

# **EARMA's input to the Interim Evaluation of Horizon 2020**

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*Doris Alexander, Yulia Matskevich, Esther Philips, Bettina Uhrig,  
Anne Katrin Werenskiold, Marjolein van Griethuysen, Vanessa  
Ravagni and Agnes Szeberenyi for the EARMA ERA Working  
Group & John Donovan*



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## 1. Introduction

With more than 180 individual and 95 institutional members in 38 countries, EARMA, The European Association of Research Managers and Administrators, represents a large cohort of research support professionals. EARMA's members provide support to researchers in projects funded by Horizon 2020 (H2020), national, international, and philanthropic research funders.

As research support professionals, EARMA members have followed the inception and implementation of H2020 closely and with great interest. Monitoring the efforts in winning and managing H2020 and other third-party funds at their institutions as they do, EARMA's members identify strengths, weaknesses, and the impacts of programme implementation across the value chain from bid writing to performance to exploitation of knowledge.

Building on this resource, EARMA presented its first contribution to the Midterm Evaluation of Horizon 2020<sup>1</sup> in April 2016. The recommendations made in that position paper were on the following aspects: simplification, impacts and the distinction between different categories of impact, interdisciplinarity versus SSH inclusion, evaluation panels, expertise on interdisciplinarity within the evaluation panels, transparency, oversubscription and the TR Level where more fundamental research is concerned.

## 2. Summary and Recommendations

Much has happened since the publication of that position paper, and some recent events may severely impact on Horizon 2020 and its successor - the outcome of the Brexit referendum being a prominent example. The growing discontent with "Brussels" throughout societies in the European Union and the way the European Commission intends to tackle the challenges arising with these new developments makes the full integration of Arts, Social Sciences and Humanities even more essential. More information has become available on the disappointing speed and success of the Widening Participation Scheme providing new insights and suggesting how to improve the uptake of this key component of the programme in the near and further future.

In this follow-up to the earlier EARMA position paper we focus on the novel developments.

### 2.1 Recommendations

1. Integration of ASSH (based on the recently published report from the European Commission)
  - EARMA will work with the EC to think of innovative ways for researchers across the disciplines to be encouraged and facilitated to meet together around call topics and to showcase more proposals which are funded with such inclusion.
  - EARMA calls upon the EC to tackle the divide between the EU15 and EU13 in relation to ASSH participation in successful projects
  - EARMA calls for a re-conceptualization of the TRL and whether such a restrictive approach is conducive to multi-actor inclusion in proposals.
  - EARMA believes that Evaluation panels require more expertise from across the ASSH spectrum, should be better informed about ASSH research and should receive better guidance for assessing ASSH by using the guide for evaluators and the revised H2020 indicators.

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<sup>1</sup> Alexander, Doris; Anne Katrin Werenskiold; Yulia Matskevich for the EARMA ERA Working Group & John Donovan. Contribution from EARMA to the midterm review of Horizon 2020. EARMA, 14 April 2016.

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2. The influence of the impact agenda
    - EARMA supports the development of a more sophisticated approach to impact and would welcome an engagement around how impact is defined and measured along the continuum of research and what guidance should be given to those writing the calls as well as to reviewers.
  3. Third country participation, international collaborative research and the role of associated countries.
    - EARMA recommends a more integrated and open international scientific engagement strategy incorporating the UN development goals and enabling involvement with and from third countries, focused on addressing global challenges.
    - A more coherent strategy as debated in science diplomacy cannot ignore the longstanding global research and science collaboration of researchers and research universities. Aligning EU-external affairs with future Framework programmes and Horizon 2020, can only be served in furthering and broaden the present regional R&I strategies and objectives in international research collaboration. We therefore urge that an advisory council from the research community (incl. research institutions) be appointed as to synergise with the objectives of diplomacy for science in correlation with objectives of EU external affairs. EARMA hereby offers to actively take part in the discussions.
  4. Cohesiveness: spreading excellence and widening participation
    - EARMA would be happy to engage with the EC on further development and defining the need for structural reforms that will enable universities to foster research development capabilities and establish support activities for researchers, which aim at increasing participation levels in H2020 without interfering with the backbone of H2020.
  5. Facilitating Frontier research within a knowledge based economy
    - EARMA supports the continuation of the ERC programme and would like to see more budget allocated to both it and to the FET programme.
    - EARMA believes that a broader spectrum of research including early stage collaborative research should be facilitated in Pillar 3 in order to drive the innovation process. EARMA therefore recommends that a new two phased project activity instrument could be developed for collaborative projects in pillar 3 with phase 1 aligned with projects covering a spectrum of lower to mid-range TRL. Phase 2 funding could be applied for to move appropriate projects from Phase 1 along the value chain and into the higher TRL level.

### **3. Integration of Arts, Social Sciences and Humanities**

#### **3.1 More clearly defined impact and its influence on evaluation**

Enhancing the benefits arising from European collaborative research for society is one of the major drivers of H2020. In particular, the contributions of Arts, Social Sciences and Humanities (ASSH) research are conditional in achieving societal impacts for European citizens. Transdisciplinary principles amplify cross-cutting research and require ASSH research and ASSH experience of collaborating with society. Subsequently ASSH has become one of the cross-cutting issues in H2020, because of the nature of ASSH research and therefore serves as a system integrator.

The Monitoring report on SSH-flagged projects funded in 2014 under the Societal Challenges and Industrial leadership<sup>2</sup> shows that it is important to include ASSH expertise during the drafting phase of the work programmes to ensure that call topics contain the necessary scope for ASSH participation. The report also indicated that much of the focus of the SSH is in Pillar 3, while they play a more limited role in the Industrial Leadership Pillar. EARMA is supportive of efforts made by the EC to encourage ASSH participation but believes that more can be done to better align the ambition of Horizon 2020 with the actual operational nature of it.

In April 2016, EARMA recommended *‘that topics suitable both for SSH inclusion and SSH lead should be*

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<sup>2</sup> ‘Integration of Social Sciences and Humanities in Horizon 2020: Participants, Budget and Disciplines’ - Monitoring report on SSH-flagged projects funded in 2014 under the Societal Challenges and Industrial Leadership, European Commission, Directorate-General for Research and Innovation, Directorate B – Innovation Union and European Research Area, Unit B.6 - Inclusive, Innovative and Reflective Societies.

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*clearly identified and should include a consistent description, framing and specification of expected impacts of SSH integration*<sup>3</sup>. The impact agenda, which is a strong driver of Horizon 2020, is undermined by the lack of inclusion of SSH and this is most obvious in the societal challenges.

The European society and economic system is 'chaotic', inherently complex and characterised by multidimensional and ambiguous issues. Acquiring an understanding of this complexity is a considerable challenge, but is essential if we are ever to successfully tackle the current societal challenges. H2020, by focusing on excellent cross-border, interdisciplinary, public and private research collaborations, attempts to find 'added-value' solutions overcoming these complexities.

EARMA understands that a number of challenges need to be faced in relation to seeking such collaborative research. Bringing together communities across discipline areas needs more facilitation and that work is required at all levels (not just the funder level) to drive this communication. However, EARMA urges the EC to think of innovative ways to encourage researchers across the disciplines to meet around call topics. Such ways might include a different approach to the information days and showcasing more funded projects using a truly interdisciplinary model. Indeed, even using the term "integration of ASSH" may be considered negative as the unconscious message is that ASSH needs to be 'integrated into a scientific core' and that it plays a supporting role. ASSH perspectives should be seen as being capable of taking a leading role and driving through innovative ideas and the research agenda.

*EARMA, will work with the EC to think of innovative ways for researchers across the disciplines to be encouraged and facilitated to meet together around call topics and to showcase more proposals which are funded with such inclusion.*

The added complexity of cross border (in addition to cross disciplinary) collaboration provides more challenges. In particular, the Monitoring report noted that there was a divide between the EU15 and EU13 in terms of SSH participation in successful projects. It appears that in the EU13 encouragement for this cohort of disciplines is required, and perhaps this could be addressed as part of the EC's ambition to encourage the EU13 to become more activated in the Framework Programme.

*EARMA calls upon the EC to tackle the divide between the EU15 and EU13 in relation to ASSH participation in successful projects*

TRL will not capture the multidimensional complexity of societal challenges. Therefore, formulation of calls should adopt the richness derived from iteration and deliberation models of ASSH research, which captures the multidimensionality and "wickedness" of societal challenges and societal change.

The current development towards citizen engagement and their inclusion along with a broader range of disciplines requires a rethink of what is considered a measure of 'impact'. We need to move from narrowly focused impacts to ones that reflect the changing nature of how research is conducted. Whilst more collaborative research at a lower TRL level is called for, we need to be cognizant that the 'TRL' model is in fact not necessarily a good model if we are to truly create a room for disruptive innovations to emerge. The relevance of social impact indicators or TR levels for the different actions needs to be explained and could be linked to the H2020 indicators, which could be discussed and revised by the H2020 Expert Committees. For example, one indicator could be interdisciplinarity, another one, collaboration between different types of organisations involved in a consortium, e.g. SMEs, Higher and Education Institutions, research organisations, Civil Society Organisations at national and European/International levels, ministries and municipalities.

*EARMA calls for a re-conceptualization of the TRL and whether such a restrictive approach is conducive to multi-actor inclusion in proposals.*

*EARMA believes that Evaluation panels require more expertise from across the ASSH spectrum, should be better informed about ASSH research and should receive better guidance for assessing ASSH by using the guide for evaluators and the revised H2020 indicators.*

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<sup>3</sup> EARMA, Contribution from EARMA to the midterm review of Horizon 2020, April 2016, page7.

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### 3.2 The influence of the impact agenda in H2020

To properly address the complexity of the societal challenges, we need collaborative research funded along a spectrum of approaches at different starting points where it is understood that the funding of such an environment is itself a more creative context. As mentioned above, we then have to reassess how impact is to be defined, since the current definitions may seem to hamper out-of-the-box thinking and disruptive progress. For example there is anecdotal evidence in the UK that the REF is driving researchers to choose certain lines of research engagement knowing that it will have higher short term impact and could be the subject of a future case study. This concept of allowing the need to show market impact to drive the research is becoming more and more prevalent across countries as governments seek a return on their investment and economic growth - and preferably within the government's lifetime.

Penny Chisholm, the MIT Lee and Geraldine Martin Professor of Environmental Studies<sup>4</sup> is quoted as saying that **“What’s happening is faculty are doing safe things because they know they’ll work. They take fewer risks, but then the probability of discovering something really new and exciting goes down”**. Safer and more definite impact does not mean better results nor does it further the development of more innovative solutions or the possibility of true disruption. Breakthroughs can come from teams involved in early stage collaborative discovery.

EARMA supports the broad approach taken to the call topics in Pillar 3 but in addition would like to see an opening up of the call to different types of projects which collectively may address some of the challenges articulated with impacts in the short, medium and long term. EARMA outlined in its previous report that impacts need to be more clearly defined and differentiated based on the TRLs associated with a particular topic (section 3.1). This aspect becomes even more important if a broader range of project types are funded. Projects at different points along the spectrum cannot affect impact in the same way.

We therefore need to be better at tracking outcomes and downstream impact and indeed broadening our definition of what constitutes impact. Different types of research produce different types of impact and evaluation processes need to be cognizant of this – there is not a single approach. In moving to funding a broader range of project type and in particular more early stage research collaboration, evaluators would need guidance on dealing with risk in deciding what proposals to fund and ascertaining which may lead to breakthrough results. This would mean that within the context of an impact agenda we need, as Carlos Moedas indicated, **“a more sophisticated approach to impact”**. The call for more clearly defined impact and its influence on evaluation was outlined in EARMA's previous submission and EARMA would welcome the development of an engagement process around the impact agenda and would be pleased to participate in it. Perhaps we need to say here that a more sophisticated approach to impact should also be reflected in a greater breadth of H2020 indicators than presently exists and EARMA would be happy to participate in such a discussion.

*EARMA supports the development of a more sophisticated approach to impact and would welcome an engagement around how impact is defined and measured along the continuum of Research and what guidance should be given to those writing the calls as well as to reviewers.*

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<sup>4</sup> Liz Karagianis: The Brilliance of Basic Research, Spectrum MIT Research, Spring 2014 <http://spectrum.mit.edu/spring-2014/the-brilliance-of-basic-research>

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### 3.3 Third country participation, international collaborative research and the role of associated countries

H2020 currently is the only funding programme for research & innovation that is open for participation of organizations from all over the globe. This unique feature is of high importance in the ever changing geopolitical landscape nowadays, but will gain an even more significant role in an effort to align the societal challenges as defined in H2020 with those in the Agenda 2030. The latter are global in their nature and addressing them requires involvement of all actors worldwide.

In light of this development, it is a matter of great concern that the share of participation of entities from non-associated international partners in grant agreements has fallen from 4.9% in FP7 to under 2.4% in Horizon 2020.

The EC has taken a radically new approach to international collaboration in H2020 as compared to FP7, changing the funding regime for third countries and abandoning INCO. The latter was replaced by strategic programming and roadmaps including flagship initiatives for the collaboration with targeted non-EU countries. Much emphasis was also placed on multilateral funding through member states.

However, the decline in participation of international partners shows that more targeted and coordinated support for international collaboration is required. It further indicates that the current legal and financial framework for the cooperation in research and innovation under Horizon 2020 with non-EU countries is not appropriate. This may be partly due to its high complexity and a lack of a clear overarching strategy and transparency. The recently implemented agreement for scientific and technological cooperation between the European Community and the Government of the United States of America<sup>5</sup> could be used as a model for other international collaboration agreements.

From these perspectives, EARMA welcomes the new EC initiative “Open to the world” which aims to pave the way from ERA to the global research area. However, to successfully implement this initiative the EC must take into account lessons learnt and take a more proactive and strategic approach to international collaboration - a strategic approach in line with the regional and member states’ objectives, which also takes advantage of existing EU- partnerships and flagship initiatives.

*EARMA recommends a more integrated and open international scientific engagement strategy incorporating the UN development goals and enabling involvement with and from third countries, focused on addressing global challenges.*

*A more coherent strategy as debated in science diplomacy cannot ignore the longstanding global research and science collaboration of researchers and research universities. Aligning EU-external affairs with future Framework programmes and Horizon 2020, can only be served in furthering and broaden the present regional R&I strategies and objectives in international research collaboration. We therefore urge that an advisory council from the research community (incl. research institutions) be appointed as to synergise with the objectives of diplomacy for science in correlation with objectives of EU external affairs. EARMA hereby offers to actively take part in the discussions.*

### 3.4 Cohesiveness: spreading excellence and widening participation

One of the key points on the agenda of Commissioner Moedas is the importance of spreading excellence and widening participation. EARMA endorses its added value for research & innovation to the European Union.

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<sup>5</sup> Implementing arrangement between the European Commission and the Government of the United States of America for cooperation between researchers funded separately by the European Union ‘s and the United States Framework Programmes on Research and Innovation. 17 October 2016

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The participation rate of many EU Member States in H2020 funded projects is low, especially the so-called “EU13” Member States, Luxembourg and Portugal. As Horizon 2020 prioritises excellence this is a worrying fact. There are plenty of bright ideas, excellent researchers and innovative entrepreneurs in the EU13 region, which means the low participation rate has other causes.

Part of the gap is related to national research systems that need to be reformed in order to match Horizon 2020 requirements. Although the Member States have to realise changes individually, the European Union might consider incentives to encourage these Member States to speed up the process. These financial incentives should, however, be paid from the Structural Funds rather than from the Horizon 2020 budget. After all, this has to do with infrastructural issues at institution level rather than with Research & Innovation.

New measures were launched by the European Commission, ranging from financing new knowledge centres to facilitating structural reforms that will enable more synergies between different funding sources. Other alternatives, suggested by LERU<sup>6</sup> and supported by EARMA, can be to use a small percentage of the Structural Funds to create synergies with Horizon 2020, for example by providing top-ups to include some additional PhD students from EU13 countries in MSCA ITNs. To prevent brain drain from the EU13, an instrument could be considered as a mix of the MSCA European and Global Fellowship, where researchers coming from the EU13 are obliged to return to their country of origin after their 2 year stay abroad.

EARMA also considers exchange and training of research support staff for learning best practices that are vital for the support of the reform of national research systems of the EU13. Such an initiative could build on the experience and successful model of the COST Training Network BESTPRAC, which trained over 400 research staff with a focus on inclusiveness countries.

*EARMA would be happy to engage with the EC on the further development and defining the need for structural reforms that will enable universities to foster research development capabilities and establish support activities for researchers, which aim at increasing participation levels in H2020 without breaking down the backbone of H2020.*

### **3.5 Facilitating Frontier Research within a knowledge based economy**

The ERC is an excellent example for the advantages of competition. It has driven up standards and meanwhile ERC grants are so prestigious that they are a ‘currency’ of success that universities use as a measure of their H2020 performance. By offering Proof of concept grants, the bridge to commercial or societal application of results can be supported which is also a measure of how fundamental research may in some instances move to validation in a shorter timeframe than may previously have been thought possible. EARMA absolutely supports the continuation of this vital programme in H2020 and in its successor, FP9, and welcomes the future re-introduction of the ERC synergy grants. To date the ERC programme in H2020 is single PI based. By contrast, the bottom up FET Open programme is collaborative and proposals selected for funding are deemed to be high risk and therefore possibly high return in nature. The scale of oversubscription to this programme clearly outlines the appetite for bottom up collaborative research. With success rates as low as 1.4% (or 3.2% if above the threshold) there is a danger that potential consortia with good ideas will not proceed to develop bids as there is no adequate Return on Investment in relation to costs and time taken to develop a proposal submission. Therefore, excellent projects with possibly disruptive outcomes will not proceed and in order to counteract this, EARMA would like to see more budget allocated to the FET programme.

*EARMA supports the continuation of the ERC programme and would like to see more budget allocated to both it and to the FET programme.*

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<sup>6</sup> LERU’s Interim Evaluation of Horizon 2020. Advice Paper. No. 21. October 2016

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The ERC note that “today the distinction between 'basic' and 'applied' research has become blurred, due to the fact that emerging areas of science and technology often cover substantial elements of both”.<sup>7</sup> However, research is a continuum and the way in which research is viewed should not be about frontier versus applied research but about ‘yet to be applied’ research and applied research.

One of the objectives of H2020 is to build a society and an economy based on knowledge and innovation. EARMA feels that constraining frontier or early stage research to one Pillar is not the best approach to be taken in order to implement these objectives and effectively drive the innovation process. As indicated in the European Commission publication 2016<sup>8</sup>, Opportunity Now: Europe’s Mission to Innovate, ‘Fundamental and excellent research is one indispensable driver of innovation. The innovation mission of Europe cannot succeed overall if it is accompanied by a drift away from fundamentals’. The Committee for Economic Development, an influential US Think Tank financed by business and industry, considers that ‘one way to think of basic research is as a low-cost insurance’.

The support of fundamental research - which is less than 0.5% of GDP - goes ‘to create very significant long-term economic and social gains’<sup>9</sup>. The OECD Science, Technology and Innovation Outlook 2016<sup>10</sup> outlines that “Universities and public research institutes (PRIs) often undertake longer-term and higher-risk research. Although they account for less than 30% of total OECD research and development (R&D) expenditure, universities and PRIs perform more than three-quarters of total basic research. They also undertake a considerable amount of applied research and experimental development that has more immediate potential for translation into tangible societal benefits.”.

EARMA believes that there is a role for the full spectrum of research including early stage/discovery research outside of Pillar 1 and in particular in Pillar 3 of H2020. Funding a diversity of research types enables a distribution of risk but also helps to maximise opportunity of developing a disruptive technology. Such collaborative discovery research was a feature of Framework programmes up to FP7 and valuable networks with industry and academia were facilitated which drove follow on projects by creating important ties and linkages whilst also creating a skilled workforce. EARMA believes that support for collaborative research projects along the research spectrum should be facilitated (as was outlined in section 3.4 ‘Contribution from EARMA to the midterm review of Horizon 2020’).

How this spectrum of research can best be facilitated in addressing societal challenges needs to be considered. To answer this question focus has to be given to our expectations of project delivery. Many overarching societal challenges such as those articulated in Pillar 3 are not going to be solved in the lifetime of H2020 much less in the lifetime of a project within the FP. The same will be true for the UN sustainable development goals (Agenda 2030) which are likely to heavily influence “FP9”. One of the main benefits that can be derived from H2020 is the ability to bring together international teams and networks in order to facilitate co-creation – the so called EU added value. Different mindsets, cultures and expertise are needed to drive new approaches and knowledge which in turn can lead to higher research impact. If Pillar 3 is driven primarily by projects having to provide short term gain, this will be at the expense of longer term gain.

*EARMA believes that a broader spectrum of research including early stage collaborative research should be facilitated in Pillar 3 in order to drive the innovation process. EARMA therefore recommends that a new two phased project activity instrument could be developed for collaborative projects in pillar 3 with phase 1 aligned with projects covering a spectrum of lower to mid-range TRL. Phase 2 funding could be applied for to move appropriate projects from Phase 1 along the value chain and into the higher TRL level.*

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<sup>7</sup> From “The ERC’s Mission” on <https://erc.europa.eu/about-erc/mission>

<sup>8</sup> European Commission publication 2016, page 43 Opportunity Now: Europe’s Mission to Innovate, authors: Robert Madelin and David Ringrose (ed.).

<sup>9</sup> (<https://www.cambridge.org/core/services/aop-cambridge-core/content/view/S1062798704000195> - European Review, Vol. 12, No. 2, 191–207 (2004) Academia Europaea, Printed in the United Kingdom. Why do we need fundamental research? J E A N - C L A U D E P E T I T Commissariat à l’énergie atomique, DSM/DRECAM/SCM, CEA/Saclay, 91190 Gif sur Yvette, France. E-mail: [jcpetit@cea.fr](mailto:jcpetit@cea.fr)

<sup>10</sup> (2016), *OECD Science, Technology and Innovation Outlook 2016*, OECD Publishing, Paris.