time in the non-academic sector. Therefore if a researcher is recruited by an academic beneficiary, they must be sent to beneficiaries and/or partner organisations in the non-academic sector, primarily enterprise, for at least 50% of their recruitment period within the action. This intersectoral mobility must be between organisations located in different countries. The limitation of secondments to 30% of the recruitment period does not apply to EID insofar as time spent at other participating organisations occurs in line with the proposal. However, it is expected that the recruited researchers will benefit from the strong research collaboration of the beneficiaries (academic and non-academic). The provision of additional training by partner organisations is encouraged, where relevant.

Example: an EID in the field of quantum computing is composed of a university in Finland and a high-tech SME in Lithuania. It is proposed that each ESR will be recruited in Finland but will spend 18 months at the SME in Lithuania and 6 month stays at a non-academic partner organisation in Norway and at a partner organisation in Switzerland. The remaining 6 months of their 36 month recruitment period will be spent at the university in Finland, fulfilling the requirements of their enrolment as doctoral candidates.

In EJD it is expected that the researchers will need to spend at least the minimum period of time at the corresponding academic beneficiary(ies) required to be eligible to submit a doctoral degree there. This will vary according to the institution and country in question. The limitation of secondments to 30% of the recruitment period does not apply to EJD insofar as time spent at other participating organisations occurs in line with the proposal.

Example: an EJD taking a multi-disciplinary approach to the modelling of climate change is comprised of three universities located in Luxembourg, France and Iceland. The joint PhD programme requires each ESR to spend 12 months at each of the two universities awarding the joint degree. It is proposed that the remaining 12 month period of their respective 36 month recruitments will be spent at an environmental NGO in Spain which is a non-academic partner organisation in the action.

4.3 Networking Activities

Networks will establish or strengthen the collaboration between the research teams, as well as between themselves and the wider scientific community, including through the use of the internet and social media.

Each network will be expected to organise workshops, seminars, summer schools, etc. which should be directly related to the research training programme of the network. The content and quality of such events should be **detailed and fully justified** in the proposal. Networking activities could further include:

- Organisation of scientific network meetings;
- Visits and secondments between participating organisations in order to exchange knowledge;
- Invitation of external experts for specialist input;
- Attendance of the recruited researchers at international conferences and workshops;
- Collaboration with other ITNs or research groups;
- Organisation of a final network conference.

Training events offered within the network may also be opened to external researchers. Note, however, that costs for external researchers cannot be funded under the action.

4.4 Communication and Dissemination

In addition to publications and patents, communication of the MSCA should aim to demonstrate the ways in which research is contributing to a European "Innovation Union."¹⁵ It should also account for public spending by providing tangible evidence that the funded research adds value by:

- showing how **European collaboration** in the ITN has achieved more than would have otherwise been possible, notably in achieving scientific excellence, contributing to competitiveness and, where relevant, solving societal challenges;

¹⁵ http://ec.europa.eu/research/innovation-union/index_en.cfm

- showing how the outcomes are **relevant to our everyday lives**, by creating jobs, training skilled researchers, introducing novel technologies, or making our lives more comfortable in other ways;
- **promoting results**, which may possibly influence policy-making or ensure follow-up by industry and the scientific community.

Open Access and Open Data under Horizon 2020

Open Access: beneficiaries must ensure that peer-reviewed scientific publications resulting from ITN funding are deposited in open access repositories, i.e. free of charge online access for any user (see guidance on Article 29.2 in the Annotated Model Grant Agreement). A repository number for each publication must be provided in the action reports.

Open Data: beneficiaries will engage in research data sharing by default, as stipulated under Article 29.3 of the Horizon 2020 Model Grant Agreement (including the creation of a Data Management Plan). Participants may, however, opt out of these arrangements, both before and after the signature of the grant agreement. Note that information related to Open Research Data provided in the proposal will not be subject to evaluation. In other words, proposals will not be evaluated negatively because they opt-out of the data sharing.

Further information on the Data Management Plan can be found in the documents section of the Participant Portal.

4.5 Public Engagement

In the MSCA, the primary goal of public engagement activities is to **create awareness among the general public of the research work performed and its implications for citizens and society**. The type of outreach activities could range from press articles and participating in European Researchers' Night events to presenting science, research and innovation activities to students from primary and secondary schools or universities in order to develop their interest in research careers. **The frequency and nature of such activities should be outlined in the proposal.**

4.6 Refugees

The integration of refugees is a key priority for the EU, and the MSCA are fully committed to ensuring that equal opportunities are provided to researchers whose scientific careers have been interrupted. Therefore if appropriate to the objectives of the proposal applicants are encouraged to include activities that could foster the successful integration of researchers who are refugees. This could take form of providing such refugees and their colleagues with particular services and training in the social and professional integration of refugee researchers within host countries. In addition, skills in building collaborations with countries in post-war recovery could prove valuable in the career of any researcher.

5. Financial Aspects

The financial support for an ITN is calculated on the basis of eligible person-months and takes the form of a grant covering 100% of the eligible costs. Funding is exclusively in the form of **unit costs**.

Unit costs are fixed amounts and apply to all categories of eligible costs. They are measured by the number of months which are implemented by the eligible researchers in the action. The unit costs are determined ex-ante in the MSCA Work Programme and cannot be modified. The grant reimburses 100% of the action's eligible costs.

The details of the European Union contribution and rates under this action are set out in MSCA Work Programme. There are two types of unit costs:

- Researcher unit costs;
- Institutional unit costs.

One unit is defined as the work of one researcher in the action for a period of one month.

Researcher Unit Costs

5.1 Living Allowance

This refers to the **basic, gross amount** for the benefit of the researcher to be paid to the researcher in monthly instalments. For MSCA calls launched in 2016-2017, the amount for an ESR is **€3,110 per month (€37,320/year)**.

This amount is then adjusted through the application of a **country correction coefficient** to the living allowance of the country in which the researcher will be recruited. The final amount will not change in case of secondments to another beneficiary or partner organisation. The country correction coefficients are indicated in Table 2 of the MSCA Work Programme.

The beneficiaries must recruit each eligible researcher under an **employment contract** or other direct contract with equivalent benefits, including social security coverage. Fixed amount fellowship agreements are only permitted where national law prohibits the possibility of an employment contract/ equivalent direct contract, and only with the prior approval of the Research Executive Agency. The living allowance rates applicable in these cases will be 50% of the rates for researchers under an employment contract/ equivalent direct contract.

In all cases, the beneficiaries must ensure that the researcher is covered under the **social security scheme** which is applied to employed workers within the country of the beneficiary, or under a social security scheme providing at least sickness and parental benefits, invalidity and accidents at work and occupational diseases, and covering the researcher in every place of implementation of the ITN activities.

In the case of **secondments** to other beneficiaries or partner organisations, the social security provision should also cover the researchers during these periods.

Important notice: Living allowance

*The living allowance is a **gross EU contribution** to the salary costs of the researcher. Consequently, the net salary results from deducting all compulsory (employer*

/employee) social security contributions as well as direct taxes (e.g. income tax) from the gross amounts. **A top-up may be paid** to the eligible researchers from another budget source in order to complement this contribution.

The rate indicated above is for researchers devoting themselves to the action on a full-time basis.

Part-time employment for personal or family reasons can be accepted. In this case costs will be reported as pro-rata of the fulltime (30 days/month) unit cost.

5.2 Mobility Allowance

All eligible researchers recruited within an ITN are entitled to receive this allowance. It contributes to the mobility related expenses of the researcher. The amount of the mobility allowance is specified in Table 1 of the MSCA Work Programme and for the calls 2016-2017 it amounts to **€600 per month**.

5.3 Family Allowance

A family allowance of **€500 per month** will be paid should the researcher have family, regardless of whether the family will move with the researcher or not. In this context, family is defined as persons linked to the researcher by (i) marriage, or (ii) a relationship with equivalent status to a marriage recognised by the national or relevant regional legislation of the country where this relationship was formalised; or (iii) dependent children who are actually being maintained by the researcher.

The family status of a researcher will be determined at the date of their (first) recruitment in the action and will not evolve during the action lifetime.

The mobility and family allowances are fixed amounts, regardless of the country of recruitment, and may be excluded from taxation, where this is in line with national legislation. The full amount of these allowances, minus compulsory deductions, should be paid to the researcher for their own use. Therefore no flights or accommodation related to the activities in the action (e.g. conferences, secondments) can be charged under this category.

Institutional Unit Costs

5.4 Research, Training and Networking Costs

Research, Training and Networking Costs are a unit cost of **€1,800 per person-month** managed by the host beneficiaries to contribute to expenses related to, for example:

- the participation of researchers in training activities
- expenses related to research costs
- costs for visiting researchers (see conditions in section 4.1)
- tuition fees (where applicable)

5.5 Management and Indirect Costs

Management and Indirect Costs refer to a unit cost of **€1,200 per person-month** that is to be used towards the management of the action. As with Research, Training and Networking costs, these amounts may later on be re-distributed among the consortium. For example, the consortium may agree in the Consortium Agreement that all beneficiaries will contribute to the costs that the coordinator incurs for the management of the whole action and consequently allocate a higher percentage to the coordinator. However, the modalities of this are left to the consortium to decide.

5.6 Budget Calculations

Applicants are not required to indicate the amount of the estimated EU contribution in their proposal. This will be automatically calculated based on the number of person-months indicated in Part A of the proposal using the rates, allowances and coefficients given in Tables 1 and 2 of the MSCA Work Programme.

It is crucial that the information given in Part A is identical to the information given in proposal Part B. In case of discrepancy, values from the Part A will prevail. Please enter the data for the budget carefully! Any error may result in the proposal being declared ineligible (see 40.0% rule and maximum person-months requirement above (pages 15 (section 2.6) and 10 (section 1.2) respectively).

By definition, the costs related to the recruitment of researchers cannot be accurately calculated in advance. This is because the family allowance will depend upon the personal circumstances of the recruited researcher (i.e. family status). Therefore **an average calculation** will be used by the REA to determine the maximum level of funding.

5.7 Contractual Obligations

Complete details regarding contractual obligations that bind all beneficiaries can be found in the model Grant Agreement available on the Participant Portal.

Key Points

General remarks:

- ITN actions fund exclusively Early-Stage Researchers (ESR).
- ESR recruitment for a minimum period of 3 months and a maximum of 36 months
- Transnational mobility requirement applies to all actions
- All actions have a maximum duration of 48 months
- Maximum of 40.0% of the total EU financial contribution may be allocated to beneficiaries within one country (except for an EID with two beneficiaries)

Applicants can apply to any of the three implementation modes:

1. European Training Networks (ETN)

Composition of the Network

- Minimum participation of 3 beneficiaries from 3 EU MS or AC. Additional beneficiaries from MS, AC or TC listed in General Annex A to the Work Programme (see TC exceptional cases above). Partner organisations from any country. Typical size of 6-10 beneficiaries
- Participation of the non-academic sector is expected

Recruitments and Secondments

- Maximum of 540 person-months per network
- Each beneficiary must host and supervise at least one recruited researcher
- Secondments of an individual researcher to other beneficiaries and/or partner organisations up to a maximum of 30% of their recruitment period

Remark

- Researchers will typically be enrolled in a doctoral programme

2. European Industrial Doctorates (EID)

Composition of the Network

- At least 2 beneficiaries, 1 academic and 1 non-academic (primarily enterprise), located in different MS or AC. Additional beneficiaries from MS, AC or TC listed in General Annex A to the Work Programme (see TC exceptional cases above). Partner organisations from any country. Typical size of 2-3 beneficiaries

Recruitments and Secondments

- Maximum 540 person-months per network, except for an EID with 2 beneficiaries (max. of 180 person-months)
- Researchers must spend at least 50% of their time at non-academic sector beneficiaries and/or partner organisations. This intersectoral mobility must be between participating organisations located in different countries

Requirements

- Mandatory enrolment of researchers in a doctoral programme provided either by a beneficiary or by a university associated to the action as a partner organisation

Remark

- Ranked in a separate multidisciplinary panel with an earmarked budget of €28 million

3. European Joint Doctorates (EJD)

Composition of the Network

- Minimum of 3 beneficiaries, located in different MS or AC, which are entitled to award doctoral degrees. Additional beneficiaries from MS, AC or TC listed in General Annex A to the Work Programme (see TC exceptional cases above). Partner organisations from any country. Typical size of 4-8 beneficiaries

Recruitments and Secondments

- Maximum of 540 person-months per network

Requirements

- Mandatory enrolment of researchers in the joint doctoral programme with the final degree awarded by institutions from at least two different countries

Remark

- Ranked in a separate multidisciplinary panel with an earmarked budget of €32 million

Overview Table

		ETN	EID		EJD
			2 Beneficiaries	≥ 3 Beneficiaries	
BENEFICIARY (IES)	Minimum No. of beneficiaries	3	2	3	3
	Minimum MS or AC	3	2	2	3
	Academic sector	No restrictions	Minimum 1		Minimum 3 entitled to award doctoral degrees
	Non-academic sector	No restrictions	Minimum 1		No restrictions
	Max no. of person months	540	180	540	540
	Max 40.0% budget for 1 country	Mandatory	N/A	Mandatory	Mandatory
Beneficiary (or partner organisation) awarding PhD		Optional	Mandatory (1 beneficiary or partner organisation)		Mandatory for minimum 3 beneficiaries
Joint award of PhD		Optional	Optional		Mandatory
Joint degree – letter of institutional commitment		N/A	N/A		Mandatory
Joint supervision for ESRs		Encouraged	Mandatory (from the 2 sectors)		Mandatory
ESRs enrolment in the PhD		Optional	Mandatory		Mandatory
Intersectoral mobility must be international		Optional	Mandatory		Optional
Secondments: international, intersectoral, interdisciplinary		≤ 30%	<i>Min 50% stay in the non-academic sector</i>		≤ 30%
Partner Organisation: Letter of Commitment		Mandatory			
Ranking lists		8 (Scientific) panels	1 Multidisciplinary		1 Multidisciplinary
Budget		€370 mn	€28 mn		€32 mn

Annex 1 – Timetable and Specific Information for this Call

The MSCA Work Programme provides the legal details and conditions to be considered when submitting a proposal to this call. It describes the content of the topics to be addressed and details on how the call will be implemented. The Work Programme is available on the Participant Portal call page. Basic data on the call implementation (deadline, budget, additional conditions etc.) is also posted on the Participant Portal. Please consult these documents.

Indicative timetable for this call

Publication of call	<i>15 September 2016</i>
Deadline for submission of proposals	<i>10 January 2017 at 17:00:00, Brussels local time</i>
Evaluation of proposals	<i>March 2017</i>
Information on the outcome of the evaluation	<i>June 2017</i>
Indicative date for the signing of grant agreements	<i>September 2017</i>

- **2017 indicative call budget:** € 430.00 million.

Of this amount, €28 million is allocated to EID and €32 million to EJD.

- **Further information and help**

The Participant Portal call page contains links to other sources that applicants may find useful in preparing and submitting a proposal. Direct links are also given where applicable.

Call Information

- *Participant Portal call page*
<http://ec.europa.eu/research/participants/portal/desktop/en/home.html>
- *MSCA Work Programme 2016-2017*
- http://ec.europa.eu/research/participants/data/ref/h2020/wp/2016_2017/main/h2020-wp1617-msca_en.pdf

General Sources of Help

- *MSCA website:* <http://ec.europa.eu/research/mariecurieactions/>
- *EURAXESS:* <http://ec.europa.eu/euraxess/>
- *The European Commission's Horizon 2020 Enquiry Service*
<http://ec.europa.eu/research/index.cfm?pg=enquiries>
- *National Contact Points*
http://ec.europa.eu/research/participants/portal/desktop/en/support/national_contact_points.html
- *Net4Mobility*
<http://www.net4mobility.eu/>

Specialised and Technical Assistance

- *Submission Service Help Desk*
<http://ec.europa.eu/research/participants/api/contact/index.html>
- *IPR help desk:* <http://www.ipr-helpdesk.org>

Other Useful Reference Documents

- *Horizon 2020 Work Programme 2016-2017: General Introduction*
http://ec.europa.eu/research/participants/data/ref/h2020/wp/2016_2017/main/h2020-wp1617-intro_en.pdf
- *Horizon 2020 Work Programme: General Annexes*
http://ec.europa.eu/research/participants/data/ref/h2020/other/wp/2016-2017/annexes/h2020-wp1617-annex-ga_en.pdf
- *Horizon 2020: Rules for Participation*
http://ec.europa.eu/research/participants/data/ref/h2020/legal_basis/rules_participation/h2020-rules-participation_en.pdf
- *Horizon 2020: How to Complete Your Ethics Self-Assessment*
http://ec.europa.eu/research/participants/data/ref/h2020/grants_manual/hi/ethics/h2020-hi-ethics-self-assess_en.pdf
- *Horizon 2020: Guidelines on Data Management in Horizon 2020*
http://ec.europa.eu/research/participants/data/ref/h2020/grants_manual/hi/oa_pilot/h2020-hi-oa-data-mgt_en.pdf
- *European Charter and Code for Researchers*
<http://ec.europa.eu/euraxess/index.cfm/rights/europeanCharter>
- *List of Countries Associated to Horizon 2020*
http://ec.europa.eu/research/participants/data/ref/h2020/grants_manual/hi/3cp/h2020-hi-list-ac_en.pdf
- *Gender Equality in Horizon 2020*
http://ec.europa.eu/research/participants/data/ref/h2020/grants_manual/hi/gender/h2020-hi-guide-gender_en.pdf
- *Horizon 2020 Online Manual*
<https://ec.europa.eu/research/participants/portal/desktop/en/funding/guide.html>

Annex 2 – Evaluation Criteria and Procedure

1. **General**

The evaluation of proposals is carried out by the Research Executive Agency (REA) with the assistance of independent experts.

REA staff ensure that the process is fair and in line with the principles contained in the Commission's rules¹⁶ and the relevant sections of the MSCA Work Programme.

Experts perform evaluations on a personal basis, not as representatives of their employer, their country or any other entity. They are required to be independent, impartial and objective, and to behave throughout in a professional manner. They sign an expert contract, including a declaration of confidentiality and absence of conflict of interest, before beginning their work. Confidentiality rules must be adhered to at all times before, during and after the evaluation.

In addition, an independent expert will be appointed by the REA to observe and report on the evaluation process. The observer gives independent advice to the REA on the conduct and fairness of the evaluation sessions, on the way in which the experts apply the evaluation criteria, and on ways in which the procedures could be improved. The observer will not express views on the proposals under examination or on the experts' opinions on the proposals.

Proposals are submitted in a single stage and evaluated in one step by the experts against all evaluation criteria.

Conflicts of interest: under the terms of the expert contract, all experts must declare beforehand any known conflicts of interest, and must immediately inform the responsible REA staff member should one become apparent during the course of the evaluation. The REA will take whatever action is necessary to remove any conflict of interest.

Confidentiality: the expert contract also requires experts to maintain strict confidentiality with respect to the whole evaluation process. They must follow any instruction given by the REA to ensure this. Under no circumstance may an expert attempt to contact an applicant on his/her own account, either during the evaluation or afterwards.

2. **Before the Evaluation**

Once received in the Participant Portal's electronic submission system, proposals are registered and their status can be checked. Admissibility and eligibility criteria for each proposal are checked by REA staff before the evaluation begins. Proposals which do not fulfil these criteria will not be included in the evaluation.

To be considered **admissible**, a proposal must be:

- (a) submitted in the electronic submission system **before the call deadline**
- (b) readable, accessible and printable.

¹⁶ Horizon 2020 Grants Manual on Proposal Submission and Evaluation.
http://ec.europa.eu/research/participants/data/ref/h2020/grants_manual/pse/h2020-guide-pse_en.pdf

Incomplete proposals may be considered inadmissible. The proposal must therefore include the duly completed administrative forms in Part A and the proposal description in both documents comprising Part B (see below).

For this call a proposal will only be considered **eligible** if it meets all of the following conditions:

- It complies with all eligibility conditions indicated in the Work Programme, including the **minimum number, country** and, where applicable, **sector of beneficiaries** or **doctoral degree-awarding beneficiaries**, according to the implementation mode (i.e. ETN, EID or EJD);
- The content of the proposal **relates to the funding scheme**, including any special conditions set out in the relevant parts of the MSCA Work Programme.

NB: Part B must be submitted as two separate documents:

Document 1 must comprise of the Start Page, Table of Contents, List of Participating Organisations data (including non-academic sector beneficiaries and declarations tables), and sections 1-3. The maximum total length for this document is 34 pages (1 page for the Start Page, 1 page for the Table of Contents, 2 pages (max) for List of Participating Organisations data, and 30 pages for sections 1 to 3: section 1 must start on page 5). The page limits will be strictly applied. Expert evaluators will be instructed to disregard any excess pages.

Document 2 must consist of sections 4-7 of Part B. No overall page limit is applicable to this document, but applicants should respect the instructions given per section (e.g. in section 5, a maximum of one page should be used per beneficiary and half a page per partner organisation).

(see also Annex 4 below)

3. Evaluation of Proposals

Proposals will be evaluated on the basis of the following **award criteria**:

ITN - Marie Skłodowska-Curie Innovative Training Networks		
Excellence	Impact	Quality and Efficiency of the Implementation
<p>Quality, innovative aspects and credibility of the research programme (including inter/multidisciplinary, intersectoral and, where appropriate, gender aspects)</p>	<p>Enhancing the career perspectives and employability of researchers and contribution to their skills development</p>	<p>Coherence and effectiveness of the work plan, including appropriateness of the allocation of tasks and resources (including awarding of the doctoral degrees for <i>EID</i> and <i>EJD</i> projects)</p>

<p>Quality and innovative aspects of the training programme (including transferable skills, inter/multidisciplinary, intersectoral and, where appropriate, gender aspects)</p>	<p>Contribution to structuring doctoral / early-stage research training at the European level and to strengthening European innovation capacity, including the potential for:</p> <p>a) meaningful contribution of the non-academic sector to the doctoral/research training, as appropriate to the implementation mode and research field</p> <p>b) developing sustainable joint doctoral degree structures (for <i>EJD</i> projects only)</p>	<p>Appropriateness of the management structures and procedures, including quality management and risk management (with a mandatory joint governing structure for <i>EID</i> and <i>EJD</i> projects)</p>
<p>Quality of the supervision (including mandatory joint supervision for <i>EID</i> and <i>EJD</i> projects)</p>	<p>Quality of the proposed measures to exploit and disseminate the project results</p>	<p>Appropriateness of the infrastructure of the participating organisations</p>
<p>Quality of the proposed interaction between the participating organisations</p>	<p>Quality of the proposed measures to communicate the project activities to different target audiences</p>	<p>Competences, experience and complementarity of the participating organisations and their commitment to the programme</p>
50%	30%	20%
Weighting		
1	2	3
Priority in case of <i>ex aequo</i>		
Please note that an overall threshold of 70% will be applied to the total weighted score.		

Each proposal will be assessed independently by at least three experts chosen by the REA from the pool of experts taking part in this evaluation. An expert will be designated as the proposal "rapporteur" and will assume additional responsibilities at the end of this phase and in the following phases of the evaluation session.

The proposal will be evaluated against the pre-determined award criteria, applying weighting factors and thresholds.

Evaluation scores will be awarded for each of the three criteria. All of the separate elements of each criterion will be considered by the experts in their assessment.

Each criterion will be scored out of 5. Decimal points may be given.

The scores indicate the following with respect to the criterion under examination:

- 0 - *Proposal fails to address the criterion or cannot be assessed due to missing or incomplete information.*
- 1 - **Poor.** *The criterion is inadequately addressed, or there are serious inherent weaknesses.*
- 2 - **Fair.** *Proposal broadly addresses the criterion, but there are significant weaknesses.*
- 3 - **Good.** *Proposal addresses the criterion well, but a number of shortcomings are present.*
- 4 - **Very Good.** *Proposal addresses the criterion very well, but a small number of shortcomings are present.*
- 5 - **Excellent.** *Proposal successfully addresses all relevant aspects of the criterion. Any shortcomings are minor.*

An example of the evaluation forms that will be used by the experts in this call will be made available on the Participant Portal.

Compliance with the **selection criteria** will also be verified:

Operational Capacity

The operational capacity of the proposed beneficiaries is assessed at the proposal stage and also verified during the grant preparation phase for successful proposals. Operational capacity determines whether an applicant has the basic operational resources and capacity to implement the action, and, in particular, their planned role and responsibilities within the proposal (including recruiting, hosting and supervising the research of an Early Stage Researcher). This assessment is based on the information to be provided in the proposal section 5 of the part B (Participating Organisations tables, please see page 51).

Should the experts evaluating the proposal reach a consensus that one or more applicants lack sufficient operational capacity to carry out the tasks assigned to them, the experts will continue to evaluate the proposal as if the applicant(s) in question were not included, i.e. disregarding their activities and their estimated budget.

Annex 3 – Instructions for Completing Part A of the Proposal

Proposals in this call must be submitted electronically, using the **Electronic Submission Service** of the Commission. It is accessible from the call page on the Participant Portal.

In Part A applicants will be asked for certain administrative details that will be used in the evaluation and further processing of their proposal. Part A constitutes an integral part of the proposal. Details of the work intended to be carried out will be described in Part B (see [Annex 4](#) and [Annex 5](#) of this guide).

The Electronic Submission Service provides guidance on how to complete the Part A, which includes the following sections:

- Section 1: General information about the proposal
- Section 2: Data on participating organisations
- Section 3: Budget (request for funding in terms of person-months)
- Section 4: Ethics table
- Section 5: Information on partner organisations.

1. The Concept of Panels

All eligible proposals will be evaluated under one of the eight major areas of research (known as scientific evaluation "**panels**"): Chemistry (CHE); Social Sciences and Humanities (SOC); Economic Sciences (ECO), Information Science and Engineering (ENG); Environment and Geo-Sciences (ENV); Life Sciences (LIF); Mathematics (MAT), and Physics (PHY). Experts will evaluate proposals under a given panel regardless of the implementation mode (i.e. ETN, EID or EJD). EID and EJD proposals will then be ranked in separate, multidisciplinary panels, each with its own earmarked budget (€28 million for EID and €32 million for EJD). Each panel will establish a ranked list of proposals for funding.

In the Electronic Submission Service, the applicant chooses the panel to which the proposal will be associated at the proposal stage (using the field "Scientific Panel" in section 1 of the proposal submission forms) and this should be considered as the core discipline. Additional descriptors are used to define the other disciplines that may be involved.

Applicants should carefully choose the panel and descriptors since this will guide the REA in the selection of experts for proposal evaluation.

Except for EID and EJD, as noted above, there is no predefined budget allocation among the panels: as a general rule the call budget will be distributed between the panels based on the proportion of eligible proposals received in each panel.

To help applicants select the most relevant panel for their proposal a document providing a **breakdown of each research area into a number of descriptors** is included in this document as Annex 6.

2. How to Complete the Part A Forms

- **Coordinator**

The coordinator fills in the sections 1 (general information), 3 (budget), 4 (ethics) and 5 (data on partner organisations). **Numbers and information listed in section 3 (budget) should be the same as those reported in Part B of the proposal. In case of discrepancy, values from the Part A will be deemed to prevail.**

- **Beneficiaries**

All beneficiaries (including the coordinator) complete section 2 corresponding to their respective organisation.

- **Partner Organisations**

Information on partner organisations is provided by the coordinator **ONLY under section A5** of the proposal. Although not mandatory, providing a Participant Identification Code (PIC) for partner organisations in section A5 is encouraged.

3. Budget

When applicants enter the number of recruited researchers and the length of their recruitment, **the system will automatically calculate an indicative budget**. It should be reminded that the budget in part A corresponds to the **budget requested for EU funding** by the applicant.

Please enter the data for the budget carefully! The expert evaluators will not comment on the budget but will evaluate the task distribution (e.g. appropriateness of the recruitment plan) under the *Quality and Efficiency of the Implementation* criterion. No further adjustment of this amount will be possible.

NOTE: In cases where partner organisations propose to **fund their own participation** in the action, or beneficiaries propose to **fund additional person-months** (over the 540 person-months limit) from another budget source,, these person-months should not be requested in Part A of the proposal, but instead be indicated clearly in Part B of the proposal. A clear explanation of this set-up and of the use of own resources should therefore be provided in Part B.

Annex 4 – Instructions for Drafting Part B of the Proposal

1. General Information

Part B of the proposal contains the details of the proposed research and training programmes along with the practical arrangements planned to implement them. They will be used by the independent experts to undertake their assessment. We would therefore advise applicants to address each of the award criteria as outlined in the following sections, using both descriptive text and the tables provided. Please note that the explanatory notes below serve to explain the award criteria without being exhaustive. To draft a proposal, applicants should also consult the current version of the MSCA Work Programme.

Applicants must structure their proposal according to the headings indicated in the Part B proposal template.

Please note that this call will be a single-stage proposal submission and evaluation procedure. **An RTF (rich text format) version** of the submission template can be downloaded from the Electronic Submission Service. Applicants must ensure that their proposals conform to this layout and to the instructions given in this Guide for Applicants.

NB: For the 2017 call, applicants must submit Part B of their proposal as two separate documents:

Document 1: must comprise the Start Page, Table of Contents, List of Participating Organisations data (including non-academic sector and declarations tables), and then Part B sections 1-3. **The maximum total length for this document is 34 pages.** The Start Page must consist of **1 whole page**. The Table of Contents must consist of **1 whole page**. The list of Participating Organisations data, including the non-academic beneficiaries and declarations tables, **must consist of a maximum of 2 whole pages**. If two whole pages are not used for this section, the remaining space must be left blank: **section 1 must start on page 5 of the document.** Of the **maximum 30 pages applied to sections 1, 2 and 3**, applicants are free to decide on the allocation of pages between the sections. However, the overall page limit will be strictly applied and applicants must keep the proposal within the limits. **The Expert evaluators will be strictly instructed to disregard any excess pages above the 34 page limit.**

Document 2: must consist of Part B sections 4-7. No overall page limit will be applied to this document, but applicants should respect the instructions given per section (e.g. in section 5, a maximum of one page should be used per beneficiary and half a page per partner organisation).

Note that applicants will not be able to submit their proposals in the submission system unless both documents 1 and 2 are provided.

The **minimum font size** allowed for the main text is **11** points. The page size is A4, and all **margins** (top, bottom, left, right) should be at least **15 mm** (not including any footers or headers). Ensure that the font chosen is clearly readable (e.g. Arial or Times New Roman). As an indication, such a layout should lead to a maximum of between 5,000 and 6,000 possible characters per page (including spaces).

For the Gantt chart and tables, the font size chosen must be clearly legible by the expert evaluators. The minimum font size is therefore 8 points. **Literature references should be listed in footnotes**, font size 8. All footnotes will count towards the page limit.

Please make sure that both documents comprising Part B of the proposal carry as a **header to each page** the proposal acronym and the implementation mode applied to (i.e. ETN, EID or EJD). All **pages should also be numbered** in a single series on the footer of the page to prevent errors during handling. It is recommended to apply the following numbering format: "**Part B - Page X of Y**".

For both documents comprising Part B of the proposal, applicants must use exclusively PDF ("Portable Document Format", compatible with Adobe version 3 or higher, with embedded fonts). Other file formats will not be accepted by the Electronic Submission Services of the Commission.

2. Letters of Commitment

Partner organisations must include a letter of commitment in Part B (document 2) of the proposal to ensure their real and active participation in the proposed network. Such letters should be scanned and included in section B.7. The expert evaluators will be instructed to disregard the contribution of any partner organisations for which no such evidence of commitment is submitted.

Applicants to EJD must also include in Part B (document 2) of the proposal scanned **letters of institutional commitment** from the beneficiaries awarding doctoral degrees indicating their commitment **to award joint, double or multiple doctoral degrees** within the context of the proposed action. These letters should be signed by the beneficiary's authorised legal representative. They should also indicate agreement with the principle that the awarding of such degrees is a precondition for funding. No template for these letters is provided.

Letters of (institutional) commitment must be included in the PDF file (Part B, document 2); these should not be attached in a separate PDF file or as an embedded file since this makes them invisible.

3. Gender Issues¹⁷

The MSCA pay particular attention to gender equality. In line with the European Charter and Code for Researchers, all MSCA proposals are encouraged to take appropriate measures to facilitate mobility and counter-act gender-related barriers to it. Equal opportunities are to be ensured, both at the **level of supported researchers** and that of **decision-making/supervision**. In

¹⁷ See European Commission (2014), *Gender Equality in Horizon 2020*. Available online at: http://ec.europa.eu/research/participants/data/ref/h2020/grants_manual/hi/gender/h2020-hi-guide-gender_en.pdf

research activities where human beings are involved as subjects or end-users, gender differences may exist. In these cases the **gender dimension in the research content has to be addressed as an integral part of the proposal** to ensure the highest level of scientific quality.

As training researchers on gender issues serves the policy objectives of Horizon 2020 and is necessary for the implementation of research and innovation actions, applicants are encouraged to include such activity in their proposals, as appropriate.

4. Scientific Misconduct and Research Integrity

Please note that **the issues of scientific misconduct and research integrity are taken very seriously**. In line with the Horizon 2020 Rules for Participation, appropriate action will be taken against any applicants found to have misrepresented, fabricated or plagiarised any part of their proposal. Coordinators will also be required to make a "declaration on honour" in Part A of the proposal.

It is also expected that procedures for promoting research integrity and managing scientific misconduct will be addressed in the proposal. For example, applicants are encouraged to describe clear procedures for dealing with cases of misconduct (e.g. data fabrication, falsification, plagiarism, misuse of funds, double-funding, etc.) should they arise during implementation.

Principles of research integrity – as set out, for instance, in the [European Code of Conduct for Research Integrity](#)¹⁸ – will apply throughout all MSCA.

¹⁸ http://www.esf.org/fileadmin/Public_documents/Publications/Code_Conduct_ResearchIntegrity.pdf

Annex 5 – Part B Template

In drafting PART B of the proposal, applicants must follow the structure outlined below.

DOCUMENT 1

START PAGE (1 page)

TABLE OF CONTENTS (1 page)

LIST OF PARTICIPATING ORGANISATIONS (max 2 pages)

START PAGE COUNT (MAX 30 PAGES SECTIONS 1-3)

- 1. EXCELLENCE (starting page 5)**
- 2. IMPACT**
- 3. QUALITY AND EFFICIENCY OF THE IMPLEMENTATION**

STOP PAGE COUNT (MAX 30 PAGES SECTIONS 1-3)

DOCUMENT 2 (NO OVERALL PAGE LIMIT APPLIED)

- 4. GANTT CHART**
- 5. CAPACITIES OF THE PARTICIPATING ORGANISATIONS**
- 6. ETHICAL ISSUES**
- 7. LETTERS OF COMMITMENT**

Please note that:

- *Applicants must ensure that document 1 does not exceed the total page limit of 34 pages. The Start Page must comprise 1 full page; The Table of Contents a maximum of 1 page, the List of Participating Organisations, data for non-academic beneficiaries and declarations table a maximum of 2 pages (if two whole pages are not required, the remaining space must be left blank – section 1 must start on page 5). Sections 1 to 3 must not exceed 30 pages. The expert evaluators will be strictly instructed to disregard any content above these pages limits.*
- *No reference to the outcome of previous evaluations of this or any similar proposal should be included in the text. The expert evaluators will be strictly instructed to disregard any such references.*

START PAGE

MARIE SKŁODOWSKA-CURIE ACTIONS

**Innovative Training Networks (ITN)
Call: H2020-MSCA-ITN-2017**

PART B

“PROPOSAL ACRONYM”

This proposal is to be evaluated as:

**[ETN] [EID] [EJD]
[delete as appropriate]**

Part B - Page X of Y

TABLE OF CONTENTS (*max. 1 page*)

LIST OF PARTICIPATING ORGANISATIONS (*max. 2 pages*)

Please provide a list of the consortium's members (both beneficiaries and partner organisations) indicating the legal entity, the department carrying out the work and the scientist-in-charge of the action.

For non-academic beneficiaries, please provide additional data as indicated in the table below.

Consortium Member	Legal Entity Short Name	Academic (tick)	Non-academic (tick)	Awards Doctoral Degrees (tick)	Country	Dept. / Division / Laboratory	Scientist-in-Charge	Role of Partner Organisation ¹⁹
<u>Beneficiaries</u>								
- NAME								
<u>Partner Organisations</u>								
- NAME								

Data for non-academic beneficiaries:

Name	Location of research premises (city / country)	Type of R&D activities	No. of full-time employees	No. of employees in R&D	Web site	Annual turnover ²⁰ (in Euro)	Enterprise status (Yes/No)	SME status ²¹ (Yes/No)

- The information in the above table **must be based on current data, not projections**
- The financial and operational capacity of organisations participating in successful proposals will be subject to verification during the grant preparation phase

Declarations

Name (institution / individual)	Nature of inter-relationship

- Applicants **must** use the table above to **declare any inter-relationship between different participating institutions or individuals** (e.g. family ties, shared premises or facilities, joint or part ownership, financial interest, overlapping staff or directors, etc.)

START PAGE COUNT – MAX 30 PAGES

¹⁹ For example, delivering specialised training courses, hosting secondments, etc.

²⁰ Defined as the total value of sales of goods and services during the last accounting period.

²¹ As defined in [Commission Recommendation 2003/361/EC](#)

1. Excellence (*starting on p.5*)

1.1 **Quality, innovative aspects and credibility of the research programme** (including inter/multidisciplinary, intersectoral and, where appropriate, gender aspects)

Required sub-headings:

- Introduction, objectives and overview of the research programme. For ETN, it should be explained how the individual projects of the recruited researchers will be integrated into – and contribute to – the overall research programme. EJD and EID proposals should describe the research projects in the context of a doctoral training programme
- Research methodology and approach
- Originality and innovative aspects of the research programme (in light of the current state of the art and existing programmes / networks / doctoral research trainings)

The action should be divided in **Work Packages** and described in the table below. The Work Packages should reflect the research objectives. Only brief headings and overviews of the Work Packages should be presented in Table 1.1. More details in terms of actual implementation should be provided in the tables under section 3.1.

Table 1.1: Work Package²² (WP) List

WP No.	WP Title	Lead Beneficiary No.	Start Month	End month	Activity Type ²³	Lead Beneficiary Short Name	ESR involvement ²⁴

1.2 **Quality and innovative aspects of the training programme** (including transferable skills, inter/multi-disciplinary, intersectoral and, where appropriate, gender aspects)

Required sub-headings:

- Overview and content structure of the training (ETN) or doctoral programme (EID/EJD), including network-wide training events and complementarity with those programmes offered locally at the participating organisations (please include table 1.2a and table 1.2b)
- Role of non-academic sector in the training programme

²² A work package is defined as a major subdivision of the proposed action.

²³ For example, research, management, dissemination, etc.

²⁴ Indicate which ESR(s) will participate in the Work Package in question

Table 1.2 a Recruitment Deliverables per Beneficiary

Researcher No.	Recruiting Participant (short name)	Planned Start Month 0-45	Duration (months) 3-36
1.			
2.			
3.			
...			
Total			

Table 1.2 b Main Network-Wide Training Events, Conferences and Contribution of Beneficiaries

	Main Training Events & Conferences	ECTS ²⁵ (if any)	Lead Institution	Action Month (estimated)
1				
2				
3				
4				

1.3 Quality of the supervision (including mandatory joint supervision for EID and EJD)

Required sub-headings:

- Qualifications and supervision experience of supervisors
- Quality of the joint supervision arrangements (mandatory for EID and EJD)

To avoid duplication, the role and scientific profile of the supervisors should only be listed in the "Participating Organisations" tables (see section 5 below).

The following section of the European Charter for Researchers refers specifically to supervision:

Supervision

Employers and/or funders should ensure that a person is clearly identified to whom Early-Stage Researchers can refer for the performance of their professional duties, and should inform the researchers accordingly.

Such arrangements should clearly define that the proposed supervisors are sufficiently expert in supervising research, have the time, knowledge, experience, expertise and commitment to be able to offer the research trainee appropriate support and provide for the necessary progress and review procedures, as well as the necessary feedback mechanisms.

1.4 Quality of the proposed interaction between the participating organisations

Required sub-headings:

²⁵ ECTS: European Credit Transfer and Accumulation System.
http://ec.europa.eu/education/ects/users-guide/docs/ects-users-guide_en.pdf

- Contribution of all participating organisations to the research and training programme
- Synergies between participating organisations
- Exposure of recruited researchers to different (research) environments, and the complementarity thereof

2. Impact

2.1 *Enhancing the career perspectives and employability of researchers and contribution to their skills development*

In this section, please explain the impact of the research and training on the fellows' careers.

2.2 *Contribution to structuring doctoral/early-stage research training at the European level and to strengthening European innovation capacity, including the potential for:*

- a) Meaningful contribution of the non-academic sector to the doctoral / research training (as appropriate to the implementation mode and research field)
- b) Developing sustainable joint doctoral degree structures (for EJD only)

2.3 *Quality of the proposed measures to exploit and disseminate the results*

Required sub-headings:

- Dissemination of the research results
- Exploitation of results and intellectual property

2.4 *Quality of the proposed measures to communicate the activities to different target audiences*

Required sub-heading:

- Communication and public engagement strategy

Concrete plans for sections 2.3 and 2.4 must be included in the corresponding implementation tables.

Note that the following sections of the European Charter for Researchers refer specifically to public engagement and dissemination:

Dissemination, Exploitation of Results

All researchers should ensure, in compliance with their contractual arrangements, that the results of their research are disseminated and exploited, e.g. communicated, transferred into other research settings or, if appropriate, commercialised. Senior researchers, in particular, are expected to take a lead in

ensuring that research is fruitful and that results are either exploited commercially or made accessible to the public (or both) whenever the opportunity arises.

Public Engagement

Researchers should ensure that their research activities are made known to society at large in such a way that they can be understood by non-specialists, thereby improving the public's understanding of science. Direct engagement with the public will help researchers to better understand public interest in priorities for science and technology and also the public's concerns.

You can also refer to the [Communicating EU research and innovation guidance for project participants](#) as well as to the ["communication" section of the H2020 Online Manual](#).

3. Quality and Efficiency of the Implementation

3.1 Coherence and effectiveness of the work plan, including appropriateness of the allocation of tasks and resources (including awarding of the doctoral degrees for EID and EJD)

Required **sub-headings**:

- Work Packages description (please include table 3.1a)
- List of major deliverables (please include table 3.1b), including the awarding of doctoral degrees, where applicable²⁶
- List of major milestones (please include table 3.1c)
- Fellow's individual projects (please include table 3.1d)
- Gantt Chart, including secondment plan (please use template [below](#))²⁷

NB - Due date: The schedule should indicate the **number of months** elapsed from the start of the action (Month 1).

Table 3.1 a Description of Work Packages

WP Number	Start Month – End Month
WP Title	<i>(e.g. including Research, Training, Management, Communication and Dissemination...)</i>
Lead Beneficiary	
Objectives	
Description of Work and Role of Specific Beneficiaries / Partner Organisations <i>(possibly broken down into tasks), indicating lead participant and role of other participating organisations</i>	
Description of Deliverables <i>(brief description and month of delivery)</i>	

²⁶ This could also be after the end of the action

²⁷ Note that although the Gantt Chart will be assessed under section 3, the chart itself does not count towards the page limit and should be included under section 4.

Table 3.1 b Deliverables List

A **deliverable** is a distinct output of the action, meaningful in terms of the action’s overall objectives and constituted by a report, a document, a technical diagram, a software, training, conference, etc. These should be divided into scientific deliverables and management, training, recruitment and dissemination deliverables. Scientific deliverables have technical/scientific content specific to the action. The number of deliverables in a given Work Package must be reasonable and commensurate with the Work Package content. Note that during implementation, the submission of these deliverables to the REA will be a contractual obligation.

Scientific Deliverables						
Deliverable Number²⁸	Deliverable Title	WP No.	Lead Beneficiary Short Name	Type²⁹	Dissemination Level³⁰	Due Date
Management, Training, Recruitment³¹ and Dissemination Deliverables						
Deliverable Number	Deliverable Title	WP No.	Lead Beneficiary Short Name	Type	Dissemination Level	Due Date

Table 3.1 c Milestones List

Milestones are control points in the action that help to chart progress. Milestones may correspond to the completion of a key deliverable, allowing the next phase of the work to begin. They may also be needed at intermediary points so that, if problems have arisen, corrective measures can be taken. A milestone may be a critical decision point in the action where, for example, the consortium must decide which of several technologies to adopt for further development.

Number	Title	Related Work Package(s)	Lead Beneficiary	Due Date³²	Means of Verification³³

²⁸ Deliverable numbers in order of delivery dates. Please use the numbering convention <WP number>.<number of deliverable within that WP>. For example, deliverable 4.2 would be the second deliverable from Work Package 4.

²⁹ Please indicate the nature of the deliverable using one of the following codes:
R = Report; **ADM** = Administrative (website completion, recruitment completion, etc.);

³⁰ **PDE** = dissemination and/or exploitation of results; **OTHER** = Other, including coordination
Please indicate the dissemination level using one of the following codes:

PU = Public: fully open, e.g. web; **CO = Confidential:** restricted to consortium, other designated entities (as appropriate) and Commission services;

³¹ **CI = Classified:** classified information as intended in Commission Decision 2001/844/EC.
Including overall recruitment (e.g. advertising vacancies), Researcher Declarations on Conformity, Career development Plan, training deliverable x, etc. The individual recruitments should only be listed in Table 1.2a

³² Measured in months from the action start date (month 1).

³³ Show how the consortium will confirm that the milestone has been attained. Refer to indicators if appropriate. For example: a laboratory prototype completed and running flawlessly; software released and validated by a user group; field survey complete and data quality validated.

Table 3.1 d Individual Research Projects

If applicable and relevant, linkages between the individual research projects and the work packages should be summarised here (one table per fellow).

Fellow (e.g. ESR1)	Host institution	PhD enrolment (Y/N)	Start date (e.g. Month 6)	Duration (e.g. 36 months)	Deliverables (refer to numbers in table 3.1b)
Project Title and Work Package(s) to which it is related:					
Objectives:					
Expected Results:					
Planned secondment(s): <i>Host, supervisor, timing, length and purpose</i>					

3.2 Appropriateness of the management structures and procedures, including quality management and risk management (with a mandatory joint governing structure for EID and EJD)

Required sub-headings:

- Network organisation and management structure, including financial management strategy, strategy for dealing with scientific misconduct
- Joint governing structure (mandatory for EID and EJD actions)
- For EJD, joint admission, selection, supervision, monitoring and assessment procedures
- Supervisory board
- Recruitment strategy
- Progress monitoring and evaluation of individual projects
- Risk management at consortium level (including table 3.2a)
- Intellectual Property Rights (IPR)
- Gender aspects (both at the level of recruitment and that of decision-making within the action)
- Data management plan (*only if participating in Open Research Data pilot – see page 21 above*)

Table 3.2a Implementation Risks

Risk No.	Description of Risk	WP Number	Proposed mitigation measures
R1	e.g. Delay in recruitment	WP X	

The following sections of the European Code of Conduct for the Recruitment of Researchers refer specifically to recruitment and selection:

Recruitment

Employers and/or funders should establish recruitment procedures which are open, efficient, transparent, supportive and internationally comparable, as well as tailored to the type of positions advertised.

Advertisements should give a broad description of knowledge and competencies required, and should not be so specialised as to discourage suitable applicants. Employers should include a description of the working conditions and entitlements, including career development prospects. Moreover, the time allowed between the advertisement of the vacancy or the call for applications and the deadline for reply should be realistic.

Selection

Selection committees should bring together diverse expertise and competences and should have an adequate gender balance and, where appropriate and feasible, include members from different sectors (academic and non-academic) and disciplines, including from other countries and with relevant experience to assess the candidate. Whenever possible, a wide range of selection practices should be used, such as external expert assessment and face-to-face interviews. Members of selection panels should be adequately trained.

3.3 Appropriateness of the infrastructure of the participating organisations

Explain the appropriateness of the infrastructure of each participating organisation, as outlined in Section 5 (Participating Organisations), in light of the tasks allocated to them in the action.

3.4 Competences, experience and complementarity of the participating organisations and their commitment to the programme

Required sub-headings:

- Consortium composition and exploitation of participating organisations' complementarities: explain the compatibility and coherence between the tasks attributed to each beneficiary/partner organisation in the action, including in light of their experience
- Commitment of beneficiaries and partner organisations to the programme (for partner organisations, please see also sections 5 and 7)

i) Funding of non-associated third countries (if applicable): Only entities from EU Member States, from Horizon 2020 Associated Countries or from countries listed in General Annex A to the Work Programme are automatically eligible for EU funding. If one or more of the beneficiaries requesting EU funding is based in a country that is not automatically eligible for such funding, the application shall explain in terms of the objectives of the action why such funding

would be essential. Only in exceptional cases will these organisations receive EU funding.³⁴ The same applies for **international organisations** other than IEIO.

ii) Partner organisations: The role of partner organisations and their active contribution to the research and training activities should be described. A letter of commitment shall also be provided in section 7 (included within the PDF file, but outside the page limit).

STOP PAGE COUNT – MAX 30 PAGES (SECTIONS 1-3)

³⁴ Article 10.2 of the Rules for participation and dissemination in "Horizon 2020" (Regulation (EU) No. 1290/2013 of the European Parliament and of the Council of 11 December 2013).

5. Participating Organisations

All organisations (whether beneficiaries or partner organisations) must complete the appropriate table below. Complete one table of maximum one page per beneficiary and half a page per partner organisation (minimum font size: 9).

For **beneficiaries**:

Beneficiary Legal Name:	
General Description	<i>Short description of the activities relevant to the action</i>
Role and Commitment of key persons (including supervisors)	<i>Including names, title and the intended extent of involvement in the action - in <u>percentage of full-time employment</u> - of the key scientific staff who will be involved in the research, training and supervision</i>
Key Research Facilities, Infrastructure and Equipment	<i>Outline the key facilities and infrastructure available and demonstrate that each team has sufficient capacity to host and/or offer a suitable environment for supervising the research and training of the recruited Early-Stage Researchers</i>
Status of Research Premises	<i>Please explain the status of the beneficiary's research facilities - i.e. are they owned by the beneficiary or rented by it? Are its research premises wholly independent from other beneficiaries and/or partner organisations in the consortium?</i>
Previous Involvement in Research and Training Programmes	<i>Detail any relevant EU, national or international research and training actions/projects in which the beneficiary has previously participated</i>
Current Involvement in Research and Training Programmes	<i>Detail any relevant EU, national or international research and training actions/projects in which the beneficiary is currently participating</i>
Relevant Publications and/or Research / Innovation Product	<i>Max. 5</i>

For **partner organisations**:

Partner Organisation Legal Name:	
General description	
Key Persons and Expertise	
Key Research Facilities, Infrastructure and Equipment	
Previous and Current Involvement in Research and Training Programmes	
Relevant Publications and/or Research / Innovation Product	<i>Max. 3</i>

6. Ethics Issues

All research activities in Horizon 2020 must respect fundamental ethics principles, including those reflected in the Charter of Fundamental Rights of the European Union.³⁶ These principles include the need to ensure the freedom of research and the need to protect the physical and moral integrity of individuals and the welfare of animals.

Research ethics is of crucial importance for all scientific domains. Informed consent and confidentiality are as important for a sociological study as they are for clinical research.

All proposals considered for funding will be submitted to an Ethics Review. The Ethics Review is the core of the H2020 Ethics Appraisal scheme, which concerns all proposals and actions, and also includes the Ethics Checks and Ethics Audit that can be initiated during the action implementation.

In this context, please be aware that it is the applicants' responsibility to identify any potential ethical issues, to handle the ethical aspects of their proposal, and to detail how they plan to address them.

If any ethics issues have been entered in the ethical issues checklist in Part A of the proposal, then an ethics self-assessment must be included in this section. For more details, please refer to the "H2020 How to complete your Ethics Self-Assessment" guide.³⁷

The self-assessment in this section must:

1) Describe how the proposal meets the national legal and ethics requirements of the country or countries where the tasks raising ethical issues are to be carried out.

Should the proposal be selected for funding, applicants may be required to provide the following documents upon REA's request, if they are already in their possession:

- The ethics committee opinion required under national law
- The document that is mandatory under national law notifying activities raising ethics issues or authorising such activities

If these documents are not in English, applicants must also submit an English summary of them (containing, if available, the conclusions of the committee or authority concerned).

If it is planned to request these documents specifically for the proposed action, the request must contain an explicit reference to its title.

³⁶ Charter of Fundamental Rights of the European Union, 2000/C 364/01. See also:

http://www.europarl.europa.eu/charter/default_en.htm

³⁷http://ec.europa.eu/research/participants/data/ref/h2020/grants_manual/hi/ethics/h2020_hi_ethics-self-assess_en.pdf

2) Explain in detail in the ethics issues table how the consortium intends to address the issues, in particular as regards:

- Research **objectives** (e.g. study of vulnerable populations, dual use, etc.)
- Research **methodology** (e.g. clinical trials, involvement of children and related consent procedures, protection of any data collected, etc.)
- The potential **impact** of the research (e.g. dual use issues, environmental damage, stigmatisation of particular social groups, political or financial retaliation, benefit-sharing, malevolent use, etc.).

7. Letters of Commitment

Please use this section to insert scanned copies of the required **Letters of Commitment from partner organisations**. These should be on headed paper and signed in order to demonstrate the credibility of the organisation's commitment to the ITN.

For EJD, Letters of Institutional Commitment must also be included from those academic beneficiaries that will award the doctoral degrees. These letters should be signed by an authorised legal representative of the organisation in question so as to offer reasonable assurance regarding the commitment to award the joint, double or multiple doctoral degree(s). There is no specific template for these letters.

END PAGE

MARIE SKŁODOWSKA-CURIE ACTIONS

Innovative Training Networks (ITN)
Call: H2020-MSCA-ITN-2017

PART B

"PROPOSAL ACRONYM"

This proposal is to be evaluated as:

[ETN] [EID] [EJD]
[delete as appropriate]

Part B - Page X of Y

Annex 6 – Guidance for Descriptors Selection and List of Descriptors

Guidance for Descriptors Selection

The European Training Networks (ETN) will have a ranking list for each of the 8 scientific areas. For the European Industrial Doctorate (EID) and European Joint Doctorate (EJD) panels, one multidisciplinary ranking list for each will be created.

In the electronic submission system (SEP) the applicants should choose the scientific area and descriptors (keywords) carefully since this will guide the REA in the selection of the most appropriate experts for the proposal evaluation. The number of descriptors will range from three (3) to five (5) as explained below. Applicants must:

- 1) Select the **area of research** (e.g. CHE) in which the proposal best fits, in **section 1** of the proposal submission forms. This should be considered as the core discipline of the proposal.
- 2) Within the most relevant **sub-area of research** (e.g. C1-Synthetic Chemistry and Materials), select **the first descriptor** that best characterises the subject of the proposal (e.g. Colloid Chemistry).
- 3) **The second descriptor** that best characterises the subject of the proposal must be selected within the area of research (e.g. CHE) that has been selected in step 2.
- 4) **Third descriptor:** it is mandatory to select at least one (1) additional descriptor which can be chosen from any of the eight (8) areas of research.
- 5) If needed, you may **add a further two (2) additional descriptors** chosen freely.

Please note that you should select the descriptors **in order of importance**, the first being the most important.

To help you select the most relevant area for your proposal, the **following list provides a breakdown of each scientific area into a number of descriptors.**

List of Descriptors

Chemistry (CHE)	Area of research
<u>C1 - Synthetic Chemistry and Materials</u>	Sub-Area of research
Biomaterials, Biomaterials synthesis Chemistry of condensed matter Colloid chemistry Combinatorial chemistry Coordination chemistry Corrosion Intelligent materials, self-assembled materials Ionic liquids Macromolecular chemistry Materials for sensors Molecular chemistry Nanochemistry Nano-materials (production and properties) New materials: oxides, alloys, composite, organic-inorganic hybrid, nanoparticles Porous materials Solid state materials Structural properties of materials Supramolecular chemistry Surface modification Thin films	Descriptors
<u>C2 - Physical and Analytical Chemical Sciences</u>	Sub-Area of research
Analytical chemistry Chemical instrumentation Chemical reactions: mechanisms, dynamics, kinetics and catalytic reactions Electrochemistry, electro dialysis, microfluidics, sensors Method development in chemistry Molecular architecture and structure Photochemistry Physical chemistry Physical chemistry of biological systems Radiation and nuclear chemistry Spectroscopic and spectrometric techniques Surface chemistry Theoretical and computational chemistry	Descriptors
<u>C3 - Organic/environmental/food chemistry</u>	Sub-Area of research
Biogeochemistry, biogeochemical cycles, environmental chemistry Environment chemistry	Descriptors

Food chemistry
 Forensic chemistry
 Heterocyclic chemistry
 Medicinal chemistry
 Organic chemistry
 Peptide chemistry
 Polymer chemistry
 Translational chemistry

Economic Sciences (ECO)	Area of research
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<u>E1 - Economics, finance and management</u>	Sub-Area of research
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Banking & Finance Behavioural economics Cluster development Competitiveness, innovation, research and development Econometrics, statistical methods Economic geography Economic history, development Entrepreneurship Financial markets, asset prices, international finance Human resource management Industrial economics Innovation Management International trade Labour economics, income distribution and poverty Macroeconomics Microeconomics Natural resources and environmental economics Organization studies: theory & strategy, industrial organization Public administration Public economics Research management Social economics Urban and regional economics	Descriptors
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Information Science and Engineering (ENG)	Area of research
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<u>G1 - Computer science and informatics</u>	Sub-Area of research
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Algorithms, distributed, parallel and network algorithms, algorithmic game theory Artificial intelligence, intelligent systems, multi agent systems Bioinformatics, e-Health, medical informatics Cognitive science, human computer interaction, natural language processing Complexity and cryptography, electronic security, privacy,	Descriptors
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biometrics
Computational geometry, theorem proving, symbolic, algebraic computations
Computer architecture, pervasive computing, ubiquitous computing
Computer games, multi-media, augmented and virtual reality
Computer graphics, computer vision, multi media, computer games
Computer systems, parallel/distributed systems, grid, cloud processing systems
e-commerce, e-business, computational finance
e-learning, user modelling, collaborative systems
Informatics and information systems
Intelligent robotics, cybernetics
Internet and semantic web, database systems and libraries
Machine learning, statistical data processing and applications using signal processing (e.g. speech, image, video)
Numerical analysis, simulation, optimisation, modelling tools, data mining
Ontologies, neural networks, genetic programming, fuzzy logic
Scientific computing and data processing
Sensor networks, embedded systems, hardware platforms
Software engineering, operating systems, computer languages
Theoretical computer science, formal methods, quantum computing

Sub-Area of research

G2 - Systems and Communication Engineering: Electrical, electronic, communication, optical and systems engineering

	Descriptors
Control Engineering	Diagnostic and implantable devices, environmental monitoring
Electrical and electronic engineering:	semiconductors, components, systems
Electronics, photonics	
Man-machine-interfaces	
Nano engineering	
Networks (communication networks, sensor networks, networks of robots, etc.)	
Optical engineering, photonics, lasers	
Signal processing	
Simulation engineering and modelling	
Systems engineering, sensorics, actorics, automation	
Wireless communications, communication, high frequency, mobile technology	

Sub-Area of research

G3 - Products and Processes Engineering: Product design, process design and control, construction methods, civil engineering, energy processes, material engineering

	Descriptors
Aerospace engineering	Architecture, smart buildings, smart cities, urban engineering
Chemical engineering, technical chemistry	

Civil engineering, maritime/hydraulic engineering, geotechnics, waste treatment
 Computational engineering and computer aided design
 Energy collection, conversion and storage, renewable energy
 Energy systems, smart energy, smart grids, wireless energy transfer
 Environmental engineering and geotechnics
 Fluid mechanics, hydraulic-, turbo-, and piston engines
 Industrial bioengineering
 Industrial design (product design, ergonomics, man-machine interfaces, etc.)
 Lightweight construction, textile technology
 Materials engineering
 Mechanical and manufacturing engineering (shaping, mounting, joining, separation)
 Production technology, process engineering
 Sustainable design (for recycling, for environment, eco-design)
 Transport engineering, intelligent transport systems

Environmental and Geosciences (ENV)	Area of research
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V1 - Environment and society**Sub-Area of research**

Environmental regulations and climate negotiations **Descriptors**
 Geographical information systems, cartography
 Mobility and transportation
 Population dynamics
 Social and industrial ecology
 Spatial and regional planning
 Sustainability sciences, environment and resources
 Urbanization and urban planning, cities

V2 - Earth system science**Sub-Area of research****Descriptors**

Atmospheric chemistry, atmospheric composition, air pollution
 Climatology and climate change
 Earth observations from space/remote sensing
 Geochemistry, crystal chemistry, isotope geochemistry, thermodynamics
 Geology, tectonics, volcanology
 Geomagnetism, paleomagnetism
 Hydrology, water and soil pollution
 Meteorology, Atmospheric physics and dynamics
 Mineralogy, petrology, igneous petrology, metamorphic petrology
 Natural Hazards
 Natural Resources Exploration and Exploitation
 Oceanography
 Ozone, upper atmosphere, ionosphere
 Paleoclimatology, paleoecology
 Physical geography

Physics of earth's interior, seismology, volcanology
 Pollution (water, soil), waste disposal and treatment
 Sedimentology, soil science, palaeontology, earth evolution
 Terrestrial ecology, land cover change
 Water management

V3 - Evolutionary, population and environmental biology **Sub-Area of research**

Animal behaviour	Descriptors
Biodiversity, comparative biology	
Biogeography, macro-ecology	
Conservation biology, ecology, genetics	
Environmental and marine biology	
Environmental toxicology at the population and ecosystems level	
Systems evolution, biological adaptation, phylogenetics, systematics, comparative biology	
Population biology, population dynamics, population genetics	
Species interactions (e.g. food-webs, symbiosis, parasitism, mutualism)	

V4 - Applied Life Sciences and Non-Medical Biotechnology **Sub-Area of research**

	Descriptors
Agriculture related to animal husbandry, dairying, livestock raising	
Agriculture related to crop production, soil biology and cultivation, applied plant biology	
Agroindustry	
Applied biotechnology (non-medical), bioreactors, applied microbiology	
Aquaculture, fisheries	
Biohazards, biological containment, biosafety, biosecurity	
Biomimetics	
Crop protection and production	
Environmental biotechnology, bioremediation, biodegradation	
Food sciences	
Forestry, biomass production (e.g. for biofuels)	
Pest control	
Synthetic biology, chemical biology and new bio-engineering Concepts	

Life Sciences (LIF)	Area of research
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L1 - Molecular and Structural Biology **Sub-Area of research**

Biophysics	Descriptors
DNA synthesis, modification, repair, recombination and degradation	
Metabolism	
Molecular biology and interactions	
Protein synthesis, modification and turnover	

RNA synthesis, processing, modification and degradation
Structural biology

Sub-Area of research

L2 - Genetics, Genomics, Bioinformatics and Systems Biology

Descriptors

Applied genetic engineering, transgenic organisms, recombinant proteins, biosensors
Bioinformatics
Biological systems analysis, modelling and simulation
Biostatistics
Computational biology
Epigenetics and gene regulation
Genetic epidemiology
Genomics, comparative genomics, functional genomics
Glycomics
Metabolomics
Molecular genetics, reverse genetics and RNAi
Proteomics
Quantitative genetics
Systems biology
Transcriptomics

L3 - Cellular and Developmental Biology

Sub-Area of research

Descriptors

Animal-related development, development genetics, pattern formation and embryology
Apoptosis
Cell biology and molecular transport mechanisms
Cell cycle and division
Cell differentiation, physiology and dynamics
Cell genetics
Cell signalling and cellular interactions
Morphology and functional imaging of cells
Organelle biology
Development, developmental genetics, pattern formation and embryology in plants
Signal transduction
Stem cell biology

L4 - Physiology, Pathophysiology and Endocrinology

Sub-Area of research

Descriptors

Ageing
Cancer and its biological basis
Cardiovascular diseases
Comparative physiology and pathophysiology
Endocrinology
Metabolism, biological basis of metabolism related disorders
Non-communicable diseases (except for neural/psychiatric,

immunity-related, metabolism-related disorders, cancer and cardiovascular diseases)
Organ physiology and pathophysiology

L5 - Neurosciences and neural disorders

Sub-Area of research

Descriptors

Behavioural neuroscience (e.g. sleep, consciousness, handedness)
Cognition (e.g. learning, memory, emotions, speech)
Developmental neurobiology
Mechanisms of pain
Molecular and cellular neuroscience
Neuroanatomy and neurophysiology
Neurochemistry and neuropharmacology
Neuroimaging and computational neuroscience
Neurological disorders (e.g. Alzheimer's disease, Huntington's disease, Parkinson's disease)
Psychiatric disorders (e.g. schizophrenia, autism, Tourette's syndrome, obsessive compulsive disorder, depression, bipolar disorder, attention deficit hyperactivity disorder)
Sensory systems (e.g. visual system, auditory system)
Systems neuroscience

L6 - Immunity and infection

Sub-Area of research

Descriptors

Adaptive immunity
Bacteriology
Biological basis of immunity related disorders
Immunogenetics
Immunological memory and tolerance
Immunosignalling
Innate immunity and inflammation
Microbiology
Parasitology
Phagocytosis and cellular immunity
Prevention and treatment of infection by pathogens (e.g. vaccination, antibiotics, fungicide)
Veterinary medicine and infectious diseases in animals
Virology

L7 - Diagnostic tools, therapies and public health

Sub-Area of research

Descriptors

Diagnostic tools (e.g. genetic, imaging)
Environment and health risks, occupational medicine
Gene therapy, cell therapy, regenerative medicine
Health services, health care research
Medical engineering and technology
Medical ethics
Medical pathology

Medical physics
 Pharmacology, pharmacogenomics, drug discovery and design, drug therapy
 Public health and epidemiology
 Radiation therapy
 Surgery

Mathematics (MAT)	Area of research
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Sub-Area of research

M1 - Pure and Applied Mathematics, mathematical foundations of computer science, mathematical physics and statistics

Algebra
 Algebraic and complex geometry
 Algorithms and complexity
 Analysis
 Application of mathematics in sciences
 Control theory and optimization
 Discrete mathematics and combinatorics
 Geometry
 Lie groups, Lie algebras
 Logic and foundations
 Mathematical aspects of computer science
 Mathematical physics
 Number theory
 Numerical analysis and scientific computing
 ODE and dynamical systems
 Operator algebras and functional analysis
 Probability and statistics
 Theoretical aspects of partial differential equations
 Topology

Descriptors

Physics (PHY)	Area of research
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P1 - Fundamental constituents of matter

Sub-Area of research

Acoustics
 Atomic, molecular physics
 Classical physics
 Electromagnetism
 Fundamental interactions and fields
 Gas and plasma physics
 General physics
 Lasers, ultra-short lasers and laser physics
 Metrology and measurement
 Non-linear physics
 Nuclear astrophysics
 Particle physics

Descriptors

Quantum optics and quantum information
 Relativity
 Statistical physics (gases)
 Thermodynamics

P2 - Condensed matter physics

Sub-Area of research

Descriptors
 Electronic properties of materials and transport
 Fluid dynamics (physics)
 Magnetism and strongly correlated systems
 Mechanical and acoustical properties of condensed matter, Lattice dynamics
 Mesoscopic physics
 Molecular electronics
 Nanophysics: nanoelectronics, nanophotonics, nanomagnetism, nanoelectromechanics, etc.
 Phase transitions, phase equilibria
 Semiconductors
 Soft condensed matter
 Spintronics
 Statistical physics (condensed matter)
 Structure of solids and liquids
 Superconductivity
 Superfluids
 Thermal properties of condensed matter
 Transport properties of condensed matter

P3 - Universe sciences

Sub-Area of research

Descriptors
 Astrobiology
 Nuclear physics
 Clusters of galaxies and large scale structures
 Cosmology
 Dark matter, dark energy
 Formation and evolution of galaxies
 Formation of stars and planets
 Gravitational astronomy
 High energy and particles astronomy - X-rays, cosmic rays, gamma rays, neutrinos
 Instrumentation - telescopes, detectors and techniques
 Interstellar medium
 Planetary systems sciences
 Relativistic astrophysics
 Solar and interplanetary physics
 Space Sciences
 Stars and stellar systems
 Surface physics
 Surface science and nanostructures
 The Galaxy

Social Sciences and Humanities (SOC)	Area of research
<u>S1 - Sociology, social anthropology</u>	Sub-Area of research
Ageing, work, social policies Attitudes and beliefs Ethnography Globalization, migration, interethnic relations Inequalities, discrimination, prejudice, aggression and violence, antisocial behaviour Kinship, cultural dimensions of classification and cognition, identity, gender Myth, ritual, symbolic representations, religious studies Social influence; power and group behaviour; classroom management Social integration, exclusion, prosocial behaviour Social structure, social mobility Transformation of societies, democratization, social movements	Descriptors
<u>S2 - Political science, law, communication</u>	Sub-Area of research
Communication networks, media, information society Digital social research Global and transnational governance, international law, human rights History of science and technology Human, economic and social geography Legal systems, constitutions, foundations of law Political systems and institutions, governance Private, public and social law Social studies of science and technology	Descriptors
<u>S3 - Cognition, psychology, linguistics, philosophy and education</u>	Sub-Area of research
Clinical and experimental psychology Education policy Education: systems and institutions, teaching and learning Epistemology, logic, philosophy of science Ethics and morality, bioethics Evolution of mind and cognitive functions, animal communication Formal, cognitive, functional and computational linguistics History of philosophy Human life-span development Language pathologies, lexicography Learning, memory; cognition in ageing Metaphysics, philosophical anthropology; aesthetics Neuropsychology and cognitive psychology Psycholinguistics and neurolinguistics: acquisition and knowledge of language, language pathologies	Descriptors

Social and political philosophy
Typological, historical and comparative linguistics
Use of language: pragmatics, sociolinguistics, discourse analysis,
second language teaching and learning, lexicography,
terminology

Sub-Area of research

S4 - Literature, arts, music, cultural and comparative studies

Classics, ancient Greek and Latin literature and art **Descriptors**
Computational Modelling and Digitisation in the Cultural Sphere
Cultural memory, intangible cultural heritage
Cultural studies, cultural diversity
History of art and architecture, arts-based research
History of literature
Literary theory and comparative literature, literary styles
Museums and exhibitions, conservation and restoration
Music and musicology, history of music
Numismatics, epigraphy
Textual philology, palaeography and epigraphy
Visual arts, performing arts, film, design

S5 - Archaeology, history and memory

Sub-Area of research

Ancient history **Descriptors**
Classical archaeology, history of archaeology
Collective memories, identities, lieux de mémoire, oral history
Colonial and post-colonial history, global and transnational history,
entangled histories
Cultural heritage, cultural memory
Gender history; Cultural History; History of Collective Identities and
Memories
General archaeology, archaeometry, landscape archaeology
Historiography, theory and methods in history, including the
analysis of digital data
History of ideas, intellectual history, history of science and
techniques
Medieval history
Military history
Modern and contemporary history
Prehistory, palaeoanthropology, palaeodemography, protohistory
Social, economic, cultural and political history