Scientific Advice Mechanism
to the European Commission

April 2024

Initial strategy to increase the involvement of early- and mid-career researchers in SAPEA

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Table of contents

Introduction

About this document

This document is part of the SAPEA strategy of diversity and inclusiveness, which includes additional diversity characteristics such as interdisciplinarity, multidisciplinarity, gender representation, and wide geographical coverage.

About SAPEA

SAPEA's role in the Scientific Advice Mechanism to the European Commission is to provide independent, high-quality reviews of the evidence to inform the policy recommendations made by the Group of Chief Scientific Advisors.

SAPEA is a consortium of Academy Networks, funded by Horizon Europe, representing a large number of academies from different countries. Through these Networks, they bring together outstanding expertise from natural sciences, engineering and technology, medical, health, agricultural and social sciences, and the humanities.

SAPEA's mission

SAPEA's mission is threefold:

- to provide high-quality, timely and independent scientific evidence, together with evidence-based conclusions and policy options
- to strengthen the landscape of academies in Europe, providing opportunities for Academy Fellows and other leading experts to participate in SAPEA's activities
- to communicate and disseminate effectively the outputs of the Scientific Advice Mechanism and to undertake outreach activities that achieve tangible impact

SAPEA's strategy of diversity and inclusiveness

SAPEA accomplishes its mission by considering a wide range of available scientific evidence and maintaining the highest standard of excellence regarding the expertise that it provides. Diversity is a major consideration that helps to compensate for individual biases, and to provide sound, high-quality science advice. Science advice for policy is not only transnational and transdisciplinary, but also requires participation of experts

with different perspectives and experiences. To address these requirements, SAPEA follows a dedicated strategy of diversity and inclusiveness which is considered at all stages, such as in selecting experts, forming selection committees, and establishing other groups. It is also considered when planning the target audiences of communications activities.

The strategy includes the following characteristics of diversity:

- interdisciplinarity and multidisciplinarity
- involvement of experts from the wider scientific community, who are not Fellows of academies
- inclusion of early-career and mid-career researchers
- gender
- wide geographical coverage

SAPEA also takes into account the intersections of these parameters as a source of diversity ('intersectionality')[1].

As part of SAPEA's mission and its strategy of diversity and inclusiveness, this document presents the details on SAPEA's strategy for increasing the involvement of early- and mid-career researchers.

[1] SAPEA, 2023, Quality assurance guidelines and procedures on science advice for policy and society

Commitment to EMCR engagement in SAPEA

Definition of 'early- and mid-career researchers'

In SAPEA, an early or mid-career researcher (EMCR) is defined as a researcher who successfully defended their first doctoral degree (a PhD or equivalent) not more than 19 years ago.

This strategy additionally makes a distinction between:

- **early-career researchers (ECRs)**, who defended their first doctoral degree no more than seven years ago: for example, recent PhD graduates and postdocs that have shown evidence of independent research, or in some cases, advanced PhD researchers
- **mid-career researchers (MCRs)**, who defended their first doctoral degree more than 7 years ago but no more than 19 years ago: for example, experienced postdocs, group and unit leaders or early-stage professors

These definitions align to a large extent with the European Research Council's criteria for distinguishing between ECRs and MCRs, and are also meant to allow for similar extensions of these periods for reasons such as maternity, paternity, long-term illness, national service, clinical training, natural disasters, or seeking asylum:

> The European Research Council offers:
>
> - Starting Grants to early phase researchers defined as those who defended their first PhD or an equivalent degree between 2–7 years (inclusive) prior to the cut-off date, and
> - Consolidator Grants to establishing independent researchers defined as those who defended their first PhD or an equivalent degree between 8–12 years prior to the cut-off date. The eligibility periods can be extended beyond 7 and 12 years for these grants, respectively, for documented circumstances such as maternity, paternity, long-term illness, national service, clinical training, natural disaster and seeking asylum.[2]

These career stage definitions fall in the spectrum of researcher career stages R2 (recognised researcher) and R3 (established researcher) in the proposed European framework to attract and retain research, innovation and entrepreneurial talents in Europe[3] and the European Framework for Research Careers.[4]

The ECR definition aligns with the Global Young Academy's threshold of 7 years from the completion of a PhD or equivalent as the eligibility criterion for young academy membership.[5] Similarly, the Marie

[2] ERC Work programme 2024, European Commission Decision C(2023) 3999, pp 25–26

[3] Annex I, COM/2023/436

[4] Report adopted by the ERA Steering Group on Human Resources and Mobility (2011) Towards a European Framework for Research Careers

[5] Global Young Academy (2022) Blueprint to Establish a National Young Academy

Skłodowska-Curie Actions Postdoctoral Fellowship and the COST Action limit an early career investigator's role to being within 8 years of the completion of the PhD.[6]

The strategy has set the upper limit of EMCRs to 19 years from the defence of the first doctoral degree or equivalent, instead of 12 years proposed by the European Research Council, to align SAPEA's understanding of EMCRs better with that of the young academies.

Young academies are recognised academic organisations formed by young scientists and scholars at the beginning of their independent careers who have been selected for the excellence of their research and service and represent young scholars in the society.[7] Most of them are also affiliated with an established academy of sciences. According to policies implemented by young academies, researchers are typically eligible for a young academy membership until the age of 40, with young academy membership lasting for 5 years. Considering that a typical age for defending the first doctoral degree is 26 to 32 years, the limit of 19 years allows SAPEA to consider scholars who defended their doctoral degree at the age of 26 in the group of EMCRs just as young academies do.

Commitment to increase EMCR involvement

Science advice by SAPEA relies on the principles of relevance, excellence, transparency, independence, diversity, clarity about uncertainty, and ethics.

Implementing these principles, SAPEA prioritises excellence, views it in conjunction with the relevance of the candidate's expertise to the scientific topic in question, and strives towards the engagement of highest-quality expertise through detailed and transparent selection procedures for Working Group members. While evaluating excellence, SAPEA has committed itself to recognising diversity in career paths and scientific outputs, and endorsed the CoARA principles of research assessment:[8]

> The quality of the SAPEA Evidence Review Reports is inherently related to the excellence of scientific experts, as endorsed by the judgement of their peers and manifested in their various careers and research activities, including those beyond traditional forms of scientific output. The evaluation of scientific excellence takes into account the principles agreed by the Coalition for Advancing Research Assessment.[9]

SAPEA views diversity as a major consideration that helps to provide sound, high-quality science advice:

> Diversity is a major consideration that helps to compensate for individual biases, and to provide sound, high-quality science advice. This includes diversity in the range of pertinent disciplines covered in each Working Group, as well as in the members' social and geographical backgrounds and career stages, and the intersections of these parameters.[10]

[6] Postdoctoral Fellowships

[7] Global Young Academy, 2023, National Young Academies

[8] Coalition for Advancing Research Assessment (CoARA), 2022, Agreement on Reforming Research Assessment

[9] SAPEA, 2023, Quality assurance guidelines and procedures on science advice for policy and society,

[10] SAPEA, 2023, Quality assurance guidelines and procedures on science advice for policy and society

Commitment to EMCR engagement in SAPEA

Valorising the diversity of contributions to research and acknowledging and valorising the diversity in research roles and careers, SAPEA's principles align with those of the Coalition for Advancing Research Assessment.[11]

Implementing these principles, SAPEA follows its *Quality assurance guidelines and procedures on science advice for policy and society* (2023), which include its *Strategy of diversity and inclusiveness*.[12] At the same time, they give expression to SAPEA's commitment to consider diversity and inclusiveness at all stages of its activities, such as in selecting experts, forming selection committees, establishing other groups, as well as in communicating its work.

The same commitment is reflected in many academies represented in the SAPEA's consortium through its Academy Networks, and echoed in the Scientific Advice Mechanism more broadly. [13] The Group of Chief Scientific Advisors' report on best practices for science advice recommends ensuring a balance between early-career and established experts in working groups:

> To reduce cognitive bias and arbitrariness in expert consultation, the following measures are recommended for informal expert panels: (…) Developing and weighing transparent scientific criteria for expert selection, such as excellence in the field, and the range of desired expertise profiles, a balance between early-career and established experts (plus any additional societal criteria such as geographical and gender balance).[14]

SAPEA's current strategy to increase the involvement of EMCRs is founded on these efforts and is aimed at ensuring the availability of EMCRs expertise at all stages of SAPEA's activities.

[11] Coalition for Advancing Research Assessment, 2022, Agreement on Reforming Research Assessment, pp 3–4

[12] A brief overview of strategy's implementation is accessible at the SAM website: Diversity and Inclusivity

[13] Young academies have often been recognised as strong heralds of equality, diversity, and inclusiveness, offering examples for successful collaborations between recognised researchers and artists, and expanding academy membership to professionals and entrepreneurs to tackle transdisciplinary projects with relevant competencies and commitment. For example, the UK Young Academy selects members who are 'innovative and proactive individuals working in new and emerging fields.' This is a direct response to renewing the European framework for research careers, aligned to Europe's need for transboundary partnerships. Being a new way of increasing the diversity of experts, this offers an additional form of collaboration beneficial for addressing Europe's long-term challenges.

[14] Group of Chief Scientific Advisors, 2019, Scientific advice to European policy in a complex world

Hurdles faced by EMCRs in science-for-policy activities

Europe hosts almost a quarter of the world's researchers (23.5%).[15] Of the two million EU researchers, approximately 32% stay in the sector of higher education, while the majority move to industry and government sectors (56% and 10% share respectively).[16] These choices are influenced by the competition for opportunities and funding in research institutions.

Representing young scholars in such a large and diverse research ecosystem, young academies undergo a very selective process for membership and commit their members to collaborations and outreach activities beyond their own fields of research. They offer a diverse pool of excellent candidates for the delivery of highest-quality evidence for SAPEA's activities. At the same time, members of young academies and EMCRs more generally face significant hurdles that may hinder them participating in science advice activities:

- **Double-intense career stage:** Some of these hurdles are related to the fact that EMCRs face a particularly intense stage in their lives focused on building their career, publishing their research, applying for funding, moving towards stable employment, and establishing themselves as independent researchers. For many researchers, the challenging career stage overlaps with a similarly demanding phase in life when it comes to building a family and raising children.

- **Gender disparity:** While these hurdles are faced by EMCRs in general, additional hurdles are related to the unequal opportunities for engagement due to gender disparity. The European research area is characterised by the fact that "a higher proportion of women researchers, compared to men researchers, work part-time and under precarious working contracts in the higher education sector".[17] This is particularly true for women with children, and at high-level career stages.[18] Such disparities in working conditions most likely induce differences in the ability and flexibility of female EMCRs to commit their time for additional work, and thereby affect their participation in science-for-policy activities.

Based on a systematic literature review conducted by Cardiff University on behalf of SAPEA, six additional key areas of hurdles affecting EMCRs were identified:[19]

- **Unsupportive research practices and culture**: contending with job insecurity, the need to build a research profile through scholarly publications, hierarchical decision structures

[15] UNESCO, 2021, UNESCO Science Report: the Race Against Time for Smarter Development

[16] Eurostat, 2022, https://ec.europa.eu/eurostat/statistics-explained/index.php?title=R%26D_personnel&oldid=624836

[17] She Figures, 2021, Gender in research and innovation : statistics and indicators

[18] *ibid*.

[19] The literature review consisted of searches conducted of key databases of academic literature, as well consultation of grey literature sources.

- **Counterproductive career expectations and evaluation**: reward structures placing a low priority in science advice, focusing on building a research profile through publication, and dealing with short-term contracts and high levels of mobilisation
- **Lack of skills development and training**: lack of skills to engage with decision-makers, and familiarity with policy processes; lack of opportunities and incentives to upskill.
- **Low incentives for public engagement and open research**: lack of prioritisation, incentivisation and training in communication areas
- **Lack of science-policy interface**: lack of opportunities for knowledge exchange, and common language
- **Low level of networking, cooperation, and coordination**: low interaction between academics and policymakers

SAPEA has started a Europe-wide survey to identify hurdles in the context of participating in the provision of science-for-policy advice. In the preparatory work for the survey SAPEA consulted with young academies on the possible hurdles and the academies' experience with similar surveys. As a result of these initial consultations, two additional hurdles may be added to the list:

- **Institutionalised biases**: EMCRs describe tendencies in the practices or procedures in the institutions that they interact with to operate in ways that result in certain social groups being advantaged and others being disadvantaged or devalued based on characteristics such as gender, family status, or geographical origin.[20]
- **Young academies' limitations for engagement:** relatedly, while young academies offer a good platform for EMCRs engagement in science-for-policy activities across Europe, the challenges faced by young academies can also create hurdles for EMCR engagement. Such hurdles can stem from the fact that young academies are usually relatively small organisations, have not yet been established in all countries across Europe, operate with limited financial resources and only part-time or volunteer staff, have a high member turnover due to short terms of membership and appointments, are dependent on oversight of 'senior' academies, and do not form a strong network with strategic partners across other EMCR organisations.

[20] A Dictionary of Media and Communication. Institutional bias

EMCR engagement in SAPEA

EMCR involvement in previous working groups

SAPEA has been operating since 2016. By early 2023, it had assembled 13 working groups of experts, each resulting in an evidence review report on a specified topic requested by the European Commission:

Acronym	Name of evidence review report	Publication year
FFO	Food from the oceans	2017
NTAB	New techniques in agricultural biotechnology[21]	2017
PPP	Improving authorisation processes for plant protection products in Europe	2018
CCU	Novel carbon capture and utilisation technologies	2019
MASOS	Making sense of science for policy under conditions of complexity and uncertainty	2019
TFA	Transforming the future of ageing	2019
NMP	A scientific perspective on microplastics in nature and society	2019
BoP	Biodegradability of plastics in the open environment	2020
SFS	A sustainable food system for the European Union	2020
SAFETE	A systemic approach to the energy transition in Europe	2021
Crisis	Strategic crisis management in the EU	2022
Cancer	Cancer screening	2022
SFC	Towards sustainable food consumption	2023

A new working group of Europe's top independent experts is usually assembled when the SAM receives a request for advice from the European Commission. This group writes the evidence review report, a detailed overview of the current scientific knowledge on the topic, which the Group of Chief Scientific Advisors then uses to inform their policy recommendations. The working group works independently of the Advisors and of other outside influences.[22]

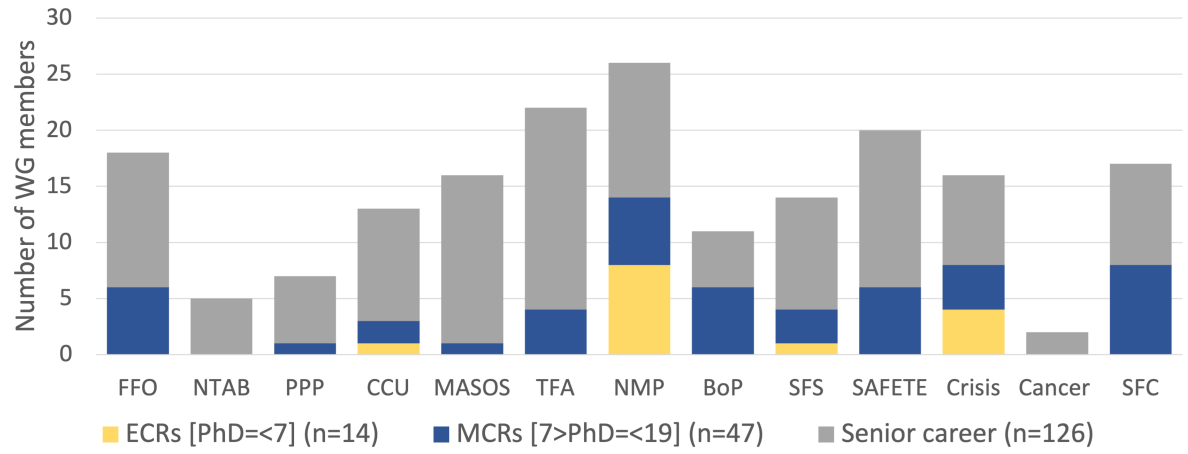
Members of the working group are chosen for their scientific excellence and the relevance of their expertise for the topic, also following SAPEA's strategy of diversity and inclusiveness. The responsibility for nominating experts lies with SAPEA's academy networks and its member academies. The suitable candidates for a working group nomination are identified on the basis of a call to the academies as well as desk research (using bibliographic sources and others), and by approaching selected organisations which have expertise in

[21] As an exception, no Evidence Review Report was produced. The Explanatory Note was produced with support of the working group.

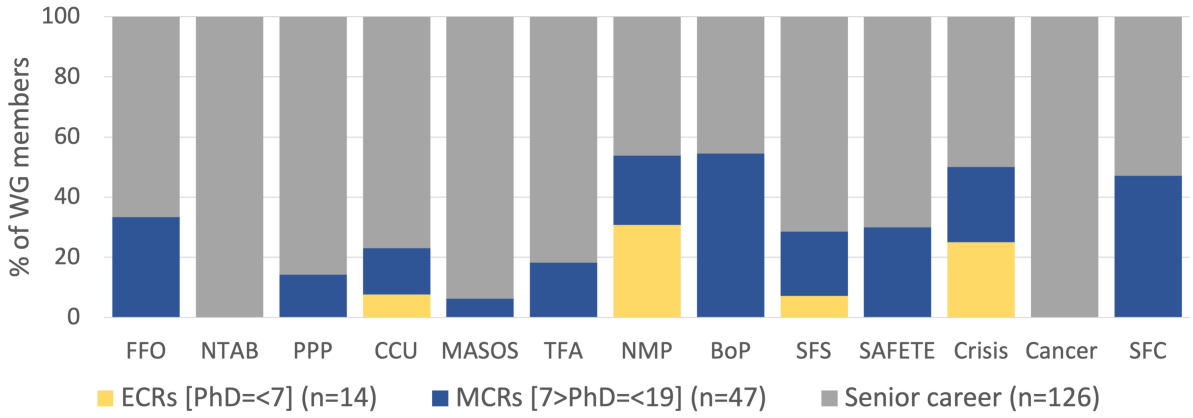
[22] SAM, 2023, How we gather evidence

the topic. The final selection of working group members is made by the SAPEA board based on a selection committee's proposal.[23]

In the 13 working groups formed by early 2023, the composition of working groups based on the total number of their members and the members' career stages was as follows:



Composition of SAPEA working groups by career stage, taking into account group size



Composition of SAPEA working groups by career stage

The figures above indicate that MCRs were included in 11 out of 13 working groups[24], while ECRs were present in only 4 of the 13 working groups. This is important to highlight when considering the statistics from the total number of working group members in the table below: ECRs constitute 7.5% of the total number of working group members, but they only participated in four working groups.

	ECRs	MCRs	LCRs	Total selected experts	Total EMCRs (ECRs+MCRs)
Totals	14	47	126	187	61
Proportions	7.5%	25.1%	67.4%	100%	32.6%

[23] *Ibid.*

[24] As an exception, the working groups on NTAB (5 members) and cancer screening (2 members only) were comparatively small.

SAPEA's nomination procedures until mid-2022

During the first 5½ years, until mid-2022, the SAPEA consortium comprised five academy networks:

- Academia Europaea
- ALLEA (European Federation of Academies of Sciences and Humanities)
- EASAC (European Academies' Science Advisory Council)
- Euro-CASE (European Council of Academies of Applied Sciences, Technologies and Engineering)
- FEAM (Federation of European Academies of Medicine)

None of these consortium partners represented EMCRs specifically. To identify young scientists, SAPEA reached out to the Young Academy of Europe, which was invited to suggest experts for SAPEA working groups, including those put forward by individual young academies. Academia Europaea put these suggestions forward to SAPEA selection committees as nominations.

In December 2020, 14 young academies in Europe established the Young Academies Science Advice Structure (YASAS) to provide a strong independent voice for young European scholars in science advice.[25] Following the recommendation of the SAPEA Sustainability Plan (2020),[26] YASAS was invited to join the SAPEA consortium from the beginning of its second funding period in May 2022. In consequence, YASAS and its member young academies began to nominate experts for SAPEA working groups directly.

Total number of nominations	Thereof suggestions by young academies	Number of selected experts from young academies	Success rate of young academy suggestions	Number of working groups that included at least one expert suggested by a young academy
865	44 (5%)	9	20%	9

The table above shows that the success rate of experts put forward by young academies nominations is comparable to the success rate of experts nominated by other academies (22%). One goal of this strategy is therefore to increase the number of nominations from young academies and other EMCR organisations by mobilising the YASAS network.

[25] Young Academies Science Advice Structure Statutes

[26] SAPEA, 2020, Sustainability Plan

Targets for EMCR participation in working groups

Background

With this strategy, SAPEA sets a target regarding the minimal level of ECR and MCR (and thus EMCR) participation in its working groups.

The targeted minimal level of EMCR participation is set based on multiple indicators and considerations, including:

- the number of ECR and MCR suggestions and nominations
- the number of ECRs and MCRs in SAPEA working groups, including the success rate

Furthermore, setting a target by career stage requires identifying a justifiable benchmark.

- One consideration for this is provided by the proportion of European Research Council grants awarded to ECRs in comparison with those awarded to MCRs or LCRs. The proportion of grants awarded explicitly to ECRs is larger than grants awarded to MCRs or to those without specification about career stage (in 2022, European Research Council awarded 408 Starting Grants to ECRs, 321 Consolidator Grants to MCRs, and 218 Advanced Grants).[27] Advanced Grantholders tend to have the highest number of years of expertise.
- The COST Action, a European Union funded organisation for establishing research networks, is another programme that provides an indication of EMCR involement, although it is not focused on science-for-policy activities. It has set a target of 40% for "young professionals and innovators", defined as researchers or innovators under the age of 40, to be included in its programmes.[28]
- An additional consideration is provided by the proportion of doctoral students (i.e., researchers about to acquire the EMCR status) in the entire researcher cohort. According to Eurostat, there are 2 million researchers (full-time equivalent) working in the European Union research ecosystem, including 610 000 doctoral students, a number taken into account in measuring a country's potential research capability.[29] This means there is a 1:3 ratio of doctoral students to the total number of other employed researchers in the European Union.[30]

[27] European Commission, 2023, Annual report on the ERC activities and achievements in 2022

[28] COST, 2021, Definitions and Abbreviations Applicable throughout the COST Implementation Rulea - Glossary

[29] Eurostat, R&D personnel, accessed November 2022 at https://ec.europa.eu/eurostat/statistics-explained/index.php?title=R%26D_personnel#Researchers

[30] Doctoral students can be classified as *researchers* under R&D personnel since they "perform research while working towards their doctoral thesis [ISCED level 8]", Frascati Manual, OECD 2015, p.163

These examples indicate that the goal to increase the overall participation of EMCRs in SAPEA activities is reasonable. Taking into account the past engagement of EMCRs in SAPEA's activities, SAPEA now sets the target for future working group membership to include:

- **at least 10% ECRs (always at least 1 person, independent of the group size)**
- **at least 30% MCRs (always at least 1 person, independent of the group size)**

Accordingly, SAPEA seeks to ensure that at least 40% of each working group's members will be EMCRs. For example, in a working group comprised of ten experts, the targets would correspond to 1 ECR and 3 MCRs.

Moving forward, SAPEA commits to implementing these targets in working groups for upcoming evidence review reports, and to monitoring their implementation. The targets will also apply to SAPEA's other activities in a similar way, such the composition of expert workshops. Furthermore, SAPEA aims to include more EMCRs in its communications activities.

Gender representation of EMCRs

SAPEA recognises and respect gender diversity, and provides working group members with the opportunity to self-identify their gender. In view of gender representation, SAPEA seeks to include **not more than 60% of one gender in its working groups**. In addition to this overall target, SAPEA also commits to the new target of **not more than 60% of one gender among the subgroup of EMCRs** on average across all working groups.

Young academies suggested in total 36% female experts for past working groups. Of the 9 young academy suggestions that were selected, 5 (70%) were female.

Geographical coverage of EMCRs

YASAS works with its member academies to achieve active EMCR participation in science-for-policy activities.[31] Additionally, it engages with young scholar associations beyond its member academies across Europe, supporting initiatives to set up new young academies, and sharing SAPEA's calls for experts with the broader network.

YASAS currently comprises 17 young academies across Europe (see table below). These include two transnational academies, the Global Young Academy and the Young Academy of Europe. Five YASAS member academies (30%) are in Horizon Europe Widening countries (Estonia, Hungary, Lithuania, Poland and Romania).

[31] While the current analysis focuses on SAPEA's activities between 2016 and early 2023, it is worth noticing for the final iteration of the strategy that SAPEA's call for experts for the AI in Science working group received 12 direct nominations from 8 young academies, including, for the first time, the Young Academies of Spain, Hungary, and Lithuania. Additionally, SAPEA received nominations for participants in its expert workshops from the Young Academy of Ireland.

Targets for EMCR participation in working groups

Country	EU status	Young academy	Member of YASAS?
Albania	associated country	Albanian Young Academy	
Armenia	associated country	none	
Austria	member state	Young Academy Austria	
Belgium	member state	Young Academy of Belgium (Flanders)	yes
Bosnia and Herzegovina	associated country	none	
Bulgaria	member state	none	
Canada	associated country	College of New Scholars, Artists and Scientists of the Royal Society of Canada	
Croatia	member state	none	
Czechia	member state	none	
Denmark	member state	Young Academy of Denmark	yes
Denmark	member state	The Young Academy of Technology, Science, and Innovation	
Estonia	member state	Estonian Young Academy of Sciences	yes
Faroe Islands	associated country	none	
Finland	member state	Young Academy Finland	yes
France	member state	none	
Georgia	associated country	none	
Germany	member state	Young Academy	yes
Germany	member state	Arab-German Young Academy of Sciences and Humanities	
Greece	member state	none	
Hungary	member state	Hungarian Young Academy	yes
Iceland	associated country	none	
Ireland	member state	Young Academy of Ireland	
Israel	associated country	Israel Young Academy	
Italy	member state	none	
Kosovo	associated country	none	
Latvia	member state	Association of Latvian Young Scientists	
Liechtenstein	association pending	none	
Lithuania	member state	Young Academy of the Lithuanian Academy of Sciences	yes
Luxembourg	member state	none	

Malta	member state	none	
Moldova	associated country	none	
Montenegro	associated country	none	
Morocco	association pending	none	
Netherlands	member state	Dutch Young Academy	yes
New Zealand	associated country	Royal Society Te Apārangi's Early Career Researcher Forum	
North Macedonia	associated country	none	
Norway	associated country	Young Academy of Norway	yes
Poland	member state	Polish Young Academy	yes
Portugal	member state	none	
Republic of Cyprus	member state	none	
Romania	member state	Romanian Young Academy	yes
Serbia	associated country	none	
Slovakia	member state	none	
Slovenia	member state	none	
Spain	member state	Young Academy of Spain	yes
Sweden	member state	Young Academy of Sweden	yes
Switzerland	association pending	Swiss Young Academy	
Tunisia	associated country	none	
Turkey	associated country	none	
Ukraine	associated country	Young Scientists Council at the Ministry of Education and Science of Ukraine	
United Kingdom	associated country	UK Young Academy	yes
United Kingdom	associated country	RSE Young Academy of Scotland	yes
Transnational	n/a	Global Young Academy	yes
Transnational	n/a	Young Academy of Europe	yes

SAPEA commits to **monitoring and increasing the participation of EMCRs from diverse geographical backgrounds**. Among relevant activities, it seeks to engage with YASAS member academies, to encourage them to participate in SAPEA's calls for experts, and to solicit their advice for overcoming hurdles in EMCR engagement.

Approaches and means to foster EMCR participation in SAPEA

Familiarisation with and induction to SAPEA processes

While SAPEA's objectives, principles and processes are explained on its website and in quality assurance guidelines, fostering EMCR participation requires further familiarisation with SAPEA's practices. Induction would need to take into account the fact that new academy representatives may have limited familiarity with EU institutions and policymaking, and may benefit from learning about the science-for-policy ecosystem in which SAPEA operates. Additionally, young academy representatives are usually members of their young academies for only five years, and young academies lack supporting staff or employ them only on a part-time basis. Accordingly, they have less opportunities to rely on institutional memory.

As an example, EMCR participation could be supported through an onboarding communications package which includes information on the SAM, SAPEA's quality assurance guidelines, the process from scoping to delivering science advice, and communications acitivities. This could be supplemented with short 'What to expect' guidelines describing the experience of taking part in an expert workshop or a working group. SAPEA might also benefit from blog posts, interviews, webinars and podcasts targeting EMCRs who have not yet become involved with SAPEA, but who might still consider it.

Rewarding science advice activities

SAPEA is committed to the research assessment reform led by CoARA and assures in its quality guidelines that "evaluation of scientific excellence takes into account the principles agreed by the Coalition for Advancing Research Assessment".[32] With regard to fostering EMCR participation, SAPEA considers it particularly important to endorse CoARA's first core commitment:

> Recognise the diversity of contributions to, and careers in, research in accordance with the needs and nature of the research.[33]

It draws attention to the following statement specifying this commitment in the CoARA agreement:

> It is also important that assessment facilitates the recognition and valorisation of diverse roles and careers in research, including: data steward, software engineer and data scientist roles, technical roles, public outreach, *science diplomacy, science advice and science communicator roles to name a few* [emphasis added]. It is recognised that current practice is often too narrow and limiting, so the goal cannot be to replace the narrow

[32] SAPEA, 2023, Quality assurance guidelines and procedures on science advice for policy and society

[33] CoARA, 2022, Agreement on Reforming Research Assessment

criteria we wish to move away from with different but equally narrow criteria. Instead, the aim is to allow organisations to broaden the spectrum of what they value in research, while acknowledging that this may vary across disciplines and that each individual researcher should not be expected to contribute to all activities at once.

To facilitate the recognition of researchers' contribution to science advice, SAPEA will consider issuing certificates of participation to members of working groups, to experts contributing to expert workshops and to peer reviewers. Furthermore, it supports the recognition and valorisation of experts' contribution to science advice in its communication and outreach activities.

Partnership with young academies

The engagement of young academies in SAPEA's activities benefits from a continuous dialogue and working relationship between SAPEA, YASAS and the young academies.

Furthermore, it benefits from closer relations, exchange of knowledge, and sharing of good practices between young academies themselves, possibly but not exclusively facilitated by YASAS. These good practices include opinion essays, charters, books, games or activities such as bringing science to schools, producing videos and other social media content. Young academies also benefit through learning from each other's experiences in the field of science-for-policy more generally, for instance in setting up working exchanges with policymakers.

Therefore, in collaboration with SAPEA, YASAS seeks to strengthen collaboration with and between young academies by:

- building a platform for exchange of knowledge and good practice for young academies on science-for-policy activities
- organising networking activities among young academies, such as webinar series with and for young academies and EMCRs
- developing and sustaining YASAS communication activities (including a website and activities in social media), and sharing science-for-policy news in the YASAS network

SAPEA additionally invites its consortium members to increase their engagement with EMCRs in their respective networks. Setting an example in this, Euro-CASE recently drafted recommendations for individual academies wishing to enhance their engagement with ECRs[34] and ALLEA welcomes young academies to join as members (including an EMCR in its board) with noteworthy opportunities for substantive engagement such as co-leading projects.

[34] Euro-CASE, 2020, Euro-CASE Working Group: Engagement with Early-Career Professionals, Recommendations for Euro-CASE Board

Expansion of EMCR network

YASAS will strengthen its efforts to build a network of organisations that represent or have access to EMCRs across Europe. The main aim of this network is to reach out to a larger number of EMCRs in Europe than are organised in young academies, and to offer a platform for exchange. This will help to increase the number of excellent EMCRs who can make use of the science-for-policy opportunities that SAPEA offers, in particular in countries in which no young academies exist. Furthermore, the network can be used to identify EMCRs for communications activities, including as speakers at events. The network will be enlarged to organisations that focus on young professionals in Europe.

Expansion of the YASAS network also means encouraging further young academies to become members of YASAS, and supporting the establishment of new young academies.

Ensuring a culture of equality, diversity and inclusion in SAPEA

SAPEA seeks to have a fair, inclusive and supportive organisational culture, where everyone participating in its activities or coming to contact with them feels respected and experiences a commitment to equality, diversity, and inclusion.

This entails ensuring that EMCRs in working groups, as well as other participants, feel that their contributions are heard and valued. This requires effective policies and processes to avoid unjustified discrimination and to ensure equal treatment, commitment to diversity, and inclusive culture. With this in mind, SAPEA aims to develop a code of conduct for equality, diversity and inclusion.

Conclusions

SAPEA commits to increasing and supporting the participation of EMCRs across its science-for-policy activities.

SAPEA ensures that future working groups contain:

- at least 10% ECRs (always at least 1 person, independent of the group size)
- at least 30% MCRs (always at least 1 person, independent of the group size)

While working towards these targets, SAPEA simultaneously seeks to ensure EMCR diversity across gender and geographical origin.

As part of this work, SAPEA adopts approaches to increase and foster EMCR participation in its activities. These include:

- familiarising EMCRs with SAPEA processes
- encouraging the recognition of EMCRs' work in providing science advice as a valuable part of their research
- collaborating with YASAS and supporting the extension of its network of young academies and other EMCR organisations
- ensuring a culture of equality, diversity and inclusing in SAPEA, facilitated by a new code of conduct

Indicators

SAPEA monitors the implementation of this strategy and sets as key performance indicators the number of ECRs and MCRs participating:

- in working groups
- in expert workshops
- as peer reviewers
- as speakers at events

These indicators will be assessed in terms of gender and geographical coverage and used to assess to what extent the targets are met.

Further indicators comprise:

- number of young academies joining YASAS
- number of different organisations joining the YASAS network
- number of ECRs and MCRs suggested or nominated by young academies
- number of ECRs and MCRs suggested by the wider YASAS network
- success rate of suggestions and nominations
- number of certificates of participation issued
- number of webinars or workshops for exchange
- visits to the YASAS website
- number of social media activities

SAPEA will develop an internal implementation plan for the strategy across the different work packages and activities. It will evaluate the degree of implementation and the effectiveness of the proposed measure and will make proposals to further developing and approving the strategy.

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