TOWARDS AN OPEN SCIENCE SOCIETY
FP9 POSITION PAPER BY THE SWEDISH SWAFS ADVOCACY PLATFORM

The **Swedish Advocacy Platform for SwafS** and **RRI** hereby presents its vision for the next framework programme for research and innovation (FP9). Our vision specifically targets, and fully embraces, the principles of **Open Science** and **Responsible Research and Innovation, RRI**. **The Advocacy Platform** involves some fifty stakeholders actively involved in science and society issues in Sweden.

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A continuous strong investment in research and innovation at the EU level is an economic and societal necessity; the Platform fully supports the *LAB-FAB-APP* report from the High Level Expert Group on maximising the impact of EU research and innovation investments, chaired by Pascal Lamy[1], and the Tallinn Call for Action[2] presented at the High-Level Presidency Conference *European Research Excellence – Impact and Value for Society* in Tallinn in October 2017.

In the next European framework programme for research and innovation active involvement and mobilisation of all sectors of society must be ensured, in order to obtain research results and innovations which are fully coherent, sustainable, transparent and relevant for society. The new programme should be designed in a way that it is open to the involvement of societal actors, including citizens, and to actors from outside of the EU. From our perspective, the science-society relationship needs to be further strengthened, and one obvious way of doing so is by mainstreaming RRI in FP9. But there must also be a dedicated programme – with its own budget line – for research on these issues, just like the current Science with and for Society programme.

Key areas for consideration

- Opening Science to Society – for a Sustainable Future
- Engaging, involving and mobilising society and citizens
- Science education – the basis for scientific literacy and scientific careers
- Open Access – the key to achieving an open knowledgeable society
- Gender mainstreaming – a Swedish asset
- Reaching the goals – evaluating and communicating scientific impacts.

OPENING SCIENCE TO SOCIETY – FOR A SUSTAINABLE FUTURE

The transition towards an Open Science system, embraced by the EU Member States at the Competitiveness Council in May 2016, must be given further impetus and achieve real progress. The Platform welcomes the commitment from the EU to take a leading role in the transition towards an Open Science system. The EU should lead the way in opening up science for a truly reciprocal interaction with society at large, through high quality research and innovation projects. The principles of Open Science must permeate the next framework programme in all its parts.

The Platform would expect that FP9 has a strong focus on missions/societal challenges and global collaboration. FP9 should be open for societal engagement and involvement in accordance with the mission approach mentioned in the Lamy report. Moreover, research and innovation performed within FP9 need to be aligned with the UN Sustainabil-

1 https://ec.europa.eu/research/evaluations/pdf/archive/other_reports_studies_and_documents/hlg_2017_report.pdf
2 https://www.hm.ee/sites/default/files/tallinn_call_for_action_2017.pdf

ity Development Goals (SDG), and collaboration, both internationally and with society at large, should become compulsory.

A framework programme structured around societal challenges and/or missions needs to ensure that social sciences and humanities (SSH) are given a prominent role in the design and implementation of the programme. If the research community is going to address global societal challenges and be able to have an impact on the development of Europe and the world as a whole, SSH researchers need to be incentivised to take on leading roles in projects responding to those challenges. This should be ensured through the framework programme and monitored in the call for proposals, evaluation and reporting processes, in order to obtain substantial change in this respect compared to Horizon 2020.

One notion closely related to Open Science is Responsible Research and Innovation. RRI can be seen as a practical and concrete means of realising the transitions towards Open Science. As one of Horizon 2020's cross-cutting issues, RRI has gained traction and importance over the programme period. However, there is still much to be done. There is a need for further expansion of the RRI knowledge base, and a need to monitor and reflect on its practical implementation in research and innovation projects, in policy making and governance, as well as its impact in society. We want to see RRI fully mainstreamed in FP9, with well-developed narratives in call texts and well-defined evaluation criteria, in order to facilitate the integration of an RRI-based approach in projects from the outset.

Finally, when embarking on the route towards a fully Open Science society, dedicated efforts must be made to meet the important need for training on Open Science. This fundamental aspect can be addressed through a dedicated SwafS programme (or a mission targeting the science-society relationships), and should be paired with efforts on a national level.

ENGAGING, INVOLVING AND MOBILISING SOCIETY AND CITIZENS

The Open Science agenda cherishes both enhanced accessibility to results and publications, and a porous interface between science and society at large. The research and innovation community needs to understand, value and strive for a mutual exchange with non-academic actors and audiences. FP9 should ultimately deepen our knowledge and understanding of processes and transdisciplinary activities that bridge science, the research community, stakeholders and the general public. It should also invest in lowering the thresholds for participation and in creating incentives for a fruitful exchange between sectors. The active involvement of societal actors in co-designing and co-creating research and innovation would foster research excellence, promote the impact of investments in science, and help to build public understanding and trust in science.

In policy discussions, there is much emphasis on taking in the perspective of the citizens, involving and collaborating with them – and reference is being made to a growing divide between the public and decision-makers. From our perspective, the science-society relationship needs to be further strengthened. Mainstreaming RRI in FP9 should help in this respect. However, there must also be a dedicated programme – with its own budget line – for research on these issues, just like the current Science with and for Society programme. Such a programme

would help us to increase our knowledge of how citizens understand, react to, interact with and sometimes reject scientific knowledge. Indeed, there are many actors already involved in Horizon 2020 that can contribute to the design of the science-society interface, and ongoing projects under the SwafS programme which target involvement of societal stakeholders should be drawn upon in the development of FP9.

One way, among many, to achieve a true involvement of citizens is through citizen science, which is, quite rightly, high on the EU research policy agenda at present. It is important not to equate citizen science with public engagement (public engagement being broader), but citizen science offers huge potential to engage individual citizens in the co-design and co-creation of research. The Platform strongly favours a multi-layered conception of citizen science that goes beyond pure data-collection and fully captures the different functions that citizen science can have[3], i.e. contributory science, participatory science and extreme science.

SCIENCE EDUCATION – THE BASIS FOR SCIENTIFIC LITERACY AND SCIENTIFIC CAREERS

Young people of today constitute our future generations of researchers, innovators and adult citizens. Thus, the next framework programme must take into account both the recruitment of young people to research, and the fostering of scientific literacy in citizens of all ages. Awareness-raising has to begin at an early stage, starting with primary school children, and continuing throughout the school system and in fact throughout the life span.

If Europe is to be equipped to tackle existing and future global societal challenges, young people need to see a career in research and innovation as an attractive one. This starts early, and concerns future researchers and innovators of all disciplines, not least the social sciences and humanities. It is crucial that we move away from the current focus on STEM also in practice; new researchers and innovators are needed within all fields.

With regard to the recruitment of young Europeans, schools and universities must cooperate openly and in a dialogical way with both public and business sectors. This applies to both formal and informal science education, inside and outside of school hours (e.g. through science clubs, science centres, European Researchers' Night, mentoring schemes). It goes without saying that the new framework programme should create incentives that facilitate the development of initiatives which ensure that the skills and talents we need are not lost. University students and early career researchers need to be trained in a multidisciplinary and cross-sectional environment and also to be equipped with the skills to engage and communicate with society.

However, formal and informal science education is not only important to ensure the regrowth of the European research and innovation community. It is equally important

3 Cf. https://v-a.se/2016/01/mass-experiment-scientific-citizenship/; http://www.sisnetwork.eu/media/sisnet/Policy_brief_Citizen_Science_SiSnet.pdf

in order to create an efficient Open Science society. The Open Science agenda requires scientific literacy among EU citizens, to enable everyone to utilise the outcomes of the societal investment in science and research. Citizens should be able to relate to the basic prerequisites of science and research, how to find and use scientific information and to question false and suspicious findings. People's knowledge and understanding of scientific concepts and processes are an important part of equal participation in social development. The OECD defines scientific knowledge as a capacity to use scientific knowledge, to identify research questions and to draw evidence-based conclusions to understand and contribute in decision-making and social development[4].

The new framework programme may help to create a truly inclusive Europe where all citizens are given equal opportunities to make informed decisions in their everyday lives, and to contribute to the development of society.

OPEN ACCESS – THE KEY TO ACHIEVING AN OPEN AND KNOWLEDGEABLE SOCIETY

The strive towards achieving an open access culture in Europe through the mandatory open access policy in Horizon 2020 has been successful and speeded up the transition towards an Open Science society. This movement must continue, for several reasons, one of the most crucial being that many experts in society working outside of academia (even those holding a PhD) need access to the most recent scientific findings. To a large extent, this is not possible today due to paywalls. Open access to scientific publications enhances higher education by providing students and teachers with relevant and updated research results regardless of their geographical position. Policymakers and decision makers also benefit from open access to research results, as it gives them access to a much greater breadth of information and a broader knowledge base. In a knowledge economy where the demand for innovation and efficiency is increasing, business and industry's need for open access to the latest research results is also high. Employees in the public sector, not least doctors and other healthcare professionals, but also journalists, analysts and administrators can benefit from research results being openly available both to inform their professional practices and their skills development. Patients, patient organisations and other associations will also greatly benefit from open access to research results. In an Open Science system, the public has a greater opportunity to participate in creation of scientific knowledge and gain an understanding of the scientific process of knowledge building. All of this combined demonstrates the importance of open access in a democratic and inclusive society.

The transition to an open, accessible publishing system is a global one and is both supported and driven by large international and intergovernmental organisations as well as smaller local and national players within the research system. They emphasise the importance of open access to scientific results, particularly in order to be able to solve the

4 https://stats.oecd.org/glossary/detail.asp?ID=5425

major societal challenges. The International Federation of Library Associations and Institutions, IFLA, notes, for example, in its trend report that open access "is helping scientists share and build upon each other's discoveries. Innovations in health, infrastructure and trade are born from their collaboration"[5]. Unesco emphasizes that open access to scientific publications is essential for achieving the UN's sustainability goals[6].

GENDER MAINSTREAMING – A SWEDISH ASSET

Swedish gender research and gender mainstreaming efforts in academic institutions, research funding institutions and other public authorities, are leading the way. We believe that much is to be gained by paying close attention to advancements in Swedish gender research and to the gender mainstreaming efforts presently carried out by Swedish public authorities, universities and university colleges[7]. Gender equality must be achieved through gender mainstreaming the organisation, implementation and evaluation of research in order to counteract existing gender inequalities in Research Performning and Funding Organisations (RPFOs).

Alongside gender issues come a range of other equality aspects, concerning not only gender but also e.g. age, functionality, ethnicity, race, influence and access to education and labour market. The understanding of these intersectional issues needs to be developed, not least in the light of the global sustainability development goals.

The current focus on gender balance in Horizon 2020 should be replaced by a focus on gender mainstreaming. Time is ripe to move away from a rather uncritical focus on gender equality as a numerical goal. The ultimate goal must be to position gender alongside issues such as sustainable development and ethics as a marker for quality, instead of framing gender as a specific problem to be solved.

REACHING THE GOALS – EVALUATING AND COMMUNICATING SCIENTIFIC IMPACTS

Research funded under FP9 must be driven by excellence, as this ultimately benefits society. The next framework programme must aim to optimise the impact of European research and innovation. The concept of scientific impact should be further developed to allow for a more sophisticated approach to different kinds of research outputs, societal engagement and science literacy, in the shorter as well as longer term. Ahead of FP9, it is important to find common ways to measure and communicate the impact of EU-funded research and innovation.

We believe there should be a fundamental revision of what is required and evaluated under the impact section of submitted EU project proposals. As an example, involvement of stakeholders outside academia during the research and innovation process – be it civil society, public sector or business

5 https://trends.ifla.org/files/trends/assets/insights-from-the-ifla-trend-report_v3.pdf
6 http://www.unesco.org/new/en/communication-and-information/access-to-knowledge/open-access-to-scientific-information/
7 https://www.genus.se/en/

sector – must be taken into account in the design of the calls, but also be a criterion in the evaluation process of project proposals. The European Commission has a large responsibility here, and there is obviously a need for training for EC officials drafting call texts and instructing evaluators, as well as for applicants and evaluators. In addition, the design of the rules of participation must be carefully considered, in order to facilitate the participation of actors that have so far not been represented to a satisfying degree in the framework programmes. In a broader sense, the evaluators of project proposals in FP9 must be instructed to evaluate against criteria related to RRI and Open Science. A true change will require that not only proposals under the successor to the current SwafS programme are required to attach importance to these aspects. Instead, a mindset of this kind must permeate the whole programme. It is equally important that the applicants are guided in their efforts to design projects in which Open Science and RRI are put into practice. The European Commission must therefore take the lead in developing guiding materials, as well as interactive – perhaps mandatory? – training for both evaluators and applicants.

Communication is vital for collaboration and dialogue between science and society. The European Commission and individual project consortia have a common responsibility to communicate and promote the societal impacts of EU-funded research and innovation to a wider audience: "Why is EU R&I important for me in my daily life?" A part of FP9 should therefore offer opportunities for funding research in, and evaluation of, science communication. The EC units preparing and monitoring the calls and funded projects should also encourage and facilitate knowledge sharing, networking and collaborations between funded projects.

Attitude surveys can help the European Commission to "shape policies and set priorities for research and innovation programmes"[8]. A special Eurobarometer on Responsible Research and Innovation was launched in 2013 and the findings paved the way for the design of RRI initiatives within Horizon 2020. The Advocacy Platform therefore recommends that a Eurobarometer on Open Science should be launched ahead of FP9, in order to measure the impact of EU funded research and innovation in society at large, citizen's trust in science, how they are informed as well as how they perceive science and technology. National surveys on public trust in science are being done on an annual basis in, for instance, Switzerland, Germany and Sweden[9] but a new European survey is needed to get the bigger picture in order to regain society's trust in science in an age of distrust.

8 http://europa.eu/rapid/press-release_MEMO-13-987_en.htm
9 https://www.euroscientist.com/trusting-science-age-distrust/

The Swedish Advocacy Platform is brings together some fifty organisations, government agencies, research centres and individual researchers with the aim of increasing Swedish participation in SwafS through new channels and ways of influencing the design of future work programmes and calls for proposals. The Platform also aims to raise awareness of the SwafS programme in Sweden, and works to increase the embedding of RRI concerns throughout Horizon 2020. The Platform, co-ordinated by the Civil Society Organisation Vetenskap & Allmänhet, VA (Public & Science), is one of some 25 Swedish Advocacy Platforms with the common goal of making Sweden an active and attractive partner in the Horizon 2020 framework programme. All advocacy platforms are funded by Vinnova, Sweden's Innovation Agency.

For more information, please contact **Maria Hagardt**, maria.hagardt@v-a.se, tel +46 70 265 81 33 or **Maria Lindholm**, maria@v-a.se, tel +46 70 867 66 77.

Website: **www.swafs.se/swafs-science-society/**