



**Policy
Brief
Series**



**GENDER
ACTION**



Policy Brief Series

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CONTENT

Briefing Paper n.1 June 2018 GENDER IN HORIZON EUROPE: AN UNFINISHED BUSINESS	4
Briefing Paper n.2 June 2018 GENDER AS A GLOBAL CHALLENGE AND A KEY DRIVER FOR INNOVATION	8
Briefing Paper n.3 June 2018 THE ECONOMIC MODEL ENVISIONED BY HORIZON EUROPE: A GENDER PERSPECTIVE TO NATURAL RESOURCES AND INDUSTRY	12
Briefing Paper n.4 June 2018 GENDER FOR HORIZON EUROPE RESEARCH & INNOVATION MISSIONS ENSURING A FAST-TRACK TO BETTER FUTURE FOR ALL	16
Briefing Paper n.5 July 2018 GENDER IN OPEN SCIENCE & OPEN INNOVATION	20
Briefing Paper n.6 July 2018 GENDER-RESPONSIVE INTERNATIONAL COOPERATION FOR HORIZON EUROPE	26
Briefing Paper n.7 July 2018 STRENGTHENING GENDER IN THE ERA	30
Briefing Paper n.8 August 2018 GENDER-RESPONSIBLE RULES FOR PARTICIPATION IN HORIZON EUROPE	34
Briefing Paper n.9 September 2018 IMPLEMENTATION OF ERA PRIORITY 4 “GENDER EQUALITY AND GENDER MAINSTREAMING IN RESEARCH AND INNOVATION”	38
Briefing Paper n.10 March 2019 THE ROLE OF FUNDING AGENCIES IN THE PROMOTION OF GENDER EQUALITY IN R&I	44

GENDER IN HORIZON EUROPE

AN UNFINISHED BUSINESS

The European Commission has launched a proposal for the next EU Research & Innovation Programme (2021-2027), called “Horizon Europe”. This Briefing Paper is a call to action towards a proper integration of gender mainstreaming in Horizon Europe based on the evidence provided by official reports and recommendations regarding Gender in Research & Innovation from gender experts and stakeholders across Europe. The aim is to strengthen gender equality in the ERA community and structures as well as to innovate gender equality policy implementation in the scientific field.

Gender in Horizon 2020 and Horizon Europe: Challenges in the transition

Horizon 2020 has become the Framework Programme for R&I that made gender mainstreaming visible and real in the European scientific policy. Horizon Europe faces the challenge to continue with this effort on a three-fold foundation:

- Gender balance in the research teams, careers and decision-making
- Structural changes in Research Performing and Funding Organizations towards gender equality
- Integration of the sex/gender analysis in the research content

Horizon 2020 has been a reference model for national policies on women, gender

and science. It included gender issues as a cross-cutting issue and included research topics which explicitly addressed gender dimension in the research content. The two-fold strategy developed until now to mainstream gender equality consisted of: 1) rules of procedure to integrate sex/gender analysis in research proposals and to promote gender balance, and 2) specific topics to fund the implementation of gender equality policies in research institutions and research on gender issues in R&I to bring evidence-base for gender equality policies. The impacts include more and better Gender Equality Plans in research institutions across Europe, a modest reduction of the leaky pipeline (see ERA Progress Report, 2017) and increasing gendered innovations in the European scientific production. Moreover, there is

Horizon 2020 Interim Evaluation of Gender Equality, 2017

25% women among
project leaders

50% women in advisory groups

14% funded projects
with a comprehensive
integration of the
gender dimension

greater awareness in the scientific community and among policy makers on the importance of gender diversity in research teams, evaluation panels and boards. This advancement towards gender equality has contributed to changing the way we think about research and innovation but there is still much room for improvement.

Lessons learned from gender expertise

Horizon Europe has the unique opportunity to take a leading position on gender mainstreaming and integrate in this new Framework Programme some of the most salient recommendations pointed out by the Helsinki Group and by the EC Report on the Interim Evaluation of Gender Equality as a Crosscutting Issue in Horizon 2020, particularly the need to:

- Attain gender balance in research teams and high-level positions (only 25% women project leaders)
- Develop a detailed system of gender indicators to monitor the R&I workforce
- Improve gender balance in decision-making (now 50% in advisory groups, but 37% in evaluation panels)

- Better integrate of the gender dimension in research content (only 14% of funded projects show a comprehensive integration of gender)
- Develop more detailed key performance indicators on the integration of the sex/gender analysis into research
- Increase gender training within funded projects
- Reinforce institutional change (Gender Equality Plans) and other projects (RIAs, CSAs, ERA-Nets) for gender equality

Recommendations to strengthen Gender in R&I

The goals of Horizon Europe will only be accomplished if gender equality is properly integrated because:

- **To strengthen the EU's scientific and technological bases** requires **sex/gender analysis methods to eliminate gender bias**.
- **To boost Europe's innovation capacity, competitiveness and jobs** implies a **high-quality Human Resources policy**, that is, not wasting the talent of half of the population.
- **To deliver on citizens' priorities and sustain our socio-economic model and values** requires **gender balance in decision-making, work-life balance and the elimination of barriers facing women in the research field**.

Moreover, since Horizon Europe aims to achieve the UN Sustainable Development Goals, special attention should be given to **SDG 5 "Achieve gender equality and empower all women and girls"** in the production of knowledge and innovation in Europe.

Thus, general recommendations for a better inclusion and visibility of gender equality goals and the gender dimension in R&I content include:

- To add **gender equality as a specific area of intervention – and funding** – in the cluster *Inclusive and Secure Societies* (Pillar II “Global Challenges and Industrial Competitiveness”)
- To effectively integrate **gender as a cross-cutting issue** in the Framework Programme
- To reinforce **gender balance and gender in research content in the Rules of Procedure** for Horizon Europe
- To review the formulation and application of the **evaluation criteria** from a gender perspective
- To ensure that **gender expertise** is included in expert groups, research teams, evaluation panels and advisory groups, and more urgently, in the negotiations of Horizon Europe
- To guarantee the **participation of women and gender equality stakeholders** in the consultations with the civil society to define the Horizon Europe “Missions”
- To maintain a specific **funding line for Gender equality** issues in “Strengthening the European Research Area” Pillar

Pillar II Global Challenges and Industrial Competitiveness

Cluster Inclusive and Secure Societies

Democracy

Social and economic transformations

Gender equality

Protection and security

Cultural heritage

Disaster-resilient societies

Cybersecurity

Conclusions

The design of Horizon Europe has given great importance to the links between inclusive societies, R&I and global challenges. The gender dimension is crucial to design inclusive societies as well as to produce responsible R&I, and constitutes a global challenge in itself as stated in the UN Sustainable Development Goals. **Horizon Europe should not lose this momentum to advance gender equality in order to make R&I investments shape a more inclusive future based on better science and innovation.**

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GENDER AS A GLOBAL CHALLENGE AND A KEY DRIVER FOR INNOVATION

Horizon Europe PILLAR II: Global Challenges & Industrial Competitiveness

Cluster 1 Health and

Cluster 2 Inclusive and Secure Societies

The European Commission has launched a proposal for the next EU Research & Innovation Framework Programme (2021-2027), “Horizon Europe”. The present 2nd Briefing Paper is a call to action towards a proper integration and visibility of gender issues in Pillar II *Global Challenges & Industrial Competitiveness* (as a whole and within the 2 first clusters, 1 *Health* and 2 *Inclusive and Secure Societies*).

What is Horizon Europe Pillar II on *Global Challenges & Industrial Competitiveness* about?

Pillar II focuses on the **2nd specific goal of Horizon Europe: to strengthen the impact of research and innovation in developing, supporting and implementing Union policies, and support the uptake of innovative solutions in industry and society to address global challenges** (the Sustainable Development Goals - **SDGs**).



Gender Equality, as SDG5, requires a specific intervention area; in addition, the integration of sex/gender analysis as a cross-cutting issue across all the clusters and intervention areas in Pillar II of Horizon Europe is a key driver for better EU science and higher innovation potential

Therefore, it will fund research and innovation activities to be implemented in and across **five clusters** aimed at integrating main challenges and opportunities to EU and global policy and competitiveness: 1) **Health**; 2) **Inclusive and secure societies**; 3) **Digital and industry**; 4) **Climate, energy and mobility**; and 5) **Food and natural resources**. Additionally, **each cluster is organised in several intervention areas**, designed to incentivise cross-disciplinary, cross-sectoral, cross-policy and international collaboration by means of calls, missions and partnerships.

Why is gender so relevant to Horizon Europe Pillar II?

1) First of all, since **UN SDG #5** is to **“Achieve gender equality and empower all women and girls”**, and Horizon Europe 2nd Pillar is focused on SDGs, this is the crucial place to address gender equality explicitly, and make visible the main specific challenges and opportunities for advancing gender equality in the EU and worldwide across different life domains. This will stimulate R&I activities aimed at fostering innovative solutions to EU and global challenges in an evidence-based and gender sensitive manner. The logical solution is to explicitly include **gender equality as a specific Area of Intervention** in Cluster 2 on Inclusive and Secure Societies.

2) It is also crucial **to guarantee proper integration of sex/gender analysis in R&I content as a cross-cutting issue** because it is a key driver for scientific quality, impact and innovation potential of R&I activities to be implemented **in and across all the clusters and intervention areas of Pillar II**.

General recommendations for Pillar II

- Since each Cluster of Pillar II contributes towards several SDGs, but there is no

one that mentions **SDG5 “Achieve gender equality and empower all women and girls”**, SDG5 should be explicitly recognized in Horizon Europe as a key and strategic challenge in itself and also contributes to achieve other SDGs and EU sectorial policies.

- **Sex/gender analysis and reporting results by sex and gender** should be required in every Cluster and Area of intervention as a cross-cutting issue of Pillar II in order to produce non-biased and more inclusive knowledge, impact and innovation. All of them are gender relevant because necessarily have to deal with human activities and involve human beings, directly or indirectly as beneficiaries, users, etc. For instance, how climate policies can affect groups of women and men differently.



Recommendations for Gender in Cluster 1 Health

- The Cluster “Health” should explicitly address the challenge of taking into account the **particular characteristics, needs and social conditions of diverse populations groups, including sex and gender groups**, when improving and protecting the health of citizens, as well as when making public health systems more equitable, efficient and innovative.
- To address explicitly **gender and/or sex as relevant variables** for the broad lines of research in all Intervention Areas in this Cluster. For instance, sources, treatment and consequences of poor mental health on women and men; sex and gender differences in the health needs of adolescents (including sexual and reproductive health needs); and the use of gender representative samples when piloting innovative treatments or studies that review treatment guidelines under gender considerations aimed at boosting more inclusive and safe methods.

Recommendations for Gender in Cluster 2 Inclusive and Secure Societies

- Horizon Europe needs to explicitly recognize that strengthening the **European democratic values implies necessarily to address gender equality** and the important role that European women play in the economic transformations that will contribute to inclusion and growth.
- **Gender equality needs to be considered a specific Area of Intervention** in this Cluster because it is sectorial policy of the European Union and a global challenge (SDG5) that requires specific gender studies research. This

will allow to bring strategic research and innovation broad lines that put the focus on EU gender equality policies (for instance providing gender knowledge-based evidence about the impact of these policies) and innovative approaches to address main targets to attain SDG5 (for instance, to address all forms of gender-based violence and discrimination against women and girls, and to find better strategies for the empowerment of women and girls in all spheres of cultural, social and economic life, including the recognition and value of care work).

- To address explicitly **sex and/or gender as cross-cutting issues** for the broad lines of research in the remaining intervention areas of this cluster. For instance, the links between women’s and men’s roles and disaster-resilient societies; the role of women and gender diversity in social and economic transformations; the impact of gender-based violence on security for our societies; gender differences in labour markets, poverty and working conditions; digitalization, use of IT and digital citizenship; mobility and migration; and other societal challenges.

Conclusions

Addressing gender in Pillar II, both as a specific Area of Intervention and as a cross-cutting issue, will help to support better EU and global policies for attaining the SDG #5 and the remaining UN SDGs. It will also help to boost EU’s innovation, competitiveness, security and inclusiveness. Consequently, it is highly recommended that Horizon Europe Pillar II add gender equality as a specific Area of Intervention in Cluster 2 Inclusive and Secure Societies and explicitly integrate gender as a cross-cutting issue in and across all the clusters and Areas of Intervention of Pillar II.

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THE ECONOMIC MODEL ENVISIONED BY HORIZON EUROPE

A GENDER PERSPECTIVE TO NATURAL RESOURCES AND INDUSTRY

Horizon Europe PILLAR II Global Challenges & Industrial Competitiveness

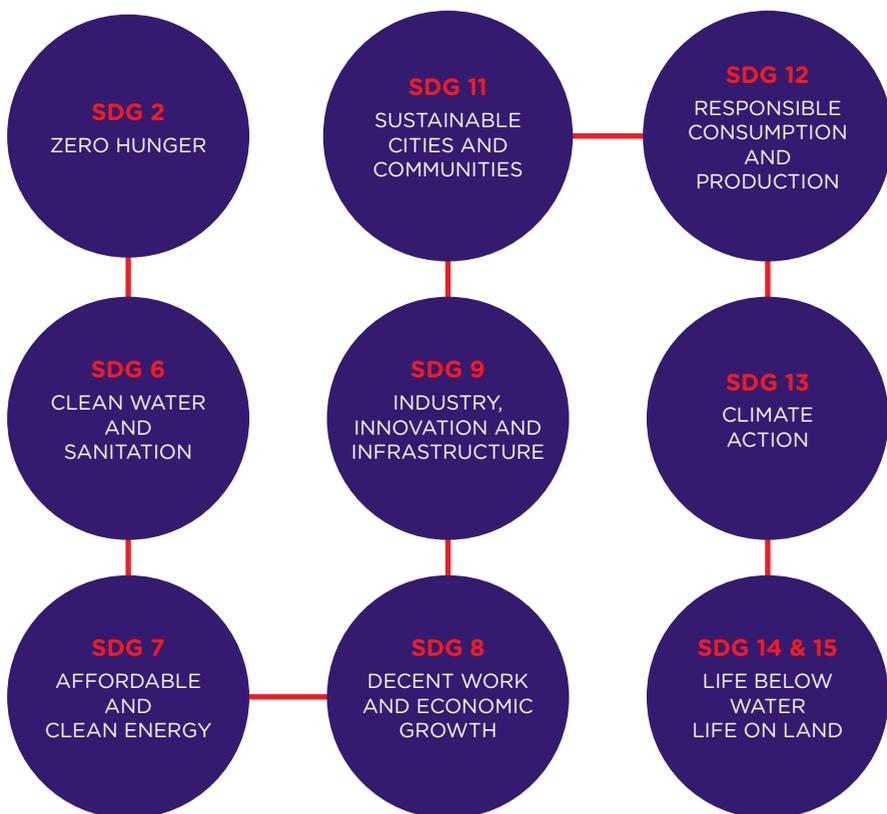
Cluster 3 Digital and Industry; 4 Climate, Energy and Mobility; and 5 Food and Natural Resources

The European Commission has launched a proposal for the next EU Research & Innovation Programme (2021-2027), called “Horizon Europe”. This 3rd Briefing Paper is a call to action towards the integration of the gender dimension in Clusters 3, 4 and 5 of Pillar II as well as towards the design of gender equality goals in the use and distribution of resources. See the previous Briefing Paper no. 2 which focused on Clusters 1 and 2 of this Pillar.

UN SDGs and the economic model of Horizon Europe

Clusters 3 Digital and Industry, 4 Climate, Energy and Mobility, and 5 Food and Natural Resources of Pillar II in Horizon Europe are crucial because they **envision an economic model for the future Europe**, as can be seen in the Areas of Intervention:

- **3 Digital and Industry:** manufacturing technologies; key digital technologies; artificial intelligence and robotics; next generation internet; advanced computing and big data; circular industries; low-carbon and clean industries; space...
- **4 Climate, Energy and Mobility:** climate science and solutions; energy systems and grids; buildings and industrial



facilities in energy transition; communities and cities; clean transport...

- **5 Food and Natural Resources:** environmental observation; biodiversity and natural capital; agriculture, forestry and rural areas; sea and oceans; food systems...

The Areas of Intervention included in these Clusters 3, 4 and 5 together **refer explicitly to ten UN Sustainable Development Goals** related to the economic and environmental rights of citizens.

However, none of these areas mentions so far the gender dimension of these SDGs to bring into consideration the different baselines in the socio-econom-

ic situation of women and men as well as gender drivers and gender impacts of the innovative solutions for those SDGs.

Natural resources and industry from a gender perspective

Decisions on the use of natural resources, the design of cities and industries, as well as the planning of economies transition towards more sustainable energy and consumption models are not gender-neutral. Instead, they **should be done in a gender-responsive way**.

For instance, addressing agriculture and food systems without a gender perspective means to leave the gender division of

labour and women's unpaid labour out from the discussion.

Moreover, it is important **to stress the potential role of women in technological, digital, social, cultural and territorial governance innovations**. In other words, women's participation in decision-making should be ensured in fundamental sectors such as agriculture, fish harvesting, energy, digitization and infrastructure provision.

Recommendations for Gender in Cluster 3 Digital and Industry

To ensure that **gender dimension is integrated in all the stages of the R&I cycle** for the EU digital and industrial development. For instance this will require:

- To integrate the **sex/gender analysis in data management and data applications**.
- Since nanotechnologies, advanced materials, manufacturing technologies, etc., are moving towards greater involvement of target groups **in formulating problems and solutions, the different needs of women and men groups need to be reflected** in the process.
- To **avoid the reproduction of gender bias** and gender stereotypes in the

design of **robotics, artificial intelligence and ICT** technologies.

Recommendations for Gender in Cluster 4 Climate, Energy and Mobility

To **ensure that crucial gender issues addressing the SDGs** related to climate, energy and mobility **are explicitly mentioned** in the specific programme. For instance:

- To develop **Climate Science and Solutions** as an Area of Intervention from a gender perspective means to consider the gendered aspects of climate change drivers, impacts, mitigation solutions and adaptation patterns, including the effects of disasters in cities.
- The difference between women's and men's **energy needs, choices and consumption** must be taken into consideration when designing energy plans.
- To explicitly recognize that **mobility and transport solutions** for communities and cities have to respond to the complexity of women's and men's needs.

Recommendations for Gender in Cluster 5 Food and Natural Resources

- To include the **empowerment of women in agriculture** as a broad line within the Area of Intervention on agriculture, forestry and rural areas
- To **highlight gender factors involved as cross-cutting issues for better solutions** in the food and natural resources SDGs. For instance: The different conditions facing **women and men in rural areas**, the impact of evolving gender roles on activities in the primary sector, **sex/gender analysis on the effects of pesticides, antibiotics** and antimicrobial resistance, the **nutrition status of women and men** when developing sustainable and healthy diets, etc.

TO REMEMBER

In the previous Briefing Paper no. 2 June 2018:

Gender Equality is recommended to be considered both as a specific Area of Intervention in Cluster 2 and as a crosscutting issue for all Clusters and Areas of Intervention in Pillar II of Horizon Europe.

CONCLUSION

Clusters 3, 4 and 5 of Pillar II envision an economic model for Horizon Europe. The gender dimension needs to be considered when deciding on the use and distribution of resources as well as in the design of communities and cities of the future and the necessary technologies for this.

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GENDER FOR HORIZON EUROPE RESEARCH & INNOVATION MISSIONS

ENSURING A FAST-TRACK TO BETTER FUTURE FOR ALL

The European Commission has launched a proposal for the next EU Research & Innovation Framework Programme (2021-2027), “Horizon Europe”. The present 4th Briefing Paper is a call to action towards a proper integration of gender issues in the Horizon Europe new *mission-oriented approach* within Pillar II on *Global Challenges and Industrial Competitiveness*.

What does Horizon Europe plan for its new *mission-oriented* approach?

- **A limited number of highly visible R&I upcoming missions on ambitious goals within a set timeframe**, to increase impact on EU policy priorities and UN Sustainable Development Goals.
- To be defined **from the SDGs framework and focused on areas with a transformative potential for society, science, technology or industry**.
- Two mission types: those aimed at **accelerating progress** (social, technological or industrial) and those aimed at **transforming an entire system** (social or industrial).
- Each one will include a **portfolio of projects** open to benefit from other actions in the Programme and beyond, **across clusters**, improving cross-sectoral, cross-disciplinary, cross-policy and international cooperation.
- **Missions will be decided and co-designed during a strategic planning process through collaborative effort** including relevant stakeholders. **Citizens and end-users will participate in co-design and co-creation**. Citizens and stakeholders will **also** be involved **in the monitoring of missions**.
- **Mission Boards** and **Mission Managers** might be set up or recruited by the Commission. The former to be appointed through open calls for expression of interests, and balance criteria such as expertise, **gender**, age and geographical distribution, but existing governance structures might be considered when appropriate.

To accelerate progress and to transform systems towards SDGs in a responsible and efficient way, the EU R&I upcoming missions need to appropriately integrate the gender dimension and ensure gender balance in mission development.

Why gender needs to be well integrated in the Horizon Europe mission-oriented approach?

Gender issues need to be properly taken into account when it comes to prioritising and designing the progress we want to accelerate or the social and industrial systems we want to transform for a better future that benefits all.

Accelerating progress on gender equality directly relates to SDG5 *Achieve gender equality and empower all women and girls*, and requires profound transformations in the existing social and industrial systems. It is **also a crucial driver for the transformations required by other SDGs**. And **the gender impact of these other transformations needs to be analysed to avoid gender biases**.

According to the Eurobarometer on Gender Equality 2017, more than 80% of respondents say that promoting gender equality is important for: a fair and democratic society (91%), the economy and the companies (87%) or themselves personally (84%).

Both gender balance and the gender dimension need to be well integrated in the whole mission-oriented approach cycle, that is, in the ways Horizon Europe

missions are going to be defined, selected, implemented, monitored and evaluated.

On the one hand, diversity in teams, including **gender diversity and gender balance**, facilitates innovative solutions. And on the other hand, the **incorporation of the gender dimension into R&I content** (which requires gender expertise) guarantees that R&I processes and outputs benefit all segments of population without gender bias. For instance, the World Economic Forum has recently estimated that many of the jobs that will be lost due to digitalization are performed by women.

Recommendations for Gender Balance and Gender Diversity in missions

- Gender balance is already one of the criteria for the recruitment of **Mission Boards**, but it also needs to be considered when an existing governance structure could be appointed (provisions to avoid or solve unbalanced cases).
- **Other leadership and decision-making appointed roles** (*Mission Managers*, expert evaluators, keynote speakers, etc.) must reach gender balance also at mission level and across.
- To include **women's organizations and gender equality architecture** at national and European level in the **co-creation, decision-making** and monitoring of missions.
- **Provisions for equal work conditions at missions** should be made (to promote work and family balance, as well as to prevent and properly address any form of gender discrimination and gender-based violence).

Recommendations for the integration of the gender dimension into mission content

- A **specific mission on gender equality SDG5**, aimed at accelerating progress

CONCLUSION

To better accelerate progress and transform entire systems towards SDGs in a responsible and efficient manner, the EU R&I upcoming missions need to appropriately integrate the targets of SDG5 as well as addressing the crucial gender issues in the other SDGs.

and to transform systems towards SDG5 targets.

- **Addressing gender in any mission.** Besides SDG5, gender equality is also an organizing principle of European societies. Gender impact must be addressed in any social and industrial transformation. This requires ensuring that any mission will properly integrate sex/gender analysis methods. Provisions should then be made, *inter alia*, on: **clear gender criteria to select missions; gender experts among evaluators; gender indicators in the monitoring and impact evaluation** of missions.
- Therefore, it is also crucial to ensure the participation of **gender experts** (and gender equality stakeholders where relevant) **in all the stages of the mission cycle**, from strategic planning to monitoring and impact evaluation. For instance, in Mission Boards this will also facilitate a proper integration of gender when advising on: the content of work programmes; co-design with stakeholders and the public; adjustment or termination of actions; selection of evaluation criteria; communication; etc.

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GENDER IN OPEN SCIENCE & OPEN INNOVATION

GENDERACTION will soon release a full report on “*Strategic advice for enhancing the gender dimension of Open Science and Innovation Policy*” which reveals that most analyses and policy documents related to Open Science (OS) and/or Open Innovation (OI) adopt a gender blind approach, especially in the case of OS. The present Briefing Paper aims to highlight key gender issues for Open Science and Open Innovation and a set of recommendations that the full report has laid out. This will lead to a better promotion of gender equality in the ERA community and to innovation of policy design and implementation.

The OPEN discourse and agenda

The ideas related to Open Science and Open Innovation (hereafter OS&OI) have acquired great global relevance in the last years. These ideas are related to a more general openness discourse in society including Free Software/Open Source, open access and open society. The Open movement argues to have a potential not only to enhance efficiency and effectiveness of value production but also to make social processes more democratic, foster diversity, promote civil society engagement and hence contributions from vulnerable groups. Since the Open movement deals with a vision for and role of research and innovation in society, gender issues need to constitute a matter of concern and a field of action.

The OPEN discourse has reached the EU agenda. When the Commission set in 2012 five ERA priorities, the “optimal circulation,

access to and transfer of scientific knowledge” was among them. Consequently, in 2015 Commissioner Moedas launched the challenging concept of **3Os: Open Science, Open Innovation and Open to the World**. In 2016, the Council of the EU approved its **Conclusions on The transition towards an Open Science system**, and the Commission drafted the European Open Science agenda around the following lines: 1) fostering and creating incentives for OS; 2) removing barriers for OS; 3) mainstreaming and further promoting open access policies; 4) developing research infrastructures for OS; 5) embedding OS in society as a socio-economic driver.

Disconnected goals in the ERA

Both gender and openness are included among the 6 priorities of the ERA Roadmap 2015-2020 adopted by the EU Council in 2015. Particularly: 4th *Gender equality and*

Existing policy documents and studies on OS&OI, including those by the EC, reveals zero attention to gender equality.

GENDERACTION
OS&OI Report

gender mainstreaming in research, and 5th Optimal circulation and transfer of scientific knowledge. The ERA roadmap also highlights that the **gender priority has clear transversal links to all other ERA priorities.**

Additionally, *Open access and Data management* as well as *Gender* are cross-cutting issues in Horizon 2020, and also key elements of Responsible Research and Innovation (RRI). In fact, this approach could be considered an antecedent of the OS&OI movement since RRI is aimed at re-configuring the scientific process along the notions of responsibility, public participation and democratization of science.

However, one of the main findings of the upcoming GENDERACTION Report on "*Strategic advice for enhancing the gender dimension of Open Science and Innovation Policy*" (hereafter, GENDERACTION OS&OI Report) is that most analysis and policy documents related to OS&OI adopt a gender blind approach. In other words, gender equality and OS&OI have been treated so far as independent and unrelated topics, including the ERA Progress reports and Horizon 2020. The same gender-blind approach has been found in the scientific literature related to OS&OI as well as in the national ERA roadmaps analysed by GENDERACTION.

This means that important goals of the ERA remain in fact disconnected and thus European research cannot benefit from positive synergies between the two priorities.

Gender implications of OPEN Science

The term **Open Science (OS)** entails ongoing transitions in the way research is performed, researchers collaborate, knowledge is shared and science is organized. OS is based on cooperative work and new ways of knowledge dissemination through digital technologies and new collaborative tools. It increases the number and diversity of stakeholders involved, such as researchers, policy makers, Research Funding and Research Performing Organizations (RFOs, RPOs), citizen scientists, enterprises, and publishers. OS is an umbrella term capturing a variety of practices, such as:

- **Open Access (OA) to Publications and Research Data:** that is, providing online access to scientific information (such as peer-reviewed scientific research articles published in scholarly journals, research data and preprints), free of charge to the end-user as well as reusable. It is aimed at generating greater efficiency, faster progress and improved transparency of the scientific process. The **gender impact of OA policies** needs to be analysed, but, due to the existing disconnection between gender and openness priorities, there is a lack sex-disaggregated data on OA practices by women and men. In addition, **OA to research data deserves a particular focus on how gender-blind vs. gender-sensitive scientific methods are related to data quality and reproducibility.** For instance, data quality and reproducibility are negatively affected by gender biases and prejudices (such as unquestioned male default models, gender stereotypes, etc.) underlying the

techniques and tools that were used to collect such data. On the contrary, sex/gender analysis methods enhance data quality and reproducibility because they allow to properly identify sex/gender differences as well as to avoid over-generalization of results. OA to research data is crucial to facilitate a gender-sensitive **data reuse**, when original studies produced (good) sex/gender disaggregated data but did not (properly) report on results by sex/gender.

- **Open Peer Review (OPR):** an umbrella term as well, OPR refers to open identities in the review process, open reports, open participation, open pre-review manuscripts as well as final version commenting, and open platforms. It has been mainly used in **manuscript peer review**, rather than **grant peer review**. OPR is aimed at facilitating transparency, accountability and quality of scientific evaluations, but opponents claim that it may lead to less critical and rigorous comments. Besides the lack of consensus on OPR, it is clear that both traditional and OPR evaluation practices need to be reconsidered in order to avoid the under-representation of women among peer-reviewers, as well as (unconscious) gender biases (in peer-reviewers and peer-review procedures) that result in greater success rates for men compared to women and in extremely low percentages of publications with a gender dimension.
- **Rewards and Skills:** The current system of scientific rewards and skills that privileges the impact factor of publications and emphasises the individual effort has not adequately rewarded women's and men's contribution to (open) science. The OS career assessment proposes a variety of criteria such as publishing in OA journals, using FAIR data principles

If research claiming sex/gender differences fail the reproducibility test at a later stage, the techniques, tools and conclusions of such research should be questioned.

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and open data as well as full recognition of the contribution of others (collaborators, co-authors, citizens...). It seems that a multi-dimensional approach might better avoid indirect gender discrimination in the allocation of rewards to OS practices but research on the gender impact of different OS incentive policies is needed to inform the OS policy-making.

- **Altmetrics and New Generation Metrics:** Research evaluation has increasingly relied on (quantitative) metrics, particularly on citation rates. Concerns have been raised in relation to, *inter alia*: the lack of attention to qualitative aspects of the research career and contributions that cannot be measured, the impact on researchers' choice on publication venues, and the increasing pressures for evaluating public spending on research according to this model. The social impact of research and the views of other stakeholders in addition to scholars are considered to be part of this new research evaluation model which requires an open, transparent and linked data infrastructure. The next generation metrics group of the Open Science Policy Platform (OSPP) points to the need to

assess the benefits and consequences of the introduction of new metrics on the evaluation criteria. This recommendation should be expanded to incorporate the impact of new metrics on gender equality, given the existing findings related to gender bias in evaluation and citations practices

OPEN Gendered Innovations

For the EC, Open Innovation (OI) means the opening up of the innovation process to all active players allowing knowledge to circulate more freely and be transformed into products and services. Firms increasingly rely on external sources for the development or modification of their products and services (called inbound openness). The **user-centric model** gives more relevance to external sources of knowledge and innovation in addition to the manufacturer's perspective. According to this approach, new products and services are co-developed by suppliers and consumers, university, government, private laboratories, competitors and other nations. The EC has embraced Open Innovation 2.0, highlighting the central role of users in value creation and as target of innovation.

Yet, despite the role played by women as users and consumers, they still remain dramatically under-represented in the design of products and services. There is also a gender imbalance in innovation outputs, especially in patent applications for inventions, among the inventors community. **Gender diversity** of contributors needs to be considered **in the co-creation process**. For instance, women's participation in the Open Innovation practice "**citizen science**" (including all the areas and leadership roles) will help to promote women's empowerment (UN SDG5) and women's interests and needs in the policy agenda. At the same time, gender diversity has a positive impact on innovation

Involving more women in the process of innovation could result in more competitive products as well as in products that do not conform to a single stereotype of the male consumer.

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in manufacturing and service firms, and it is associated also with wider economic benefits and the development of a country's national system of innovation.

Besides gender diversity, the Gendered Innovations project has played a key role by presenting an extensive number of case studies and **sex/gender analysis methods** which show how these methods lead to innovation and excellence in research. The Helsinki Group on Gender in Research and Innovation stressed, in its position paper on the European Innovation Council (EIC), the vital need for integrating the gender dimension in technological design and innovation as well as to ensure that funded innovation is not gender-blind to include the needs and interests of women, too.

Recommendations for OS&OI from a gender perspective

The following sets of recommendations refer to different stakeholders, mainly the European Commission (EC), EU Council, member states (MS), RFOs, RPOs, innovative firms as well as researchers.

1st Priority for Action - Gender mainstreaming and policy synergies between

the gender equality and OS&OI agendas in European policy-making [EC, EU Council, MS]:

- To address Priority 4 of the ERA on gender equality as a self-standing issue while mainstreaming gender to other priority areas.
- To invite gender experts to relevant OS&OI expert and advisory groups.

2nd Priority for Action - Advancing **knowledge and awareness of gender issues in OS&OI:**

- To conduct studies on gender issues in OS&OI, such as open peer review, *alt-metrics*, open software and open innovation.
- To include in the *She Figures* sex-disaggregated data on the adoption of open access practices.
- To collect sex-disaggregated data on inventorship by country, sector and field.

3rd Priority for Action - **Evaluation and assessment practices in RFOs and RPOs:**

- To explore to what extent the use of new metrics impacts men and women researchers at different career stages and disciplines differently. [EC, Open Science Policy Platform]

A study of open source software repository GitHub showed that women software developers see their contributions of code accepted more frequently than men but only if they hide their sex.

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Diversity overall and gender diversity specifically contribute to identifying innovative solutions.

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- To adopt multi-dimensional evaluation criteria that enhance openness and transparency, including research outputs with a gender dimension. [RPOs, RFOs]
- To ensure that open innovation funded projects integrate sex/gender analysis where appropriate and that the teams respect gender diversity. [EC, MS, innovation funding agencies]
- To examine the adoption of open access practices by men and women to identify potential gender differences. [RFOs, RPOs]

4th Priority for Action - **Publication practices of researchers and RPOs:**

- To encourage the sharing of preprints presenting the results of research on gender and research that integrates gender as a cross-cutting issue. [RPOs]
- To adopt the FAIR management of sex and gender data. [Researchers]

5th Priority for Action - **Innovative processes and firms [stakeholders engaged in setting up participatory innovation projects]:**

- To develop participatory innovation projects that guarantee gender diversity
- To ensure the integration of sex/gender

analysis in order to avoid gender bias and allow all segments of population benefit from innovation processes.

Conclusions

The analysis conducted by GENDERACTION and the resulting OS&OI Report constitutes a first exploration of the inter-linkages between gender and OS&OI and aims to contribute to increased synergies between these two ERA policy priorities. GENDERACTION strongly believes that mutually beneficial synergies can be created from the inclusion of women and gender in every dimension of the OS&OI ecosystem and the OPEN European society in which these goals are framed.

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GENDER-RESPONSIVE INTERNATIONAL COOPERATION FOR HORIZON EUROPE

The European Commission has launched a proposal for the next EU Research & Innovation Programme (2021-2027), “Horizon Europe”. This Briefing Paper is a call to action to redefine the proposed model of International Cooperation in Science, Technology and Innovation, known as *Openness to the World*, in light of the Women’s Human Rights principles and UN Sustainable Development Goals. Given that both Gender and International Cooperation are ERA priorities, the European Commission is responsible for taking the lead on mainstreaming gender in international cooperation in STI. Key provisions for it should be specified in Horizon Europe.

The Starting Point

Gender equality and International Cooperation are **cross-cutting issues** in Horizon 2020. Moreover, the ERA Roadmap 2015-2020 adopted by the Council in May 2015 included them among the **6 ERA priorities**, and notes for these two priorities only, **clear transversal links to all other ERA priorities**. Consequently, the Council Conclusions from 1 December 2015 on *Advancing gender equality in the European Research Area* invited the Commission and Member States (MS) to *consider including, among others, a gender perspective in dialogues with third countries in the area of science, technology and innovation (STI)*, while also inviting the Strategic Forum for International S&T Coop-

eration (SFIC) and the former Helsinki Group (now Standing Working Group on Gender in R&I, SWG GRI), **to consider developing joint guidelines on a gender perspective for international cooperation in STI**.

Therefore, SFIC and SWG GRI set up an ad hoc working group to assess the current state of gender mainstreaming in international cooperation in STI, and conducted a survey to that effect which targeted national governments and research funding organizations/programme managers of MS and associated countries (AC). In January 2018 these advisory groups of the European Research Area and Innovation Committee (ERAC) published a joint report, with recommendations for the Commission, MS and AC, highlighting that:

Gender aspects in International STI Cooperation may need to consider specific issues, such as the underrepresentation of women in certain scientific fields and research areas, cultural differences, etc. while at the same time for a number of current societal challenges (climate, poverty, health) the gender dimension is important. International cooperation activities (in bilateral as well as multilateral activities) have the potential to be a positive example for integrating gender aspects.

ERAC SFIC and ERAC SWG GRI,
2018

- The inclusion of gender in formal agreements for STI cooperation (bi-/multi-lateral) is rather low (at governmental and funding/programme level), although some countries are willing to improve it.
- Capacity building is needed through best practice exchanges and sharing examples, special training and increased political support.

SFIC and SWG GRI underscore that **more effort is needed to explain the added value and potential benefits of including gender** in agreements, work programmes and joint activities in international STI co-operations. **The Commission was invited to consider gender equality and gender-related research in projects as issues to be taken up within its future international cooperation initiatives and dialogues, as well as in the context of its internationalization strategy and activities within the next EU Framework**

Programme. The inclusion of “gender aspects” in the evaluation of the calls involving project partnerships with non-EU partners was also encouraged, as appropriate.

To follow up on it, after consulting with the rapporteurs of the joint SFIC-SWG GRI report, GENDERACTION has developed a checklist for policy makers as an efficient way to provide further guidelines on integrating the gender dimension in international cooperation in STI.

International Cooperation in Horizon Europe

International STI Cooperation is planned to be reinforced as a cross-cutting issue in the next Framework Programme, supported and enhanced by means of activities in “Strengthening the ERA”. A greater impact of EU R&I is expected through aligning actions with other nations and regions of the world through international cooperation effort on an unprecedented scale. For mutual benefit, partners from across the world will be invited to join EU efforts as an integral part of initiatives in support of EU action for sustainability, reinforced R&I excellence, and competitiveness.

International cooperation is expected to ensure effective tackling of global societal challenges; access to the world’s best talents, expertise and resources; and enhanced supply and demand of innovative solutions. Horizon Europe will promote an extended openness to association with third countries with good capacity in STI.

However, a well-structured and clear section for international cooperation actions and regulation is missing in the Proposal, addressed mainly in the “Impact Assessment” analysis. There are two other disconcerting aspects which affect gender in the International Cooperation model that need to be improved in a final proposal text:

- The focus is on attracting world's top researchers, ensuring access to facilities and markets worldwide, and exerting more influence in shaping global R&I systems, but the challenge of implementing EU global commitments to Human Rights and SDGs does not appear to be at the core.
- Gender should play a role in all of these aspects but the gender equality objectives are not considered as part of STI International Cooperation. This is a missed opportunity because International Cooperation that does not integrate and promote SDG 5 *Gender equality and empowerment of women and girls* will be a failed one. Many other SDGs (education, peace, good health, decent work, no poverty ...) depend on closing gender gaps in society and on the benefits that come from women's potential, capacities and contributions to society.

Recommendations from a Gender Perspective

The International Cooperation model of Horizon Europe needs to be redefined so as to place **Human Rights and Sustainable Development Goals (including SDG 5)** at the core of this cross-cutting issue in addition to optimising benefits from cooperation and EU competitiveness. For instance, access to the **world's best talents needs to incorporate gender equality** policies (including, *inter alia*, provisions in mobility schemes to tackle protection against sexual harassment and other forms of gender-based violence), as a matter of justice and high-quality human resources strategy to ensure the mutual benefit approach. As Horizon Europe will be open to association of **third countries** according to their STI capacity, **Horizon Europe** requirements on gender provisions can be used **as an incentive to ensure real commitment to actively improve gender equality poli-**

CONCLUSION

It is crucial to mainstream gender in the STI International Cooperation model of Horizon Europe to reach the Sustainable Development Goals (including SDG 5). This will help in the advancement of the EU R&I capacities but also in the attainment of political, social, economic and humanitarian commitments.

cies in STI worldwide, including better accountability mechanisms for it.

More support is needed for conducting specific **research on Women and Gender in International Cooperation on STI** to produce knowledge on the specific links between the two priorities and cross-cutting issues, but some further concrete recommendations can be made based on the GENDERACTION checklist mentioned above:

- To declare **gender equality as a value** in international agreements, programmes and calls of Horizon Europe.
- To incorporate **gender balance in research teams** in international agreements, programmes and calls of Horizon Europe.
- To ensure **gender balance in decision-making** in international agreements, programmes and calls of Horizon Europe.
- To require the **integration of sex/gender analysis** where appropriate in international agreements, programmes and calls of Horizon Europe, especially in any calls involving humans.
- To include **gender-friendly clauses in programme announcements**, calls and

guidelines for applicants that encourage women to apply, such as, *inter alia*, caring responsibilities, maternity/paternity leave, pregnancy, etc.

- To **mainstream gender in the process of proposal evaluation** and funding decisions: gender balance and gender expertise in evaluation panels, training in gender equality, appropriate templates to assess the gender dimension, gender as a criterion for scoring, among others.
- To consider gender equality training, gender expert advice, mentoring activities from a gender perspective and family support services as **eligible costs** of Horizon Europe.
- To collect **sex-disaggregated data** of success rates of applicants, Principal Investigators, research workforce and horizontal segregation in research teams.
- To assess the **impact of gender equality measures** as part of the programme evaluation.

Conclusion

Openness to the World should also mean the commitment to shape the world with a view to attaining Women's Human Rights and Sustainable Development Goals through EU International Cooperation in STI.

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STRENGTHENING GENDER IN THE ERA

The European Commission has launched a proposal for the next EU Research & Innovation Programme (2021-2027), “Horizon Europe”. This Briefing Paper is a call to action to redefine the proposed model of International Cooperation in Science, Technology and Innovation, known as Openness to the World, in light of the Women’s Human Rights principles and UN Sustainable Development Goals. Given that both Gender and International Cooperation are ERA priorities, the European Commission is responsible for taking the lead on mainstreaming gender in international cooperation in STI. Key provisions for it should be specified in Horizon Europe.

The European Commission has launched a proposal for the next EU Research & Innovation Programme (2021-2027), “Horizon Europe”. This Briefing Paper is a call to action to properly integrate gender equality policies in the “*Strengthening the ERA*” part of the Proposal. The aim is to strengthen gender equality in the ERA community and structures as well as to innovate gender equality policy implementation in the scientific field.

What the EC wants to strengthen through Horizon Europe?

The Horizon Europe “*Strengthening the ERA*” part underpins the three pillar structure by focusing on supporting the 6 ERA priorities (including gender), as an aim in and of itself and as a **way to optimise the Programme’s delivery for increased impact**.

This is planned to be done through two Areas of Intervention:

- **Sharing excellence** (related to the H2020 Spreading Excellence & Widening Participation) **to fully exploit the potential in less R&I performing countries** through four broad lines (Teaming, Twinning, ERA-chairs and COST).
- **Reforming and enhancing the European R&I System** (related to H2020 Science with and for Society - SwafS), through 11 broad lines, including one on **Supporting gender equality in scientific careers and in decision making, as well as the integration of the gender dimension in research and innovation content**. Gender is also mentioned in the broad line on **attractive career environments, skills and competences** which links the ERA and the European Higher Education Area to modernise

The goal is for an EU where knowledge and a highly skilled workforce circulate freely, research outputs are shared rapidly and efficiently, researchers benefit from attractive careers and gender equality is ensured, where Member States develop common strategic research agendas, aligning national plans, defining and implementing joint programmes, and where the outcomes of research and innovation are understood and trusted by informed citizens and benefit society as a whole.

EC, 2018

universities and other R&I organisations through recognition reward mechanisms and incentives to promote trans-disciplinarity, entrepreneurship, citizen engagement, open science, inter-sectoral and international mobility, **gender equality plans and comprehensive approaches to institutional changes**. Other broad lines, *inter alia*, include: monitoring and evaluating the Framework Programme and disseminating and exploiting results; strengthening the evidence base for R&I policy; supporting enhanced international cooperation (see Policy Brief no.6); as well as other key issues for Responsible R&I (RRI) such as **ethics and integrity as well as citizen science**.

This is the only part of the Horizon Europe proposal that explicitly claims to contribute directly to UN SDG5 Gender Equality.

What is missing and should be strengthened?

The “*Strengthening the ERA*” part is crucial for both the ERA roadmap and the impact of Horizon Europe. However, if we consider the budget as an indicator, the EC has stated that **“the largest share of resources is needed for Global Challenges and Industrial Competitiveness pillar, followed by Open Science and Open Innovation, whereas Strengthening the ERA entails only limited budget”**. The SwafS community has pointed out that Horizon Europe envisages neither a specific program line nor a sufficient budget dedicated to SwafS activities despite their key role in ensuring smooth transition to more open and inclusive research endeavours (SiS.net, 2018). Actually, although the **Horizon Europe intervention area on reforming and enhancing the EU R&I system includes broader lines than H2020 SwafS, its planned budget is even smaller**. The concern is that without sufficient visibility and funding for specific research and support actions, the goals will be hardly achieved. And to illustrate how can this affect the gender equality priority, it must be noted that H2020 SwafS has been the privileged space to develop gender equality plans, to increasingly put in place gender equality structures within Research Performing/ Funding Organizations (RPOs/RFOs) and also to promote gender-friendly organizational cultures. The call for promoting Gender Equality in R&I (GERI) has been well received by the scientific community in light of the large number of proposals submitted since 2014 and has made possible to translate EU gender equality provisions into concrete measures within RPOs and RFOs.

The cooperation between more and less experienced RPOs and RFOs from different countries, with diverse organizational cultures, and all the projects funded have contributed also to create a supporting

Horizon 2020 projects on gender and science (and also those on RRI) have contributed to shape our RPOs and RFOs as well as to generate a supporting community for gender equality in the scientific field.

All the joint efforts made under these projects have become a reference model for other global regions in the promotion of gender equality policies in R&I.



GenderTime
GENOVATE
LIBRA
GenPORT
OpenUP
TRIGGER
GEDII
Hypatia
PRISMA
PLOTINA
EFFORTI
RRI
GENDER-NET Plus
HEIRRI
GENDERACTION
GEECCO
TARGET
GENERA
FoTRRIS
EGERA

community for gender equality in the scientific field. This success of H2020 needs continuing activities and funding to become sustainable gender equality policies. Otherwise, the job will be left only half done after spending public resources, making efforts to breaking barriers and overcoming initial resistances. The Helsinki Group on Gender in R&I (2017) has highlighted the need **to keep and reinforce the funding line for more effective, harmonized and extended gender equality plans** for institutional change in RPOs and RFOs across EU.

Recommendations on gender equality policies

While Horizon Europe pillars are the privileged space to integrate sex/gender analysis into R&I content, "*Strengthening*

the ERA" is crucial to spread EU gender equality policies in R&I as well as to address a key issue to attain gender equality in science research: the organizational culture of research institutions. The Council of the EU (2015) invited the Commission to continue promoting institutional change as well as the implementation, monitoring and evaluation of all gender equality objectives in H2020 (gender balance in research teams and decision-making, and gender dimension in research content). To do so, "*Strengthening the ERA*" in Horizon Europe must include:

- **Better gender statistics** and qualitative studies from a gender perspective for the monitoring and evaluation of the Framework Programme.
- Dissemination and exploitation of results taking into account **gender inclusive**



Challenges in Strengthening the ERA Centres of excellence of the future

Horizontal structures

Collaborative leadership

Gender balance in
decision-making

Staff participation in design,
implementation and
evaluation of R&I policies

Zero sexual harassment
and sexist behaviour

Non-discrimination based on gender,
race, social class, ability...

Care facilities and politics of time

Reasonable mobility

Professional gender equality structures
and policies

Diversity of career paths:
career break opportunities



language and image, as well as women's and men's (potential) different interests, roles and activities.

- Modernising more European universities and other R&I organizations through **innovative gender equality policies** and more effective tools developed by projects on women and science.
- Supporting enhanced international cooperation including gender and **targeting SDG5** (see Policy Brief no. 6 for specific recommendations).
- Science, society and citizens as a work programme that mainstreams gender in every activity and includes a **specific funding line for Coordination and Support Actions to promote Gender Equality in R&I**. The support for these CSAs should ensure that changes to-

wards gender equality in RPOs and RFOs will be sustainable and meet the expectations of the ERA priority.

Conclusions

The activities supported under “*Strengthening the ERA*” address ERA policy priorities, one of them being gender equality and gender mainstreaming. Thus, strengthening the ERA means strengthening gender equality policies in the next EU Framework Programme for R&I. Supporting the implementation of EU recommendations on gender equality structures and plans in RPOs and RFOs with adequate funding is crucial for creating centres of excellence of the future. This will create the conditions for an excellent and open RRI. Such a change at a structural level will not happen accidentally. Moreover, giving gender a central role in “*Strengthening the ERA*” will help to generate and sustain public support for the Programme.

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GENDER-RESPONSIBLE RULES FOR PARTICIPATION IN HORIZON EUROPE

The European Commission has launched a proposal for the next EU Research & Innovation Programme (2021-2027), “Horizon Europe”. This Briefing Paper is a call to action to properly integrate the principle of gender equality policies in the Rules for Participation in Horizon Europe. The aim is to strengthen gender equality in the ERA community and structures as well as to innovate gender equality policy implementation in the scientific field.

One of the objectives of the new Framework Programme related to the rules for participation has been summarized as “simpler rules”. The aim is to improve the financial and administrative performance of the new programme. This will be achieved by increasing the use of simplified grant forms where appropriate, and continuing with a single set of rules principle. The EC ensures that the Regulation respects fundamental rights and observes the principles recognized in the Charter of Fundamental Rights of the EU. Moreover, the key elements of the proposal evaluation and selection system of the predecessor programme Horizon 2020 with its particular focus on excellence should be maintained.

Former article 16 (Gender equality) of the H2020 Regulation has been redrafted as a paragraph in Article 6 on the Implementation and forms of EU funding as follows:

In order to ensure this new article and also the statement made in the preamble of the Proposal regarding the integration of the gender dimension in R&I content and the monitoring through all stages of the research cycle, GENDERACTION makes the following recommendations for Horizon Europe:

- **To develop Temporary Special Measures (positive action) in the Rules for Participation in order to promote women’s participation in Horizon Europe projects, especially gender balance of project leaders.**

* The Interim Evaluation on Gender in H2020 estimated that only 25% of projects were headed by women.

* The Helsinki Group on Gender in R&I (hereafter HG) asked for a procedure to better monitor funded projects in terms of gender balance in research teams.



The Programme shall ensure the effective promotion of gender equality and the gender dimension in research and innovation content. Particular attention shall be paid to ensuring gender balance, subject to the situation in the field of research and innovation concerned, in evaluation panels and in bodies such as expert groups.

article 6.9. Proposal
for a Regulation



- **To design effective work-life balance measures to be applied in Horizon Europe projects in consultation with gender stakeholders.**

* HG asked for additional funding to recruit a cover post or to extend the research period in cases of family/parental leave.

- **To include an obligation for partner institutions to guarantee equal pay in the proposals submitted for funding.**

- **To strengthen the requirements and monitoring of the integration of the gender dimension in the proposals through sex/gender analysis box in applications and gender expertise within the consortium.**

* The Interim Evaluation on Gender in H2020 concluded that there has been a poor integration of the gender dimension in research content.

* HG asked to explicitly require applicants to develop a sex and/or gender analysis and to include a gender expert

in the consortia for those topics explicitly mentioning gender.

- **To include Gender-Responsible Research & Innovation issues among the award criteria (article 25 of the Proposal for a Regulation) so that proposals shall be evaluated on the basis of excellence, including the integration of sex/gender analysis where research concerns humans or has impact on humans, impact, quality and efficiency of the implementation.**

* The Interim Evaluation on Gender in H2020 concluded that evaluation criteria and the way how they are applied need to be reviewed to avoid gender bias in the assessment of researchers' achievement.

* HG recommended that evaluation forms and monitoring guidelines include questions regarding gender in R&I as well as to consider this a precondition of excellence point awards.

- To ensure **gender balance** in the composition of evaluation committees and evaluators (article 26 of the Proposal for a Regulation), inclusion of **gender experts** among evaluators and **gender training** for evaluators to combat gender bias in evaluation.

* The Interim Evaluation on Gender in H2020 concluded that gender expertise is needed in expert groups, evaluation panels and advisory groups in all scientific fields.

* **HG recommended compulsory gender training required for evaluators as well as the inclusion of gender experts among evaluators for topics explicitly mentioning gender.**

Finally, the Proposal aims to maintain the key elements of the proposal evaluation and selection system of the predecessor programme Horizon 2020 with its particular

focus on excellence. It must be recognized that the **integration of gender dimension in R&I is a crucial element of research excellence**, and without it, R&I offer only partial and often completely wrong solutions and answers, as recent studies confirm.

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IMPLEMENTATION OF ERA PRIORITY 4

“GENDER EQUALITY AND GENDER MAINSTREAMING IN RESEARCH AND INNOVATION”

GENDERACTION will soon release its full report on “National roadmaps and mechanisms in ERA priority 4” which analyses different approaches of Member States to the implementation of gender equality in National Action Plans and Strategies (NAPs). The present Briefing Paper aims to highlight key results and a set of criteria which allow identifying good practice NAPs and good practice measures. The aim is to support further development of existing NAPs and thereby to strengthen gender equality in the ERA community and structures.

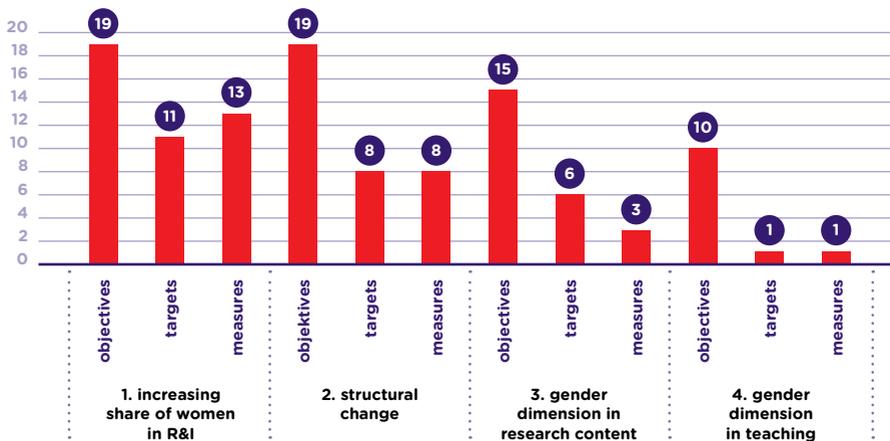
Priority 4 in National Action Plans (NAPs)

European Research Area (ERA) priority 4 focuses on gender equality and gender mainstreaming in research and innovation. The objective is to foster scientific excellence and a breadth of research approaches, by fully utilising gender diversity and equality and avoiding an indefensible waste of talent. Within their national action plans (NAPs) Member States are asked to develop policies which address gender imbalances particularly at senior levels as well as in decision making and which strengthen the gender dimension in research. Member

States should initiate gender equality policies in research performing organisations (RPOs) and research funding organisations (RFO). They should also regularly monitor the effectiveness of such policies and adjust measures as necessary.

The report on the implementation of priority 4 within NAPs is based on two main sources: an analysis of NAP documents and a survey of members of the Standing Working Group on Gender in Research and Innovation (SGW GRI), including Associated Countries which submitted a NAP. The survey was conducted in autumn 2017. A total of 27 countries participated in the survey, which represents a response rate of 82%.

Graph 1: Objectives, targets and measures



Implementation of priority 4 at Member State level

The analysis of NAP documents reveals **different approaches to NAPs** in different countries as well as a **different level of implementation of gender equality policies**. While some countries describe the whole gender equality policy mix in their NAPs, others describe the current focus of gender equality policy or the process by which an existing policy mix is to be further developed. At the other end of the spectrum are countries which formulate a general commitment to gender equality or do not address gender equality in their NAPs at all. The NAPs also differ in the concept of gender equality used. While some countries address all three main ERA gender equality objectives (increasing the share of women in all fields and hierarchical levels of R&I; structural change to abolish barriers for female carriers; integration of the gender dimension in research content and teaching), others focus on only one or two objectives.

The survey results confirm the different level of implementation of priority 4. All countries participating in the survey had either already submitted a NAP or planned to do so. All but one of these NAPs contain gender equality objectives, yet only two thirds of them also contain concrete targets or measures, while half are linked to a specific national monitoring system.

This **gap between objectives and measures** appears for all three dimensions. While 19 NAPs address the objective to increase the share of women in R&I, only 13 contain corresponding measures or policies. The situation is very similar with regard to the objective of structural change (19 NAPs mention the objective; eight contain measures). The gap becomes even more pronounced in the case of the third objective: 15 NAPs address the objective to strengthen the gender dimension in research content but only three contain measures. Ten NAPs mention the objective to integrate the gender dimension in teaching but only one contains measures.

Furthermore, both the NAP documents and the survey show that priority 4 is in most cases conceptualised as an **independent topic**. Only seven NAPs or 29% link priority 4 with at least one of the other priorities. Hence, gender is not integrated as a cross-cutting topic in the NAPs.

The survey reveals **differences between EU15 countries and newer EU Member States** (which joined the EU from 2004 onwards) in several respects:

- For 57% of newer Member States, the NAP is the first policy document on gender equality in R&I; the same holds for only 25% of EU15 countries.
- Priority 4 is more often interlinked with other priorities in EU15 countries (39% versus 14%).
- Newer Member States refer more often to difficulties regarding development of priority 4.
- The survey results also show that the structural change goal of abolishing barriers for women's careers is more present in EU15 countries.

Of those countries which had submitted a NAP, about 60% of EU15 countries and 33% of countries which joined the EU from 2004 onwards mention concrete policies or measures in their NAPs. Respondents were asked to fill in an extra fact sheet for each ongoing or planned policy. In total, 65 policies and measures from 12 countries were received. According to the respondents, 46 of these policies and measures constitute good practices. However, the respondents' assessments of whether a measure or policy constitutes a good practice is based on different criteria (e.g. recently introduced policies, policies that address a topic for the first time, measures with an innovative approach). Hence, the survey results illustrate the need for a discussion of the criteria for good practices. The first GENDERACTION

Mutual Learning Workshop therefore focused on this issue.

Of those countries which have submitted a NAP or plan to do so, 13 (52%) have a national monitoring system for gender quality in R&I which considers further indicators in addition to the main indicator for ERA priority 4 monitoring (women in grade A positions in the higher education sector). If a national monitoring system does exist, the indicators focus in most cases on the share of women in different fields or hierarchical positions (13 cases). In ten countries, monitoring addresses structural change in RPOs, while in eight countries indicators focus on structural change in RFOs. Only two countries have indicators in place that focus on the gender dimension in teaching and research content.

Conclusions and recommendations

The different foci in NAPs could be interpreted as different positions taken by countries in the gender equality policy development process or as the result of a different conceptualisation of gender equality.

These aspects illustrate on the one hand the **need for capacity-building activities for stakeholders involved in the development and implementation of NAPs**. GENDERACTION will provide capacity-building activities that focus on the gender concept that forms the basis for the NAPs and the deviances from the ERA concept of gender equality. Capacity-building activities will also provide support for further development of NAPs, priority 4 within NAPs as well as concrete measures. This includes the development of evaluation competences and self-reflexive competences on the part of stakeholders, to enable them to assess measures and policies, make empirically based decisions, coordinate the implementation of NAPs and involve relevant stakeholders. Capacity-building activities will also

Good practice NAPs

- are based on an empirical baseline assessment,
- contain objectives and targets which are derived from the baseline assessment,
- formulate objectives, targets and concrete measures consistently,
- consider gender in all priorities (gender mainstreaming), thus interlinking priority 4 with other priorities,
- include concrete budgets and resources,
- define responsibility for the implementation of NAPs or specific actions (the responsibility for concrete measures should be assigned to specific stakeholders),
- include a responsibility for the coordination of the six priorities as well as of concrete measures within each priority
- use consultation in writing NAPs (stakeholder involvement)
- include concrete deadlines for implementing measures and actions,
- include a description of monitoring and/or planned evaluation activities.

Good practice measures or policies

- are based on an empirical baseline assessment,
- explicitly aim to contribute to at least one of the three main gender equality objectives,
- formulate concrete targets and target groups,
- are based on a theory of change/ programme theory (a formulated set of assumptions why and how the policy should reach its targets and target groups),
- involve relevant stakeholders in the development of the policy/measure,
- are allocated sufficient and sustainable funding,
- produce results which are sustainable and significant (in terms of coverage, resources, timeframes, etc.)
- develop a dissemination or communication strategy (what has been done, what has been achieved, what worked, what didn't work), and
- are monitored and evaluated on a regular basis with regard to their implementation status and impact.

provide support for stakeholders responsible for priority 4 in mainstreaming gender into other priorities.

Equally, the different priority 4 foci should be taken up in the **gender equality policy discourse at the European level**.

- The different foci in NAPs indicate a need for more coherent guidelines for the development of priority 4 in NAPs. This should be combined with a discourse which focuses on good practice NAPs as well as good practice measures. The identification of good practic-

es requires criteria for the assessment of NAPs and measures. GENDERACTION provides a set of criteria (see the box).

- Specifically, the different interpretations of gender equality should be addressed in the further development of NAPs. Most countries focus on one or two of the three gender equality objectives. The dominant goal is to increase the share of women in R&I. It is important to stress the three-dimensional construct of gender equality in future policy discourse. Furthermore, it is important to shift the focus from women

as the main target group to the under-represented sex. For instance, only few NAPs address the under-representation of men in female-dominated fields.

- It is equally important to provide a policy forum (e.g. through ERAC) focusing on priority 4 as well as on the integration of gender aspects in other priorities (gender mainstreaming). In addition to such an exchange among Member States, a specific feedback format could be linked to the national ERA progress reports.
- The fact that priority 4 is conceptualised in the majority of NAPs as an independent topic without interlinkages with other priorities means that gender equality is not considered in other priorities. Hence, gender is not mainstreamed, and there is a risk that interventions of other priorities could reinforce existing gender inequalities or imbalances. Therefore, a strong position of priority 4 is needed as well as a strategy that allows stakeholders responsible for priority 4 to address other priorities.
- Lastly, it is evident that a stronger focus on gender in research content and teaching in the NAPs is required. There are only a few examples of policies and measures that focus on this objective. Gender in research and innovation content in the next European framework programme Horizon Europe needs to be emphasised using a twofold approach: (1) to strengthen the gender dimension in research projects in order to develop good practices on a project level and (2) to develop good practices for transferring the available gender knowledge into targeted, effective policies and measures.

Within the GENDERACTION project, criteria for good practices have been developed in a participatory process (Mutual Learning Workshop). Workshop participants agreed

to the criteria but considered them difficult to implement due to a lack of data, human resources, commitment and consistency in databases. They also formulated a need for the integration of gender equality in other priorities as well as a need for specific support and input regarding the mainstreaming of gender in other priorities. The workshop participants stressed the importance of a self-reflexive approach by the implementing institution in addition to external evaluation and the need for sanctions if measures/policies are not implemented as agreed. Furthermore, they argued for provisions to safeguard good practice measures against institutional or political change.

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THE ROLE OF FUNDING AGENCIES IN THE PROMOTION OF GENDER EQUALITY IN R&I

GENDERACTION is a Horizon 2020 project that supports mainstreaming gender equality in the European Research Area. The present Briefing Paper focuses on the role of Research Funding Organizations (hereafter RFOs) with the aim to inspire these key actors of the European R&I system to innovate policy design and implementation for gender equality.

Funding Agencies gain momentum in Europe

The European Commission has promoted for years the inclusion of the gender equality in the European research policy and its Framework Programmes. Although the emphasis has been on Research Performing Organizations (RPOs) such as universities and research centres, increasing attention is paid to Research Funding Organizations (RFOs) given their crucial role in shaping research careers and research priorities in each country.

Both the 2015 Resolution of the European Parliament on women's careers in science and universities and the 2015 Council Conclusions on advancing gender equality in the European Research Area (ERA) stressed the role of RFOs in supporting women's careers in science and gender equality in the ERA through the allocation

of adequate resources for gender equality policies and the elimination of gender bias in research funding.

For instance, the European Parliament Resolution calls on RFOs and other stakeholders to allow more flexibility regarding women's research production following the birth or adoption of a child. **The objective is to attain a consistent alignment between RFO's priorities and EU policy, including the ERA Roadmap priority 4 (Gender equality and gender mainstreaming in research).**

Gender equality in R&I is also linked to participation and success rates in research funding and promotion systems. The success of researchers depends on the evaluation of researchers' grants, as well as on other scientific or scholarly achievements as indicated in a researcher's CV and track record (Science Europe, 2017: 8). The persistence of gender bias in research evaluation,

The Council invites Member States and research funding organisations to provide incentives to encourage research performing organisations, including universities, to revise or develop gender mainstreaming strategies, gender equality plans including the gender dimension in R&I content and programmes and mobilise adequate resources to ensure their implementation.

Council Conclusions on
Advancing gender equality
in the ERA

as studies show, is a threat to the efforts to advance gender equality and retain women in research careers. Moreover, studies from different countries and disciplines show that men researchers receive more research funding than women researchers.

Only the most recent European Structural Change projects for gender equality in research institutions have included RFOs, either in the role of observers or as partners, since it became clear that structural change requires a coordinated policy with those institutions that fund Research & Innovation (R&I).

The Council of the EU has its own leading role in ensuring that National Action Plans and Strategies (NAPs) for the ERA Roadmap address gender equality measures and its monitoring in the evaluation process to move forward ERA Priority 4 implementation and to improve coordination between national authorities and RFOs.

The potential of RFOs in shaping national RI ecosystems

National funding agencies are often the main source of resources for researchers in Europe, especially the public ones. RFOs activities usually focus on the following fields:

- Distribution of resources in R&I systems and thus, management of financing instruments;
- Scientific evaluation of proposals;
- Monitoring of funded projects.

Since most European funding agencies incorporate gender equality at the programmatic level in their core documents, the gender perspective should be considered in all their activities. As in RPOs, gender equality policies need to be professional, consistent, sustainable and tailored to each RFO and its context. **Gender equality structures** (e.g., gender equality officers, committees, unit, etc.) **and mainstreaming, as well as organizational culture and training are priority areas on gender equality in RFOs that are shared with RPOs.** However, there are other lines of action which are specific for RFOs, such as the distribution of resources, the scientific evaluation and the monitoring and evaluation of funded projects.

The **distribution of R&I resources** refers to the core activity of RFOs: managing funds and calls for proposals in scientific fields and societal challenges. This includes both adequate funding of specific interdisciplinary research on gender in order to provide answers to current inequalities between women and men as well as ensuring adequate integration of the gender dimension in the research content as a cross-cutting issue in all the research fields. Funding priorities in R&I should take into account different interests and needs of women and men according to a Responsible Research and Innovation (RRI) perspective. The balanced composition of committees

Integrating the gender dimension in R&I content increases the overall quality and relevance of R&I by avoiding biased studies based on gender stereotypes and on the male default model. It fosters responsible research for sustainable future by improving R&I methods and outputs that take into account the needs and interests of the whole population.

Helsinki Group on Gender in R&I, 2017

“Think equal, build smart, innovate for change”.

Innovation and technology provide unprecedented opportunities [...]. From mobile banking to artificial intelligence and the internet of things, it is vital that women’s ideas and experiences equally influence the design and implementation of the innovations that shape our future societies.

UN Women theme for International Women’s Day 2019

and bodies also guarantees that women and men participate equally in the funding decision-making process.

The **scientific evaluation** of proposals submitted for applicants is another particular field for RFOs to regularly monitor for possible gender bias. The most important challenges in this regard are the introduction of gender-sensitive criteria to tackle the causes of the persistent leaky pipeline and the promotion of the integration of the gender dimension into the funded research content to produce a high quality knowledge that takes into account sex and/or gender differences when appropriate.

Monitoring of funded projects from a gender perspective is becoming a focus of attention. Gender indicators can be used as powerful monitoring tools both on the appropriate integration of gender analysis into research content where relevant, and on gender equality issues such as gender balance among main speakers in project dissemination and communication activities, proportion of women as first au-

thors of research papers, work-life balance measures for team members, etc.

Finally, there is also a new field where Funding Agencies can foster gender equality - **the business enterprise sector**. Public research funding goes to corporations where the proportion of women is lower than in universities and the public research sector, as shown in *She Figures 2015*. Additionally, the role played by women as users and consumers is too often neglected in the co-creation processes. This lack of gender diversity in the European Innovation sector requires a great deal of attention and action through public research funding.

Therefore, RFOs have a key role to foster participatory innovation projects that guarantee gender diversity and allow all segments of population benefit from innovation processes and outputs.

Furthermore, evidence shows that **companies with more balanced gender composition are more likely to innovate compared to those with high concentration of one gender**.

Promising practices among RFOs

Different funding agencies in Europe have pioneered the introduction of gender equality policies in their funding activities and scientific evaluation. A study conducted by Science Europe on the peer review processes and grant management practices in fifteen European RFOs has collected promising practices already in place:

- Gender-balanced composition of scientific evaluation panels and other bodies that take funding decisions.
- Advice by international gender experts to mainstream gender in the organization as well as external observers on evaluation panels, also known as “gender equality observations”.
- Unconscious bias training addressing scientific evaluation panels.
- Monitoring the success rates of men and women applicants among other gender indicators tailored to RFOs.
- Targets for women award holders and positive action ensuring that half of eligible applicants are women.

The Irish Research Council (IRC) has become a reference model for gender equality policies in RFOs. The idea behind this initiative is that gender equality will ensure excellence and maximise creativity and innovation in Irish research. The IRC Gender Strategy & Action Plan 2013-2020 focuses on four main lines of action: support for gender equality in research careers; integration of sex/gender analysis in research content; fostering structural change for gender equality; limiting the potential effect of unconscious gender bias on internal processes. In addition, the IRC is tying its funding for RPOs to holding the Athena Swan Bronze Institution Awards that recognizes a solid foundation for eliminating gender bias and developing a gender-sensitive, inclusive organizational culture, i.e. gender equality plan, diagnosis and structures.

The promotion of gender-diverse composition and balanced distribution of responsibilities and activities within research teams applying for project grants is another measure introduced by the Technology Agency of the Czech Republic through a so-called Gender-Matrix which has shown a positive impact.

Gender equality observations in evaluation panels were introduced in 2008 by the Swedish Research Council, leading to specific gender recommendations on the evaluation process.

Another recommended practice is the design of gender diagnosis reports tailored to RFOs as the one recently conducted by the Spanish State Research Agency with a mix-methods approach that combines



The European Research Council (ERC) shows the Institució CERCA video on unconscious bias to panel members and provides a briefing before remote evaluations and during in person meetings.



Moreover, the ERC has adopted positive action concerning maternity and paternity leaves: the eligibility window in case of mothers is extended by 18 months per child but for fathers it is only the period actually taken.

documental, qualitative and quantitative data with a resulting proposal of fields of action for designing its own gender equality strategy.

Beyond Europe, the Canadian Institutes of Health Research introduced years ago a mandatory requirement for applicants to explain the integration of sex/gender analysis into research (IGAR) in the content of submitted proposals. As a result, the CIHR found an increase in the IGAR performance of the health research they fund.

With regard to the innovation sector, the Swedish Innovation Agency VINNOVA has adopted a gender sensitive assessment process to ensure the highest level of innovation quality and relevance. Women's participation in innovation projects promoted through the overall target of 40% and preference to projects with similar ratings that show a better understanding of gender equality in the whole innovation cycle.

Recommendations for Funding Agencies

RFOs are in a privileged position to introduce measures with the aim to accelerate change in the three priority areas of the EC (research careers, decision-making and the integration of the gender dimension into research content). RFOs in Europe are expected to develop their own gender equality structures and strategies and to consider gender equality in their international cooperation agreements and activities.

Recommendations to **address RFOs structures and decision-making:**

- To establish sustainable and professional gender equality structures and to adopt comprehensive gender equality strategies with the advice of gender experts.
- To guarantee gender balance in funding decision-making bodies and scientific evaluation panels.

- To conduct gender equality impact reports and gender-sensitive budgeting.

Recommendations to **avoid gender bias in the research evaluation process:**

- To tackle the ideal of "objective" evaluators acting on rational arguments without cognitive bias by conducting regular training on gender stereotypes and unconscious bias and its monitoring and evaluation.
- To review the gender proofing of language of call texts with the aim to avoid sexist language and include gender-sensitive and work-life balance provisions.
- To explore how/if the use of new metrics impacts men and women researchers at different career stages and disciplines differently.
- To adopt multi-dimensional evaluation criteria that enhance openness and transparency (including visibility and open access to those research outputs with a gender dimension), and contribute in mitigating against gender bias in research assessment/evaluation procedures.
- To adopt evaluation criteria that take into account parenthood as a potentiality in researchers' lives.
- To foster women Principal Investigators of R&I projects through temporary special measures.
- To critically assess the negative impact on women researchers of informal practices and unstated evaluation criteria.
- To consider the adoption of double-blind review processes where possible in order to avoid gender bias in people-based funding mechanisms, instead of the best project.
- To collect sex-disaggregated data on applicants, average size of grants and review panels by scientific field and funding scheme as well as on

the composition of funding decision-making bodies, as recommended by Science Europe (2017).

- To ensure a gender balance among the nominees in prizes/scientific awards.

Recommendations to **promote gender in research and innovation content**:

- To allocate funds for specific programs on gender studies, aimed at fostering production of new knowledge for a better understanding of gender issues.
- To require grant applicants to indicate whether sex and/or gender are relevant to their research proposal and how the gender perspective will be integrated into the entire research or innovation cycle. When sex/gender analysis is not relevant for the field of study, an explanation should be given by applicants.
- To disseminate guidelines for grant applicants and peer reviewers/evaluators on the integration of the gender analysis into research content, and to support their engagement with gender experts.

The European Commission is the main R&I funder in Europe. Researchers from all EU countries are encouraged to participate in research project calls. Further recommendations for **the European Commission to become a reference model and supporter of gender equality policies in national funding agencies** include, as recommended by the former Helsinki Group (now ERAC Standing Working Group on Gender in Research and Innovation):

- Increasing gender knowledge and capacity building for key actors in the R&I funding process (advisors, National Contact Points, applicants, evaluators...).
- Monitoring of all gender-related actions and measures used in the Framework Programme.

H2020's approaches to gender mainstreaming and incorporating gender perspectives in research should be promoted as good practice in RFOs, RPOs and other international collaborations.

ERA Roadmap
2015-2020

Conclusions

GENDERACTION is committed to the creation of an ERA community to innovate policy implementation for gender equality. The RFOs are key agents in such a community.

Addressing gender bias in research evaluation is not just a matter of avoiding persistent unconscious bias by evaluators because how women's competences are perceived in the evaluation process is crucial. Funding agencies as organizations, and not only individuals as evaluators, are co-responsible actors in achieving gender equality and thus need to address structural changes in their processes, practices, cultures and structures.

Moreover, RFOs have a critical role in fostering responsible research for sustainable future by ensuring that the methods and outputs of funded projects integrate gender analysis and take into account the needs and interests of the whole population.

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