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## **AUSTRIA IN HORIZON 2020: MARIE SKŁODOWSKA-CURIE ACTIONS AND EUROPEAN RESEARCH COUNCIL**

## IMPRINT

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# AUSTRIA IN HORIZON 2020: MARIE SKŁODOWSKA-CURIE ACTIONS AND EUROPEAN RESEARCH COUNCIL

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# 1 INTRODUCTION



**This “ERA Thematic Dossier” provides an overview of the Austrian performance in two vital human resources oriented programmes of Horizon 2020, the Marie Skłodowska-Curie Actions and the European Research Council. Based on the analyses, several recommendations for action are proposed.**

**T**he subject “human resources in research” is fundamental for all parts of Horizon 2020, the EU Framework Programme for Research and Innovation, as nearly all programmes fund personnel costs and a large part of the funding is used for the setup, extension and maintenance of research teams. However, there are mainly two programmes explicitly funding human resources: the Marie Skłodowska-Curie Actions (MSCA), supporting the career development of researchers, and the European Research Council (ERC), fostering “pioneer research” by funding excellent individual scientists and their teams. Therefore, this report is focusing on MSCA and ERC that ideally serve as synergetic programmes.

### DATA SOURCES

For the preparation of this report, the sources of information used include:

- Data on participation in the relevant Horizon 2020 programmes, based on eCORDA (data release from 30th of September 2017, unless indicated otherwise), information for the ERC-FET-MSCA Programme Committee (CIRCABC) and data provided by the ERCEA and REA, as well as corresponding data from the 7th EU Framework Programme

- Work programmes for MSCA and ERC
- The “FP7 ex post and H2020 interim evaluation of Marie Skłodowska-Curie Actions (MSCA)”
- Data from all sources mentioned above have been visualized by the Austrian Research Promotion Agency (FFG)

This dossier provides a snap-shot of the current situation. Horizon 2020 is continuously producing new data as a result of new calls, grant agreements etc. This may result in changes in the statistical data. While we made every effort to ensure accuracy of the information provided, no liability can be accepted.



# 2 EXECUTIVE SUMMARY



In **MSCA**, Austria so far acquired EUR 71.68 million which corresponds to 2.28% of the total MSCA budget (EUR 3.15 billion) for the calls 2014–2017 and almost 9% of the overall share of Horizon 2020 funding for Austria. Austrian institutions have 122 participations in Innovative Training Networks (ITN), 95 Individual Fellowships (IF) and all in all 276 MSCA participations, which makes the MSCA the second largest contributor to the Austrian participation in Horizon 2020. The overall participation success rate of Austrian institutions across all MSCA is 13.7%, which is slightly above the average for all countries (12.4%). While an increasing general interest in MSCA can be observed in Austria as in most other European countries, participation patterns and success rates vary substantially across the different schemes. For instance, the performance of Austrian institutions measured in the number of funded participations remains stable for the Innovative Training Networks whilst the decreasing trend in the number of Individual Fellowships reflects the oversubscription and falling success rates in this scheme.

At EUR 143.55 million, the **ERC** presently constitutes the biggest share of Horizon 2020 funding for Austria. To date researchers at Austrian institutions have obtained 109 ERC Grants in Horizon 2020, of which the Starting Grants constitute the biggest fraction. The overall success rate of ERC frontier research applications at Austrian institutions is 17.3%, above the average for all countries (12.0%). Following a decline in “Austrian” Starting and Consolidator Grant applications at the beginning of Horizon 2020, application numbers are slowly on the rise again. The ERC Proof of Concept Grant scheme has seen only a few applications from Austria to date, testifying for untapped potential.

Some interesting observations can be made with regard to the share of **MSCA proposals involving ERC Principal Investigators** and the success rates of such applications:

The share of eligible MSCA proposals (mainly IF, ITN) involving an ERC PI is 11% at European level and 19% for MSCA proposals coordinated by an Austrian organisa-

tion. The European success rate of MSCA proposals (IF, ITN) involving an ERC PI is significantly higher than for proposals without ERC PI (18% vs 13%). For Austria, the corresponding figures are 18% vs 12%. When considering the MSCA IF alone, the correlation between PI involvement and success rate is even stronger pronounced.

A detailed analysis of the potential correlation between MSCA and ERC at the European level could be very interesting, also with respect to ERC PIs coordinating MSCA projects.

**Oversubscription** remains an issue for both programmes. For MSCA the overall oversubscription rate doubled between FP7 and Horizon 2020, with the highest burden in the ITN and the IF. While the ERC has seen some relief of the situation due to the introduction of resubmission restrictions, a significant fraction of top-rated ERC proposals remains unfunded in each call.

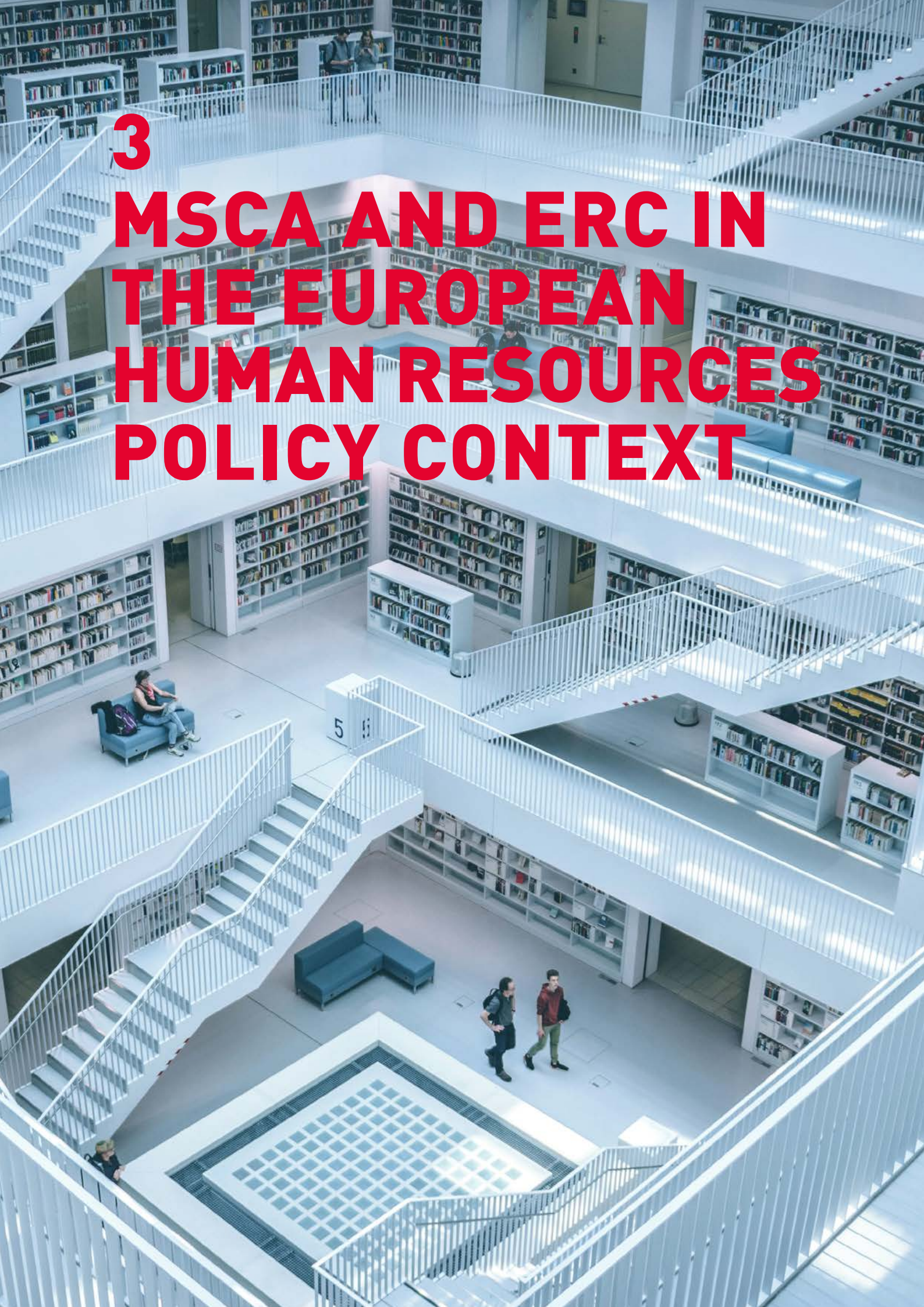
A **strategic approach** is required

- for successful participations in the MSCA ITN European Joint Doctorates and MSCA COFUND, including timely planning and involvement of all relevant internal organisational units and levels
- for the IF, where the cooperation between the applying researcher and the supervisor/host organisation is essential in order to raise the quality of proposals
- for mentoring activities supporting (potential) ERC applicants according to the requirements of their particular career stage. These should be continued and expanded to the extent required to position Austrian institutions favourably in the competition for ERC grants
- for the early mobilisation of the ERC community, which remains important in ensuring solid Austrian participation in future ERC calls. This also includes the ERC Proof of Concept Grant in which there is scope for a marked enhancement of Austrian performance.



**3**

# **MSCA AND ERC IN THE EUROPEAN HUMAN RESOURCES POLICY CONTEXT**





**Human resources policy at the European level is fuelled by the ambition to achieve the European Research Area (ERA), providing globally attractive framework conditions for researchers which allow them to move swiftly across countries without experiencing hurdles posed by different national systems and regulations. While important steps towards establishing the ERA have been taken, significant implementation obstacles remain before it can become a reality and seriously challenge the USA as the main attractor of international talent.**

**T**he Charter for Researchers and the Code of Conduct for the recruitment of researchers were put forward by the European Commission in 2005. These documents address researchers as well as research employers and funders in the public and the private sectors and are cornerstones of European HR policy. They have increasingly also influenced the conditions for research funding at European level, via the European Framework Programme. With Horizon 2020, a “best-effort obligation” requiring all beneficiaries of EU funding to comply with the Charter & Code has been introduced by Article 32 of the Model Grant Agreement. Furthermore, the Human Resources Strategy for Researchers (HRS4R) was launched in 2008. The latter to support and recognise the practical implementation of the Charter & Code by European institutions by means of a dedicated process (recently renewed) through which institutions can obtain an HR Excellence in Research award.

Within the EU funding landscape for research, the Marie Skłodowska-Curie Actions (MSCA) and the European Research Council (ERC) have proven to be important contributors to the shaping of attractive framework conditions for researchers in Europe, and thus for realising the ERA.

The goals pursued by the MSCA, one of the best established EU funding instruments for human resources in research, are of immediate relevance to the ERA.

They include attracting more highly skilled researchers from all over the world and promoting high-quality research, training and career development. MSCA foster knowledge transfer and the mobility of researchers, both across borders and between academia and non-academia. In doing so, the MSCA contribute to excellent research, with the aim of generating jobs, growth and investment by equipping researchers with the new knowledge, skills and international and intersectoral exposure needed to fill the top positions of tomorrow and to solve current and future societal challenges.

The MSCA are open to all types of organisation, to all domains of research and innovation, and to researchers and innovation staff of any nationality at all stages of their career, based on the principle that they move between countries to acquire new knowledge and develop their research careers. The five main MSCA instruments in Horizon 2020 comprise Individual Fellowships (IF), Innovative Training Networks (ITN), Research and Innovation Staff Exchange (RISE), Co-funding of Regional, National and International Programmes (COFUND), and European Researchers' Night (ERN). Through the introduction of the ITN European Joint Doctorates and the COFUND Doctoral Programmes, the MSCA in Horizon 2020 emphasise the training of doctoral students. Furthermore, there is a strong focus on innovation as most MSCA support the strategic involvement of the non-academic sector.

Also the European Research Council (ERC) has played an important role in enhancing Europe's attractiveness as a destination for researchers. With its single-minded approach in terms of having scientific excellence as the sole criterion for funding frontier research, it has gained a global reputation as a benchmark for top science carried out by researchers at all stages of their career. A particular focus is placed on supporting young researchers in gaining or consolidating their scientific independence. By providing substantial funding to individual Principal Investigators (PI), the ERC seeks to counteract a frequently cited "European" problem of rigid hierarchies and limited career perspectives. The fact that ERC grants can be transferred between European organisations has triggered European-wide institutional competition in attracting ERC grantees. This is very helpful for the individual grantees, but naturally also entails some challenges, not least by exposing the differences across Europe in terms of framework conditions for research and putting particular pressure for instance on countries with lower salary levels. Supported by its high reputation and visibility, and because the achievements of European research institutions are increasingly also assessed in terms of ERC performance, the ERC can be perceived as a kind of magnifying lens. It draws attention to national and European challenges and potential solution strategies towards establishing a globally attractive European Research Area.

HR challenges also form an important part of the European ERA Roadmap for 2015-2020 and its national counterparts, addressing key issues in the area of HR policy such as the envisioned Open Labour Market for Researchers, research infrastructures, gender equality, and knowledge transfer.

The long-standing topic of knowledge transfer is gaining even more importance in the context of the European aim to ensure open access to publications and research data, including the efforts towards a European Open Science Cloud. As the profile of "what makes a responsible researcher" is developing further, so are questions of how the performance of researchers and research institutions should be assessed and rewarded in the future, invoking a shift from the current publication impact factor-centred view. As has been the case in the past, it can be expected that the MSCA in particular will continue to function as pilots for possible adaptations in the European research funding landscape.





Within the EU funding landscape for research, the Marie Skłodowska-Curie Actions (MSCA) and the European Research Council (ERC) have proven to be important contributors to the shaping of attractive framework conditions for researchers in Europe, and thus for realising the European Research Area.

# **4 THE AUSTRIAN PERFORMANCE**





In **MSCA**, Austria so far acquired EUR 71.68 million which corresponds to 2.28% of the total MSCA budget (EUR 3.15 billion) for the calls 2014–2017 and almost 9% of the overall share of Horizon 2020 funding for Austria.

Austrian institutions have 276 participations constituted of 95 Individual Fellowships, 122 participations in Innovative Training Networks, 54 in Research and Innovation Staff Exchange, 3 COFUND and 2 European Researchers' Night participations. Both with regard to the number of evaluated and the number of funded participations, MSCA make up the second highest share of all Austrian participations, behind ICT. The overall success rate of Austrian institutions in regard to participations across all MSCA is 13.7%, which is slightly above the average for all countries (12.4%).

While in Austria as well as in most European countries, an increasing general interest in MSCA can be observed, participation patterns and success rates vary substantially across the individual schemes. The performance of Austrian institutions measured in the number of funded participations remains stable for the Innovative Training Networks whilst the decreasing trend in the number of Individual Fellowships reflects the oversubscription and falling success rates in this scheme. The low participation in Research and Innovation Staff

Exchange mirrors the suboptimal design of this scheme, resulting also in difficulties during the implementation of the projects.

At EUR 143.55 million, the **ERC** presently constitutes the biggest share of Horizon 2020 funding for Austria. To date researchers at Austrian institutions have obtained 109 ERC Grants in Horizon 2020, of which Starting Grants constitute the biggest fraction (56), followed by Consolidator Grants (30) and Advanced Grants (23). The overall success rate of ERC frontier research applications at Austrian institutions in Horizon 2020 is 17.3%, above the average for all countries (12.0%). Following a decline in "Austrian" Starting and Consolidator Grant applications at the beginning of Horizon 2020, application numbers are slowly on the rise again. The ERC Proof of Concept Grant scheme has seen only a few applications from Austria to date, testifying for untapped potential.

# 4.1 MSCA – THE AUSTRIAN PERFORMANCE 2014–2017

## 4.1.1 INDIVIDUAL FELLOWSHIPS – GROWING COMPETITION

### THE INDIVIDUAL FELLOWSHIP AT A GLANCE

The goal of the Individual Fellowships (IF) is to enhance the creative and innovative potential of experienced researchers wishing to diversify their individual competence in terms of skill acquisition through advanced training as well as international mobility (between the academic and non-academic sectors). The IF provide opportunities to researchers of any nationality to acquire and transfer new knowledge, and to work on research and innovation in Europe and beyond.

European Fellowships (EF) are held in EU Member States or Associated Countries and are open to experienced researchers coming to Europe or moving within Europe to carry out research projects for a duration of 1-2 years. The European Fellowships are divided into the following panels:

- Standard Panel (EF)
- Reintegration Panel (RI), supporting the return and reintegration of researchers moving from a third country into a longer term research position in Europe

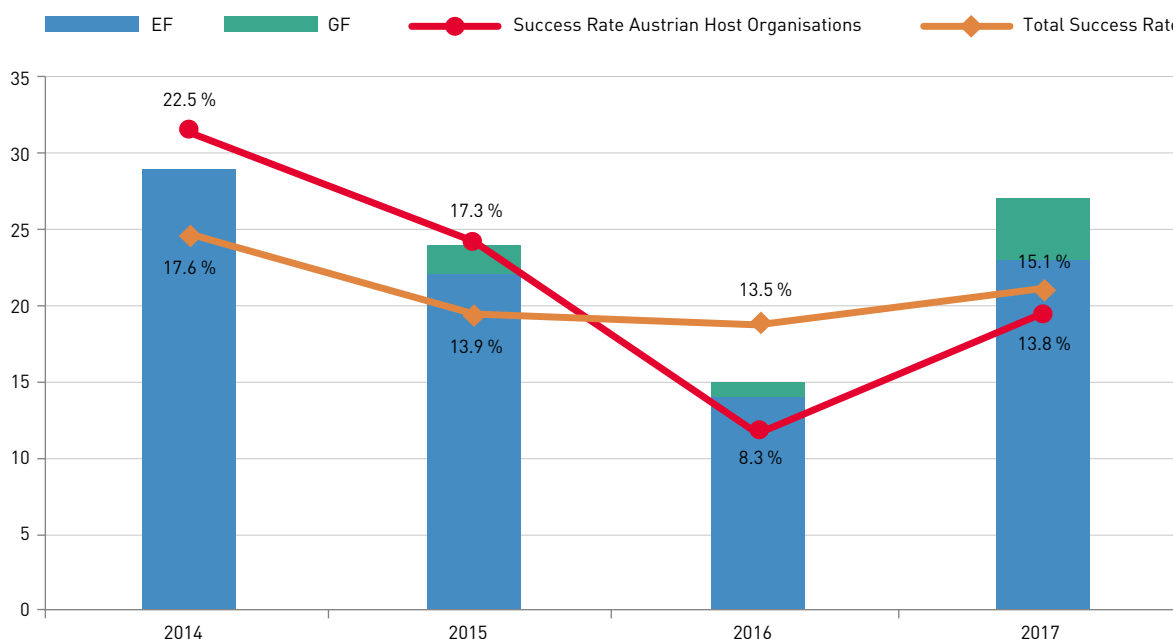
- Career Restart Panel (CAR), funding individuals wishing to resume research in Europe after a career break
- Society and Enterprise Panel (SE), introduced with the IF call 2016, for researchers seeking to work on research & innovation projects at an organisation in the non-academic sector.

Global Fellowships (GF) are based on a secondment to a third country for 1-2 years and a mandatory 1 year return period to a host in a European/Associated Country.

### THE AUSTRIAN PERFORMANCE

The entire budget dedicated to four calls in IF (2014–2017) amounted to EUR 923 million, of which 87.1% (EUR 804.2 million) was invested in EF and 12.9% (EUR 118.7 million) in GF. When analysing the performance, the differences in the available budgets per call must be considered, which were highest in 2014 and 2017, and around 10% lower in 2015 and 2016.

Fig. 4.1. Austrian Host Organisations for IF 2014–2017





## 4 | THE AUSTRIAN PERFORMANCE

A total of 644 proposals (585 EF and 59 GF) from Austrian institutions were evaluated, and 95 of these (88 EF and 7 GF) were funded. This results in an Austrian success rate of 14.8% (15.0% for EF and 11.9% for GF), which is similar to the European success rate of 14.9% (15.2% for EF and 12.9% for GF).

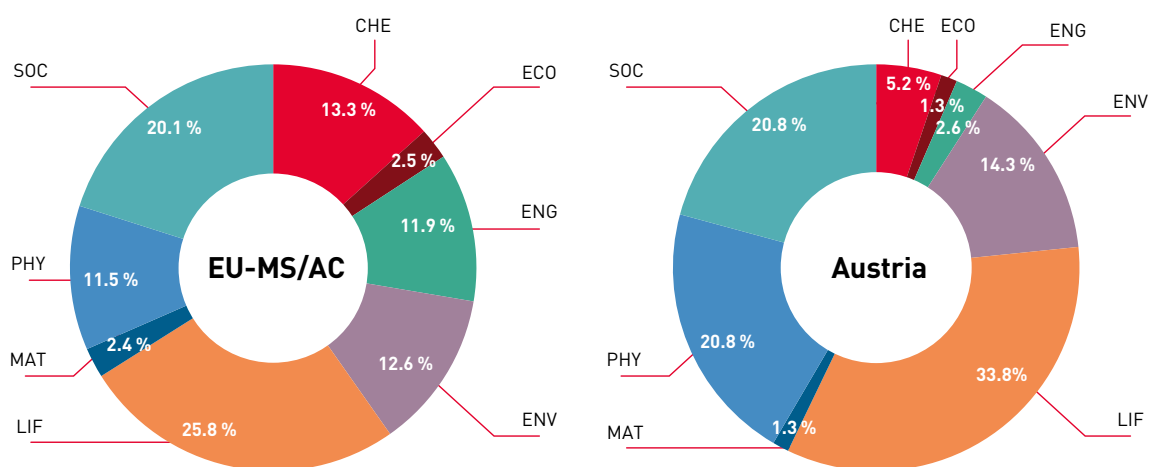
Of the 88 selected European Fellowships hosted by Austrian institutions, 77 were funded in the Standard, 8

in the Reintegration and 3 in the Society and Enterprise panel. No Austrian projects were funded in the Career Restart panel.

The share of Austrian participations in funded projects was 1.9% (1.9% of EF and 1.5% of GF) and the EC contribution amounted to EUR 15.7 million (EUR 15.1 million for EF and EUR 0.6 million for GF), corresponding to 1.7% of the total IF budget 2014–2017.

### PANEL DISTRIBUTION

Fig. 4.2. EF Standard: Participations in Scientific Panels 2014–2017



In addition to the different IF sub-schemes and panels described above, each proposal must be assigned to one of eight **scientific panels**.<sup>1</sup> The budget is distributed proportionately to the number of eligible proposals in each scientific panel, making the likelihood of funding the same, irrespective of the scientific discipline within which the proposed research falls.

Looking at the distribution on scientific panels in the EF-ST sub-scheme at European level, the highest numbers of all EF-ST projects were funded in the LIF and the SOC panels, followed by the CHE, ENV, ENG and PHY panels. Austria shows a particularly strong performance in the LIF and PHY panels, whilst participation in the CHE and ENG panels was rather low. With respect to the Austrian share of all funded projects in the different panels, the highest was in PHY (3.5%), followed by LIF (2.5%) and ENV (2.2%).

### COUNTRY PARTICIPATION

The countries with the highest number of IF participations were the UK, Spain, France and Germany. With 95 funded Individual Fellowships, Austria ranks number 12 among all the EU-MS/AC, performing less well than the Netherlands (rank 5), Denmark (7), Sweden (10) or Ireland (11), but better than Norway (14) and Finland (15).

How BREXIT will affect UK participation in MSCA generally, and particularly in the IF, remains to be seen. As the options for participation are connected with status as an Associated or third country, the outcome of the negotiations may strongly impact the role of the UK which is currently the most successful country in the MSCA IF.

Within the framework of the Global Fellowships, the US was the most popular **third country** (349 participations), followed by Canada (45), Australia (33), New Zealand (8) and Japan (7). In the Global Fellowships with Austria as beneficiary (return host country), the third countries involved were the US (5 participations), Australia and Canada (1 participation each).

<sup>1</sup> Chemistry (CHE), Economic Sciences (ECO), Information Science and Engineering (ENG), Environmental and Geosciences (ENV), Life Sciences (LIF), Mathematics (MAT), Physics (PHY) and Social Sciences and Humanities (SOC).

## SEAL OF EXCELLENCE

In 2016, the Seal of Excellence (SoE)<sup>2</sup> was introduced for the MSCA IF. The SoE is awarded to all high quality IF proposals (scoring 85% or above, including proposals on the reserve list) that cannot be funded under the available call budget. It is a recognition that the project proposal was evaluated as excellent in a highly competitive evaluation process, and is recommended for funding by sources at national or regional level.

In total 84 Austrian applications were awarded the SoE.<sup>3</sup> Of these, 75 were EF and 9 were GF, and a total of 12 projects were ranked on the reserve list.

Some countries (e.g. Cyprus, the Czech Republic and Slovenia) have established programmes to support SoE projects, partly funded by EU Structural Funds. To date only Sweden has introduced a solely nationally funded scheme equivalent to the MSCA IF. Austria currently has no specific funding scheme for recipients of the MSCA IF SoE, but SoE holders are advised to apply for funding through different national programmes such as those offered by the FWF Austrian Science Fund<sup>4</sup> (Erwin Schrödinger Fellowships and the Lise Meitner Programme), and are also encouraged to consult the Austrian database for scholarships and research grants<sup>5</sup>.

## SME INNOVATION ASSOCIATE

Complementary to the MSCA EF Society and Enterprise panel, the SME Innovation Associate<sup>6</sup> pilot was introduced within the framework of the Innovation in SMEs Work Programme 2016. This SME-led pilot was an innovation capacity building action designed to provide support to SMEs that have experienced difficulty in recruiting researchers with the relevant skills at a national level. The grant enabled SMEs to employ a highly-skilled experienced researcher for one year with the aim of exploring the potential of the SME's innovative idea, and to turn it into an innovation project. In total 190 proposals were evaluated and 79 of these were funded (41.6% success rate). There were 2 evaluated Austrian proposals, one of them funded. The experiences from

the pilot call showed that the duration between the call deadline and the earliest possible start of the project is considered too long by SMEs, making the scheme less attractive. A second SME Innovation Associate call is planned for 2019.

## CONCLUSIONS

- Interest in IF is growing strongly, at European as well as Austrian level. Between 2014 and 2017 the number of evaluated proposals from Austrian institutions rose by 51.2% which is even stronger than the increase of 20.9% at European level within the same period. This trend resulted in declining success rates (from 17.6% in the first call to 15.1% in the fourth call). As this scheme is very important for researchers during their first steps towards becoming independent, an adequate budget should be dedicated to the IF for the calls 2018-2020 in Horizon 2020 as well as in the next FP.
- Although there was a strong increase in the number of funded Global Fellowships (GF) from Austrian institutions in call 2017, there is still potential for stronger Austrian participation. One possible reason for the relatively low involvement could be the repeated fixed-term contracts (Kettenvertragsregelung) issued by the universities, specifying that terminable employment contracts (or a series of such contracts) can only be concluded for a maximum of six years.
- As noted above, some countries established programmes to fund IF projects that were awarded a Seal of Excellence (SoE).<sup>7</sup> For Austria, 47 applications in 2016 and 37 applications in 2017 were awarded a SoE. This corresponds to around EUR 8.7 million and EUR 6.4 million respectively. Taking only the SoE-awarded applications from the IF reserve list into account (6 applications each in 2016 and 2017), the funding amount needed would have been slightly above EUR 1 million per year.

2 [https://ec.europa.eu/research/soe/index.cfm?pg=who\\_msca](https://ec.europa.eu/research/soe/index.cfm?pg=who_msca)

3 Source: CIRCA for the IF calls 2016 and 2017

4 <https://www.fwf.ac.at/en/research-funding/fwf-programmes/>

5 <https://grants.at/en/>

6 <http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/innosup-02-2016.html>

7 [https://ec.europa.eu/research/soe/index.cfm?pg=opportunities\\_msca](https://ec.europa.eu/research/soe/index.cfm?pg=opportunities_msca)

### 4.1.2 INNOVATIVE TRAINING NETWORKS – AUSTRIAN PARTICIPATION REMAINS STABLE

#### THE INNOVATIVE TRAINING NETWORKS AT A GLANCE

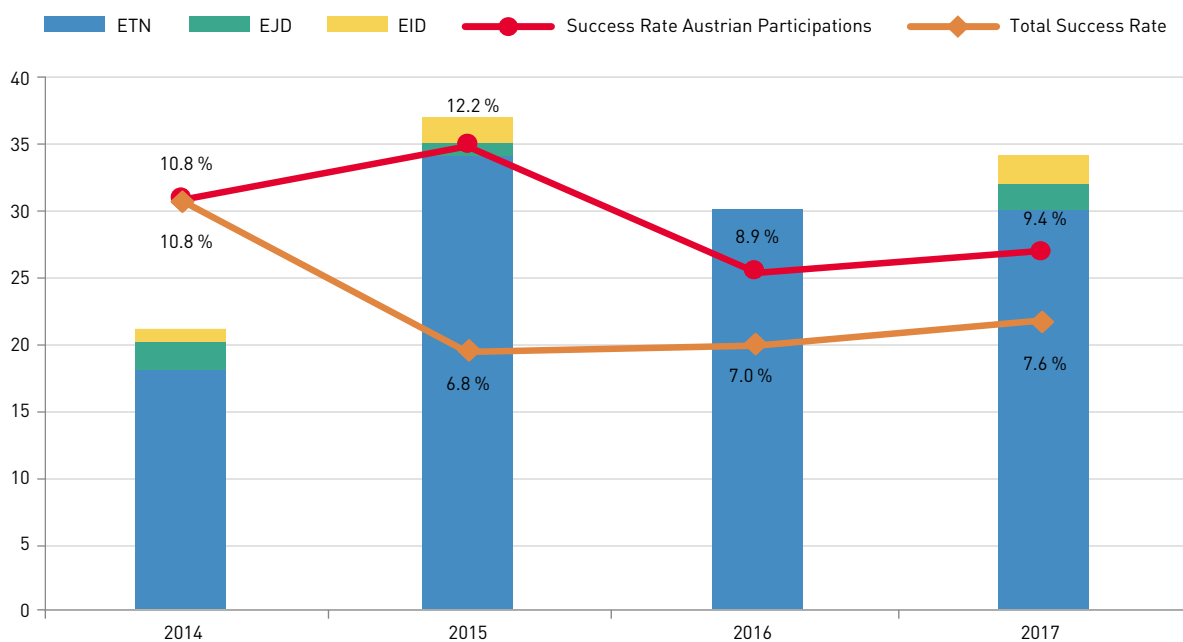
The aim of the Innovative Training Networks (ITN) is to train a new generation of creative and entrepreneurial early-stage researchers and doctoral students, equipped with the right combination of research-related and transferable competences, combined with an innovation-oriented mindset. Implemented by consortia and partnerships composed of academic and non-academic actors from different countries across Europe and beyond, ITN promote excellence and structure research and doctoral training, extending the traditional academic setting. Thus international, interdisciplinary and intersectoral mobility enhances career perspectives in

both the academic and non-academic sector. The ITN take three forms: European Training Networks (ETN), European Industrial Doctorates (EID) and European Joint Doctorates (EJD).

#### THE AUSTRIAN PERFORMANCE

The entire ITN budget for the four calls 2014–2017 amounted to around EUR 1.58 billion, of which 86.0% (EUR 1,359 million) was invested in ETN, 6.5% (EUR 103 million) in EID, and 7.5% (EUR 118 million) in EJD. The highest budget was dedicated to the first and the fourth call, while it was around 14% lower in 2015 and 2016 (compared to 2017). This must be taken into account in the performance analysis.

Fig. 4.3. Austrian Participations in ITN 2014–2017



A total of 1.197 participations from Austrian organisations were evaluated and 122 of these were funded (112 ETN, 5 EID and 5 EJD), resulting in a success rate of 10.2% which is above the average success rate of 7.8%. The share of Austrian participations in funded projects was 3.2%, and the EC contribution amounted to EUR 42.15 million, corresponding to 2.7% of the total budget.

Of the total 461 funded projects, 6 (1.3%) were coordinated by an Austrian organisation, comprising 3 ETN, 2 EJD and 1 EID. The success rate of Austrian coordina-

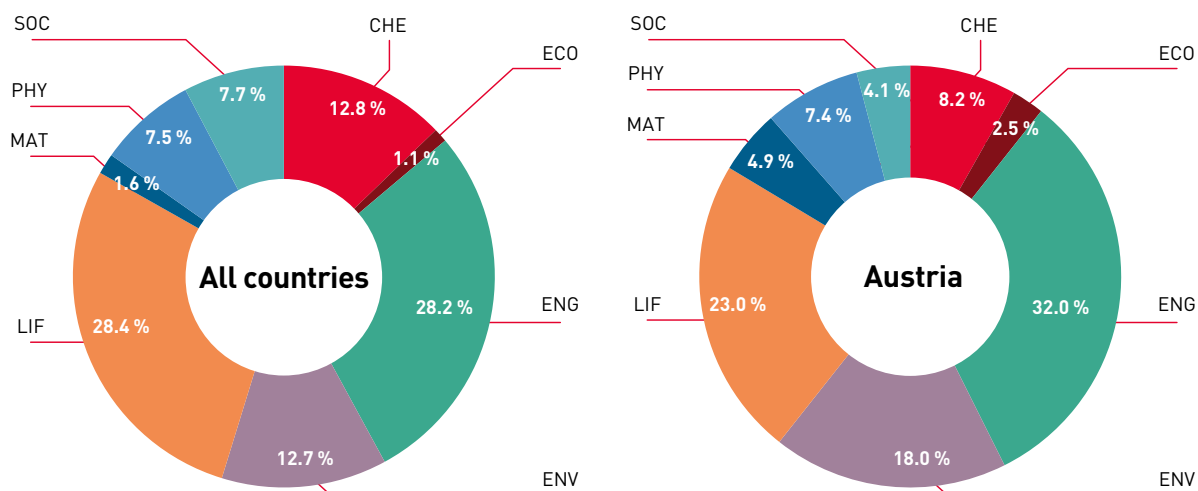
tors was 5.0% (6 funded out of 121 evaluated), which is below the average success rate of 7.7%.

The countries with the highest number of ITN participations were Germany, the UK, the Netherlands and France. With 123 funded ITN participations, Austria ranks number 10 among all EU-MS/AC, right behind Sweden (rank 8) and Denmark (9), while performing better than Ireland (13), Norway (14) or Finland (15).



## PANEL DISTRIBUTION

Fig. 4.4. ITN: Participations in Scientific Panels 2014–2017



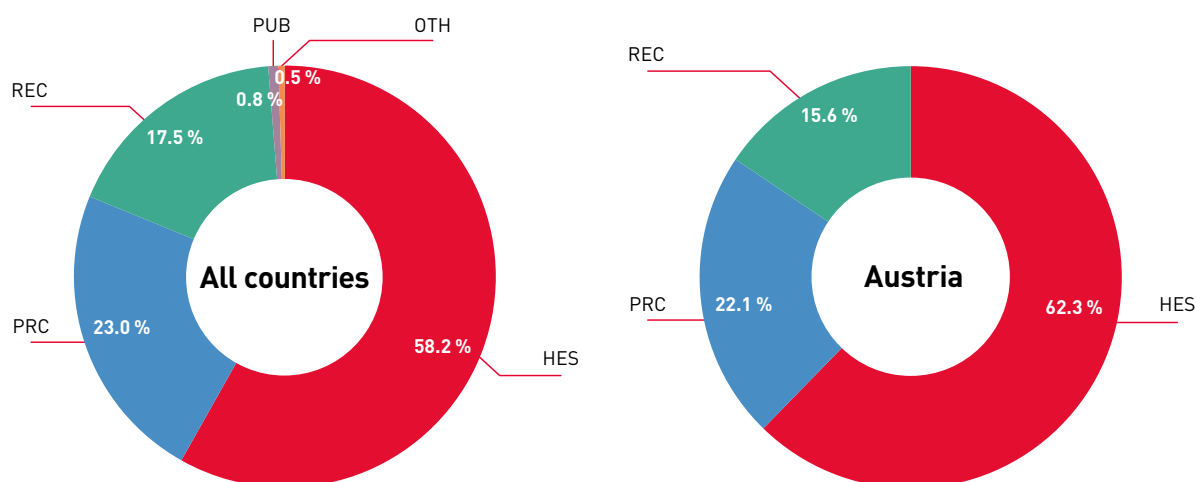
In addition to the different ITN sub-schemes described above, each proposal must be assigned to one of eight **scientific panels**<sup>8</sup>. The budget is distributed in proportion to the number of eligible proposals in each scientific panel, making the likelihood of funding the same, irrespective of the scientific discipline within which the proposed research falls.

At European level, the highest numbers of ITN participations were funded in the LIF and the ENG panels,

followed by the CHE, ENV, SOC and PHY panels. The highest number of Austrian ITN participations was funded in the ENG panel, followed by LIF. The highest Austrian share within a panel was evident in MAT (9.8%), ECO (7.3%) and ENV (4.5%). However, it should be noted that these are the panels with a rather low number of total participations. The 6 ITN projects coordinated by Austrian institutions were funded in the LIF (2), ENV (2), PHY (1) and SOC (1) panels.

## PARTICIPATION ACCORDING TO ORGANISATION TYPE

Fig. 4.5. ITN: Participations by Type of Organisation 2014–2017



<sup>8</sup> Chemistry (CHE), Economic Sciences (ECO), Information Science and Engineering (ENG), Environmental and Geosciences (ENV), Life Sciences (LIF), Mathematics (MAT), Physics (PHY) and Social Sciences and Humanities (SOC).

The highest share of ITN participations across all countries with regard to different types of organisations<sup>9</sup> was in HES, followed by PRC and REC, whilst PUB represents only 0.8% of all participations. The Austrian distribution shows a very similar pattern, with HES contributing to most participations, followed by PRC and REC. No Austrian PUB participated in ITN.

### CONCLUSIONS

- The interest in ITN remains strong, in Austria as well as at European level, leading to oversubscription. The particularly low overall success rate in 2015 and 2016 (6.8% and 7.0%) can be partly explained by the decreased budgets for these calls, but despite the increased budget in 2017 the success rate remained very low with only 7.6% of all evaluated projects funded.

- A general observation is that the number of resubmitted proposals is very high. This leads to a continuous increase in the quality of proposals, resulting in a very high level of competition, and making the writing of an ITN proposal a real challenge. This may be an explanation for the lower success rate of Austrian coordinators, although the low number of cases suggests caution in the interpretation of the figures. The success rate of Austrian participations was above average, indicating a high quality of networks and proposals in which Austrian organisations are involved.
- Though involvement of the non-academic sector is not an eligibility criterion, the participation of this sector has effectively become indispensable to chances of European Training Network funding.

## 4.1.3 RESEARCH AND INNOVATION STAFF EXCHANGE – THE PITFALLS OF IMPLEMENTATION

### RESEARCH AND INNOVATION STAFF EXCHANGE AT A GLANCE

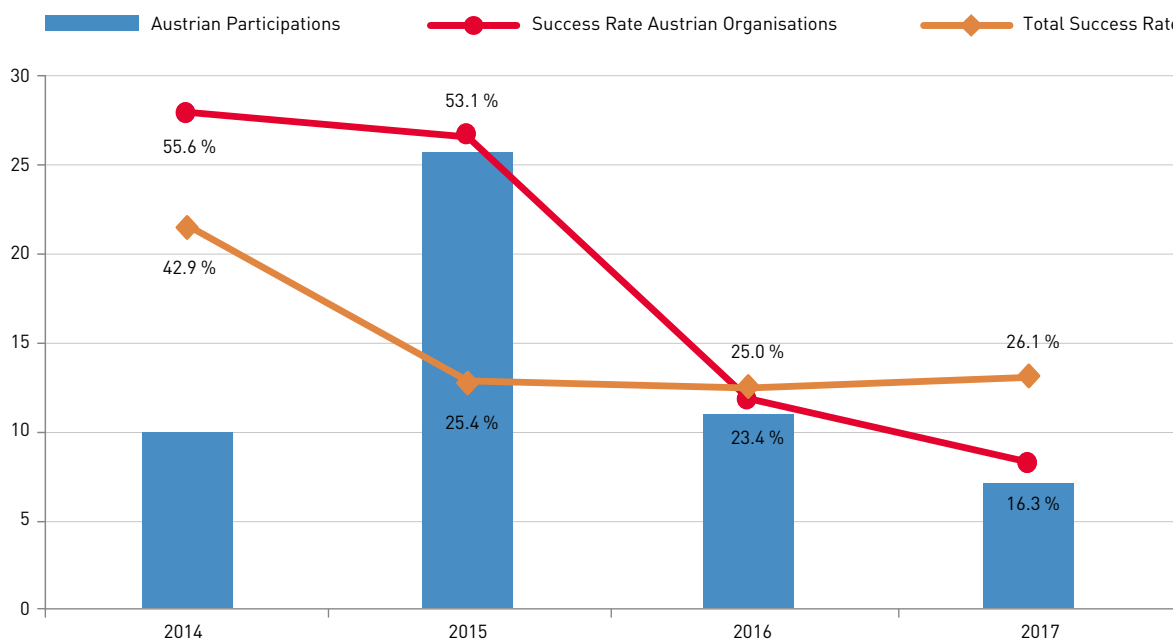
The Research and Innovation Staff Exchange (RISE) scheme promotes international collaboration between the academic and non-academic sectors (especially SME) and between Europe (incl. Associated Countries) and third countries. The exchange of research and innovation staff within the framework of a joint research and innovation project fosters the transfer of knowledge and

ideas from research to market, and vice-versa. A RISE project can focus either on intersectoral or international collaboration, or combine the two modes.

### THE AUSTRIAN PERFORMANCE

The distribution of the total RISE budget of EUR 310 million was somewhat higher (14.3%) in each of the calls 2015-2017 than in the first call.

Fig. 4.6. Austrian Participations in RISE 2014–2017



9 HES – Higher or secondary education, REC – Research organisation, PRC – Private for profit, PUB – Public body, OTH – Others

A total of 158 participations from Austrian organisations were evaluated and 54 of these were funded, resulting in a success rate of 34.2% which is above the average European success rate of 27.4%. The share of Austrian participations in funded projects was 2.4% and the EC contribution amounted to EUR 4.53 million, corresponding to 1.46% of the total budget.<sup>10</sup>

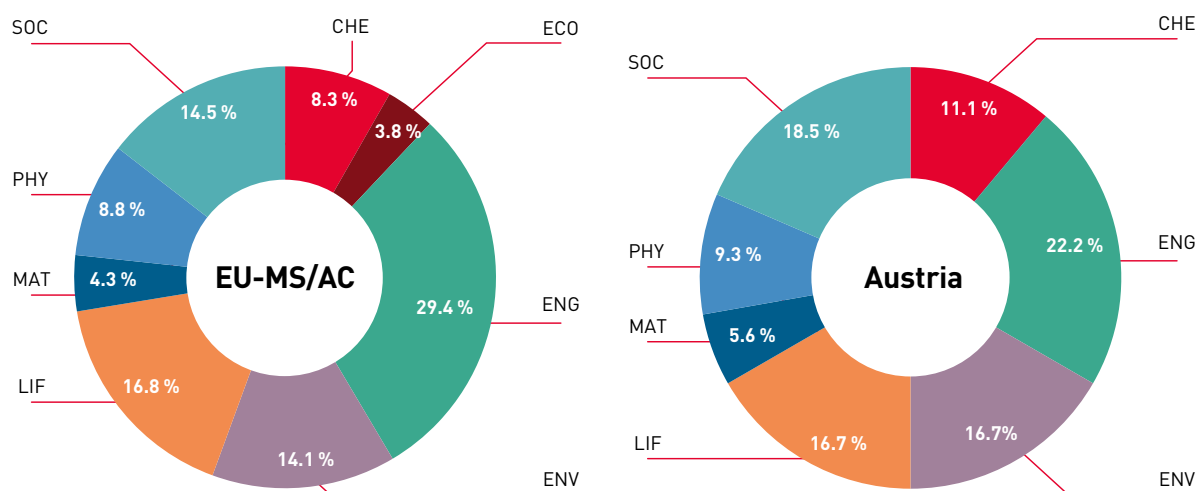
Of the total 337 funded projects, 4 (1.2%) were coordinated by an Austrian organisation. The success rate

of Austrian coordinators was 26.7% (4 funded out of 15 evaluated), which is similar to the average European success rate of 27.1%.

The best performing countries in RISE were the UK, Italy, Spain and France. Other countries achieving a higher rank than Austria (rank 12) include Greece (rank 6), Portugal (7) and the Netherlands (8).

## PANEL DISTRIBUTION

Fig. 4.7. RISE: Participations in Scientific Panels 2014–2017 (Third-country participations excluded)



At submission stage, each proposal must be assigned to one of eight scientific panels<sup>11</sup>. The budget is distributed in proportion to the number of eligible proposals in each scientific panel, making the likelihood of funding the same, irrespective of the scientific discipline within which the proposed research falls.

At European level, the highest number of participations was funded in the ENG panel, followed by the LIF, SOC and ENV panels. Also Austria had the highest number of RISE participations in the ENG panel (followed by

SOC, LIF and ENV). However, Austria demonstrates the strongest performance in the SOC panel, showing the second highest number of Austrian participations and the third highest Austrian share in a panel (3.1%). Two (of a total of four) Austrian coordinations stem from the SOC panel, the other two were funded in CHE and ENV. The two panels with the highest Austrian share were CHE (3.3%) and MAT (3.2%). However, it should be noted that these are panels with a rather low number of total participations.

<sup>10</sup> All third country participations are excluded for all these figures.

<sup>11</sup> Chemistry (CHE), Economic Sciences (ECO), Information Science and Engineering (ENG), Environmental and Geosciences (ENV), Life Sciences (LIF), Mathematics (MAT), Physics (PHY) and Social Sciences and Humanities (SOC).

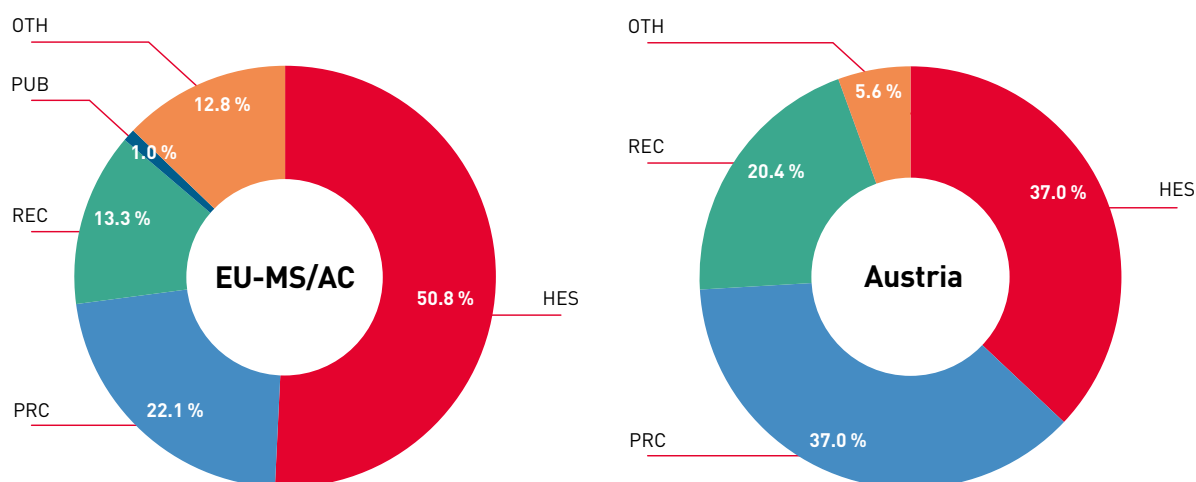




While in Austria as well as in most European countries an increasing general interest in MSCA can be observed, participation patterns and success rates vary substantially across the individual schemes.

## PARTICIPATION ACCORDING TO ORGANISATION TYPE

Fig. 4.8. RISE: Participations by Type of Organisation 2014–2017 (Third-country participations excluded)



Across all EU-MS/AC countries, HES had the highest share of RISE participations with respect to different types of organisations<sup>12</sup>, followed by PRC and REC, whilst PUB represent only 1.0% of all participations. The Austrian distribution shows a different pattern, with an equal share of HES and PRC, followed by REC (no Austrian PUB participated in RISE). Thus the share of Austrian participations by PRC was significantly above average for this category which is positive when it is considered that intersectoral cooperation is one of the main aims of RISE.<sup>13</sup>

### THIRD-COUNTRY PARTICIPATION

Altogether there were 892 third-country participations in the RISE calls 2014–2017. The top 10 countries were the USA (212 participations), China (98), Argentina (62), Brazil (46), Australia (44), Chile (40), South Africa (36), Japan (31), Canada (33) and Morocco (23).

### CONCLUSIONS

- At European level, the total number of evaluated RISE proposals rose by around 80% between the first and the second calls, since when it has been fairly stable. This is also reflected in the success rates at proposal level, at 42.2% in the first call and around 24% in the following three calls (with an unchanged budget 2015–2017).
- Despite the relatively high success rate and intense level of activities designed to increase awareness, it has been difficult to motivate (Austrian) organisations to participate in RISE. Reasons for this may include challenges in implementation and the lack of funding for the salaries of the staff members involved, making the scheme less attractive overall.

## 4.1.4 CO-FUNDING OF REGIONAL, NATIONAL AND INTERNATIONAL PROGRAMMES

### COFUND AT A GLANCE

The **COFUND** scheme aims at stimulating regional, national or international doctoral or fellowship programmes in order to foster excellence in researchers' training, mobility and career development. The cofunded programmes must support the international mobility of researchers and may include interdisciplinary and intersectoral components. Further aims are to counteract the fragmentation of objectives and evaluation methods of European doctoral and fellowship programmes and to

improve researchers' employment and working conditions. By doing so, the COFUND scheme contributes to spreading the best practices of the Marie Skłodowska-Curie Actions.

COFUND is a single beneficiary scheme and can take the following forms:

- Doctoral Programmes (COFUND-DP) address the development and broadening of the research com-

<sup>12</sup> HES – Higher or secondary education, REC – Research organisation, PRC – Private for profit, PUB – Public body, OTH – Others

<sup>13</sup> All third-country participations are excluded in these conclusions.

petencies of early-stage researchers, following the EU Principles for Innovative Doctoral Training.

- Fellowship Programmes (COFUND-FP) fund individual research training and career development for experienced researchers, based on individual-driven mobility, allowing researchers to freely choose their research topic and host organisation.

### THE AUSTRIAN PERFORMANCE<sup>14</sup>

In total, EUR 320 million was dedicated to COFUND in 2014-2017, of which 37.5% (EUR 120 million) to COFUND-DP and 62.5% (EUR 200 million) to COFUND-FP.

A total of 21 proposals (9 DP and 12 FP) from Austrian institutions were evaluated and 3 of these (1 DP and 2 FP) were funded. This results in a success rate of 14.3% (11.1% for DP and 16.7% for FP), which is below the average success rate of 24.0% across all countries (25.8% for DP and 22.6% for FP). The share of Austrian participations in funded projects was 2.8% and the EC contribution amounted to EUR 8.99 million (EUR 4.39 million for DP and EUR 4.59 million for FP), corresponding to 2.8% of the total budget. Almost 30% of the Austrian proposals were resubmissions.

The best performing countries were Spain (21 participations), the Netherlands and Ireland (each 11), the UK

and France (each 9), followed by Switzerland, Germany and Italy (each 7 participations). With 3 funded COFUND participations, Austria ranks number 11 among the EU-MS/AC, right after Denmark (5 participations, rank 9) and Poland (4 participations, rank 10).

### CONCLUSIONS

- There has been growing interest in COFUND-FP over the years. The success rate for this sub-scheme was around 25% in the first three calls, but only 17.1% in the 2017 call. These results reflect the increasing total number of evaluated proposals which has risen continuously and was 61.7% higher (76 vs. 47) in the fourth call compared to the first one.
- Through COFUND the EU is having a direct influence on regional, national and international funding programmes for human resources in research. The results from the first four calls indicate that doctoral and fellowship programmes will only be co-funded if they demonstrate a clear commitment to EU research policy goals and the aims of COFUND, i.e. using the MSCA as best practice. COFUND has impacted the national Austrian co-funded programmes both with regard to quality, for example strengthening the international aspect or transparency in the recruitment process, and quantity (a higher number of fellows funded).

## 4.1.5 EUROPEAN RESEARCHERS' NIGHT – CONTINUED AUSTRIAN PARTICIPATION

### NIGHT AT A GLANCE

The European Researchers' Night (ERN) is held on the last Friday in September each year and is a European-wide public event designed to bring researchers closer to the general public. The aim is to create an understanding of the impact of researchers' work on citizens' daily lives, to enhance researchers' public recognition and to stimulate interest in research careers, especially among young people.

In contrast to other MSCA schemes, a call for ERN is published only every second year. A proposal should normally cover two editions of the ERN in successive years, though one single edition may also be considered.

### THE AUSTRIAN PERFORMANCE

The total ERN budget of EUR 16 million for the two calls in 2014 and 2016 was evenly distributed with EUR 8 million per call. A total of 2 proposals from Austrian institutions were evaluated and both were funded, resulting in yearly ERN events in Austria since the start of Horizon 2020.

The Austrian success rate was 100% and thus far above the average European success rate of 38.1%. The share of the 2 Austrian participations in funded projects was 0.49% and the EC contribution amounted to EUR 0.31 million, or 2.0% of the total budget.

The countries with the highest number of participations in ERN were Italy (57 participations), Spain (48), Poland (31), Israel (27) as well as the UK, Serbia and Greece (24 participations each).

### CONCLUSIONS

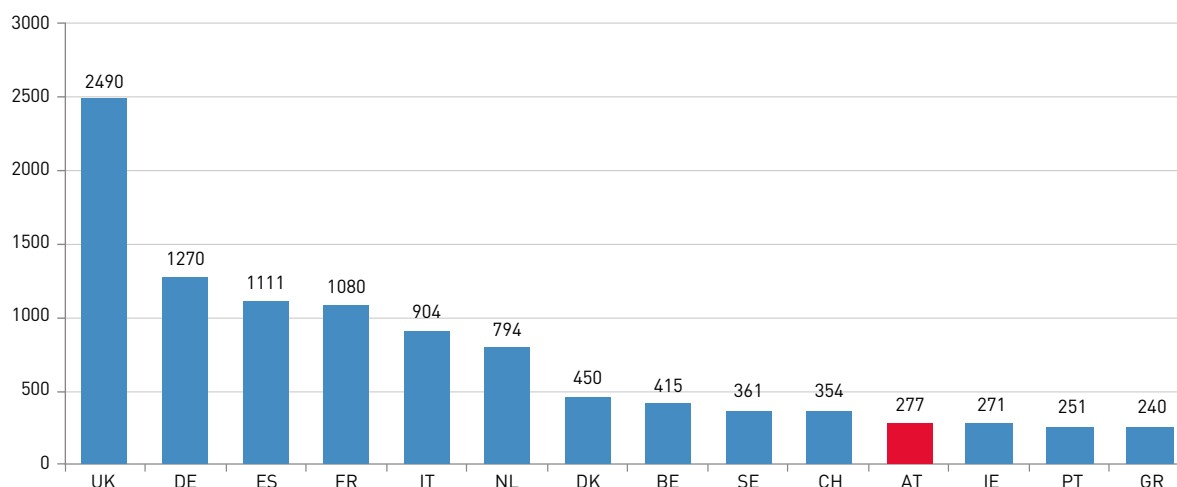
- A ERN event can be organised by only a single beneficiary or by a consortium consisting of a small or large network of regional, national or even international participants. The reason for the low share of Austrian participations (2) is that both funded projects had a single beneficiary.

<sup>14</sup> All figures are based on statistics from eCORDA for calls 2014-2016 and from CIRCA for call 2017.



## 4.1.6 MSCA TOP PERFORMERS

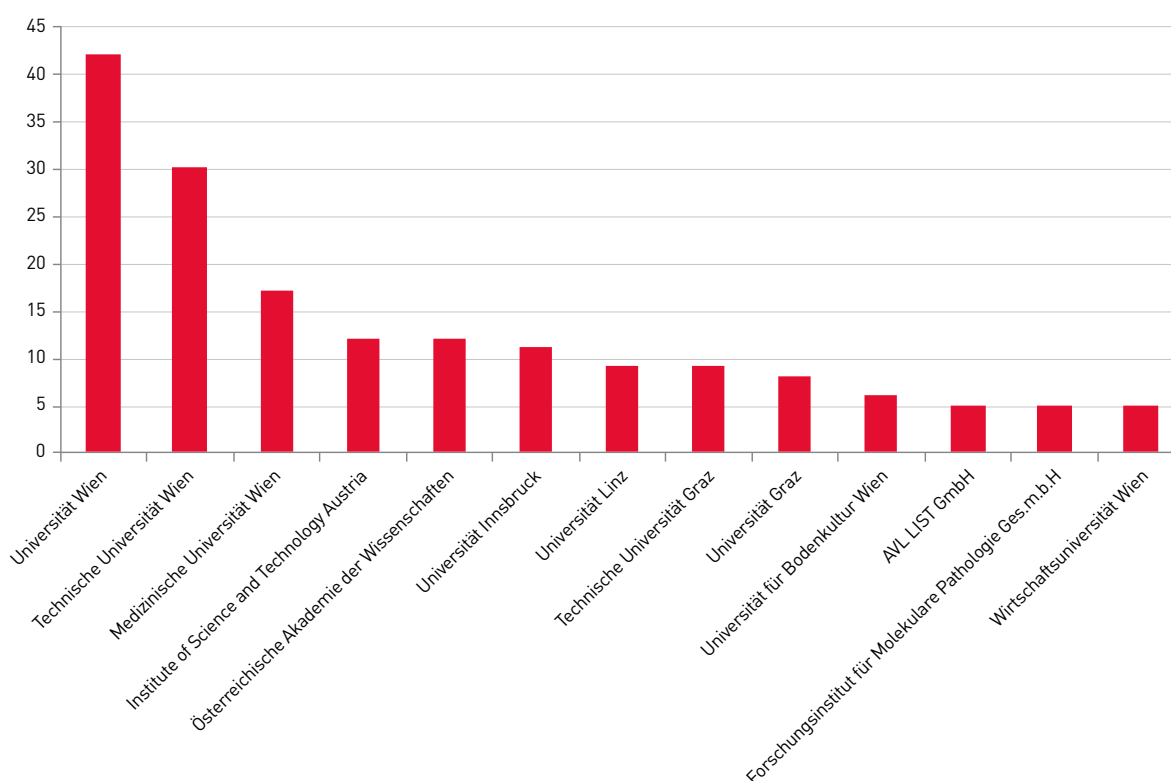
Fig. 4.9. Top Performing Countries



The countries with the highest **number of participations** across all MSCA are the UK, Germany, Spain and France. Austria ranks number 11 with 277 participations. The main reason for the exceptionally high level of UK

participation can be explained by the very high number of Individual Fellowships, although the UK is also one of the top performers in all MSCA.

Fig. 4.10. Austrian Top Performers



The top performing organisations in Austria in terms of the number of **MSCA participations** are the University of Vienna, the Technical University of Vienna, the Medical

University of Vienna and the Institute of Science and Technology Austria. The best performing organisation from the non-academic sector is AVL LIST GmbH.

### 4.1.7 RESEARCHERS' MOBILITY AND GENDER PATTERNS<sup>15</sup>

Based on fellows' **nationality**, most researchers coming to Austria are German, followed by Italian, Polish, Greek, Austrian and French researchers. Researchers with Austrian nationality mainly go to the UK, Germany, Spain, Austria, Denmark, and the Netherlands.

Based on the **country of residence**, the highest number of fellows going to Austria comes from Germany, Austria<sup>16</sup>, Italy, the UK, Greece and Poland. Researchers living in Austria mostly stay in Austria or move to Germany, the UK, Spain, US and the Netherlands.

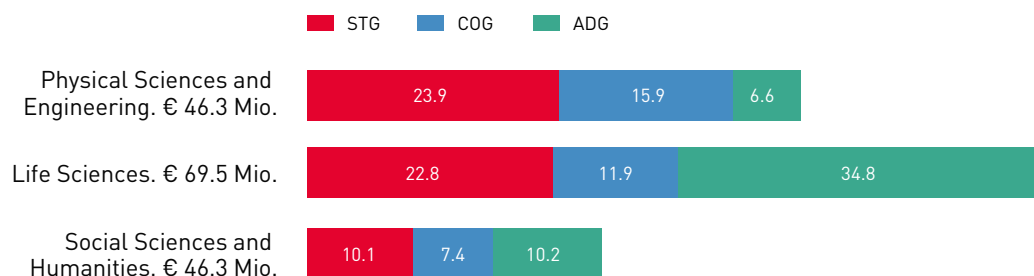
The **gender distribution** of Austrian researchers involved in MSCA is exactly the same as the average; 41% female and 59% male. The highest share of female Austrian researchers participates in the SOC (57%), LIF (53%), CHE and ENV (both 45%) panels, whereas there were no female fellows in the MAT and PHY panels<sup>17</sup>.

## 4.2 ERC – THE AUSTRIAN PERFORMANCE 2014–2017

This chapter offers a snapshot of the Austrian performance in all ERC funding schemes covered by the calls 2014 to 2017. In terms of distribution of "Austrian" ERC grants along the 3 ERC domains (Physical Sciences and Engineering-PE, Life Sciences-LS and Social Sciences and Humanities-SH), most of the ERC **funding** in Austria stems from the life sciences domain (EUR 69.5 million, corre-

sponding to 49% of total funding), followed by Physical Sciences and Engineering (EUR 46.3 million / 32%), and Social Sciences and Humanities (EUR 27.7 million / 19%). Also compared to the average ERC funding distribution for all participating countries, Austria shows a peak in the Life Sciences area (see Fig.4.11.).

Fig. 4.11. ERC funding for Austria per scientific domain and grant type

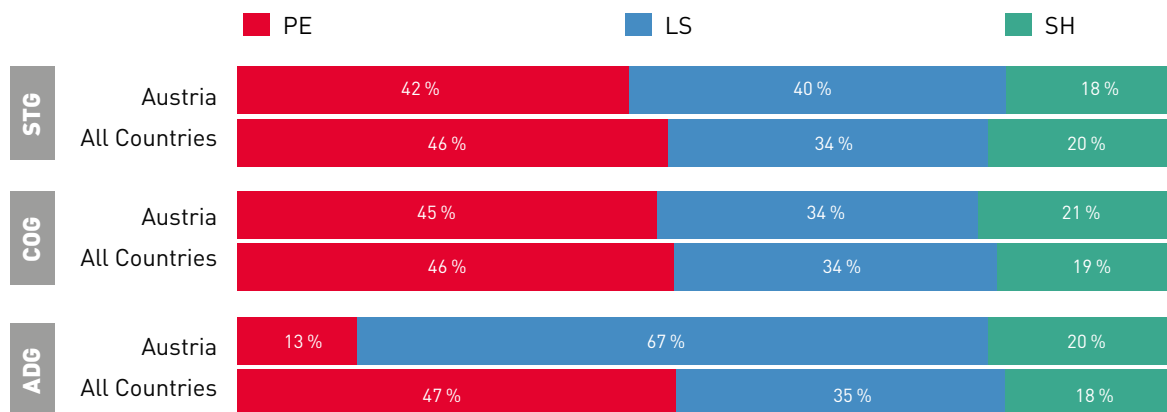


<sup>15</sup> Source: H2020 – MSCA Country fact sheet Austria, refresh date 06/06/2017

<sup>16</sup> The MSCA Mobility Rule states that researchers must not have resided or carried out their main activity in the country of the host organisation for more than 12 months in the three years immediately before the reference date. This implies that at the date of the call deadline or recruitment some researchers with an Austrian MSCA host organisation may already be living in Austria.

<sup>17</sup> Chemistry (CHE), Economic Sciences (ECO), Information Science and Engineering (ENG), Environmental and Geosciences (ENV), Life Sciences (LIF), Mathematics (MAT), Physics (PHY) and Social Sciences and Humanities (SOC).

Fig. 4.12. Distribution of ERC funding per scientific domain and grant type – Austria compared with all countries

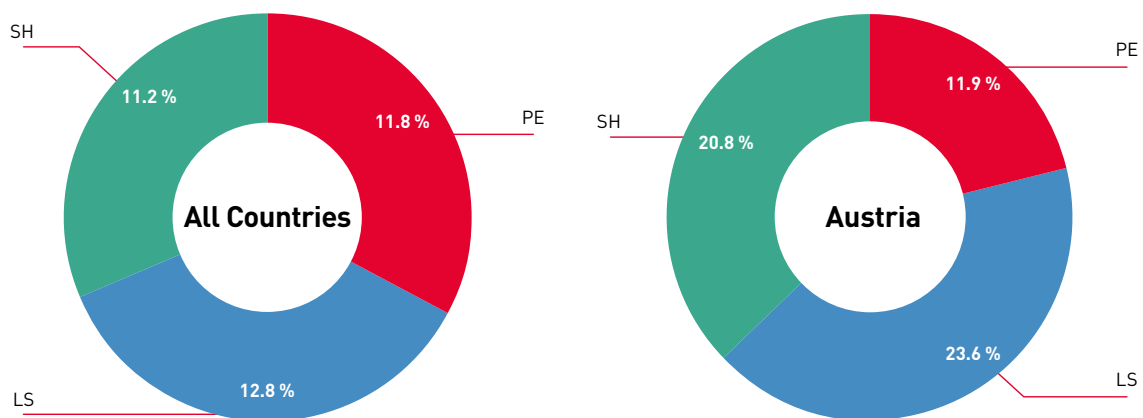


Combining all ERC “frontier science” grant types, the average **success rate** of ERC applications from Austria amounts to 17.3% in Horizon 2020, whereas it is 12.0% across all countries to date.

The success rates for the 3 ERC evaluation domains across all countries and ERC grant types are approximately the same, with 11.8% for applications in the Physical Sciences and Engineering domain, 12.8% for

Life Sciences and 11.2% for Social Sciences and Humanities. For Austria, the success rates vary depending on the evaluation domain, with an 11.9% success rate for proposals submitted to the Physical Sciences and Engineering domain (close to the all-countries average), and markedly above-average success rates for research in the Life Sciences domain (23.6%) and the Social Sciences and Humanities domain (20.8%, see Fig. 4.13)

Fig. 4.13. Success rate per ERC scientific domain – Austria compared to all countries





### 4.2.1 ERC STARTING GRANT: LARGEST ERC FUNDING SHARE IN AUSTRIA

#### STARTING GRANT AT A GLANCE

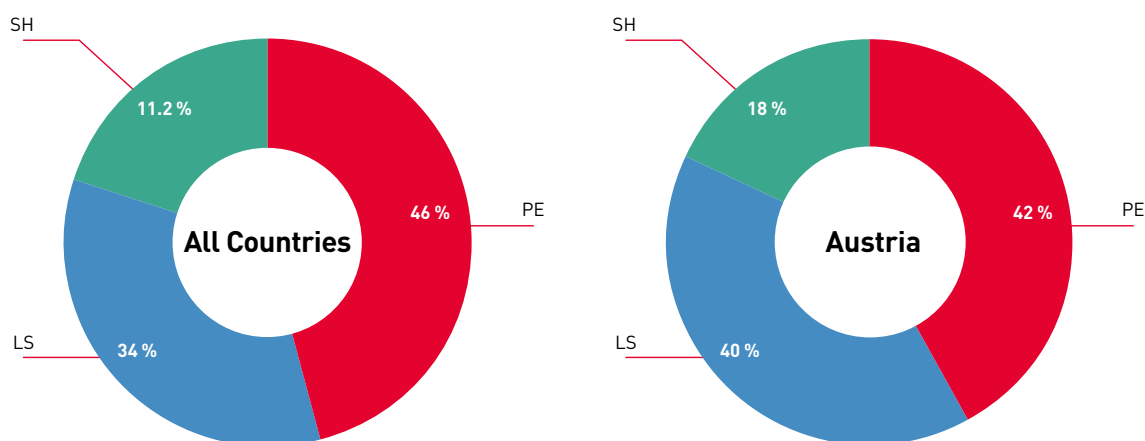
The ERC Starting Grant addresses talented early-career scientists aiming to establish their own independent research team at a European institution (EU-28 and Associated Countries). A formal requirement to qualify as a “Starter” is a PhD degree awarded a minimum of 2 and a maximum of 7 years prior to the respective call reference date. The maximum available funding amounts to EUR 1.5 million for 5 years (maximum EUR 2.0 million for defined exceptions such as moving to Europe as a consequence of obtaining an ERC grant.)

At EUR 56.7 million, most ERC funding for Austrian institutions in Horizon 2020 to date has been raised via 56 ERC Starting Grants, including the Starting Grant

Call 2017. In terms of number of grants obtained, the Starting Grants also presently constitute the biggest slice in the Austrian ERC funding cake. The average Austrian success rate for the Starting Grant in Horizon 2020 is 17%, significantly higher than the average for all countries at 11.3%.

Most of the ERC Starting Grant funding in Austria has been awarded in the Physical Sciences and Engineering domain (42%), followed by Life Sciences (40%) and Social Sciences and Humanities (18%). The average funding distribution per domain across all countries shows a similar pattern, with 46% for the PE domain, 34% for LS and 20% for the SSH domain.

Fig. 4.14. Starting Grant funding per ERC scientific domain – Austria compared to all countries



Following a marked decrease in Austrian applications to the Starting Grant scheme in the 2015 call (57 applications, a drop of nearly 35% compared to 2014), the Starting Grant Call 2017 has once again seen a rise in applications, with 74 proposals submitted. The decline in 2015 correlates with the first implementation of the more restrictive resubmission rules for ERC applicants which were introduced in Horizon 2020. The drop in Austrian proposal submissions was more pronounced than the average decrease across all participating countries, possibly indicating that ERC Principal Investigators (PIs) in Austria reacted more cautiously to the resubmission

waiting times of one or two years imposed on those PIs unsuccessful in a previous proposal. As a measure to support the early preparation, self-evaluation and confidence of potential applicants, ERC Proposal Reading Days were introduced at FFG in 2016 to provide a library of successful ERC Starting and Consolidator proposals. These reading days continue to receive strong interest and may contribute to enhancing the participation of the Austrian research community in the ERC.

## 4.2.2 ERC CONSOLIDATOR GRANT: SOLID AUSTRIAN PERFORMANCE

### CONSOLIDATOR GRANT AT A GLANCE

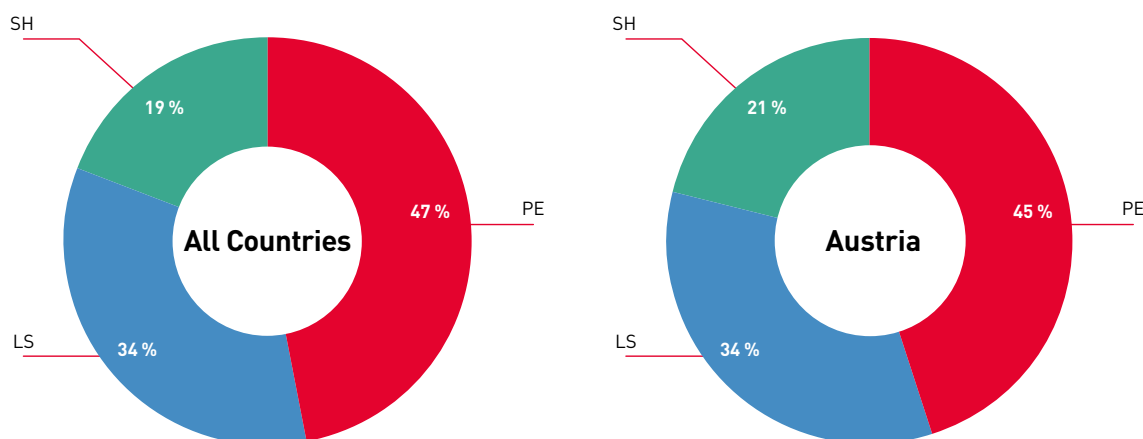
ERC Consolidator Grants are designed for mid-career researchers who obtained their PhD degree a minimum of 7 and a maximum of 12 years prior to the call reference date. “Consolidators” will frequently already lead a core team and seek to consolidate their own independent research programme/team. The maximum funding amounts to EUR 2.0 million for 5 years, which can be increased to a maximum of EUR 2.75 million for defined exceptions.

Austria’s performance in the ERC Consolidator Grant to date has been less notable, but applications from Austria overall performed above the all-countries

average in Horizon 2020. The average success rate for Consolidator grant applications in Austria amounts to 16.4%, versus 13.8% for all countries. 30 Consolidator grants, funded with a total of around EUR 35.1 million, have to date been awarded to Principal Investigators in Austria under Horizon 2020.

Most of the Consolidator Grant funding in Austria has been obtained in the Physical Sciences and Engineering domain (45%), followed by Life Sciences (34%) and Social Sciences and Humanities (21%). Again, this distribution pattern is quite similar to the all-countries average (47% PE, 34% LS and 19% SSH).

Fig. 4.15. Consolidator Grant funding per ERC scientific domain – Austria compared to all countries



In the case of the Consolidator Grant, too, a marked drop in applications from Austria was observed in 2015 when around 44% fewer proposals were submitted than in the preceding call. Since the 2017 call, submission numbers have been slowly on the rise again, but still fall short of the number of applications submitted via Austria in 2013 when the Consolidator Grant scheme was first introduced as an independent ERC grant. One reason for the drop in Consolidator applications may have been the abolition of the requirement for applicants

to the Austrian FWF START Prize to submit a parallel proposal to the ERC Consolidator Grant, provided they meet the ERC eligibility criteria for Consolidators.

While the increasing success rates of Consolidator applications in Austria have compensated for the drop in applications so far, ensuring a solid Austrian participation rate probably remains an important task for future calls.

### 4.2.3 ERC ADVANCED GRANT: HIGHEST SUCCESS RATE WITHIN AUSTRIA

#### ADVANCED GRANT AT A GLANCE

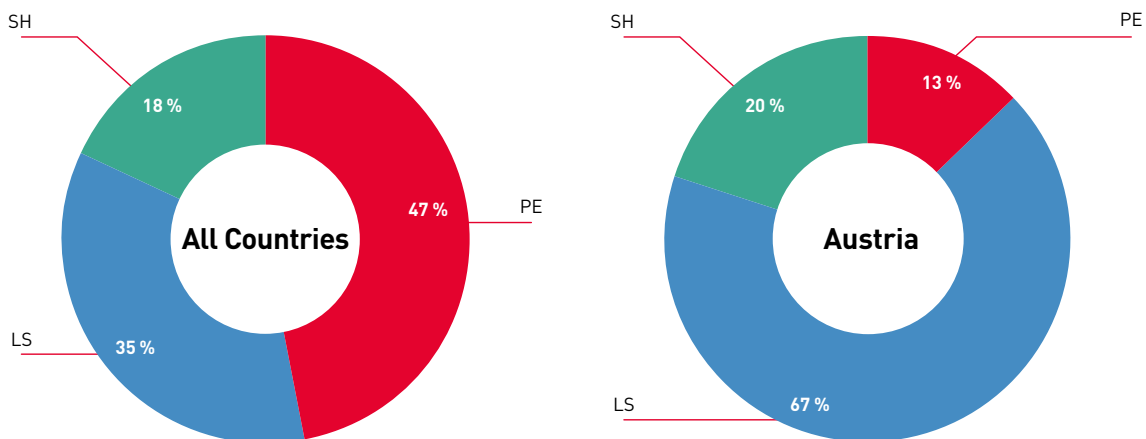
ERC Advanced Grants support established researchers in pursuing novel, ambitious research avenues. There are no formal criteria for applicants, but only researchers demonstrating an exceptional track record will be competitive. The maximum funding amounts to EUR 2.5 million for 5 years (up to EUR 3.5 million in defined exceptions).

In terms of success rate, Austrian ERC participation in the Advanced Grant has been the most salient so far in Horizon 2020, with an average success rate of 19.1% for proposals submitted from Austria, compared to 10.5% for all participating countries. The Advanced Grant also accounts for the second largest share of ERC funding in

Austria, with 23 Advanced Grants receiving total funding of EUR 51.6 million.

A large majority of the Advanced Grants in Austria have been awarded for the Life Sciences domain (67%), followed by Social Sciences and Humanities (20%) and the Physical Sciences and Engineering domain (13%). The comparison with the all-countries average (47% PE, 35% LS, 18% SSH) demonstrates a sizeable life sciences peak for Austria, and a funding distribution pattern quite distinct from that observed for the Austrian Starting and Consolidator Grants. Due to the high volume of funding for Advanced Grants, this life sciences peak also strongly influences the overall funding distribution pattern per ERC domain for Austria (see fig. 4.11 above)

Fig. 4.16. Advanced Grant funding per ERC scientific domain – Austria compared to all countries



## 4.2.4 ERC PROOF OF CONCEPT: UNTAPPED POTENTIAL

### PROOF OF CONCEPT GRANT AT A GLANCE

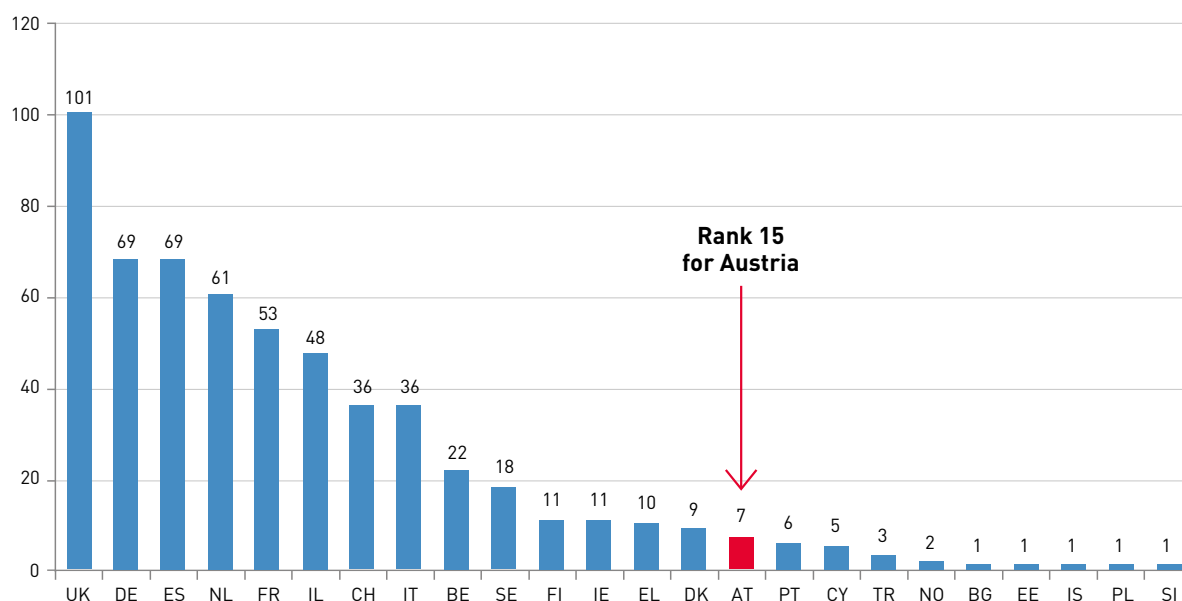
The ERC Proof of Concept Grant supports researchers who have already obtained an ERC frontier research grant (Starting, Consolidator, Advanced or Synergy) and would like to test the potential of an idea arising from their project for commercial or social innovation. Proof of Concept Grants are funded with maximum EUR 150,000 for up to 18 months.

The first ERC Proof of Concept call was launched in 2011. Since then, Austrian participation in this scheme has remained relatively limited. In Horizon 2020, 17 proposals have been submitted by ERC grantees in Austria to date. This seems a rather low number considering that approximately 100-120 ERC PIs in Austria would formally be eligible for this top-up ERC funding at present. However, across all countries only around 12% of ERC PIs applied to the PoC between 2011 and 2016, according to a recent study on the PoC commissioned by the ERC.

A total of 7 PoC grants have been awarded to PIs in Austria under Horizon 2020 to date. Applications by PIs in Austria demonstrate a slightly above-average success rate of 35.3% (33.7% for all countries). Austria presently ranks 15<sup>th</sup> according to the number of PoC grants and 11<sup>th</sup> according to the number of ERC frontier research grants (see Fig. 4.17 and Fig. 4.19). The best performing countries in the PoC scheme in terms of grants awarded are the UK, Germany, Spain, the Netherlands, France and Israel, followed by Switzerland and Italy.

Growing awareness amongst ERC grantees of the opportunities provided by the Proof of Concept Grant appears to be important and may be supported by a study on the (early) impacts of the ERC Proof of Concept scheme published in 2017<sup>18</sup>. In addition, a stronger involvement of tech transfer offices at Austrian ERC host institutions, as well as knowledge transfer networks such as the *Wissenstransferzentren* (WTZ), may prove helpful in enhancing Austrian participation in this scheme.

Fig. 4.17. Proof of Concept grants per country, since 2014



## 4.2.5 RETURNING GRANTEES: GOOD PROSPECTS FOR FOLLOW-UP ERC PROPOSALS

Researchers at Austrian institutions have been awarded 218 ERC grants to date since the start of the ERC. 17 of these grantees have later successfully reapplied for further ERC frontier research funding. 11 of these “returning grantees” had first obtained a Starting Grant and then proceeded to Consolidator Grants (10) or Advanced Grants

(1). The remaining 6 returning grantees had first obtained an Advanced Grant, followed by another Advanced Grant.

According to ERC analyses, the success rate of proposals submitted by ERC grantees is markedly higher than the average success rate.

18 [https://erc.europa.eu/sites/default/files/document/file/poc\\_review\\_report.pdf](https://erc.europa.eu/sites/default/files/document/file/poc_review_report.pdf)

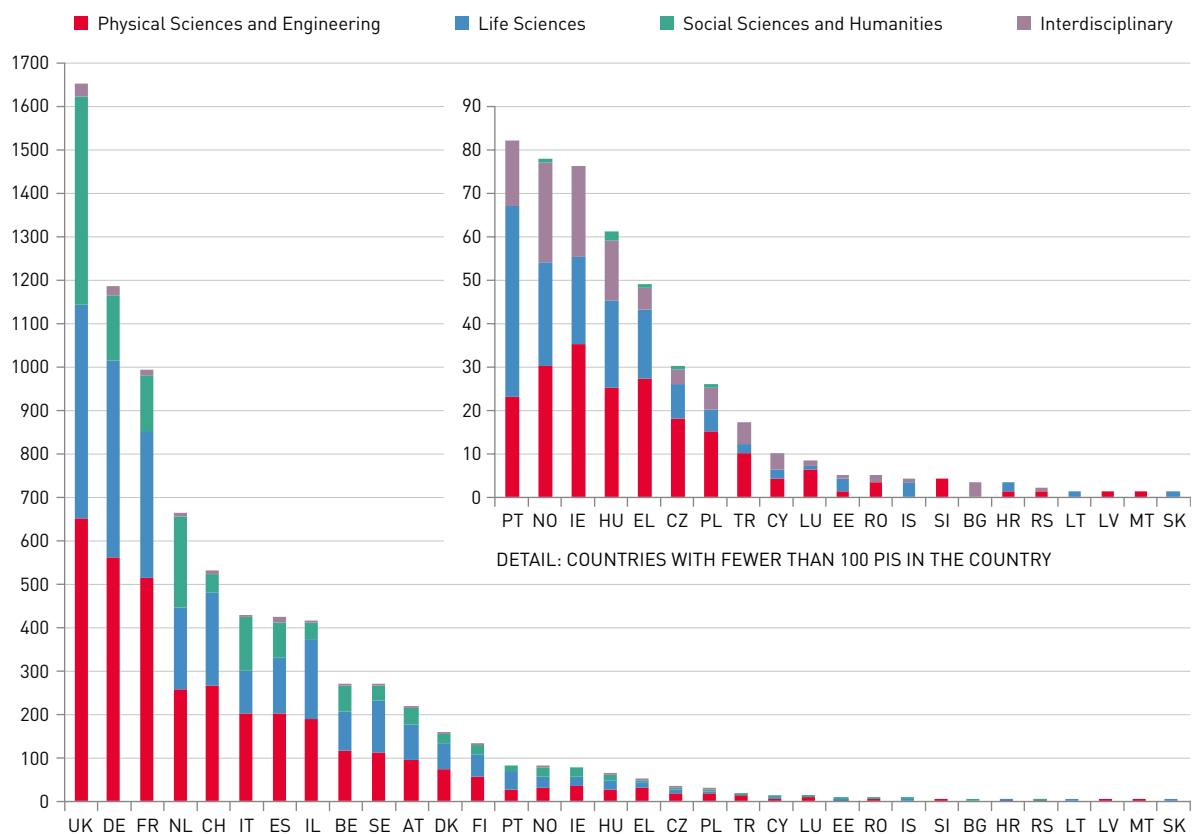


### 4.2.6 AUSTRIA IN AN INTERNATIONAL COMPARISON: WHO ARE THE TOP ERC PERFORMERS?

**Comparing country performances:** A country's ERC performance can be assessed by several factors. Here we will look at the total number of grants obtained, and the success rate of the ERC applications. Countries demonstrating above-average performance both in terms of the total number of grants and the success rate are denoted here as "overall ERC top performers". Furthermore, the number of ERC grants awarded will be compared to the number of full-time equivalents operating in research, technology and innovation (RTI) in the particular country.

When countries are ranked according to the **absolute number of ERC grants** awarded since the start of the ERC, the rankings are led by the UK, Germany, France, followed by the Netherlands, Switzerland, Italy, Spain and Israel. The UK, Germany and France together account for about 50% of all ERC grants. Austria takes a midfield position and is ranked 11th (Fig. 4.18). As in the case of MSCA, questions mount regarding the potential effects of BREXIT on the participation of the UK. To date, the UK is firmly in the lead in terms of the number of ERC grants obtained.

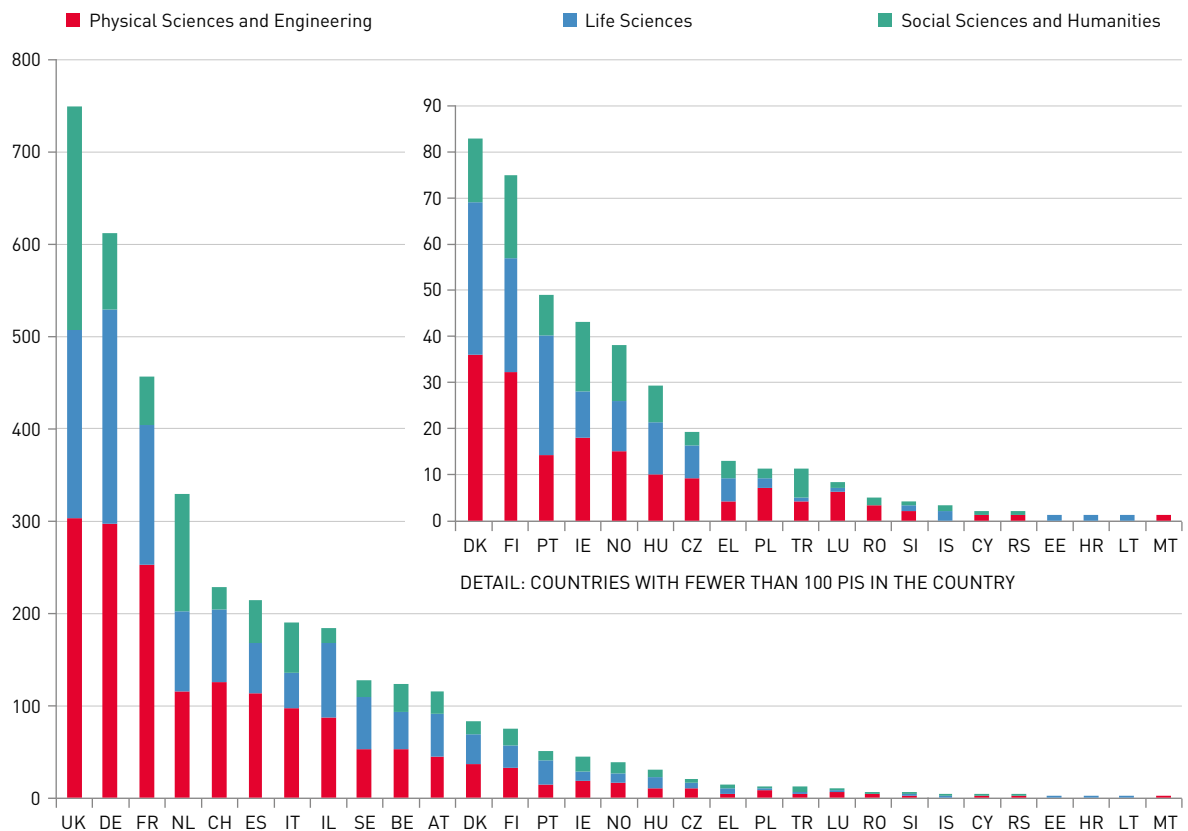
Fig. 4.18. Country ranking according to absolute number of ERC Grants, since the start of ERC



The ranking according to the absolute number of grants per country in **Horizon 2020 only**<sup>19</sup> shows a few changes, with Austria remaining in 11<sup>th</sup> place. The ranking is led by UK, Germany, France, followed by the

Netherlands, Switzerland, Spain, Italy (Spain and Italy have exchanged positions compared to the cumulative ranking since the start of the ERC) and Israel (Fig. 4.19).

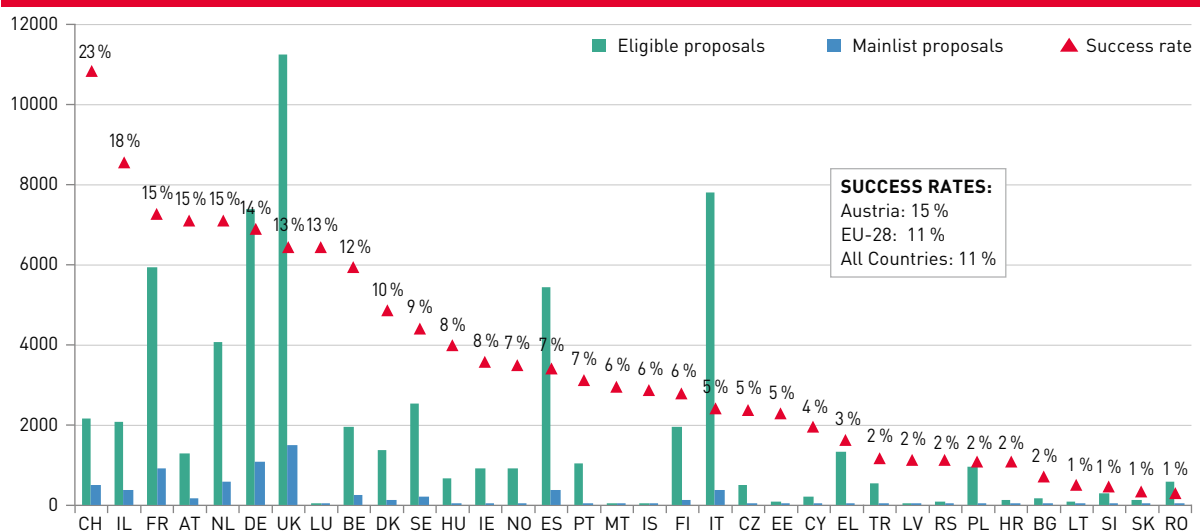
Fig. 4.19. Country ranking according to absolute number of ERC Grants, Horizon 2020 only



When ranked according to **success rates**, and taking into account all calls **since the start of the ERC**, the following snapshot is offered for positions 1-10: Switzerland,

land, Israel, France, Austria, the Netherlands, Germany, the UK, Luxembourg, Belgium and Sweden (Fig. 4.20).

Fig. 4.20. Country ranking according ERC success rate since the start of the ERC

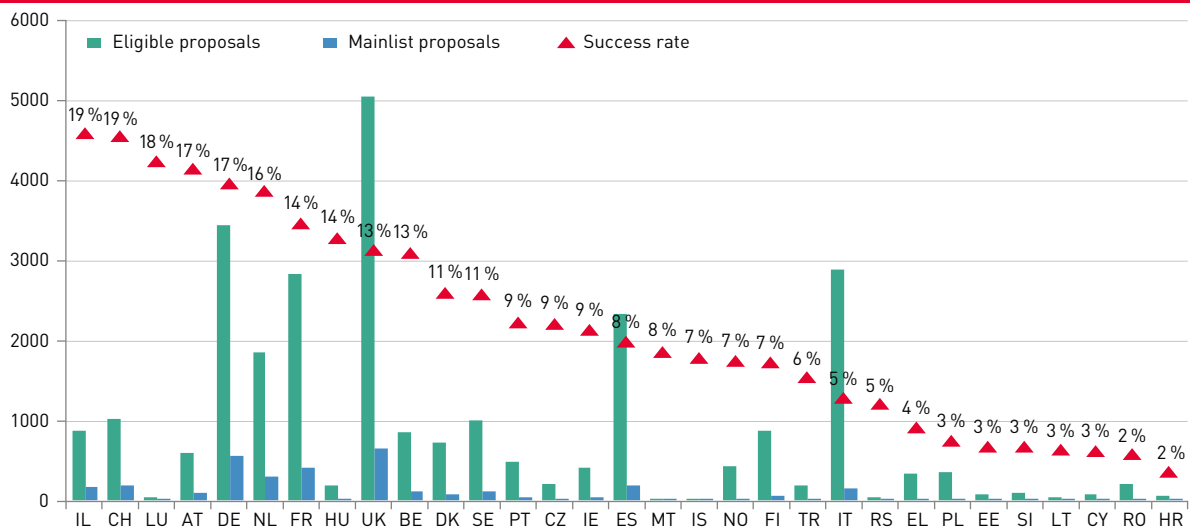


Where only ERC applications within **Horizon 2020** are considered, a ranking according to **success rates** leads to a slight change in order for positions 1-10: Israel,

Switzerland, Luxembourg, Austria, Germany, the Netherlands, France, Hungary, the UK and Belgium (Fig. 4.21).

## 4 | THE AUSTRIAN PERFORMANCE

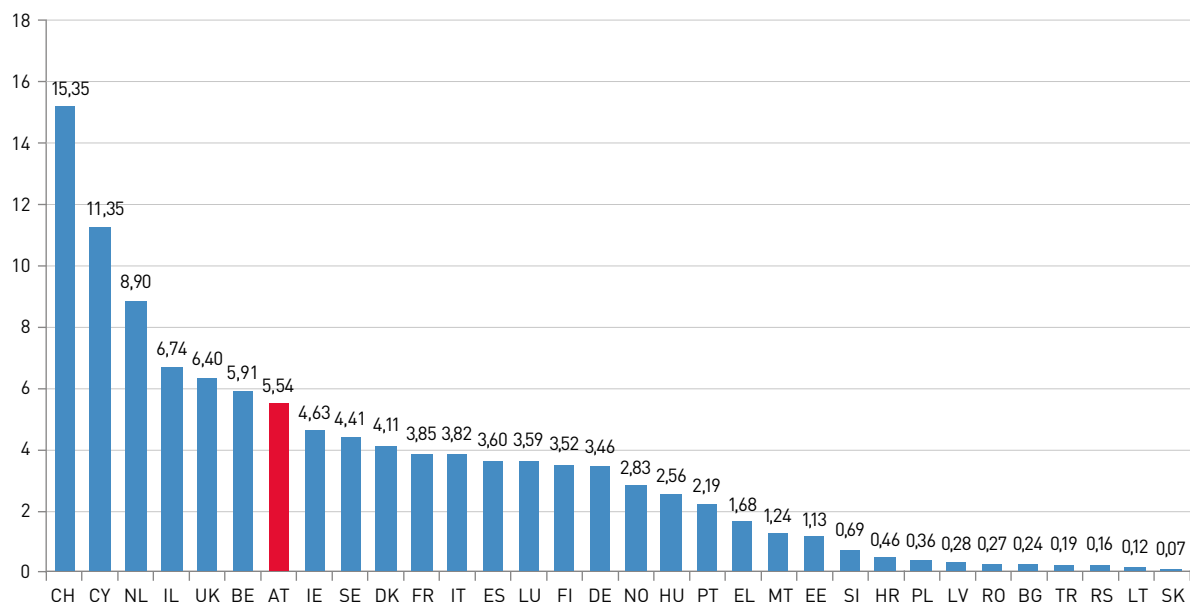
Fig. 4.21. Country ranking according ERC success rate, Horizon 2020 only



Considering the **cumulative ERC performance since the start of the ERC**, the following countries, which lead both in terms of total number of grants obtained and success rate, belong to the **overall ERC top performer** category (in alphabetical order): Germany, France, Israel, the Netherlands, Switzerland and the UK. This pattern has remained unchanged so far in Horizon 2020.

Again, a different picture is obtained using a country ranking according to the number of **ERC grants per 1000 researchers** in full-time equivalents in **Horizon 2020** to date: Switzerland is in the lead, followed by Cyprus, the Netherlands, Israel, UK, Belgium and Austria (see Fig. 4.22).

Fig. 4.22. ERC Grants per 1000 researchers in EU-28, Horizon 2020 only



SOURCE: Horizon 2020 Grants for 2014-2016, EC, data as of 09/2017. Researcher (FTE) for 2015, OECD, \*data for Switzerland and Israel as of 2012, data retrieval 06/2018.

## COMPARING INSTITUTIONAL ERC PERFORMANCE:

The ERC's Annual Performance Report 2017 provides a list of the top 50 institutions across Europe in terms of number of ERC grants obtained since the start of the ERC. The top 10 institutions listed in Fig. 4.23 include several institutions from the UK, highlighting the potential impact of a possible withdrawal of the UK from the next EU Framework Programme. Austrian institutions are not included in the top 50 list. In a previous ERC report<sup>20</sup>, the University of Vienna and the Vienna University of Technology (TU Wien) were ranked amongst the top 100 ERC host institutions.

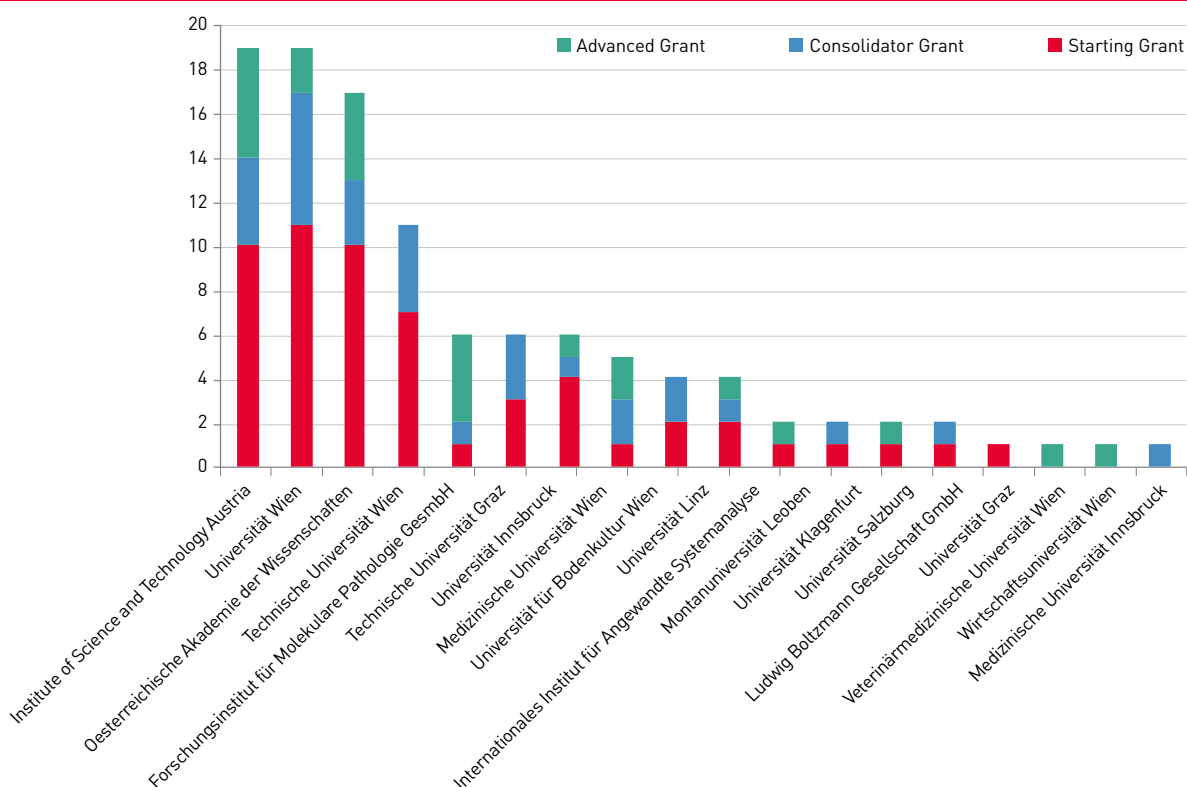
Fig. 4.23. Top 10 ERC host institutions, ERC Annual Performance Report 2017

1. National Centre for Scientific Research FR
2. Max Planck Society DE
3. University of Cambridge UK
4. University of Oxford UK
5. University College London UK
6. Swiss Federal Institute of Technology Lausanne CH
7. Weizmann Institute IL
8. Swiss Federal Institute of Technology Zurich CH
9. Helmholtz Association of German Research Centres DE
10. Hebrew University of Jerusalem IL

In the ranking of Austrian ERC host institutions according to the total number of ERC frontier research grants to date in **Horizon 2020**, the top positions are held ex aequo

by the University of Vienna and the IST Austria (19 grants), followed by the Austrian Academy of Sciences with 17 grants. The full ranking is given in Fig 4.24.

Fig. 4.24. Ranking of ERC host institutions in Austria according to total number of ERC frontier research grants



20 [https://erc.europa.eu/sites/default/files/publication/files/ERC\\_funding\\_activities\\_2007\\_2013.pdf](https://erc.europa.eu/sites/default/files/publication/files/ERC_funding_activities_2007_2013.pdf)





The ERC presently  
constitutes the biggest  
share of Horizon 2020  
funding for Austria.

## 4.2.7 AUSTRIAN ERC PERFORMANCE ACCORDING TO RESEARCH AREAS IN HORIZON 2020: INDICATIVE STRENGTHS AND WEAKNESSES

A further method of assessing Austrian ERC performance is to compare the success rates of ERC proposals according to scientific evaluation panels. Such a comparison reveals the several **areas of strength** in applications at Austrian institutions in terms of markedly above-average success rates (rank 1 – 4, with minimum 15 proposals submitted). Due to the limited number of Austrian applications per panel, these comparisons should, however, only be considered as indicative.

### Physical Sciences and Engineering

- Fundamental Constituents of Matter (panel PE3, rank 3)<sup>21</sup>

### Life Sciences

- Genetics, Genomics, Bioinformatics and Systems Biology (LS2, rank 2)
- Cellular and Developmental Biology (LS3, rank 2)
- Neurosciences and Neural Disorders (LS5, rank 4)
- Immunity and Infection (LS6, rank 4)
- Ecology, Evolution and Environmental Biology (LS8, rank 1)

### Social Sciences and Humanities

- Institutions, Values, Environment and Space (SH2, rank 2)
- The Social World, Diversity, Population (SH3, rank 2)
- Cultures and Cultural Production (SH5, rank 1)

Fig. 4.25-a

ERC Evaluation Panel	ERC Proposals submitted						
	All Countries				Austria		
	STG	COG	ADG		STG	COG	ADG
LS1 Molecular Biology, Biochemistry,...				LS1			
LS2 Genetics, Omics,...				LS2			
LS3 Cellular & Developmental Biology,...				LS3			
LS4 Physiology, Pathophysiology,...				LS4			
LS5 Neurosciences,...				LS5			
LS6 Immunity, Infection				LS6			
LS7 Applied Medical Technologies				LS7			
LS8 Ecology, Evolution,...				LS8			
LS9 Applied Life Sciences, Biotechnology,...				LS9			
PE1 Mathematics				PE1			
PE2 Fundamental Constituents of Matter				PE2			
PE3 Condensed Matter Physics				PE3			
PE4 Physical & Analytical Chemical Sciences				PE4			
PE5 Synthetic Chemistry & Materials				PE5			
PE6 Computer Science & Informatics				PE6			
PE7 Systems & Communication Engineering				PE7			
PE8 Products & Processes Engineering				PE8			
PE9 Universe Sciences				PE9			
PE10 Earth System Science				PE10			
SH1 Individuals, Markets & Organisations				SH1			
SH2 Institutions, Values, Environment,...				SH2			
SH3 The Social World, Diversity, Population				SH3			
SH4 The Human Mind and Its Complexity				SH4			
SH5 Cultures and Cultural Production				SH5			
SH6 The Study of the Human Past				SH6			
	8947	6782	6549	Total	197	137	131

<sup>21</sup> Please note that the structure and focus of the panels has undergone several changes since the start of the ERC

## 4 | THE AUSTRIAN PERFORMANCE

The following **weaker spots** in terms of success rate for Austrian ERC applications have emerged in Horizon 2020 to date (with minimum 10 applications and a markedly below-average success rate of maximum 7%):

### Physical Sciences and Engineering

- Mathematics (PE1)
- Synthetic Chemistry and Materials (PE5)
- Products and Processes Engineering (PE8)
- Earth System Science (PE 10)

### Social Sciences and Humanities

- The Human Mind and its Complexity (SH 4)

For the following ERC panels, no ERC application by Pls located in Austria has been successful in Horizon 2020 so far (between 5 and 16 applications):

- Products and Processes Engineering (PE8)
- Space (PE9)
- Earth System Science (PE10)
- Individuals, Markets and Organisations (SH1)

These indicative findings are also illustrated in the heat maps below (Fig. 4.25 a-c). Fig. 4.25-a juxtaposes the distribution of ERC proposals submitted per panel for Austria and all countries. The higher the number of proposals, the darker the colour in the respective boxes. Fig. 4.25-b compares the average success rate in Horizon 2020 for all 25 ERC panels across all countries and ERC frontier research grant types with the success rates of Pls at Austrian institutions. The higher the success rate, the darker the colour in the heat map. The heat map in Fig. 4.25-c shows the distribution of funded ERC proposals (ERC grants) per panel for Austria and all countries.

Fig. 4.25-b

Successrate						
All Countries				Austria		
STG	COG	ADG		STG	COG	ADG
			LS1			
			LS2			
			LS3			
			LS4			
			LS5			
			LS6			
			LS7			
			LS8			
			LS9			
			PE1			
			PE2			
			PE3			
			PE4			
			PE5			
			PE6			
			PE7			
			PE8			
			PE9			
			PE10			
			SH1			
			SH2			
			SH3			
			SH4			
			SH5			
			SH6			
11%	15%	11%	Total	15%	16%	19%

Fig. 4.25-c

Funded proposals (mainlist)						
All Countries				Austria		
STG	COG	ADG		STG	COG	ADG
			LS1			
			LS2			
			LS3			
			LS4			
			LS5			
			LS6			
			LS7			
			LS8			
			LS9			
			PE1			
			PE2			
			PE3			
			PE4			
			PE5			
			PE6			
			PE7			
			PE8			
			PE9			
			PE10			
			SH1			
			SH2			
			SH3			
			SH4			
			SH5			
			SH6			
945	986	689	Total	30	22	25

### COMPARISON WITH SUCCESS RATES AT NATIONAL LEVEL: APPLICATIONS TO THE AUSTRIAN SCIENCE FUND (FWF)

While a direct comparison of success rates for ERC applications and applications to the main Austrian funding agency for basic research, the Austrian Science Fund (FWF), is unfeasible due to the different assignments of

panels/disciplines, some similarities and differences can be observed. For example, applications to the FWF in the field of mathematics demonstrate a high success rate (above 40%)<sup>22</sup> whereas the Austrian ERC performance in the mathematics panel has remained below average (7%). Applications in historic science perform strongly in the FWF and also well in the ERC.

## 4.2.8 WHERE DO ERC PRINCIPAL INVESTIGATORS IN AUSTRIA COME FROM/GO TO?

The majority of ERC Principal Investigators (around 66%) in Austria are non-nationals, similar to Switzerland. For most countries, the respective nationals make up the majority of ERC Principal Investigators. In the UK, nationals and non-nationals each account for approximately 50% of the resident ERC Principal Investigators (see Fig. 4.26).

In terms of “nationals with ERC project outside their country”, Austria displays a similar pattern to Greece, with the majority of nationals working outside their home country. The main target countries for Austrian nationals are Germany, followed by the UK and Switzerland.

Fig. 4.26, Mobility of ERC Principal investigators [absolute numbers]



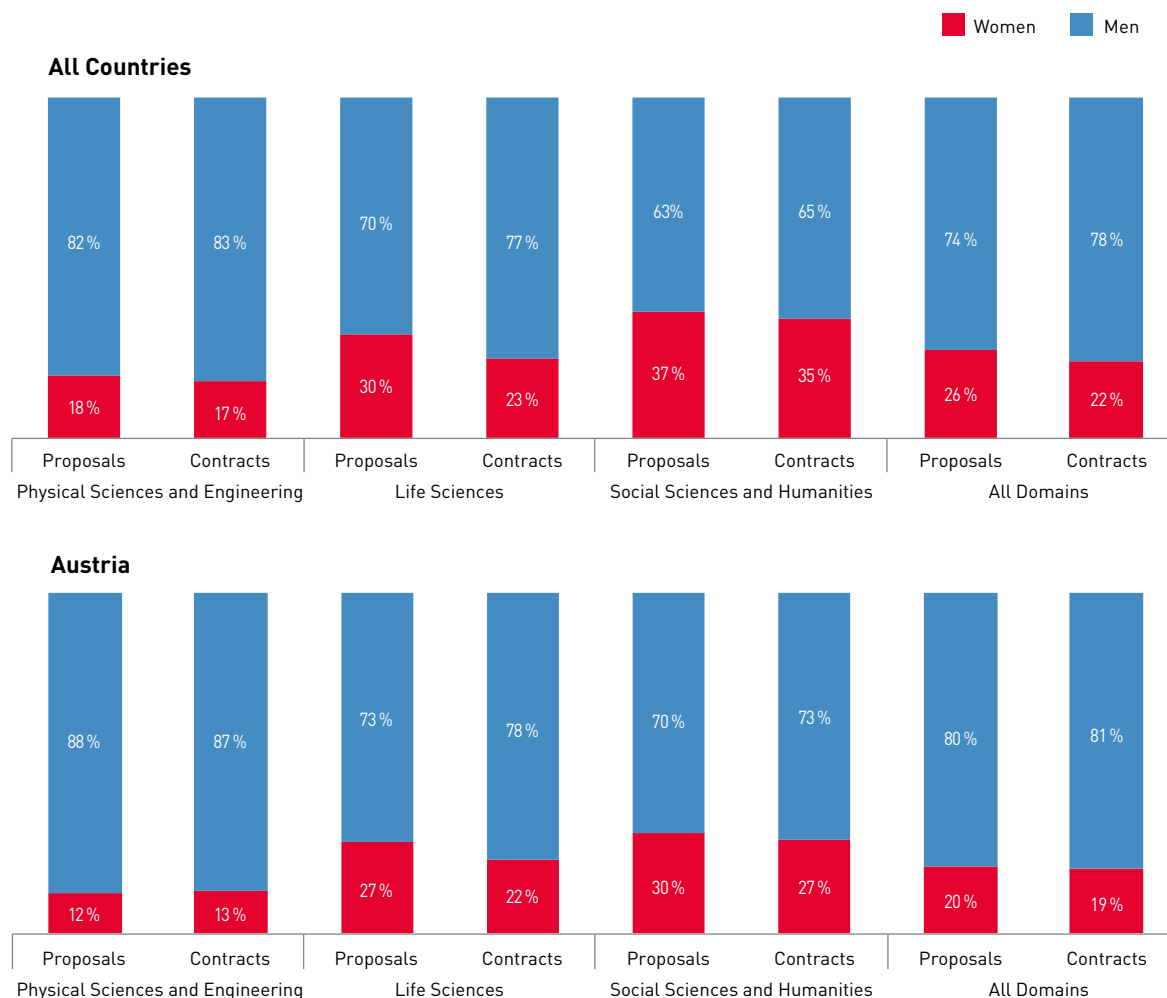
22 Austrian Science Fund, Funding Statistics: <https://zenodo.org/record/885115#.Wx5IL9UzbIU>

## 4.2.9 DISTRIBUTION OF ERC APPLICATIONS AND ERC GRANTS ACCORDING TO GENDER

Across all countries, female ERC Principle Investigators submitted 26% of the ERC applications and obtained 22% of the ERC grants since the start of the ERC. For Austria, both a lower percentage of proposals submitted by female PIs (20%) and of ERC grants obtained (19%)

is observed, while the difference between the share of female PIs in applications and grants has been less pronounced in Austria so far than across all countries. Fig. 4.27 below also indicates the respective shares according to domain.

Fig. 4.27, Share in ERC applications and grants according to gender





An X-ray image of a human hand and forearm, showing the skeletal structure. The image is overlaid with red text. In the top right corner, there is a small white text "87 %". In the bottom left corner, there is a small white text "Q L M".

# **5 CURRENT DEVELOPMENTS AND OUTLOOK**

## AT A GLANCE

**MSCA**

The total budget for MSCA will rise continuously during 2018-2020. The largest share of the increase will be allocated to the Innovative Training Networks and the Individual Fellowships, to strengthen the Career Restart panel, the Reintegration panel and the Global Fellowships in particular.

One of the key novelties is the introduction of the Widening Fellowships, supporting researchers in undertaking their fellowship in a widening country. Furthermore, researchers with disabilities will have the possibility to apply for a special needs allowance. Within the Individual Fellowships it will be possible to carry out the project on a part-time basis in order

to pursue supplementary activities, such as creating a business or undertaking advanced studies.

**ERC**

The return of the ERC Synergy Grant provides new opportunities for researchers seeking to address particularly challenging research questions in closely collaborating groups of 2-4 ERC Principal Investigators and their teams, rather than in a single team.

The slim funding format provided by the ERC Proof of Concept scheme constitutes a promising testbed for lump sum funding, which will most likely be implemented in the ERC Work Programme 2019.

## 5.1 MSCA

**T**he total budget for MSCA will amount to EUR 890.28 million in 2018 (+ 5.7% over 2017) and will increase further in 2019 (EUR 939.15 million) and 2020 (EUR 1042.45 million). The largest share of this increase will go to the Innovative Training Networks and the Individual Fellowships, in line with the low success rates in these MSCA schemes.

The living and top-up allowances will be increased by 5% and there will be a modification of the country correction coefficients with the Austrian coefficient increasing from 104.8% to 106.7%.

The MSCA Work Programme 2018-2020 implements several **recommendations from the interim evaluation**, including:

- fostering intersectoral collaboration
- boosting international cooperation
- strengthening the opportunities for career re-start
- empowering researchers through more flexible work arrangements, and
- equipping researchers with a broader set of transversal skills.

Furthermore, the following **key novelties** will be introduced:

- The MSCA will provide framework conditions conducive to integrating researchers displaced by conflict outside the EU/AC into the European research and innovation landscape; **refugees** do not have to comply with the long-term residency rule when applying to the IF Reintegration Panel (RI).
- The MSCA pay particular attention to **equal opportunities**, including gender balance and physical accessibility. In order to reduce barriers to mobility and ensure equal treatment of **researchers with disabilities**, an additional special needs allowance will be provided to these researchers.
- **Introductory training** for all MSCA fellows will be organised through an online training module. This will enable fellows to receive specific training in areas that will empower them to become leaders of the new generation of researchers, and provide them with information useful to their careers as MSCA researchers.

- The use of a unique **researcher identifier** number (such as Researcher ID or ORCID) is strongly recommended for all MSCA fellows.

### IF-INDIVIDUAL FELLOWSHIPS – NOVELTIES

- **Widening Fellowships** provide specific support to researchers to undertake their fellowship in one of the so-called widening countries<sup>23</sup>. This is designed to help spreading excellence and closing participation gaps within Europe/AC. The Widening Fellowships will be executed within the framework of the MSCA Individual Fellowships, but the budget originates from the Spreading Excellence and Widening Participation section of the Horizon 2020 Work Programme.
- **Part-time work** to pursue supplementary activities, such as creating a business, advanced studies, etc., will be possible. A part-time option must be agreed upon between the supervisor and fellow, and the fellow must spend at least 50% of their time working on the IF. The project duration will be extended proportionally.
- The budget for the **Reintegration (RI)** and the **Career Restart Panels (CAR)** will be increased and the maximum duration of CAR will be prolonged to 36 months.

- A **revised long-term residency rule** will allow for more flexibility for third-country researchers; only 5 years of residence count, instead of the previously required combination of research activity and residence within EU/AC. In addition, periods of absence are now permitted during the 5 years.

- **Refugees**, even though they are third-country citizens, are not required to comply with the long-term residency rule when applying to the Reintegration Panel.

- Within the framework of the **Global Fellowships**, it will be possible to stay up to 3 months at the European beneficiary before starting the outgoing phase at the third-country partner organisation. This 3 month maximum will count as part of the outgoing phase.

### RISE RESEARCH AND INNOVATION STAFF EXCHANGE – NOVELTIES

- The eligibility criteria for secondments will be less strict; staff members must be linked to the sending institution one month (instead of six) prior to the first secondment period. This allows for greater flexibility and more secondments.

## 5.2 ERC

### THE ERC SYNERGY GRANT IS BACK

The ERC Work Programme 2018 reintroduced the ERC Synergy Grants, a scheme in which 2 to a maximum of 4 PIs work together, combining different skills and resources to tackle particularly ambitious research problems. The pilot schemes in 2012 and 2013 were in great demand and positively evaluated, but featured very low success rates (1.6% and 3.0%, respectively). The first two calls for the “new edition” of the Synergy Grant come with a markedly higher budget. According to current ERC estimates, the success rate of the Synergy Grant Call 2018 should be around 10% and thus much closer to the average success rates of the other main ERC grant schemes.

### PROOF OF CONCEPT: LUMP SUM PILOT

The ERC Work Programme 2019 is expected to pilot a lump sum funding approach for applicants to the ERC Proof of Concept (PoC) scheme. If this pilot is successful it may also help encourage more ERC grantees in Austria to apply for PoC top-up funding in order to test the commercialisation options or social innovation of a result arising from their frontier research grant.

It is presently unclear whether a Seal of Excellence for highly-rated ERC Proof of Concept projects that could not be funded due to budgetary limitations will also be introduced in the near future.

<sup>23</sup> Member States: Bulgaria, Croatia, Cyprus, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Luxembourg, Malta, Poland, Portugal, Romania, Slovakia and Slovenia. Associated Countries: Albania, Armenia, Bosnia and Herzegovina, Faroe Islands, Former Yugoslav Republic of Macedonia, Georgia, Moldova, Montenegro, Serbia, Tunisia, Turkey and Ukraine.

<http://ec.europa.eu/programmes/horizon2020/en/h2020-section/spreading-excellence-and-widening-participation>

## 5.3 MSCA FELLOWS AND ERC GRANTEES: STRONGER TOGETHER?

### SHARE OF MSCA PROPOSALS INVOLVING AN ERC PI

The share of eligible MSCA proposals (IF, ITN, RISE) involving an ERC PI is 11% at European level and 19% for MSCA proposals coordinated by an Austrian organisation.

Limited to the MSCA IF, the share of eligible IF proposals involving an ERC PI amounts to 9% across all countries. For Austrian coordinated IF proposals, this fraction is again markedly higher, at 18%.

### HIGHER SUCCESS RATES FOR MSCA PROPOSALS INVOLVING AN ERC PI

At **European level**, the success rate of MSCA proposals (instruments IF, ITN) involving an ERC PI is significantly higher than for proposals without ERC PI (18% vs 13%). When considering the IF alone, the difference is even higher; the success rate for proposals involving an ERC PI is 23% vs 14% for proposals without an ERC PI. For ITN, too, a small difference can be observed with a success rate of 9% with ERC PI involvement versus 7% for proposals without.

A similar pattern is evident for **Austria**: for MSCA proposals (IF, ITN, RISE) involving an ERC PI, the success rate is higher than for proposals without ERC PI involvement (18% vs 12%). The same goes for the IF with a success rate of 22% vs. 14%. The only exception is ITN,

where the success rate for proposals involving an ERC PI is slightly lower than for proposals without ERC PI involvement (4% vs. 5%). However, as the number of ITN coordinated by Austria is very low, undue importance should not be given to these figures.

In the above analysis, the point in time at which ERC PIs were awarded their grants is not considered. Some may have received their ERC grant after involvement in the MSCA application.

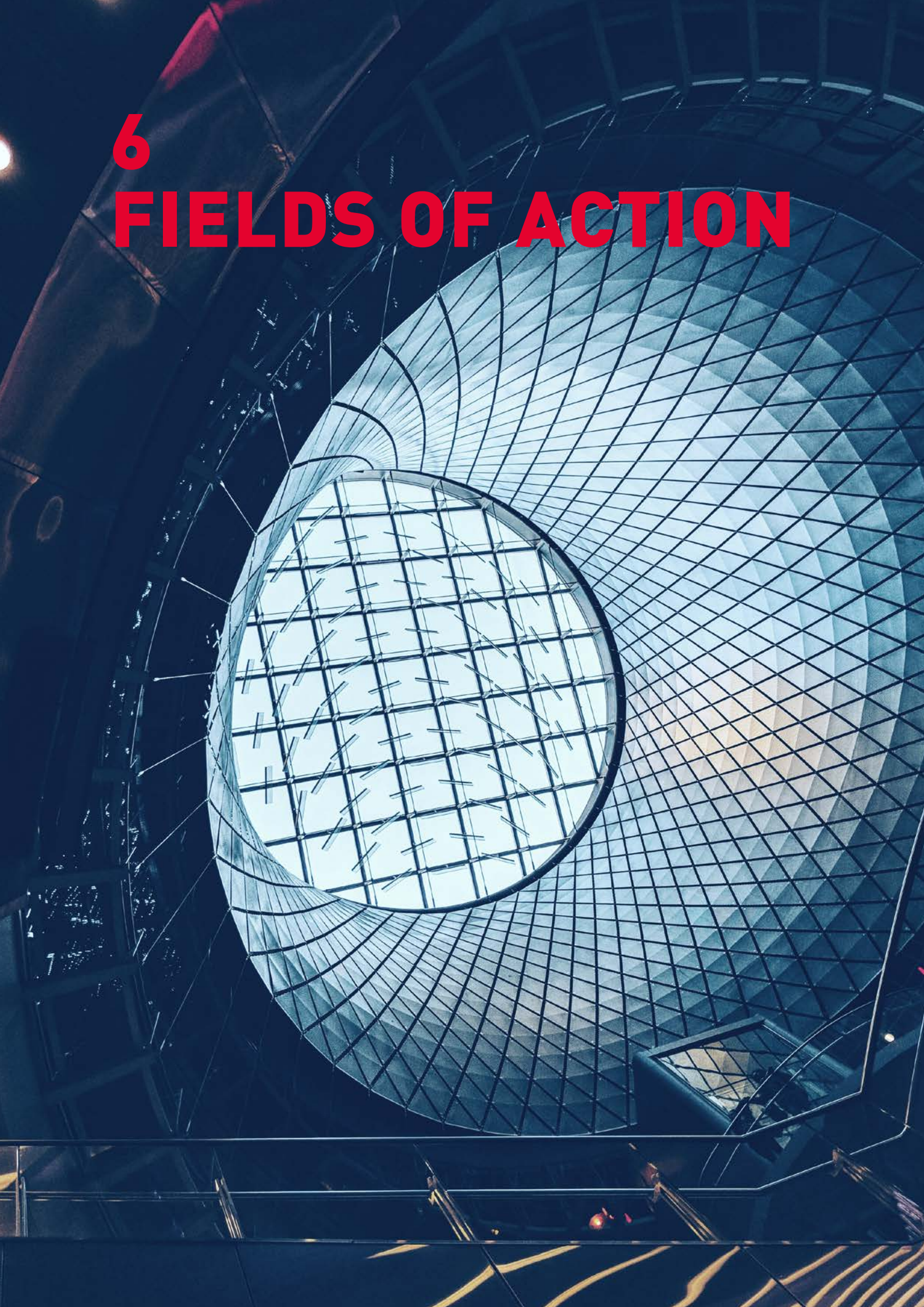
### CONCLUSIONS

- The question arises as to whether MSCA applications involving ERC PIs have a higher average quality than proposals without ERC PIs. MSCA IF proposals are typically written by the MSCA fellow, but the contribution from the host organisation and the supervisor (who could potentially be an ERC PI) is certainly an important factor in the quality of the application. An additional aspect is that the scientific quality of proposals involving ERC PIs may be particularly high.
- A broader/deeper analysis of the synergies between MSCA and ERC at the European level could be very interesting, also with respect to ERC PIs coordinating MSCA projects.



**6**

# **FIELDS OF ACTION**





## AT A GLANCE

For researchers participating in MSCA and ERC, the provision of attractive working conditions and career perspectives is highly important. In the case of MSCA, the set-up of individual career development plans is typically a part of the project design.

**MSCA**

Participations in the MSCA ITN European Joint Doctorates and MSCA COFUND require a strategic approach and timely planning, involving all relevant internal organisational units and levels. Applicants need to demonstrate a strong commitment to the European policy goals with respect to selection and employment conditions for researchers, as well as to the design of training programmes for the funded researchers.

For the Individual Fellowships, the cooperation between the applying researcher and the supervisor/

host organisation is very important in order to raise the quality of proposals. Dedicated meetings and proposal writing workshops which bring potential IF fellows and supervisors together have been shown to be good practice examples in this respect.

**ERC**

Mentoring activities which support (potential) ERC applicants according to the requirements of their particular career stage should be continued and expanded to the extent required to position Austrian institutions favourably in the competition for ERC grants. Early mobilisation of the ERC community remains important in ensuring solid Austrian participation in future ERC calls. This also includes the ERC Proof of Concept Grant in which there is scope for a marked enhancement of Austrian performance.

## 6.1 MSCA

**IF – INDIVIDUAL FELLOWSHIPS**

- By supporting researchers in their first step to achieving independence, the IF is very well received within the research community. The strong need for this funding scheme is reflected in the continuously increasing number of submitted proposals, which calls for a **higher budget in 2018-2020 as well as for an increased investment within the next FP**. The total number of evaluated proposals rose continuously and was 21% higher in 2017 than in 2014, resulting in declining success rates (from 17.6% in the first to 15.1% in the fourth call), despite a slightly higher budget in 2017. The increase in evaluated proposals from Austrian institutions rose by 51.2% between 2014 and 2017.
- The European Fellowships (EF) offer a means of recruiting excellent researchers from abroad, thereby

strengthening an organisation's research capacity. Decision-makers at the interested organisations need to take a strategic and targeted approach to maximise the chances of success. This includes a strong commitment from the host organisation and the future supervisor of the EF. **Dedicated supporting measures for future fellows and supervisors** at organisation level can contribute to the quality of proposals, raising the chance of a positive funding decision. Within the framework of the ERA Dialogues, the FFG strives to raise awareness at the IF host institutions of the importance of such support, and encourages research organisations to introduce the corresponding measures.

- One possible reason for the relatively low Austrian involvement in Global Fellowships (GF) could be the repeated fixed-term contracts (*Kettenvertragsregelung*) offered by the universities, specifying that a

terminable employment contract (or a series of such contracts) may last for a maximum of six years. If the university is unable to offer an unlimited contract after that period, then the researcher may have to leave the organisation. The repeated fixed-term contracts, which were introduced with the intention of protecting employees, may not leave room for adequate flexibility and **could thus act as a barrier for researchers wishing to spend time abroad**. This problem needs to be addressed at policy level, and a revision of the Austrian Universities' collective agreement could possibly be considered.

- Some countries have introduced (national) programmes to fund IF projects that have been awarded a Seal of Excellence (SoE), by which they attract highly skilled, excellent researchers. The existence of a **national SoE programme** may influence IF applicants in their choice of host organisation, and in the long run may also contribute to a country's attractiveness as a destination for a career in research. The FFG has informed decision-makers and funding agencies about the SoE, and has initiated discussions about the usefulness and possibility of setting up a national funding programme for SoE awardees. As SoE recipients have already passed a high-quality, independent, international assessment process, the need to carry out a new evaluation is lessened.

#### ITN – INNOVATIVE TRAINING NETWORKS

- The highly important ITN scheme, which supports the innovative training of the next generation of researchers, remains of great interest to the research community, and **increased investment in the ITN within the next FP** is desirable. The low success rates in 2015 (6.8%) and 2016 (7.0%) reflect the decreased budgets for these calls, but despite the increased budget in 2017, the success rate remained very low at only 7.6%. The oversubscription has been discussed in the Programme Committee and a higher budget has been allocated to the ITN calls 2018-2020.
- The European Joint Doctorates (EJD) include the joint award of joint, double or multiple doctoral degrees of involved institutions and for that reason the preparation of an **EJD application needs to be planned well in advance and consider all administrative issues**. This may require the involvement of different operational units within each participating organisation, as well as time consuming internal and external procedures. Within the framework of the ERA Dialogues, the FFG continues to inform potential applicants about the need for careful and timely planning, including all the actors concerned.
- There is a **financing gap** for early stage researchers funded within the framework of an ITN (and partly also for experienced researchers in IF) which remains an issue. The gap results from the difference in salary determined by the Austrian Universities

collective agreement compared to the respective funding amount (Living Allowance). The participating Austrian universities have different approaches to solving this problem, and applicants are strongly recommended to **contact the research support office** at their organisation for advice. It is also important to agree on the distribution of the management and indirect costs contribution within the ITN consortium as early as the proposal preparation stage.

#### RISE – RESEARCH AND INNOVATION STAFF EXCHANGE

- Despite the relatively high success rate and intense awareness activities, it has been difficult to motivate (Austrian) organisations to participate in RISE. The following conditions may explain this trend:
  - There is no funding of salaries. In addition, it is difficult to combine RISE with other types of projects, making it problematic to second staff basically financed through third-party funds.
  - In many RISE projects it has been a challenge to find staff eligible and suitable for secondment. Early stage researchers do not always fulfil the eligibility requirements, and experienced researchers and/or fixed staff often have obligations within their home organisation, making it difficult to stay away for longer. Measures to counteract this difficulty have been introduced in the MSCA Work Programme 2018-2020, in which the 6-months eligibility criterion of having been active at the sending organisation for at least 6 months prior to secondment was reduced to 1 month. Future calls will show if this will help solve the problem.
- Notwithstanding the difficulties in implementation described above, RISE remains a very interesting funding scheme, supporting important aims such as strengthening research cooperation between Europe and third countries, as well as academic – non-academic interaction. Therefore the **design of RISE and possibilities for improvement require further discussion** in the Programme Committee.

#### COFUND

- Although COFUND is a single beneficiary scheme, the application and implementation often needs the strong involvement and interaction of different players and organisational units.
  - Strong motivation from the applying institution to consider adapting their programmes to fit within the scope of COFUND is a very important factor in raising the chances of selection.
  - To foster interdisciplinary and intersectoral aspects in the national programme it is advisable to include suitable partner organisations which cover these facets in the COFUND application.
  - Several Austrian applicants did not make (full) use of the services offered by FFG (individual consultancy meetings and proposal checks). This may partly explain the low success rate and that

some proposals scored “below threshold”. It is therefore recommended to consult FFG in the early stages of planning a COFUND application.

- Within the framework of the ERA Dialogues, the FFG advises potential applicants to take a **strategic approach involving the higher management levels** and to initiate a timely COFUND submission.

## 6.2 ERC

### SUPPORT FOR ERC MENTORING ACTIVITIES AT AUSTRIAN UNIVERSITIES AND RESEARCH ORGANISATIONS

Bearing in mind examples such as the ERC Mentoring initiative by the IWM (Institut für die Wissenschaft vom Menschen), one can expect that institutions which systematically provide mentoring to support young scientists in pursuing cutting-edge issues and building a compelling research vision will be at an advantage in the competition for ERC grants. Ideally such mentoring will address at least two target groups: The first are early stage researchers (PhD students and early postdocs) with “ERC potential” (but not yet formally eligible to submit an ERC proposal) who, in addition to scientific mentoring, would also receive advice on career planning steps and how to enhance the international visibility of their research. The second are applicants to the ERC Starting or Consolidator Grant who would receive expert feedback on the idea and approach (is it truly “frontier research”?), ideally in an interdisciplinary setting, and profit from detailed advice offered by their mentor(s) on how to strengthen their proposal.

While different ERC mentoring formats can be conceived, mentoring requires considerable resources, particularly with respect to the time given by mentors and sparring partners. FFG will continue to provide support, e.g. for mentoring initiatives which have been initiated in several Austrian institutions, within the context of the ERA Dialogues or dedicated events. Furthermore, the Nurturing Talents Prize recently launched by the Federal Ministry for Education, Science and Research (BMBWF) in cooperation with FFG and FWF is designed to incentivise and acknowledge ERC mentoring measures at Austrian institutions.

**Early Mobilisation of the ERC Community** remains an important task in ensuring a solid participation rate for the ERC calls in Austria. One immediately effective measure will be the continuation of the Proposal Reading Days at FFG, with the aim of expanding the proposal library to cover as many ERC panels and grant types as possible. In addition, dedicated events in various formats which are designed to reach PhD students and early postdocs should be held, whilst also exploiting synergies

### ERN – EUROPEAN RESEARCHERS’ NIGHT

- Some countries use ERN as a strategy to co-fund events that would in any case take place at a national level. This might also be an option for Austria, seeking to combine ERN with for instance the Long Night of Research (*Lange Nacht der Forschung*). To date the latter has not been possible as the national event typically takes place in April while the ERN has to be held in September.

between MSCA and ERC, for example in the context of the mentoring measures outlined above.

**ERC Proof of Concept - Enhancing Austrian Performance:** To support a marked improvement in the Austrian performance in the ERC Proof of Concept calls, measures to increase awareness amongst ERC Principal Investigators with respect to the specifics of this top-up grant scheme will be intensified. Besides continued ERC Proof of Concept Roundtables at FFG, and the provision of dedicated PoC information packages with tips for applicants, additional information measures will aim to increase awareness of the Proof of Concept scheme through other relevant actors within ERC host institutions, in particular tech transfer offices and support structures involved in knowledge transfer such as the WTZs. The early involvement of these actors is particularly important as ERC Proof of Concept proposals are not evaluated according to scientific merit, but in terms of a convincing strategic approach towards commercialisation or the social innovation of project results.

### PROVIDING ATTRACTIVE FRAMEWORK CONDITIONS FOR ERC GRANTEES

Austria currently belongs to the group of countries that profits from the “incoming portability” of ERC grants, with researchers transferring their ERC grant to Austria from abroad. In view of the persistent competition between European institutions to attract ERC grantees, it will also be important for institutions to provide effective welcome services and generally attractive framework conditions for researchers, as well as convincing career perspectives. While the extent to which this is possible is largely shaped by the political framework conditions (e.g. future development of the National Action Plan for a Competitive Research Area) FFG will continue to support institutional measures via the ERA Dialogues, e.g. in the context of EURAXESS and the HR Excellence in Research award.

# 7 APPENDIX



## 7.1 MSCA INTERIM EVALUATION – MAIN FINDINGS<sup>24</sup>

In 2017, the twentieth year of the Marie Skłodowska-Curie Actions and with the funding of the 100,000<sup>th</sup> fellow, the European Commission published the results of the MSCA Interim Evaluation. This evaluation covered the first three years of Horizon 2020 (2014 – 2016), with EUR 2 billion of the EUR 6.2 billion budget for MSCA already spent. In addition, the evaluation looked at the MSCA under FP7 (2007-2013). It shows that MSCA continues to have a positive impact on individual researchers, organisations, and at the system level. It has a pronounced structuring impact on the European Research Area (ERA) by setting standards for quality training for early stage and experienced researchers, as well as promoting attractive working conditions including the principle of open recruitment for researchers. The most notable evaluation results are summarised below:

The report highlights that the MSCA is effective in boosting the **career development of researchers**. For example, roughly 60% of past MSCA fellows believe that they attained their subsequent career stage much faster and 12% believe that they would not have attained the subsequent career stage at all if not for the MSCA. Of all MSCA fellows, around 45% of ITN fellows and 40% of all MSCA fellows indicated that they were not likely to have pursued a research career in the absence of MSCA funding. In addition, more than 25% of organisations said that the programme has helped to retain excellent researchers who would have left Europe otherwise. The evaluation also showed that MSCA have a significant impact on the quality of training offered for early stage and experienced researchers. It should also be noted that organisations participating in MSCA more often comply with the Charter and Code with respect to open and transparent recruitment procedures.

The **collaboration between universities, research institutes and industry** is a central element throughout the MSCA. Here the evaluation showed that an estimated 45% of fellows benefit from some form of intersectoral mobility, either out of or into an academic setting.

The promotion of **international cooperation** is another central feature of MSCA. Here the evaluation results show that the MSCA appear to be attractive for researchers and organisations outside the EU. For example, one in four MSCA fellows were attracted to Europe from countries outside the EU Member States or Horizon 2020 Associated Countries. The MSCA account for more than half of all third-country participations in Horizon 2020. More precisely, the programme accounts for 80% of all US participations. For China, Australia, Canada and Brazil the share is lower, but even here MSCA accounts for 50% or more of those countries' participations. MSCA RISE is the most international scheme across Horizon 2020, with 32% of its participations coming from third countries, while the Individual Fellowship (11%) and the COFUND scheme (7%) also have international participation levels well above the Horizon 2020 average. More generally, MSCA contributes to international cooperation within and beyond Europe. As the report notes, 80% of the MSCA fellows entered into collaborations with researchers abroad, and these tend to be sustained also after the fellowship has ended.

There is strong evidence of the **longer-term scientific value and societal impact** of the MSCA programme. To date (2017), there have been 1,114 publications in MSCA projects, of which 740 appeared in peer-reviewed journals. This is the highest number of all areas in the Framework Programme. Furthermore, the evaluation revealed that ITN fellows had a significantly higher

24 Source: FP7 ex post and H2020 interim evaluation of the Marie Skłodowska-Curie Actions, published 2017.



share of their articles published in 'gold' open access, compared to early stage researchers in the comparison group (with 42% compared to 33% respectively in the period 2006 – 2016). This suggests that MSCA is promoting new cultures of publishing among the next generation of researchers.

The **gender dimension** is an important element of MSCA, both in terms of supporting female researchers as well as gender-related aspects of content. The interim evaluation revealed that 40% of the supported researchers were women, which is higher than the average percentage of female researchers in Europe. Within the MSCA programme, the proportion of female coordinators (47%) has increased compared to FP7 (33%). However, the representation of female supervisors in the Individual Fellowship scheme is still low (21%), reflecting the persistent low percentage of women in senior research positions in academia.

Although it is a bottom-up programme, the **MSCA contributes strongly to the Sustainable Development Goals (SDG)**, addressing societal challenges to an extent significantly beyond the Horizon 2020 average, and well ahead of other areas in the Excellence Science pillar of Horizon 2020. For example, 62% of the MSCA budget in 2014-2015 was awarded to projects related to sustainable development, 23% to climate change and 6% to biodiversity.

Lastly, **oversubscription** should be noted. The interim evaluation revealed that the programme's oversubscription rate doubled between FP7 and Horizon 2020. The highest rates of oversubscription are found in the ITNs, with the tenfold number of non-funded high quality proposals compared to proposals funded under Horizon 2020. Oversubscription is also an issue for the Individual Fellowships for which around five times as many high quality proposals are received in Horizon 2020 than can be funded.

## 7.2 STUDIES RELATED TO MSCA, ERC AND CAREER DEVELOPMENT

### RESEARCH CAREERS IN EUROPE (EC, 2016)<sup>25</sup>

Drawing on data from Horizon 2020 and FP7, the study deals with the perception and promotion of research careers in Europe, dual careers in research and the restart of research careers.

### FP7 EX-POST AND H2020 INTERIM EVALUATION OF MARIE SKŁODOWSKA-CURIE ACTIONS (MSCA)<sup>26</sup>

This report presents the results of the MSCA mid-term evaluation, assessing the relevance, effectiveness, efficiency, coherence and EU added value of MSCA. Drawing on data from Horizon 2020 and FP7, the evaluation results feed into the overall mid-term evaluation of Horizon 2020 and lays the groundwork for the next Framework Programme.

### EUROPEAN INDUSTRIAL DOCTORATES - TOWARDS INCREASED EMPLOYABILITY AND INNOVATION (EC, 2017)<sup>27</sup>

This study summarises the results of an analysis of the implementation of the European Industrial Doctor-

ate (EID). It sheds light on what institutions, fellows and stakeholders think about the EID and presents national schemes comparable with the EID. From a general perspective, it provides an in-depth insight into the pros and cons of collaboration between university and industry in doctoral education.

### STUDY OF BUSINESS PARTICIPATION AND ENTREPRENEURSHIP IN MARIE SKŁODOWSKA-CURIE ACTIONS (EC, 2017)<sup>28</sup>

This study sheds light on the motivation of larger companies to participate in MSCA and reveals several barriers for business participation: the reluctance to dedicate resources to a proposal with a small chance of success, the fear that academic institutions have little to offer in terms of applied research, and worries about the protection of their intellectual property.

### MID-TERM REVIEW OF MARIE SKŁODOWSKA-CURIE ACTIONS UNIT COSTS (EC, 2017)<sup>29</sup>

The study provides a mid-term review of the adopted unit costs compared to real costs. It also determines the

25 <https://publications.europa.eu/en/publication-detail/-/publication/c97be578-9aa5-11e6-868c-01aa75ed71a1>

26 <https://publications.europa.eu/en/publication-detail/-/publication/98885a02-c849-11e7-9b01-01aa75ed71a1>

27 <https://publications.europa.eu/en/publication-detail/-/publication/c6abb4b4-3c3e-11e7-a08e-01aa75ed71a1/language-en>

28 <https://publications.europa.eu/en/publication-detail/-/publication/decfab92-5ae2-11e7-954d-01aa75ed71a1/language-en>

29 <https://publications.europa.eu/en/publication-detail/-/publication/0f44192e-5499-11e7-a5ca-01aa75ed71a1/language-en/format-PDF/source-31288412>

future eligible researcher and institutional costs for each of the four MSCA for the Work Programme 2018-2020.

#### **REPORT ON SKILLS AND COMPETENCIES FOR RESEARCHERS TO PRACTISE OPEN SCIENCE<sup>30</sup>**

The report offers a good insight into different categories of Open Science skills, including a presentation of current resources, including trainings, to develop such skills. Of particular interest is the chapter placing Open Science in the ERA policy, bringing the topic of Open Science closer to other central HR policy documents and instruments such as the Principles for Innovative Doctoral Training and the Human Resources Strategy for Researchers (HRS4R). This is a valuable read for all those involved in setting up / implementing institutional strategies linked to career development for researchers, including doctoral training, staff development and the development of human resources in general.

#### **EVALUATION OF RESEARCH CAREERS FULLY ACKNOWLEDGING OPEN SCIENCE PRACTICES. REWARDS, INCENTIVES AND/OR RECOGNITION FOR RESEARCHERS PRACTICING OPEN SCIENCE PUBLICATION METADATA (EC, 2017)<sup>31</sup>**

The report provides background information on Open Science in relation to ERA policy, researcher assessment and career frameworks. The limitations of current recognition and reward processes are presented, with suggestions on how to alleviate these and how new paradigms can be envisioned and implemented.

#### **EURYDICE BRIEF ON ACADEMIC STAFF 2017<sup>32</sup>**

This Eurydice brief provides a general picture of academic staff in 35 European countries, trying to provide a better understanding of working conditions and careers of academic staff. It provides a broad range of aspects, for example on trends in the representation of female academic staff, recruitment of international staff members, academic staff salaries and sabbatical schemes, and qualification requirements in academia.

#### **STUDY ON FOSTERING INDUSTRIAL TALENTS IN RESEARCH AT EUROPEAN LEVEL (2018)<sup>33</sup>**

This study examines intersectoral mobility, i.e. the mobility of academic and industrial researchers, academics and senior people from industry. It identifies

barriers for researchers to become mobile across sectors and presents examples of good practices to support intersectoral mobility, including recommendations for possible further EU-level interventions.

#### **A COMPARATIVE ANALYSIS OF THE PUBLICATION BEHAVIOUR OF MSCA FELLOWS (2018)<sup>34</sup>**

This report analyses the mobility, publication and international co-publication behaviour of a group of European researchers that have taken part in the MSCA Fellowship schemes. It compares researchers that received their PhD from organisations in South Eastern European countries and from North Western Europe.

#### **MORE3 STUDY - SUPPORT DATA COLLECTION AND ANALYSIS CONCERNING MOBILITY PATTERNS AND CAREER PATHS OF RESEARCHERS<sup>35</sup>**

The MORE3 study updates and expands on MORE2 in order to meet the need for indicators over time and assess the impact on researchers of policy measures introduced with the aim of improving the attractiveness of careers in research in Europe.

#### **AN EMPIRICAL ASSESSMENT OF THE ERC PROOF-OF-CONCEPT PROGRAMME, FINAL REPORT**

This study presents an assessment of the European Research Council (ERC) Proof-of-Concept funding scheme, commissioned to an independent group of experts by the ERC Executive Agency. According to the study, the projects funded under PoC show sufficient promise to attract private sector funding as well as follow on support from other sources of public funding. This is considered a powerful external validation of the Programme's accomplishments. Significant numbers of awardees indicated, in both the survey and the interviews, that there is room for improvement in the programme in three main areas: more time, more (follow-on) funding and more flexibility in programme management. The study accordingly also provides a set of recommendations for the future development of the PoC scheme.

30 [https://ec.europa.eu/research/openscience/pdf/os\\_skills\\_wgreport\\_final.pdf](https://ec.europa.eu/research/openscience/pdf/os_skills_wgreport_final.pdf)

31 <https://publications.europa.eu/en/publication-detail/-/publication/47a3a330-c9cb-11e7-8e69-01aa75ed71a1/language-en>

32 [https://eacea.ec.europa.eu/national-policies/eurydice/home\\_en](https://eacea.ec.europa.eu/national-policies/eurydice/home_en)

33 [https://cdn5.euraxess.org/sites/default/files/policy\\_library/final\\_report\\_intersectoral\\_mobility.pdf](https://cdn5.euraxess.org/sites/default/files/policy_library/final_report_intersectoral_mobility.pdf)

34 <https://rio.jrc.ec.europa.eu/en/library/comparative-analysis-publication-behaviour-msca-fellows>

35 <https://www.more3.eu/deliverables>



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