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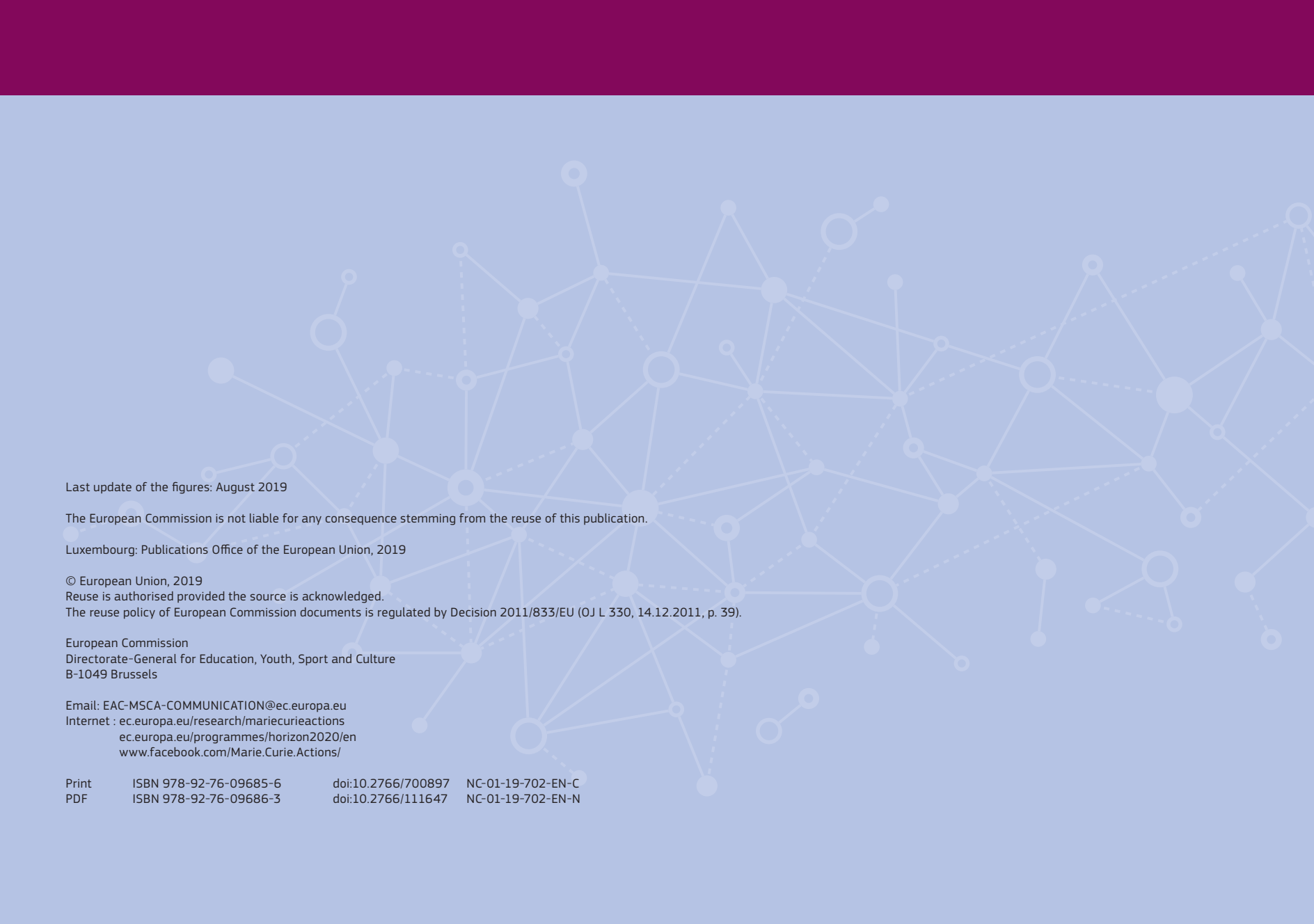


# MARIE SKŁODOWSKA-CURIE ACTIONS

Driving innovation, supporting researchers'  
mobility and cultivating excellence in doctoral and  
postdoctoral training

## Facts & Figures

*Marie Skłodowska-  
Curie Actions*



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# MSCA support researchers worldwide at any stage of their careers

The Marie Skłodowska–Curie Actions (MSCA) are part of Horizon 2020 (H2020), the European Union’s Framework Programme for Research and Innovation (2014-2020). The MSCA support researchers in all scientific domains, promote collaboration between the academic, scientific and business communities, boost the careers of scientists at all stages and develop excellent doctoral training in Europe and beyond through international and intersectoral mobility.

Since 1994, the programme has trained around **130,000 researchers** — including **35,000 doctoral candidates** — throughout their career.

The MSCA are built on values honouring their namesake, the double Nobel Prize winner Marie Skłodowska-Curie:



Curiosity-driven,  
bottom-up,  
excellent research



International and  
interdisciplinary  
collaboration



Research for the  
benefit of society and  
economy



Outreach to society  
at large

## BEING OPEN TO THE WORLD

MSCA involve individuals and entities from all over the world:

**Individuals** from all nationalities can participate in MSCA actions and receive funding from the EU. MSCA is open to researchers and innovation staff at all stages of their career, irrespective of age.

**Organisations** such as universities (57% of all participations), research institutes and infrastructures, businesses and SMEs, public institutions and civil society organisations, from:

- the European Union
- H2020 Associated Countries<sup>1</sup>
- Third Countries (see conditions<sup>2</sup>)

1. Albania, Armenia, Bosnia and Herzegovina, Faroe Islands, Georgia, Iceland, Israel, Moldova, Montenegro, North Macedonia, Norway, Serbia, Switzerland, Tunisia, Turkey and Ukraine  
2. [http://ec.europa.eu/research/participants/data/ref/h2020/other/wp/2018-2020/annexes/h2020-wp1820-annex-a-countries-rules\\_en.pdf](http://ec.europa.eu/research/participants/data/ref/h2020/other/wp/2018-2020/annexes/h2020-wp1820-annex-a-countries-rules_en.pdf)

## USING MOBILITY AS A DRIVER FOR COOPERATION

Mobility is a key characteristic of the Marie Skłodowska-Curie Actions. The MSCA promote international collaboration and sharing of ideas between different sectors and research disciplines.

Within H2020, the MSCA play a key role in building international collaborations and attracting and retaining researchers in Europe. The MSCA also back initiatives that break down barriers between academia and other socio-economic sectors. In addition, they reach out to the public with events that promote the benefit – and educational side – of science.

In brief, the Marie Skłodowska-Curie Actions provide funding for the following goals, which are reflected in the various types of MSCA actions:

**Supporting researcher training and career development under excellent working conditions**

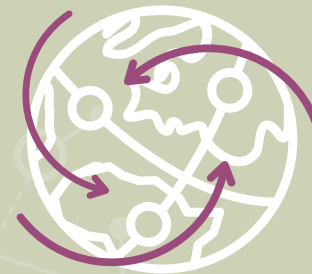
**Promoting international mobility**

**Impacting researcher's careers, organisations and structures**

**Delivering excellent research on topics decided by researchers themselves, in all domains of research and innovation**

**Developing excellent training programmes, notably doctoral programmes, including joint and industrial degrees**

**Stimulating international, inter-sectoral and interdisciplinary cooperation and networks**



# MSCA support researchers worldwide at any stage of their careers



IF

## Individual Fellowships

### What does it offer?

IF allow experienced researchers or post-docs to work on personal research projects together with the institution of their choice and boost their career through high-quality training and skills development. IF also allows researchers to:

- resume research after a career break
- return to Europe after carrying out research abroad
- work on R&I projects outside the academic sector

### Who applies?

Individual researchers together with their (return) host organisation in the EU or Associated countries.

### Who is funded?

Experienced researchers<sup>1</sup> of any nationality.

## MSCA ACTIONS

The Seal of Excellence is a quality label awarded to high-quality proposals for Individual Fellowships which were not funded due to budget constraints. Its goal is to help them find alternative funding.



Funders in  
**9 countries**  
so far have created schemes to  
fund MSCA Seal of Excellence  
recipients



More than  
**6,000 researchers**  
have received the Seal of  
Excellence so far

1. Experienced Researchers (ER) are in possession of a doctoral degree or have at least four years of full-time equivalent experience.
2. Early-Stage Researchers (ESR) must be in the first four years of their research careers (full-time equivalent research experience) and not yet have been awarded a doctoral degree.



## ITN

### Innovative Training Networks

#### What does it offer?

ITN drive scientific excellence and innovation. They bring together universities, research institutes and organisations from other sectors to offer high quality doctoral programmes and research training through:

- European training networks (ETN)
- Industrial doctorates (EID)
- Joint doctorates (EJD)

#### Who applies?

International networks of research organisations from both the academic and the non-academic sectors.

#### Who is funded?

Early-stage researchers of any nationality<sup>2</sup>.



## RISE

### Research and Innovation Staff Exchange

#### What does it offer?

RISE funds short-term international and inter-sectoral exchanges of staff members involved in research and innovation to develop sustainable collaborative projects between different organisations. It helps people develop their knowledge, skills and careers and ensure the transfer of knowledge.

#### Who applies?

International networks of research organisations from the academic and non-academic sectors.

#### Who is funded?

Researchers, technical administrative and managerial staff of the participating organisations, of any nationality and at all career levels.



## COFUND

### Co-funding of Regional, National and International Programmes

#### What does it offer?

COFUND provides organisations with financial support to develop their own regional, national or international doctoral or fellowship programme to train researchers, develop their career and foster excellence in training.

#### Who applies?

Organisations funding or managing doctoral or fellowship programmes.

#### Who is funded?

Early-stage and experienced researchers.

# MSCA support researchers worldwide at any stage of their careers



## NIGHT

### European Researcher's Night

#### What does it offer?

This Europe-wide public event is dedicated to popular science. It aims to:

- Raise public awareness on research and innovation and on the benefits of publicly-funded research
- Bring researchers and public together
- Create an understanding of research's impact on citizens' daily life
- Encourage people to embark on research careers

#### Who applies?

One single organisation or consortia of several organisations from the EU or H2020 Associated Countries.

#### Who is funded?

Any organisation from the EU or Associated Countries or partnership planning to organise the target activities.



More than  
**1.5 million visitors**  
in 2018



More than  
**20,000 researchers**  
take part



**55 projects**  
in over **370 cities**  
in more than **30 countries**,  
in 2018, including  
experiments, science shows,  
debates, competitions and  
quizzes

### In addition, MSCA provide:

- Funding to consortia to facilitate trans-national co-operation between European and national initiatives and programmes to support researchers who are at risk in their origin countries (due to discrimination, persecution, suffering and/or violence), or are seeking or have found out refuge in Europe recently
- Allowances for MSCA researchers/ staff members to cover the additional expenses that they face arising from a disability

For detailed information on the Marie Skłodowska-Curie Actions, please visit the following site:  
[https://ec.europa.eu/research/mariecurieactions/msca-actions\\_en](https://ec.europa.eu/research/mariecurieactions/msca-actions_en)

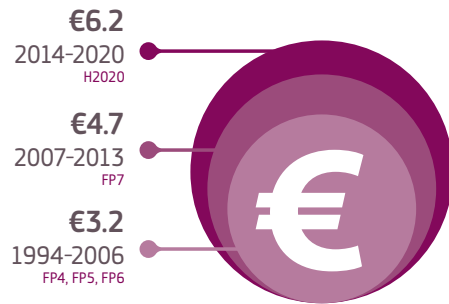




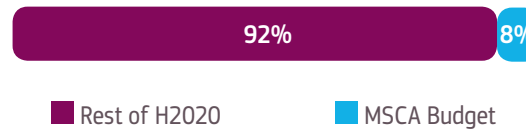
# MSCA fund and consolidate research cooperation

## A GROWING BUDGET AND PARTICIPATION

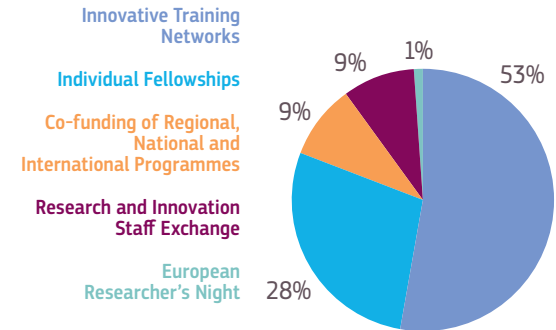
The MSCA budget has increased steadily over the years. The current budget (2014-2020) under Horizon 2020 is 6.2 billion euro and represents around 8% of the overall H2020 budget. The MSCA budget is allocated according to the objectives of the programme and the demand for each of the actions, Innovative Training Networks and Individual Fellowships being the actions with more funding.



MSCA budget by period (Billion €)



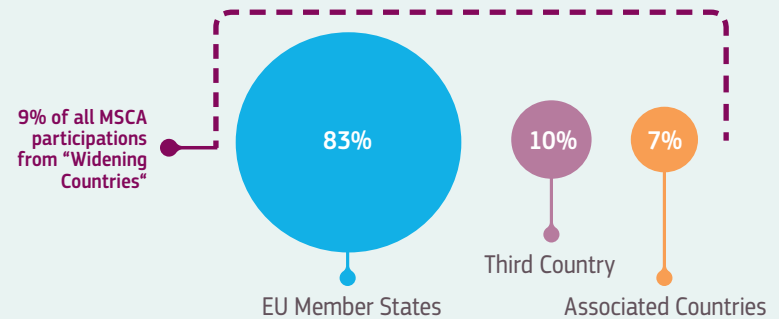
MSCA budget in H2020 (%)



MSCA budget by action

### Participation and budget by groups of countries

MSCA have a high participation of EU Member States, but also of Associated Countries and Third Countries. "Widening Countries"<sup>1</sup>, a transversal group of EU and associated countries with a modest participation in H2020, account for nearly 9% of all MSCA participations<sup>2</sup>.



Share of participations in MSCA - Groups of countries

1. EU Member States: Bulgaria, Cyprus, Czech Republic, Estonia, Croatia, Hungary, Lithuania, Luxembourg, Latvia, Malta, Poland, Portugal, Romania, Slovakia and Slovenia.

Associated Countries: Albania, Armenia, Bosnia and Herzegovina, Faroe Islands, Georgia, Moldova, North Macedonia, Montenegro, Serbia, Tunisia, Turkey and Ukraine.

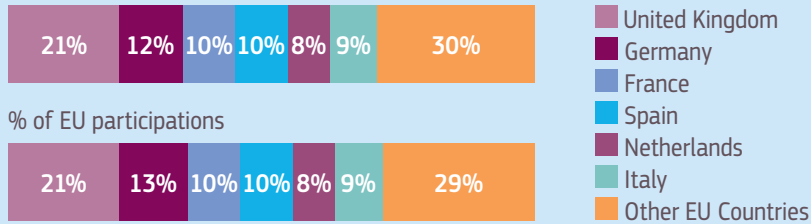
2. Number of times organisations participate in various MSCA projects.

# MSCA fund and consolidate research cooperation

## European Union Countries

The participation of the United Kingdom, Germany, Spain, France, the Netherlands and Italy represent 70% of the MSCA budget awarded to EU countries and more than 70% of EU participations in MSCA. Taking account of the relative size of countries, Denmark, Ireland, Cyprus, Netherlands and Iceland attract the highest budget per inhabitant.

% of EU budget



Share of MSCA EU budget and participations – Top EU countries

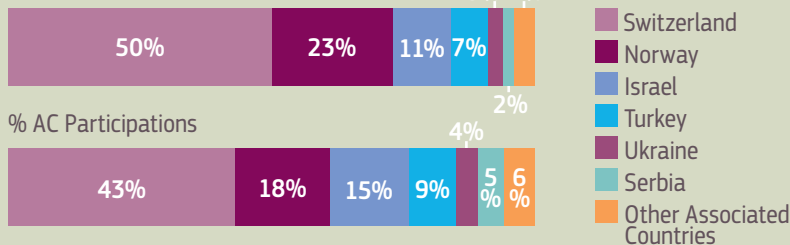


Budget (thousand €) per 100.000 inhabitants – Top EU countries

## Associated Countries (AC)

Switzerland, Norway, Israel, Turkey, Ukraine and Serbia account for most participations by Associated Countries and attract most of the budget allocated to this country group.

% of AC Budget

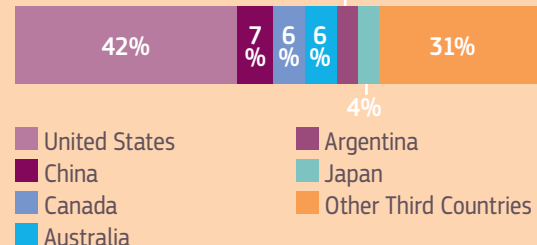


Budget and participations of top Associated Countries

## Third Countries (TC)

The United States, China, Canada, Australia, Argentina and Japan are the most active Third Countries when it comes to participation.

% TC Participations

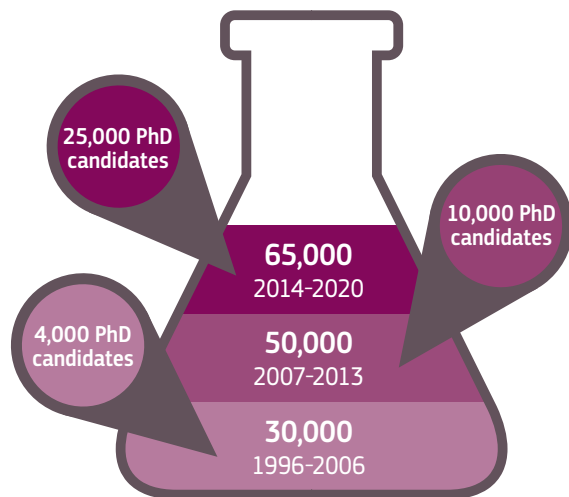


Participations of Third Countries



## A HIGHLY-SKILLED GENERATION OF RESEARCHERS

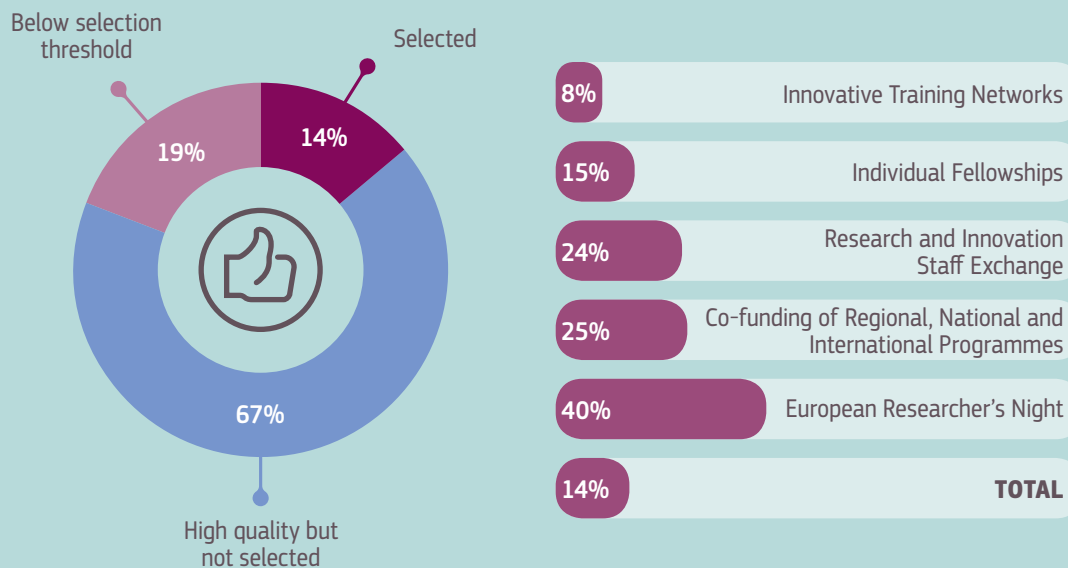
By the end of 2020, the MSCA will have supported a total of 145,000 researchers, including almost 40,000 PhD candidates.



Researchers supported by the MSCA

## MORE PROPOSALS AND OF BETTER QUALITY

The MSCA are highly relevant and attractive, as shown by a growing number of high-quality proposals. However, many cannot be funded due to a lack of funding: proposals submitted under Co-funding of Regional, National and International Programmes; Research and Innovation Staff Exchange and European Researcher's Night are most likely to be funded, whilst there is a high demand for Individual Fellowships and Innovative Training Networks.



Quality of MSCA proposals

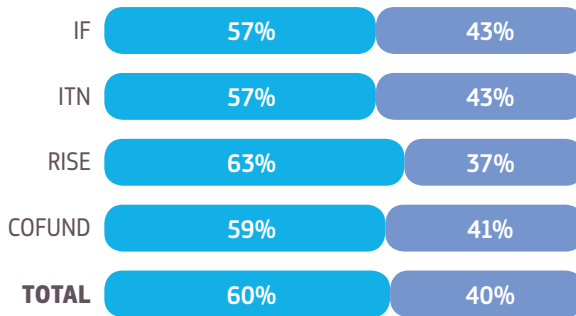
Success rate by action  
(Chances of success for an applicant to obtain funding)



# MSCA promote gender equality and research free of barriers

## IN RESEARCH TEAMS

Gender equity makes for better research: female researchers are almost as successful as their male counterparts when applying to the MSCA, notably in Individual Fellowships and Innovative Training Networks. In actions such as Individual Fellowships, the percentage of women selected is higher than the percentage of women applying. Besides, the overall percentage of women in the MSCA is far above the average of other H2020 programmes and the average of the EU research population.



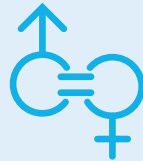
Male



Female

Gender share by action

## IN THE PROCESS OF AWARDING GRANTS

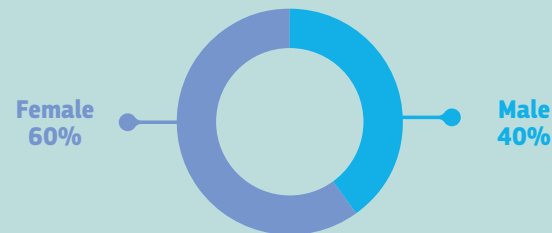


- All MSCA evaluators receive training on unconscious gender bias
- Research teams must commit to gender equality

## AND AT WORK



- Family allowance
- Maternity/parental leave with possibility to extend fellowship
- Part-time work for family and professional reasons
- Career restart after a break



Fellows receiving support to resume their career by gender



## MSCA play a key role in international research mobility and science cooperation:

- Building international collaborations
- Bringing added value for organisations and people through international cooperation
- Attracting researchers to Europe
- Retaining researchers in Europe
- Supporting researchers going outside of the EU, who return and bring back expertise



## INVOLVING ORGANISATIONS FROM ALL OVER THE WORLD

The MSCA account for the majority of third-country participations in H2020, involving a large number of organisations from outside the EU such as:

### In Associated Countries

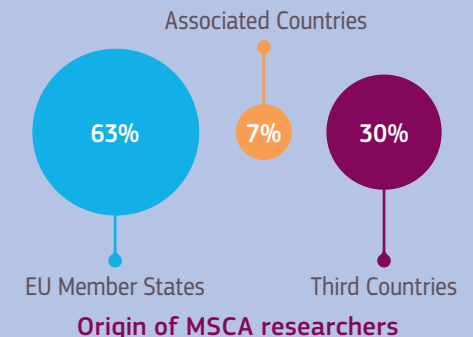
- Ecole Polytechnique Fédérale de Lausanne (Switzerland)
- Tel Aviv University (Israel)
- Universitetet I Oslo (Norway)
- University of Iceland - Háskóli Íslands (Iceland)
- Institut Pasteur de Tunis (Tunisia)

### In Third Countries

- University of California (USA)
- Universidad de Buenos Aires (Argentina)
- University of Tokyo (Japan)
- Tsinghua University (China)
- University of Melbourne (Australia)

## WELCOMING RESEARCHERS OF ALL NATIONALITIES

MSCA have funded researchers from almost **160 nationalities**, who have been hosted by organisations in more than **100 countries**. Although all the MSCA allow for the participation of researchers and staff members of all over the world, Innovative Training Networks and Research and Innovation Staff Exchange are the actions with more fellows from third countries.



# MSCA support global research

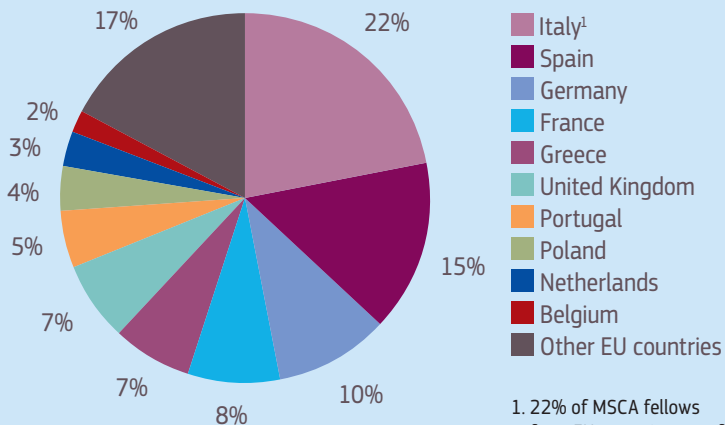


Split of third country fellows by action

- Research and Innovation Staff Exchange
- Innovative Training Networks
- Individual Fellowships
- Co-funding of Regional, National and International Programmes

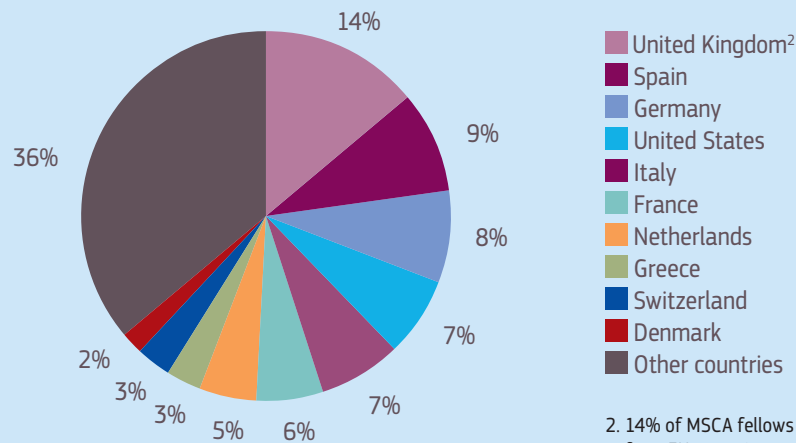
## MSCA fellows from the European Union

Most EU researchers come from Italy, Spain, Germany, France and the United Kingdom. These countries, together with the United States, are also the main destinations for MSCA researchers. Besides, more than 5,000 MSCA EU fellows did research outside of the EU.



1. 22% of MSCA fellows from EU countries are of Italian nationality

Nationality of EU researchers

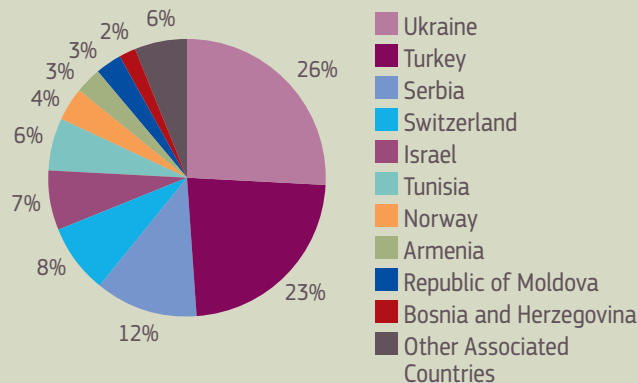


2. 14% of MSCA fellows from EU countries went to the UK

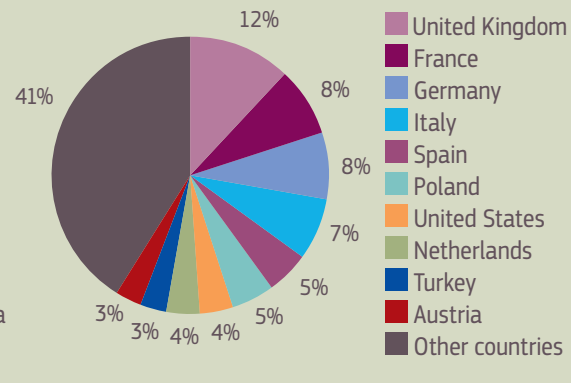
Main destinations of EU researchers

### MSCA fellows from Associated Countries

Most researchers from Associated Countries come from Ukraine, Turkey, Serbia, Switzerland and Israel, whereas they are hosted by institutions mainly in the United Kingdom, France, Germany, Italy and Spain.



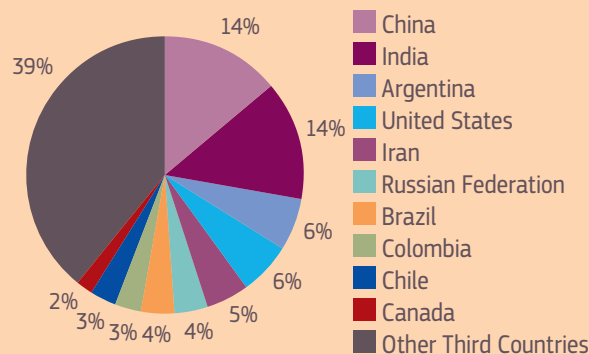
Nationality of researchers from Associated Countries



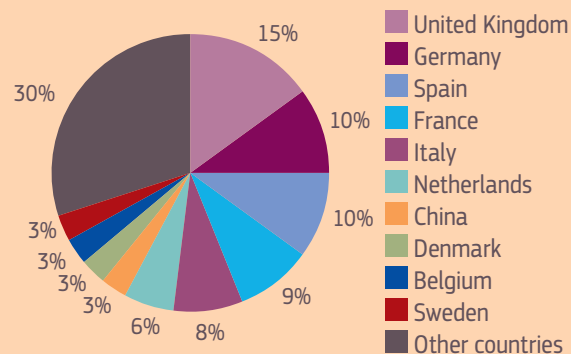
Main destinations of researchers from Associated Countries

### MSCA fellows from Third Countries

Most researchers from Third Countries come from China, India, Argentina, the United States and Iran, whereas they are hosted by institutions mainly in the United Kingdom, Germany, Spain, France and Italy.



Nationality of researchers from Third Countries



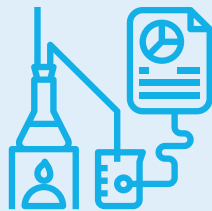
Main destinations of researchers from Third Countries



# MSCA encourage research in all fields and across disciplines

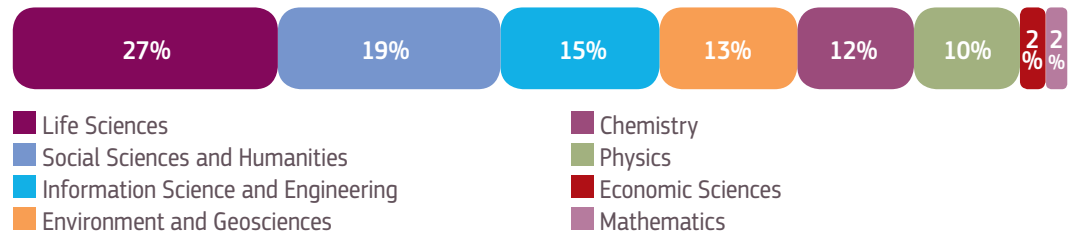
## DRIVING SCIENCE FROM THE GROUND

- The MSCA are open to all domains of research and innovation
- No pre-established scientific priorities
- Budget allocation is demand-driven
- Research driven by scientists with a bottom-up approach tackling global societal challenges and supporting Sustainable Development Goals

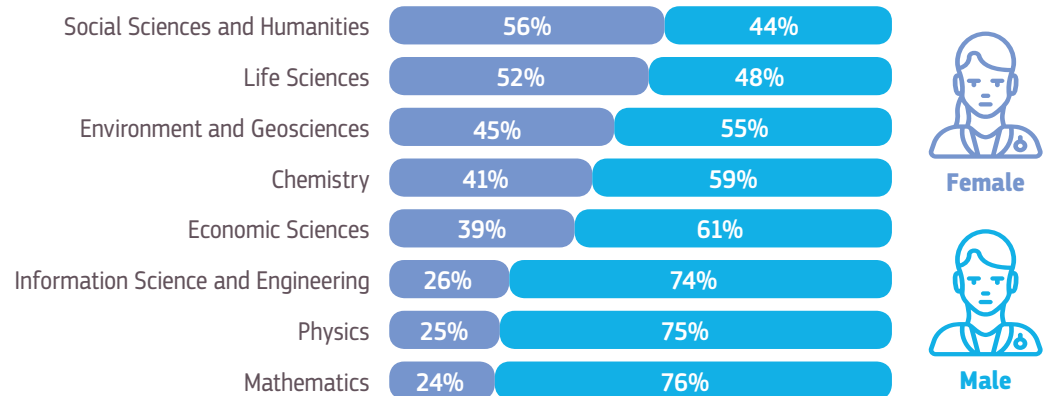


## PROGRESS BY WORKING IN DIFFERENT FIELDS

Life Sciences and Social Sciences and Humanities are the main fields of research among MSCA researchers, the MSCA being the biggest supporters of Social Sciences and Humanities in H2020. A closer look shows that Social Sciences and Humanities, Life Sciences and Environment and Geosciences have a similar percentage of female and male researchers, whilst the rest of research fields have a clear majority of male researchers.



### Main fields of research of MSCA researchers

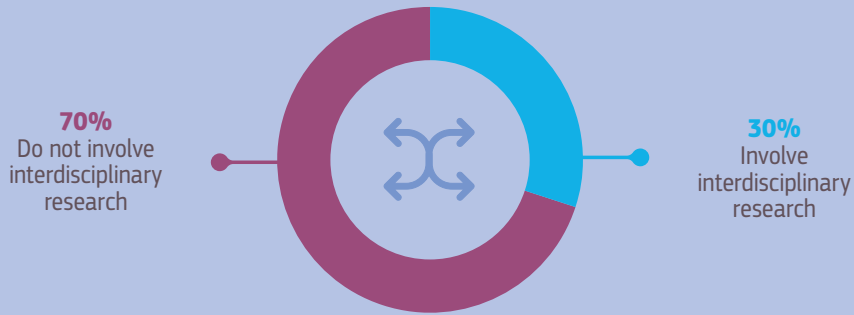


### Gender of MSCA fellows by field of research

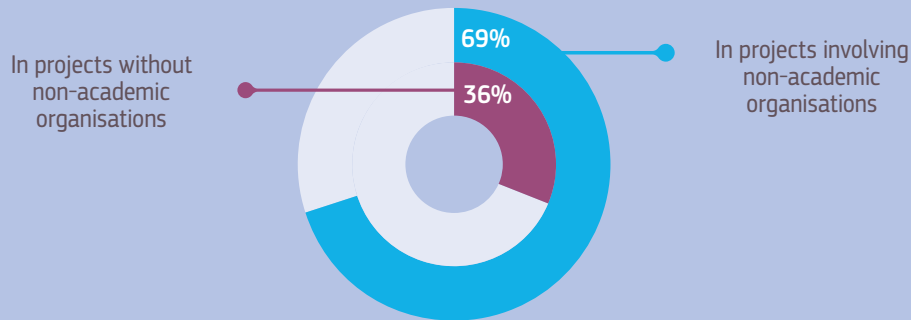


## ENCOURAGING INTERDISCIPLINARITY

Around one third of MSCA applications for Individual Fellowships involve interdisciplinary research. Besides, around 69% of fellows working in projects with non-academic organisations are doing interdisciplinary research, compared to 36% of fellows in projects without such organisations.



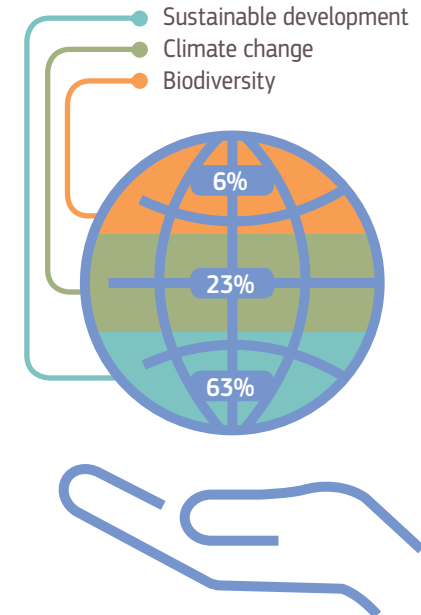
% of applications for fellowships for interdisciplinary research



% of fellows doing interdisciplinary research

## ADDRESSING KEY SOCIETAL CHALLENGES

The MSCA contribute to achieving the Sustainable Development Goals (SDGs) and tackling societal challenges, such as sustainable development, climate change and biodiversity.

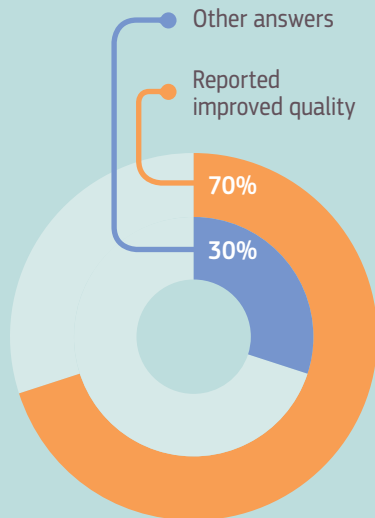


Share of budget awarded to projects addressing key societal challenges



## SUPPORTING COOPERATION THROUGH DOCTORAL PROGRAMMES AND NETWORKS

Doctoral programmes and training networks offered under MSCA support innovative training, transferable skills and exposure to industry and non-academic sectors. Together with Research and Innovation Staff Exchange, doctoral programmes financed under the MSCA have supported more than 23,000 doctoral candidates so far. Besides, they contribute to improving academic quality: more than 70% of organisations said that MSCA improved the quality of learning for researchers.



Organisations reporting improved quality of learning

### European Training Networks

European Training Networks involve academic and non-academic organisations and help researchers gain experience of different working environments while developing transferable skills.

**542 ETNs**

### European Industrial Doctorates

European Industrial Doctorates are networks involving academic organisations and business. They jointly supervise PhD candidates enrolled in a doctoral programme so that they can step outside academia and develop skills in industry and business.

**114 EIDs**

### European Joint Doctorates

European Joint Doctorates are joint, double or multiple degrees that promote international collaboration that cuts across different business and research sectors. They are supervised by networks of academic organisations and other entities.

**51 EJDs**

### COFUND - Doctoral Programmes

COFUND Doctoral Programmes provide inter alia financial support to European organisations for doctoral programmes.

**68 doctoral programmes**



# MSCA bring science and business together

## PROVIDING FUNDING FOR THE NON-ACADEMIC SECTOR

The MSCA involve all sectors, from academia to private sector, and provide funding to non-academic organisations, among them a significant number of SMEs:

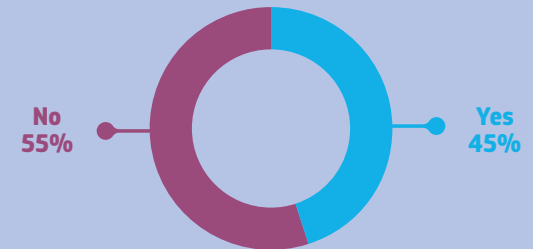
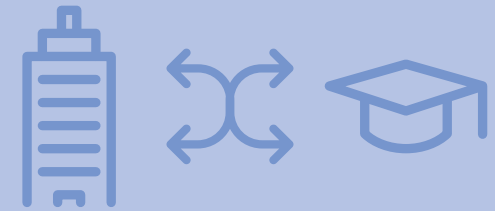
- Around 602 million euro so far enable researchers to work in the non-academic sector, of which more than 250 million euro for SMEs
- More than 4,000 different private-for-profit organisations have been funded, of which 2,300 SMEs
- 7,500 researchers working outside academia, including NGOs and private companies



Participations in the MSCA by type of organisation

## ENCOURAGING CROSS-SECTORAL MOBILITY

The MSCA encourage mobility between different sectors: around 45% of fellows benefit from cross-sectoral mobility out of or into an academic setting.



Share of MSCA fellows benefitting from cross-sectoral mobility



# MSCA nurture and develop research talent

## TO PUSH BOUNDARIES

### Notable achievements include:



9 Nobel Prize winners (involved as fellows or supervisors in MSCA)



30 Scientists involved in the discovery of the Higgs Boson at CERN



14 early-stage researchers involved in the Graviton project which led to the detection of gravitational waves



1 Oscar Winner



A winner of the 2019 EU Prize for Women Innovators

## TO GENERATE SCIENTIFIC BREAKTHROUGHS



- Around 5% of fellows filed a patent application in the framework of their fellowship
- With nearly 13,000 peer-reviewed articles published by researchers and supervisors, MSCA is one of the leading programmes in H2020
- MSCA fellows are twice as likely to have publications among top 1%, 5% and 10% compared to other researchers

## MARIE CURIE ALUMNI ASSOCIATION: A GLOBAL NETWORK OF RESEARCHERS

The Marie Curie Alumni Association (MCAA) is a non-profit association that connects researchers throughout Europe and around the world to enable international transdisciplinary collaborations.



**34 chapters**  
in different  
geographic regions  
all over the world



More than  
**14,000**  
members



**23 research**  
area groups

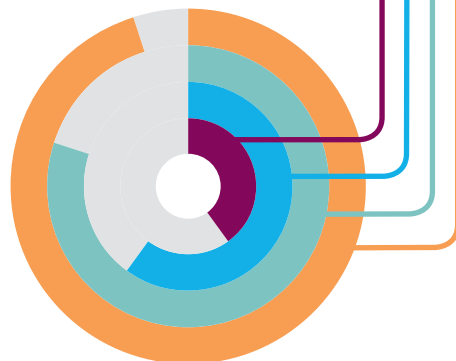
MSCA has a positive effect on fellows' careers. According to Individual MSCA fellows:

**Around 95%** are employed after their MSCA fellowship

**Around 80%** are very satisfied with the innovative research training and professional development opportunities

**Around 60%** believe that without MSCA it would have taken longer to move on in their career

**Around 40%** were promoted to more senior positions after their MSCA fellowship, most attribute this to participation in MSCA



## AND IMPROVE JOB PROSPECTS

### Organisations also report benefits from participating in the MSCA:

- 1 in 3 says MSCA funding helps create additional jobs on top of those financed by the programme
- Around one third says MSCA helps them retain excellent researchers in Europe
- MSCA allow EU Member States in particular to attract back their diaspora

83% Cyprus<sup>1</sup>

71% Hungary

70% Greece

58% Estonia

57% Italy

55% Poland

48% Czech Republic

45% Spain

39% Portugal

27% Slovenia

35% Average EU<sup>2</sup>

1. 83% of IF fellows in Cyprus are of Cypriot nationality

2. Only countries with more than 10 IF fellows of their nationality

Share of fellows in Individual Fellowships returning to their home countries



## MSCA researchers' voices

**Dr Himanshu Jena**

*University of Ghent,  
Belgium*



**“I want to thank Marie Skłodowska-Curie fellowship for giving the independence and flexibility to work on my area of competence in an excellent scientific environment. The generous financial support helped me and my family to work hard while enjoying also Europe. Throughout my life I will remain obliged to MSCA. I encourage others to apply: it is so worth the effort.”**

**“Collaboration is a pillar of science. My MSCA allowed me to pursue my scientific ideas together with excellent Canadian researchers at prestigious McMaster University. Transfer of the acquired knowledge and skills will be my next challenge.”**

**Dr Jana Burkhardt**

*McMaster University,  
Canada*



**Claudia Beurivage**

*Industrial doctoral student at the University of Sheffield,  
United Kingdom*



**“The MSCA Fellowship gave me the opportunity to work for a leading European biotechnology company. As part of an ITN project, I experienced both the academic and industrial sectors in order to choose the career most suited for my strengths and capabilities. Now being at the end of my Fellowship, I feel confident in bringing my career to the next step programme.”**

**“The MSCA fellowship has been a turning point of my career. It was essential to start my research group and pursue my own ideas in the field of composite materials.”**

**Dr Roberto Guzman de Villoria**

*Madrid Institute for Advanced Studies of Materials, IMDEA,  
Spain*





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