The Future of European Research Funding

Statement on the Framework Programme 9 by the Marie Curie Alumni Association

March 2018

This document was prepared by the MCAA Policy Working Group and approved for release by the MCAA Board on March 8, 2018.

Summary

The MCAA recommendations for FP9 are contained in nine issues, as listed below. Details for the key recommendations associated with each issue are on the following pages in this document.

Notes on this document

- Several key reports and papers and associated recommendations from other organizations are referenced and endorsed where relevant throughout this document. As those issues have already been raised elsewhere, we try to reduce overlap in the interest of brevity (while still referencing and endorsing the relevant reports and recommendations in the main text of this document). The issues raised in this document (the list above) are therefore not intended as an exhaustive list, and should instead be seen as a complement to the reports referenced and endorsed herein.

- Order of presentation in this document does not imply relative importance of specific issues or recommendations.

- *Science* and *research* are used interchangeably in this document. For example, we use *open science* as this is the more commonly used term, but here it is equivalent to *open research*. *Open research* is a broader term which more clearly includes research areas often not associated with the term “science” (e.g. research in the arts, law and the humanities).

Marie Curie Alumni Association

The Marie Skłodowska-Curie Actions (MSCA) is one of the European Union's flagship initiatives to provide research grants supporting researchers at all stages of their careers, across all disciplines.[1] MSCA fellowships are among Europe's most competitive and prestigious awards, aimed to support the best, most promising researchers.

The Marie Curie Alumni Association (MCAA) is a global network of researchers open to any past or present researchers supported by the MSCA.[2] 100 000 researchers have been supported by the MSCA over the last 20 years and, of these, the MCAA represents over 10 000 registered members[3]. The MCAA is a non-profit, politically and commercially independent organization, supported through funding from the European Union.

Background to this document

In this document, the MCAA describes its position and recommendations concerning the upcoming European 9th Framework Programme for Research and Innovation (FP9). This is in response to the ongoing "public consultation on EU funds" by the European Commission.[4]

The document has been composed by a cohort of members across all disciplines and approved by the governing board of the association. It is an independent contribution of researchers and does not present the view of the EC, or of the DG-EAC.

The current FP8 (or Horizon 2020) has an estimated budget of €80 billion. This budget is divided into 3 "pillars" and 4 "specific objectives". The pillars are: (i) *excellent science* (percent of budget: ~32%), (ii) *industrial leadership* (~22%), and (iii) *societal challenges* (~39%). Of the specific objectives, we highlight: (i) *science with and for society* (~0.6%) and (ii) *spreading excellence and widening participation* (~1%).[5]

Horizon 2020 has been instrumental for building and supporting world-class research and innovation in Europe. As global competitiveness is increasing,[6] attracting and retaining the best researchers and innovators is more important than ever. The next Framework Programme should build on the foundation established by Horizon 2020, and address its shortcomings. This is vital for ensuring long-term prosperity across Europe.

The following pages outline key issues and recommendations from the MCAA regarding FP9.

[1] https://ec.europa.eu/research/mariecurieactions/
[2] https://www.mariecuriealumni.eu/
[3] https://ec.europa.eu/research/mariecurieactions/100-000-fellows_en
[4] https://ec.europa.eu/info/consultations/public-consultation-eu-funds-area-investment-research-innovation-smes-and-single-market_en
[5] https://ec.europa.eu/research/horizon2020/pdf/press/fact_sheet_on_horizon2020_budget.pdf
[6] http://reports.weforum.org/global-competitiveness-index-2017-2018/

Issue 1: Substantially increase research budget to at least €120 billion

Well-funded research environments are required to attract and retain the best minds, and to provide leadership and inform policy in priority areas ranging from environment, energy, healthcare, migration and justice, to commercial and industrial innovation. Impact assessment studies suggest that for every €1 spent on research €13 of value is added to industry.[7]

This large (and positive) societal focus on the importance of research has led to an unprecedented expansion of the number of active researchers across the world over the last few decades. Accordingly, the number of active researchers in EU-28 rose by over 30% from 2005 to 2015.[8] The MCAA welcomes this positive development.

However, available research funding has not kept pace with this rapid growth, leading to a hypercompetitive environment that is discouraging many outstanding researchers from staying in research.[9]

The MSCA-ITN call for 2017 funded only 5–6% of proposals, with many proposals that were assessed as outstanding and world-class by external expert reviewers (i.e., assessment scores > 90%) were still rejected due to insufficient available funding.[10]

The success rate for MSCA-IF-EF-Standard, while higher, has been decreasing from 18,62% in 2014 to 14,20% in 2015, 13,10% in 2016 and 11-14% in 2017. The same trend is observed for the Career Restart and Reintegration panels. These hypercompetitive calls represent an enormous waste of talent and effort that needs to be addressed.

Recommendations for FP9

- We fully endorse the calls from the European University Association (EUA),[11] the European Council of Doctoral Candidates and Junior Researchers (Eurodoc),[12] the League of European Research Universities (LERU),[13] and others, to substantially increase the budget of FP9. A budget of at least €120 billion is needed to start to address these systemic issues.

[7] https://ec.europa.eu/research/horizon2020/pdf/proposals/horizon_2020_impact_assessment_annexes.pdf
[8] http://ec.europa.eu/eurostat/statistics-explained/index.php/R_%26_D_personnel
[9] https://www.nature.com/news/young-talented-and-fed-up-scientists-tell-their-stories-1.20872 ; http://www.pnas.org/content/111/16/5773
[10] https://ec.europa.eu/research/participants/portal/doc/call/h2020/msca-itn-2017/1767623-h2020-msca-itn_2017-percentile_en.pdf
[11] http://www.eua.be/Libraries/publications-homepage-list/ambitious-funding-needed-to-back-excellent-research-ideas-in-europe-post-2020
[12] http://eurodoc.net/sites/default/files/attachments/2017/133/eurodocfp9statement.pdf
[13] https://www.leru.org/publications/beyond-the-horizon-lerus-views-on-the-9th-framework-programme-for-research-and-innovation

Issue 2: Widen participation of all EU countries in the R&I framework programme

The interim evaluation of Horizon 2020[14] has outlined the programme's main achievements after three years of implementation (2014-2016). This evaluation has also provided insight into striking discrepancies between different participating countries. The gap has an impact on the participation and use of resources in Horizon 2020, which is still associated with complex geopolitical imbalances. Indeed, excellent researchers in many areas of Europe continue to face intrinsic difficulties in participating in the programme. In the "Spreading Excellence and Widening Participation" document[15] the Commission has identified these "low R&I performing" or "widening participation" countries based on the "Composite indicator of Research Excellence". The low representation and low-mobility of researchers from these countries should certainly be addressed by FP9 and efforts should be focused toward reducing these differences.

We support the process of widening participation of EU countries in the next FP9, in line with the European University Association[16] and the League of European Research Universities[17].

Recommendations for FP9

- Fund research into how to best support "low R&I performing" countries to facilitate widening participation.
- Foster collaboration between regional universities, regional MSCA and EURAXESS coordinators, and other public and private stakeholders and recognize diverse involvement as an added value contributing to excellence.
- Allocate supplemental funding for the engagement of emerging excellent scientists from "low R&I performing" countries in successful collaborative research teams leading FP9 projects. For example, this can be achieved by expanding existing programs such as *Teaming & Twinning* and *ERA Chairs*. Together with the EUA, we also support the reinforcement of recently implemented initiatives such as the ERC Visiting Fellowship Program proposed by the EUA.
- Allocate a greater share of *European structural and investment funds (*ESIF) post-2020 to support researchers in "low R&I performing" countries through various mentoring programs, learning platforms and on-site trainings targeted towards research support offices. Some of ESIF could be used to foster the return phase for intra-European MSCA fellowships (similar to the voluntary return phase that existed for MSCA-International Incoming Fellowships under FP7), and/or co-funding of basic infrastructure in MSCA COFUND activities.

[14] https://ec.europa.eu/programmes/horizon2020/sites/horizon2020/files/h2020_threeyearson_a4_horizontal_2018_web.pdf
[15] http://ec.europa.eu/research/participants/data/ref/h2020/wp/2018-2020/main/h2020-wp1820-sewp_en.pdf
[16] http://www.eua.be/Libraries/publications-homepage-list/eua-next-framework-programme-for-research-and-innovation-(fp9).pdf
[17] https://www.leru.org/publications/beyond-the-horizon-lerus-views-on-the-9th-framework-programme-for-research-and-innovation

Issue 3: Improve career prospects for researchers

The increasing inflow of researchers into the academic system, the rigid hierarchy of academia, and the stagnating research funding landscape of the past decade[18,19,20] have led to grim work perspectives for many researchers. In addition, at least in some research fields, the number of permanent positions opened each year has decreased substantially.[21] This trend limits the long-term career perspectives for researchers and will have a long-term impact on European science and society. The general perception is that all researchers struggle with high job insecurity, impacting more strongly the experienced researchers. There have been few measures taken in Europe to support the career prospects of researchers; some countries have succeeded in training and marketing PhD researchers for other sectors[22], but a EU standardized policy, especially taking into account recognized and established researchers, is lacking. Although there is great potential, Europe does not capitalize on the knowledge that is produced[23].

We believe that the societal long-term investment in science is reflected not just by the amount of money being invested into research projects and researcher training but also by the stable incorporation of researchers.

Furthermore, we also support giving researchers a suitable interface to the private sector so that they have a broader perspective of career opportunities, understand their value within the knowledge-based economy, and can transition from academic research institutions more seamlessly when roles are not available.

Recommendations for FP9

- Account for resources invested in permanent positions when considering the long-term investment in European research.
- Define and implement new stable career paths beyond the academic tenure-track model.
- Collect comprehensive data about researcher careers throughout Europe and propose evidence-informed policies to update the current system.
- Enhance the collaboration between academia and industry[24,25] (see also Issue 4: Open Science).
- Support training and mentoring of established researchers for inter-sectoral mobility.
- Simplify and standardize research practices and procedures across Europe together with national funding agencies.

[18] https://royalsociety.org/~/media/policy/projects/international-mobility/researcher-mobility-report-survey-academics-uk.pdf
[19] https://www.nature.com/news/2011/110420/full/472276a.html
[20] http://ec.europa.eu/research/evaluations/pdf/archive/other_reports_studies_and_documents/hlg_2017_report.pdf
[21] https://doi.org/10.1016/S1474-4422(16)30174-0
[22] https://www.nature.com/news/2011/110420/full/472276a.html
[23] http://ec.europa.eu/research/evaluations/pdf/archive/other_reports_studies_and_documents/hlg_2017_report.pdf
[24] https://royalsociety.org/~/media/policy/projects/international-mobility/researcher-mobility-report-survey-academics-uk.pdf
[25] https://www.nature.com/news/2011/110420/full/472276a.html

Issue 4: Implement Open Science

Open Science is, together with the related themes of *Open Innovation* and *Open to the World,* central to the European Commission's *A Vision for Europe*.[26] Open Science refers to a set of interdisciplinary principles and practices that are reshaping how research is being performed and communicated. Open science makes research more efficient, transparent, and effective, and enables increasing connections and collaborations in and between research, policy, society and innovation.[27] Europe is a world-leader in many of these areas,[28] and the MCAA is a strong proponent of these developments.

However, substantial challenges still remain to enable full implementation of Open Science. Many of these challenges are associated with research culture, research assessment and reward systems, and available expertise and resources. Two excellent recent reports outline key issues and recommendations: "Open Science Skills Working Group Report"[29] and the report from the "Working Group on Rewards under Open Science"[30]. The EU-funded, multi-institutional and multi-national project FOSTER[31] and the community-led initiative DORA[32,33] are also providing leadership on this important topic. The MCAA strongly supports these reports and initiatives, and provides the following complementary recommendations towards achieving full implementation of Open Science in FP9 following the FAIR principles[34]. These are centered on the topics of (i) leadership, (ii) incentives and rewards, (iii) research dissemination, (iv) citizen science.

Recommendations for FP9

- *Leadership:* Identify and promote good practices and practitioners of open science. This should be interpreted broadly to include all research-related and research-associated efforts, e.g. creating open science tools and opportunities.
- *Incentives and rewards*: The Open Science Career Assessment Matrix (OS-CAM) proposed by the Working Group on Rewards under Open Science[35] should be implemented as a key assessment and evaluation tool.
- *Research dissemination:* We support the EC-proposed Open Research Platform and its use as a main dissemination route for research outcomes funded by FP9.[36]
- *Citizen science*: FP9 should have citizen science as a key theme.[37] This includes both 'doing research' (e.g. crowdsourcing) and facilitating increasing public engagement with research. Guiding principles and best practice examples have recently been described.[38,39]

[26] https://ec.europa.eu/digital-single-market/en/news/open-innovation-open-science-open-world-vision-europe
[27] https://ec.europa.eu/digital-single-market/en/open-science
[28] https://ec.europa.eu/research/openscience/index.cfm
[29] https://ec.europa.eu/research/openscience/pdf/os_skills_wgreport_final.pdf
[30] https://ec.europa.eu/research/openscience/pdf/os_rewards_wgreport_final.pdf
[31] https://www.fosteropenscience.eu
[32] https://sfdora.org
[33] https://www.nature.com/articles/d41586-018-01642-w
[34] http://ec.europa.eu/research/participants/data/ref/h2020/grants_manual/hi/oa_pilot/h2020-hi-oa-data-mgt_en.pdf
[35] https://ec.europa.eu/research/openscience/pdf/os_rewards_wgreport_final.pdf
[36] https://ec.europa.eu/research/openscience/pdf/information_note_platform_public.pdf
[37] https://ec.europa.eu/research/openscience/index.cfm?pg=citizen&section=monitor
[38] https://ecsa.citizen-science.net/sites/default/files/ecsa_ten_principles_of_citizen_science.pdf
[39] https://www.leru.org/files/Citizen-Science-at-Universities-Trends-Guidelines-and-Recommendations-Full-paper.pdf

Issue 5: Facilitate long-term financial stability for mobile researchers

The free movement of ideas and people is part of the very heart of the European Single Market,[40] and is widely recognized as one of Europe's greatest achievements.[41] In research, free movement facilitates collaboration between diverse researchers and integration of the European research community, which is crucial for tackling complex, multifaceted topics and to help research thrive.[42]

However, free movement also introduces financial challenges for mobile researchers,[43] given that taxation and pension systems are largely based on national legislation. Different social security standards and a high fragmentation of systems across Europe will eventually frustrate mobility, thus limiting the beneficial effects mentioned above. These complex issues must be addressed at the European, national, and regional levels. Initial efforts such as RESAVER.EU[44] and *Find Your Pension*[45] towards an additional Europe-wide pension insurance are promising, but they do not address the core problems nor are they being pushed at the policy level.

Bolder and more innovative initiatives are needed at the political level to achieve a unified financial outlook for European researchers. In some international research institutions based in Europe (see for example EMBL, CERN, ICTP), researchers benefit from a special status because they are considered to add value to the international community. Likewise, establishing a pan-European social and fiscal system for mobile researchers would bring two benefits: recognition as a fundamental resource for the European Community, and encouragement of further mobility.

Recommendations for FP9

- Political effort to establish a pan-European social security and fiscal system for mobile researchers.
- Expanded support of efforts such as RESAVER.EU and *Find Your Pension*.

[40] http://ec.europa.eu/growth/single-market/
[41] https://www.weforum.org/agenda/2016/09/free-movement-of-people-explainer/
[42] http://www.bbc.co.uk/news/science-environment-36667987
[43] https://www.mariecuriealumni.eu/posts/pension-issues-mobile-researchers-germany
[44] http://www.resaver.eu
[45] https://www.findyourpension.eu

Issue 6: Expand support for the mental health and well-being of researchers

Poor mental health and well-being among researchers, especially Early Career Researchers (ECRs), is an important issue that can have far-reaching consequences for research-related and research-interfacing communities, and a life-long negative impact on individual researchers.

The limited studies that exist indicate a widespread problem and further underline the urgency of addressing it. In a US study, around half of the ECRs investigated met the criteria for clinical depression,[46] and similar studies in Europe have shown similar results.[47,48] These numbers were found to be substantially higher than those observed in comparable (but non-research) communities and groups. On the basis of their seminal work, Levecque and her collaborators show that the strongest determinants of PhD students' mental health problems are the lack of work-life balance, high job demands, issues about job control and decision making[49]. The Bratislava Declaration of young researchers in 2016[50] highlighted a number of critical demands related mainly with sustainable career trajectories and flexible research environments, both of which can support a healthier work-life balance.

These issues reverberate throughout all aspects and parts of the research process and research communities and — in addition to personal harm — have severe detrimental effects on research outcomes. Widespread mental health problems in European researcher communities could threaten our leading position in global research publications, and could also have an impact on the efficiency of major European research funding programmes (e.g. MSCA, ERC).

We strongly support the call from the European Council of Doctoral Candidates and Junior Researchers (Eurodoc)[51] to address these issues.

Recommendation for FP9

- Fund research on the mental health and well-being of researchers to assess the incidence of these issues and to provide recommendations on how they can be addressed.
- Support training and knowledge sharing to make researchers and their superiors aware of the importance of mental health and related transversal skills development opportunities.
- Support local, national and European initiatives for better work-life balance, especially for female researchers.
- Extend the duration of research funding (currently 2-3 years long) in the MSCA programme and other related research grants so that they can last up to 4 years.

[46] https://www.nature.com/nature/journal/v539/n7628/full/nj7628-319a.html
[47] https://www.sciencemag.org/careers/2017/04/phd-students-face-significant-mental-health-challenges
[48] https://doi.org/10.1016/j.respol.2017.02.008
[49] https://doi.org/10.1016/j.respol.2017.02.008
[50] http://www.eu2016.sk/data/documents/bratislava-declaration-of-young-researchers-final.pdf
[51] http://eurodoc.net/sites/default/files/attachments/2017/133/eurodocfp9statement.pdf

Issue 7: Improve integration of social sciences and humanities

Social Science and Humanities (SSH) research has been recognized as vitally important to the future of Europe, with particularly large investments in Horizon 2020. SSH research is essential to solving major societal challenges including ageing populations, food security, clean energy, smart transport or adaptation to climate change. More importantly, in a highly globalized world, SSH research will endow Europe with fundamental knowledge to inform policy with effective evidence. The insights gained through SSH research are considered as important as breakthroughs in the natural and technological sciences. Social innovation is as impactful to the economy as technological innovation. Since the inception of H2020, it has been recognized that SSH insights are taken on board not as an add-on, but are considered at the very start of research projects.[52]

To further support the urgency to invest in SSH research, the latest Special Eurobarometer on the *Future of Europe*[53], in which citizens across Europe (EU-28) were interviewed, identified "unemployment, social inequalities, migration issues and terrorism and security issues" as the main current challenges. Causes, explanations and potential solutions to these types of societal issues are at the heart of research in the social sciences and humanities (SSH).

Given the above considerations, we think that the original purpose of H2020 should be more ingrained into the next Framework Programme. It will need investments in purpose oriented research for what concerns the societal challenges highlighted above (and other important challenges identified in the next years).

Recommendation for FP9

- Creation of a Europe-wide SSH platform to advise funding agencies and research institutions.
- Aim for a better integration of SSH with scientific and technological fields, with an emphasis on early collaboration and multidisciplinarity.
- Fund purpose oriented research projects for a bigger positive impact facing the current societal challenges

[52] http://www.eua.be/Libraries/publications-homepage-list/eua-next-framework-programme-for-research-and-innovation-(fp9).pdf
[53] http://ec.europa.eu/commfrontoffice/publicopinion/index.cfm/survey/getsurveydetail/instruments/special/surveyky/2179

Issue 8: Promote integration of displaced researchers in higher education institutions

Recent studies have highlighted the positive economic impacts of integrating higher skilled and educated migrants for both the country of the origin and the host country.[54] The EC in coordination with several NGOs has set up different initiatives to facilitate the integration of migrants and refugees in higher education and research.[55] Such programs vary from online support to mentoring and recruiting refugee students in European higher education system.

However, there is a small body of qualitative research with an explicit focus on forced migration and access to higher education that reveal four dominant themes pertaining to a deficit in the capital held by forced migrants[56,57,58]:

i) knowledge capital – the need to commence, continue with interrupted education, or validate existing qualifications and experience
ii) immigration status – unresolved immigration status or temporary awards impacting on access to student funding and grants
iii) language - unable to speak the language in the host country, prove language ability or acquire technical / academic vocabulary and
iv) financial – depending on status, barriers to access student funding, employment and meet basic costs such as travel and equipment.

In addition, preliminary results of a survey conducted by the MCAA Policy Working Group indicate that about two-thirds of the respondents were unaware of any initiatives to support forced migrants in their institution. The vast majority of them also indicated their strong support for their institution to offer "targeted support" for forced migrant academics and students. Given the urgency and the scale of the forced migration crisis, we offer some specific recommendations to facilitate the integration of forced migrants into EU higher education institutions.

Recommendations for FP9

- Each member state should establish a national center for higher education integration for forced migrants, to be hosted at a higher education institution.
- Establishment of a centralized database for refugees seeking higher education in the EU, and for institutions who offer special programs for forced migrants. This initiative will facilitate the matching process and provides tractable statistics for measuring the success of each initiative.
- Promote best practices - currently being developed in the UK - on a dedicated European Commission web page, and create an international forum to share, showcase and document these best practices to benefit EU institutions seeking to start migration integration initiatives.
- Provide scholarships or grant funding to forced migrant academics and students interested in pursuing their studies in higher education institutions.

[54] https://www.nature.com/articles/nclimate3420
[55] http://ec.europa.eu/education/policy/migration/higher-education-refugees_en
[56] https://doi.org/10.1080/02601370.2012.761288
[57] http://www.leeds.ac.uk/educol/documents/172482.pdf
[58] https://doi.org/10.1080/0142569042000236952

Issue 9: Promoting gender equality and diversity

Although female and male researchers in Europe at the graduate level are represented in equal numbers[59], women are still underrepresented in leadership positions in both academic and industrial research. Only 23.5% of top-level researchers and 20% of heads of higher education institutions are women[60]. These numbers represent a misuse of resources and require more active and effective measures towards gender equality in research.

Many researchers still face discrimination (e.g., contributions are not sufficiently recognised within research teams) and sometimes even harassment. Harassment can take different forms, from facing inappropriate and sexual remarks and jokes, comments about physical appearance and differences in cognitive styles, sexual advances, unwanted physical and sexual contact, or threats to one's career and reputation as a result of non-compliance. It is unacceptable that in Europe, diversity still suffers from as a result of discrimination and harassment.

Recommendations for FP9

- Encourage female and discriminated researchers to pursue leadership positions by funding career development and mentoring programs for early career and experienced researchers.
- Establish funding schemes to facilitate a career restart for female researchers.
- Encourage and enforce best practices on gender equality and diversity in Europe by training principal investigators and by establishing a confidential process for researchers to lodge complaints.
- Incorporate parental leave in all EU research-funded programmes and ensure that there's no gap in the benefits when female researchers move from one country to another while pregnant.
- Provide funding for education of beneficiaries and project coordinators on sexual harassment and abuse of power.

[59] https://ec.europa.eu/research/swafs/pdf/pub_gender_equality/she_figures_2015-final.pdf
[60] https://ec.europa.eu/research/swafs/pdf/pub_gender_equality/interim_evaluation_gender_long_final.pdf

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We also acknowledge the kind contribution of Rebecca Murray (University of Sheffield) to Issue 8.