# GENDER EQUALITY IN ENGINEERING THROUGH COMMUNICATION AND COMMITMENT (GEECCO)

## WORK PACKAGE 7: Implementing Gender Equality in RFOs

# GUIDELINE FOR JURY MEMBERS AND REVIEWERS AND RESEARCH FUNDING ORGANISATIONS' EMPLOYEES

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# GEECCO – Gender Equality in Engineering through Communication and Commitment. In a Nutshell

Scientific and technological innovations are increasingly important in our knowledge-based economies. Today STEM (Science, Technology, Engineering, and Mathematics) is literally everywhere; it shapes our everyday experiences. With technologies we choose e.g. structures that influence over a very long time how people are going to work, communicate, travel, consume, and so forth.  It is thus both a question of competitiveness and justice, to achieve gender equity within science and technology institutions, including policy and decision-making bodies. GEECCO with its project lifetime from May 2017 to April 2021 aimed to establish tailor-made Gender Equality Plans (GEPs) in 4 European RPOs and to implement the gender dimension in 2 RFOs (funding schemes, programmes and review processes). All participating RPOs were located in the STEM (Science, Technology, Engineering, and Mathematics) field, where gender equality is still a serious problem and whose innovations are increasingly important in the knowledge-based economies.

GEECCO pursued the following objectives in order to enhance systemic institutional change towards gender equality in the STEM-field:

   (i)     Setting up change framework and a tailor-made GEP for each participating RPO;

   (ii)    Implementing gender criteria in the activities of RFOs;

   (iii)   Setting up a self-reflective learning environment in and between all RPOs und RFOs to participate from existing experiences and match them with their specific needs and circumstances.

   (iv)    Evaluate GEP implementation within the participating RPOs and RFOs with a quantitative evaluation using monitoring indicators and a qualitative monitoring to enhance and fine-tune implemented actions over the course of the project.

http://www.geecco-project.eu/

https://www.tuwien.at/tu-wien/organisation/zentrale-bereiche/genderkompetenz/gender-in-der-forschung/geecco-resultate

# Further resources developed by the GEECCO-project consortium

All public deliverables, resources and additional material can be downloaded on this website:
https://www.tuwien.at/tu-wien/organisation/zentrale-bereiche/genderkompetenz/gender-in-der-forschung/geecco-resultate

**Public deliverables (in order of the related work packages)**

- Postorino, Maria Nadia; Marino, Concettina; Suraci, Federica; Enzenhofer, Bettina; Lusa, Amaia; Costa, Carme Martínez; Pulawska-Obiedowska, Sabina (2018): Gender Analysis of Decision-Making Processes and Bodies. GEECCO. Gender Equality in Engineering through Communication and Commitment (a H2020 project).

- Postorino, Maria Nadia; Marino, Concettina; Suraci, Federica; Enzenhofer, Bettina; Lusa, Amaia; Costa, Carme Martínez; Pulawska-Obiedowska, Sabina (2018): Overview on Improvements and Procedures. GEECCO. Gender Equality in Engineering through Communication and Commitment (a H2020 project).

- Bryniarska, Zofia; Żakowska, Lidia; Enzenhofer, Bettina; Postorino, Maria Nadia; Marino, Concettina; Lusa García, Amaia (2018): Current Status of Women Career Development. GEECCO. Gender Equality in Engineering through Communication and Commitment (a H2020 project).

- Enzenhofer, Bettina; Lusa García, Amaia; Sarnè, Giuseppe; Żakowska, Lidia (2020): Overview on How to Increase Female Visibility. GEECCO. Gender Equality in Engineering through Communication and Commitment (a H2020 project).

- Knoll, Bente; Renkin, Agnes (2018): Analysis of Current Data on Gender in Research and Teaching. GEECCO. Gender Equality in Engineering through Communication and Commitment (a H2020 project).

- Ratzer, Brigitte; Burtscher, Sabrina; Lehmann, Tobias; Mort, Harrie; Pillinger, Anna (2020): Enhanced Gender Knowledge and New Content. GEECCO. Gender Equality in Engineering through Communication and Commitment (a H2020 project).

- Ratzer, Brigitte; Enzenhofer, Bettina (2019): Integrating Gender Dimensions in the Content of Research and Innovation. An Exhibition. GEECCO. Gender Equality in Engineering through Communication and Commitment (a H2020 project).

- Lasinger, Donia; Nagl, Elisabeth; Dvořáčková, Jana; Kraus, Marcel (2019): Best Practice Examples of Gender Mainstreaming in Research Funding Organizations. GEECCO. Gender Equality in Engineering through Communication and Commitment (a H2020 project).

- Dvořáčková, Jana; Navrátilová, Jolana; Nagl, Elisabeth; Lasinger, Donia (2020): Guideline for Jury Members, Reviewers and Research Funding Organizations' Employees. GEECCO. Gender Equality in Engineering through Communication and Commitment (a H2020 project).

- Lasinger, Donia; Nagl, Elisabeth; Dvořáčková, Jana; Kraus, Marcel (2020): Overview and Assessment of Gender Criteria for Funding Programmes. GEECCO. Gender Equality in Engineering through Communication and Commitment (a H2020 project).

- Kraus, Marcel; Dvořáčková, Jana; Lasinger, Donia (2021): List of Principles of Communication of Gender Criteria. GEECCO. Gender Equality in Engineering through Communication and Commitment (a H2020 project).

- Mergaert, Lut; Allori, Agostina; Ratzer, Brigitte; Enzenhofer, Bettina; Lusa García, Amaia; Marino, Concettina; Zakowska, Lidia; Bryniarska, Zofia (2020): Tailor-made Gender Equality Plans (GEP version 3.0). GEECCO. Gender Equality in Engineering through Communication and Commitment (a H2020 project).

- Knoll, Bente (2021): Dos and Don'ts while Degendering the STEM Field. Learning Experiences of Four European Universities and Two European Research Funding Organisations. GEECCO. Gender Equality in Engineering through Communication and Commitment (a H2020 project).

- Mergaert, Lut; Knoll, Bente; Renkin, Agnes (2021): Final Report on Supporting Activities. GEECCO. Gender Equality in Engineering through Communication and Commitment (a H2020 project).

- Jorge, Irene (2021): Implementation of Dissemination Activities. GEECCO. Gender Equality in Engineering through Communication and Commitment (a H2020 project).

- Jorge, Irene (2021): Engagement Activities. GEECCO. Gender Equality in Engineering through Communication and Commitment (a H2020 project).

- Lipinsky, Anke; Schredl, Claudia: Final Evaluation Report. GEECCO. Gender Equality in Engineering through Communication and Commitment (a H2020 project).

## Additional resources and literature reviews

- Knoll, Bente; Renkin, Agnes; Mergaert, Lut (2020): Additional resources (living document). GEECCO. Gender Equality in Engineering through Communication and Commitment (a H2020 project).

- Burtscher, Sabrina (2019): Literature Review: Gender Research in Human Computer Interaction. GEECCO. Gender Equality in Engineering through Communication and Commitment (a H2020 project).

- Pillinger, Anna (2019): Literature Review: Gender and Robotics. GEECCO. Gender Equality in Engineering through Communication and Commitment (a H2020 project).

- Mort, Harrie (2019): A Review of Energy and Gender Research in the Global North. GEECCO. Gender Equality in Engineering through Communication and Commitment (a H2020 project).

- Lehmann, Tobias (2020): Literature Review: Gender and Mobility. GEECCO. Gender Equality in Engineering through Communication and Commitment (a H2020 project).

## Explanatory videos (available on Youtube)

- Ratzer, Brigitte; Enzenhofer, Bettina (2019): Humans & Computers. Video produced under GEECCO. Gender Equality in Engineering through Communication and Commitment (a H2020 project). Available online at https://www.youtube.com/watch?v=vrWx91RdmGo, checked on 4/30/2021.

- Ratzer, Brigitte; Enzenhofer, Bettina (2019): Robots in our society. Video produced under GEECCO. Gender Equality in Engineering through Communication and Commitment (a H2020 project). Available online at https://www.youtube.com/watch?v=bfXr29VAuwU, checked on 4/30/2021.

- Ratzer, Brigitte; Enzenhofer, Bettina (2020): Energy for all. Video produced under GEECCO. Gender Equality in Engineering through Communication and Commitment (a H2020 project). Available online at https://www.youtube.com/watch?v=tIwrgsNVfW8, checked on 4/30/2021.

- Ratzer, Brigitte; Enzenhofer, Bettina (2021): Mobility for all. Video produced under GEECCO. Gender Equality in Engineering through Communication and Commitment (a H2020 project). Available online at https://www.youtube.com/watch?v=oMIfoI5-14M, checked on 4/30/2021.

- Ratzer, Brigitte; Enzenhofer, Bettina (2021): Inclusive design – why intersectionality matters. Video produced under GEECCO. Gender Equality in Engineering through Communication and Commitment (a H2020 project). Available online at https://www.youtube.com/watch?v=U4eRb1NM21A, checked on 4/30/2021.

## Evaluation and monitoring tutorials

Anke Lipinski and Claudia Schredl, both from GESIS, developed five online evaluation and monitoring tutorials.

1. GEECCO Data Monitoring Tool
2. GEECCO Infographic: Gender Equality Approaches and Their Impact on GEP Implementation
3. GEECCO Infographic: SMART Gender Equality Objectives
4. GEECCO Explainer Video: Gender Equality Plans in Technical Universities and the Use of Logic Models
5. GEECCO Log Journal

These tutorials can be downloaded on this website:
https://www.tuwien.at/tu-wien/organisation/zentrale-bereiche/genderkompetenz/gender-in-der-forschung/geecco-resultate

## Document versions

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# ABOUT THE GEECCO PROJECT

GEECCO aims at establishing and implementing tailor-made Gender Equality Plans (GEPs) in 4 European research performing organizations (RPOs) and to implement the gender dimension in 2 research funding organizations (RFOs). All participating RPOs are active in the STEM (Science, Technology, Engineering, and Mathematics) field, where gender equality is still a serious problem and whose innovations are increasingly important in the knowledge-based economies. It is thus a question of excellence, competitiveness and justice to achieve gender equity within STEM-institutions, including policy and decision-making bodies. Concerning the gender dimension in research programmes, RFOs are the key to substantial changes and thus a crucial part of the aspired transformation. GEECCO will pursue the following objectives in order to enhance systemic institutional change towards gender equality in the STEM-field:

(i)      Setting up change framework and a tailor-made GEP for each participating RPO;

(ii)      Implementing gender criteria in the activities of RFOs;

(iii)      Setting up a self-reflective learning environment in and between all RPOs und RFOs to participate from existing experiences and match them with their specific needs and circumstances. Facilitators will build up appropriate communication structures and processes within the RPOs and RFOs. They will enable the RPOs and RFOs to help themselves in the longer term dealing with internal resistances against gender equality.

(iv)      Evaluate GEP implementation within the participating RPOs and RFOs with a quantitative evaluation using monitoring indicators and a qualitative monitoring to enhance and fine-tune implemented actions over the course of the project.

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## ABOUT THIS DOCUMENT

This document was produced within work package 7, "Implementing gender equality in RFOs", of the H2020 funded project GEECCO – Gender Equality in Engineering through Communication and Commitment. It provides guidelines for research funding organizations' employees and evaluators of research proposals (peer reviewers and members of evaluation committees and panels) on promoting gender equality in the evaluation process. The first part of these guidelines offers a set of practical recommendations concerning activities that strengthen gender balance among peer reviewers and members of committees and boards involved in the evaluation of research proposals. Special attention is devoted to the underrepresentation of women in the evaluation process, which is typical for STEM fields. The second part intends to provide guidance about increasing gender sensitivity and diversity awareness in evaluation of research proposals. It focuses on elimination of unconscious gender and other biases, the importance of accounting for career breaks (related to family leaves, but also other factors) and on possible revisions of common performance indicators (as they may be gendered to some extent). Each part of the guidelines is preceded by a short introduction to existing research evidence and data, policies or examples of measures already implemented by selected funding organizations.

# 1   INTRODUCTION

The proportion of women in science has been unsatisfactory throughout all European countries. Even if women form more than half of university students across disciplines (amounting to 54% of all tertiary level students in EU-28 in 2016), their numbers start to decrease at higher stages of their career. The proportion of women continuing in doctoral studies is lower than that of men in all disciplines and the leaky pipeline becomes even more obvious at postdoctoral level (46% of women) and later through the career, with 40% women at mid-career level and 24% at senior level (European Commission 2019).

In the so-called **STEM fields** (natural sciences, technology, engineering and mathematics), on which the GEECCO project and these guidelines are mainly focused, the situation is even more imbalanced: 39% women among graduates at doctoral level, 35% at postdoctoral level, 28% at mid-career and 15% at senior level. More concretely, in engineering and technology, the share of women at senior level was 12% (European Commission 2019).

The reasons behind this situation and waste of talent have been widely discussed. Its roots can be seen in different socialization of girls and boys, as well as in culture and structural settings of higher education and research institutions (such as gender stereotypes and gender bias, which are projected into recruitment and promotion, barriers to work-life balance, gendered impacts of precarious academic work, etc.). Due to the **increased role of competitive funding** in the field of research, this state of affairs can be to a great extent attributed also to research funding organizations (RFOs).

There is **a persistent gender gap in the success rates of researchers attempting to obtain research funding** in most European countries (European Commission 2019). Women have lower success rates, especially when applying for high prestige awards or higher volumes of funding (European Commission 2009). Various studies point to **gender biases in evaluation**. There seems to be a general pattern: women need to have better research results or more results to be evaluated as equally qualified as men (cf. Wenneras, Wold 1997; Steinpreis, Anders, Ritzke 1999; Kaatz, Gutierrez, Carnes 2014; Van der Lee, Ellemers 2015; Helmer et al. 2017; Witteman et al. 2019).

The following pages aim to offer contextualized guidelines, whose systematic implementation by RFOs can contribute to the improvement of the situation described above and increase opportunities for women in science. **These guidelines focus on the two following areas:**

1. The first part, intended mainly for RFOs management, administrators responsible for the evaluation process and RFOs' gender experts, offers a set of practical recommendations concerning activities that strengthen **gender balance among peer reviewers, members of evaluation committees and boards involved in the evaluation of research proposals.** Special attention is devoted to the underrepresentation of women in the evaluation process, which is typical for STEM fields. Even though increasing the share of women among peer reviewers does not automatically decrease gender bias, as both men and women tend to undervalue women's accomplishments (European Commission 2009, Vernos 2013), it can improve the situation of women indirectly. It enhances women´s experience with grant application systems, equips them better for competition and offers them opportunity of networking (Husu 2004; European Commission 2009). It is a matter of justice in decisions

concerning resource distribution, and it also has a fundamental importance at symbolic level: it sends a clear message that women are part of the system (European Commission 2009). This is also significant because, among other things, women are underrepresented among grant applicants (European Commission 2019).

2. The second part of the guidelines is intended for RFOs' management, administrators responsible for the evaluation process, peer reviewers and evaluators. It intends to provide guidance about **increasing gender sensitivity and diversity awareness in assessment and evaluation of research proposals**. That is why the main focus will be on sensitivity towards unconscious gender and other biases. Concrete strategies and techniques will be presented, which can help RFOs and individual evaluators to support just evaluation of project quality and prevent irrelevant characteristics of applicants to enter the evaluation process.

Each part of the guidelines is preceded by a short introduction to existing research evidence and data, policies or examples of measures already implemented by selected RFOs. The aim of this contextualization is not only to provide a more in-depth understanding of the topics, but also to offer an argumentation basis for communicating the steps to be implemented within funding organizations – to facilitate the implementation process.

## 2   GENDER BALANCE AMONG PEER REVIEWERS AND IN EVALUATION COMMITTEES

The proportion of women in research and innovation remains small in most scientific fields. However, it is **considerably smaller in science, technology, engineering and mathematics**. This field-related disproportion is projected also in the representation of women in senior and decision-making positions, where it is further intensified (European Commission 2019).

As far as the representation of women among reviewers and in evaluation committees and juries is concerned, no systematic data overview that would cover directly these groups exist. Nevertheless, as a rough indicator of women's overall representation in these bodies, data from *She Figures 2018* (European Commission 2019) on the presence of women on boards such as scientific or R&D commissions, councils, committees, foundations or academic assemblies[1] can be used. According to these data (from 2017), **women were seriously underrepresented in the scientific boards in most EU countries:**

- Only in 9 out of the 32 countries with available data women constituted at least 40% of board members (Norway, Luxembourg, Sweden, Romania, Bulgaria, Iceland, Finland, Ireland, and Slovenia).
- In 9 other countries the share of women in scientific boards was over 30% (Spain, Austria, Malta, France, Netherlands, Denmark, Latvia, Portugal) and in 8 countries between 20-30% of women in scientific boards (Bosnia and Herzegovina, Switzerland, Hungary, Israel, Poland, Slovakia, Germany, Italy).
- In 6 countries there were less than 20% of women in scientific boards (Belgium, Czech Republic, Greece, Estonia, Cyprus, and Croatia).
- Even lower was the proportion of women among board leaders. Women represented 20% of board leaders in the EU and 15 countries either have no women or less than 20% of women among board leaders.

As the report *The Gender Challenge in Research Funding* (from 2009) has found out, **the smallest proportions of women** can be found among members of **technological and engineering research councils, and evaluation panels and reviewers in these fields** (European Commission 2009).

With the aim to tackle the gender imbalance, some countries set the minimum share of the underrepresented sex in the above-mentioned bodies **by law**. In others, institutional policies have been introduced – research **funding organizations set their own goals** for equal representation of women and men among the evaluators of funding applications (for a more detailed overview, please see p. 15-16). Why is a balanced representation of men and women in evaluation committees and among reviewers important and why should active steps be taken in this regard? Can a balanced share of women and men in evaluation committees and among reviewers positively affect the share of female scholars? What kind of practice can a research funding organization adopt to attain gender balance in evaluation committees and among reviewers? These, and other questions, will be discussed in the first part of this guideline.

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[1] This rough indicator (including not only bodies of funding organizations) was previously used by the publication *The Gender Challenge in Research Funding* (European Commission 2009), which drew from the data in *She Figures 2006* (European Commission 2006).

## 2.1 THE BENEFITS OF GENDER BALANCE AMONG PEER REVIEWERS AND IN EVALUATION COMMITTEES

In most countries, women continue to be represented in evaluation committees and among reviewers in a proportion that does not correspond to their share in population. In fact, it often is significantly lower than their share in the given disciplines (European Commission 2019). What can this situation lead to and why is effort to change it meaningful? Literature on this topic stresses mainly the following arguments:

- A corresponding share of women is a question of **justice** and **democratic management of science**. Women represent half of the population, and that is why they should take part in decision-making about the distribution of resources, especially public resources. Moreover, the opportunity to participate in reviewing research proposals means collaborating on setting the standards for scientific excellence.

- The possibility to take part in the evaluation process is beneficial for the careers of individual evaluators. It **offers an opportunity to get a glimpse in the backstage processes of funding organizations and evaluation**, and get familiar with expected standards and adapt one's future work (e.g. grants submitted in the future). Besides, it supports networking (European Commission 2009, Husu 2004).

- It has been repeatedly studied whether greater balance in evaluation bodies impacts on the contents of decisions. Even if women may have different life experiences in some aspects and their inclusion can broaden the points of view in the discussion; in general, women's views vary as men's do, and any significant impact of a higher share of women on evaluation is not probable. Specifically, **research has tried to determine whether gender balance in evaluation bodies helps to eliminate gender bias in evaluation processes** (and thus results in greater success rate of women applying for funding). However, this assumption **has not been confirmed** (European Commission 2009, Vernos 2013), even though current research evidence is to a certain extent inconclusive (Wallon, Bendiscioli, Garnkel 2015). To eliminate gender bias, increasing the share of women participating in the evaluation process should be accompanied by anti-bias trainings (please see p. 27).

- A balanced share of women and men in evaluation committees can indirectly **contribute to increasing the share of women among grant applicants**, since **the balanced composition sends a message that women are full members of the system** (European Commission 2009). Women-applicants may be attracted by the very fact that a funding organization actively works to ensure the balance between men and women participating in the evaluation process, by its **image as an organization invested in gender equality**.

- In case of a low share of women in evaluation committees, **the problem of "tokenism"** has been pointed out. Women in "token" positions, i.e. symbolic representatives of their gender group, are more visible as a result of their minority status, and thus more susceptible to the effects of gender stereotypes. They experience performance pressure and isolation, which can inhibit their behaviour. These negative effects can be mitigated by reaching a certain minimum share of women in a group, i.e. so-called **critical mass, which is usually set at 30%**.

Increasing the share of minority group members also strengthens the ability of this group to take part in effective negotiations (Wallon, Bendiscioli, Garnkel 2015).[2]

## 2.2 FORMS OF RECRUITMENT OF PEER REVIEWERS, EVALUATION COMMITTEES AND BOARD MEMBERS AND WHY WOMEN ARE MISSING

Based on the data from *She Figures 2018* (European Commission 2019), the share of women involved in the evaluation process seems to be lower than the number corresponding to their – often very low – share in relevant scientific disciplines. To suggest possible measures that could help to increase the share of women among evaluators, it is necessary to examine how peer reviewers and members of evaluation committees are being recruited at present and **identify the sources of the current problematic situation**.

The report *The Gender Challenge in Research Funding* (European Commission 2009), which was compiled by an EU expert group set up by the European Commission and has collected data on 33 countries, points out **significant differences in mechanisms of proposals evaluation** and in the number of evaluation levels in the studied countries. It has also identified **different ways of recruitment into the pools of peer reviewers and evaluation committees**. Naturally, these different arrangements are to a varying degree open to possible interventions of individual research funding organizations.

### Bodies involved in the evaluation of project proposals

Diverse research funding organizations have differing numbers of evaluation levels and diverse relations among evaluation bodies. Everywhere, a certain form of **peer review** and individual reviews (remote electronic evaluation) are used, usually accompanied by **evaluation committees** (groups of experts who collectively reach an agreement on the evaluation for all proposals within a call). In most cases, evaluation is based on the submitted documents; however, in some countries, also discussions and interviews with the applicants are used. The last element involved in the selection of projects for funding are **boards of funding organizations**. These often take the final decision, which draws on the recommendations of evaluation committees and/or external reviewers. As the authors of the report noted, the boundaries between decision-making and evaluation are sometimes not clear and boards can to some extent participate in the evaluation process (European Commission 2009).

### Forms of recruitment

The report authors conclude that **the criteria for selecting the members of evaluation bodies are often not clear**. In case of a whole range of funding organizations, also the mechanism of assigning project proposals to individual peer reviewers is not transparent. When recruiting members of evaluation bodies, organizations sometimes employ **broad consultations with stakeholders,**

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[2] The discussion on this topic started in studies by R. M. Kanter (1977a, 1977b) and D. Dahlerup (1988) focusing on the experience of women as minorities in the corporate and political spheres. A detailed overview is given in Childs and Krook (2008).

**nomination procedures or elections**. Alternatively, **on-line application** is used. The final selection is usually performed by the organization board. In some cases, the process of selection is less transparent – peer reviewers and members of evaluation committees are **chosen based on their field knowledge and networks by administrators, evaluation coordinators or rapporteurs**. Sometimes, members of evaluation committees are hired for a single call, or otherwise, they can be chosen for a longer period of time (they can also become stable members of the pool of reviewers). Some organizations share their pool of peer reviewers with others, and some have access to the European Commission evaluator pool. Certain diversity exists also in the forms of recruitment of the **board members** of research organizations. Usually, they are nominated by the government or appointed by the relevant ministry based on the **recommendation of relevant actors, such as higher education institutions and research institutes**; alternatively, they are directly **elected** by the research community (European Commission 2009).

**Possible causes for lower participation of women**

As is it evident from what was mentioned above, an important aspect in the selection of members of evaluation bodies is that they are **nominated or suggested representatives of academia or selected and addressed by administrators or evaluation coordinators** from research funding organizations. In some countries, however, one can actively apply to become a peer reviewer or evaluation committee member. The final decision is usually up to the funding organizations and their boards.

Even if previous experience with research must play an important role, the process does not seem to be based on an explicit ranking of achievements of possible candidates, but **offers space for influence of so-called old boys' networks and implicit gender bias**. Often, performance of men and women is assessed differently (e.g. Heilman, Haynes 2008; Kaatz et al. 2014), due to expectations about different capacities of men and women that are deeply rooted in our societies. **The image of a proper scientist has an implicit male pattern.** It is fulfilled by a person with qualities typically attributed to men (self-confidence, ambition, competitiveness), by someone who is not burdened by care for children or other relatives, does not have gaps in their career, someone who can devote to work in any time and be mobile (van den Brink, Benschop 2011). This notion can play a role in the nomination and selection process, which could explain the low share of women in evaluation bodies (not corresponding to their share among qualified scholars – mainly grade A and B – working in the given fields).[3] There also might be a tendency to select persons who are in leading positions, which strengthens existing gender imbalances.

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[3] *She Figures* (European Commission 2019: 190) distinguishes four grades of seniority. A: The single highest grade/post at which research is normally conducted within the institutional or corporate system; B: All researchers working in positions which are not as senior as the top position (A) but definitely more senior than the newly qualified PhD holders (C); C: The first grade/post into which a newly qualified PhD graduate would normally be recruited within the institutional or corporate system; D: Either postgraduate students not yet holding a PhD degree who are engaged as researchers (on the payroll) or researchers working in posts that do not normally require a PhD.

## 2.3 EXISTING POLICIES AND MEASURES AIMED AT SUPPORTING GENDER BALANCE IN RESEARCH EVALUATION

### 2.3.1 QUOTAS, TARGETS AND OTHER SUPPORTIVE MEASURES

One – yet not the only – of the general mechanisms that can help to increase the share of women in evaluation committees and boards of funding organizations, are quotas and targets. While quotas set the indisputable final proportion of women that has to be reached, and often are accompanied by pre-defined sanctions, targets are rather aspirational goals and are not related to clear sanctions. Both variants **can be embedded legislatively, or imposed by organizations as internal measures**. Currently, quotas or targets are mostly implemented through law or wider national strategies for gender equality and are **primarily applied to the boards of funding agencies**; evaluation committees are far less noted (European Commission 2018).

The quotas and targets in RFOs are **usually set between 20–50%**. Even if generally the already mentioned **30% critical mass threshold** (considered as precondition for forming a critical mass of underrepresented sex that can effectively participate in negotiations) is often the aim, in fields related to research **in STEM fields it cannot be introduced immediately, and thus gradual steps are taken** (please see p. 16-17).

Wallon, Bendiscioli and Garnkel (2015) tried to answer the question what recommendations the sphere of academia and research can take from already existing experience in politics and the corporate world, and they pointed out the unambiguous effectivity of these measures. However, quoting the study of Dahlerup and Freidenvall (2010), they emphasised that **the effectivity of quotas is conditioned by clearly defined sanctions** that follow if the quota is not fulfilled. These sanctions must be **strong enough**.[4] This is also true for incentives that should assist in reaching the set targets, which need to be perceived as attractive enough.

However, to be effective, targets need to be **accompanied by other supportive measures** that open the environment to women's presence and serve as incentives for women to aspire to positions in boards and committees. At the same time, it is necessary to continuously evaluate how the targets are being reached and to set concrete bodies or persons responsible for the progress and activities that follow in case the targets are not met.

Quota policies, be it in politics, business or any other area, have inspired widespread **criticism**, mostly aimed at the fact that using quota is non-meritocratic. A frequently cited argument is that less qualified women take places of more qualified men, and thus quotas undermine the quality of outcomes. Nevertheless, similar arguments are used in case of any affirmative action. The assumption is problematic in its very fundament: women represent half of the population, and there is no reason to expect that their abilities and competencies are lower than those of men. The existing imbalance should be seen as a result of structural obstacles that women face in their career development.

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[4] As an example of insufficient sanctions, the authors (referring to Murray 2012) stated, for example, the 50% legislative gender quota for candidate sheets of political parties approved in France in 2000. Financial sanctions were so low that political parties decided to pay them rather than make an effort at activities that would lead to fulfilment of these quotas.

The possible negative effects of various affirmative actions on the quality of outcomes have not been confirmed by any research study. For example, a comprehensive British research comparing electoral performance, qualification for office and legislative careers and behaviour among elected representatives found **no significant difference in the quality of quota-elected female legislators and their non-quota colleagues** (Allen et al. 2016). Another large quasi-experimental analysis examining the effect of the zipper quota adopted by Sweden's largest political party disproved that electoral affirmative action would have a trade-off effect (O'Brien, Rickne 2016). Similarly, Besley et al. (2017), analysing the effect of zipper quota on the lists of political parties, came to conclusion that **quotas actually improve the competence of a whole group, because they reduce the share of mediocre men as a result**.

Moreover, as it was noted by Rice (2014a, 2014b), various studies (Balafoutas, Sutter 2012; Stark, Hyll 2014; Villeval 2012) have shown that **affirmative action has the potential to support highly qualified women to aspire to position**, which they otherwise would not have chosen in anticipation of failure. This can result in attracting further qualified candidates both among women and men. On the other hand, women who are appointed or nominated in relation to an affirmative action can feel certain stigma, resulting from the above-mentioned assumption that affirmative measures intervene into a supposedly meritocratic process.

Another possible pitfall mentioned by Wallon, Bendiscioli and Garnkel (2015) in relation to academic institutions is the fact that reaching a certain predefined proportion of underrepresented sex can be **unrealistic for some institutions**. This objection is relevant for institutions or bodies connected to **STEM fields**. Even if the situation in these fields is more difficult, there are technical options how to reach a more balanced representation of men and women – be it through targets, quotas or other supportive measures (for a more detailed description of possible variants, please see p. 19-21).

### 2.3.2 EU POLICIES FOCUSED ON SUPPORTING GENDER BALANCE IN RESEARCH EVALUATION

The European Commission adopted a gender mainstreaming approach in 1996 and all policies since have included an integrated gender equality objective. Under the contemporary framework for R&I support, **Horizon 2020**, the European Commission set the target to **40% participation of the underrepresented sex in its panels and 50% in advisory groups**. In addition, all panels and committees should have at least one gender expert. Besides, all evaluators should be briefed on gender in research content (European Commission 2015). The 40% target has replaced the earlier "critical mass" target set to 30%. As it is sometimes argued, the shift to 40% proportion further strengthens the position of women, as their marginalization becomes difficult (He, Kaplan 2017).

Gender equality and gender mainstreaming in research are among the six ERA priorities. Part of the ERA Communication (2012: 12-13) priorities related to gender was to "ensure that at least 40% of the underrepresented sex participate in committees involved in recruitment/career progression and in establishing and evaluating research programmes". However, this goal fits the gender balance in project evaluation only indirectly. In order to reach progress in all ERA Communication priorities, a set of recommended concrete activities was created for the Member States (European Commission 2013), which mentions gender balance (in the form of **40% representation**) more explicitly, namely **in the field of grant evaluations**.

In 2015, the European Council endorsed the ERA Roadmap 2015-2020 to guide EU countries in structuring their implementation of the ERA priorities at national level. Member States and Associated Countries have been called to implement the ERA roadmap through appropriate measures in ERA national action plans and strategies. In 2017 the GENDERACTION (2018) project launched a survey among members of the Standing Working Group on Gender in Research and Innovation to collect information on the implementation of the national action plan. It was found out that the **policies and efforts in most countries have only rarely focused on research funding organizations**. Only in five of them the share of women in decision making (e.g. scientific or administrative board members, head of committees) have been monitored.

### 2.3.3  NATIONAL POLICIES FOCUSED ON SUPPORTING GENDER BALANCE IN RESEARCH EVALUATION

Last but not least, as a framework for operation of RFOs, which influences their steps in the field of gender balance, national policies must be mentioned. Even if targets or quotas are not the only tool for increasing gender balance in the area of research evaluation, they can be seen as the most effective tool. As it is currently stated in the publication *Guidance to facilitate the implementation of targets to promote gender equality in research and innovation* (European Commission 2018: 3), **the implementation of quotas and targets through law or wider national strategies for gender equality enhances their effectiveness**. However, as it has been already mentioned, **at present these** quotas or targets **concern mainly the highest hierarchical level of evaluation**, which participates in the evaluation only formally – such as boards of funding agencies. Evaluation committees are covered to a lesser extent.

Examples of concrete measures:

- At present, policies of this kind exist for example in **Denmark**, where boards of public councils (e.g. boards of research funds), which members are named by ministries, must have a balanced proportion of women and men. If a new position is being filled, authorities and organizations must suggest candidates of both sexes (European Commission 2018).

- A similar measure has been adopted in **Norway**. The Norwegian Gender Equality Act obliges public institutions to have **at minimum a 4:6 ratio** of the sexes on boards and panels or in committees (GENDER-NET 2015). Nominations for boards have to include both sexes (European Commission 2018).

- The composition of the **Academy of Finland**'s scientific councils and committees and the Academy Board are subject to the quota rule, which states that in government and public administration, both women and men shall have a representation of at least **40%** (Academy of Finland 2019).

- In **Spain**, the Law on Science, Technology, and Innovation requires gender balance in all research and innovation decision-making bodies, committees and boards (European Commission 2018; Wallon, Bendiscioli, Garnkel 2015).

- In **France**, the so-called Law "Sauvadet" on the reduction of precariousness and professional equality between women and men (2012) introduced a **40% quota** for the underrepresented sex in public service positions, including boards of public institutions (GENDER-NET 2015).

- A balanced proportion of women and men in boards of research funds has to be kept also in **Iceland**, where the members are appointed by a minister. Public funds providers should simultaneously monitor balance of expert councils (European Commission 2018).

### 2.3.4 EXAMPLES OF MEASURES SUPPORTING GENDER BALANCE IN RESEARCH EVALUATION AT THE LEVEL OF INDIVIDUAL RFOs

Unsurprisingly, an active approach of RFOs in the area of gender mainstreaming can be observed **mainly in countries, where this issue has a clear political support**. RFOs from these countries can be seen as gender equality leaders in the sphere of research funding, who strive for greater gender balance both in their grant policies as well as in their systems of evaluation and decision making. Nowadays, a whole range of RFOs publishes gender equality strategies on their websites, binding their organizations to reach certain targets in evaluation bodies. Concrete ways and practices through which they want to reach the set targets, including possible supporting measures, are not described in such detail.

Concerning organizational **boards**, which usually are the last link in the evaluation chain making final decision (while drawing on recommendations of evaluation commitees and/or external reviewers), RFOs have only little influence on the gender balance. Their members are usually appointed by government or related ministries based on nominations or choices of the academic community (European Commission 2009). If RFOs want to enforce activities in this area, they need to act with the support in national laws and policies. A larger space for RFOs (even if also these can be partly regulated by national laws) opens at the level of filling positions in **evaluation committees** and recruiting **reviewers**:

- For example, the **Science Foundation Ireland** (SFI) has committed to achieving a representation of **40%** of each gender on assessment panels by 2020, in both sitting and remote **panels**, and **among remote reviewers**. One of the concrete measures for achieving a higher proportion of women and other underrepresented groups (reviewers in senior age or with disabilities), who can have limited capacity of travelling, is the upgrade of **IT tools to facilitate remote participation** of panel reviewers (Science Foundation Ireland 2016: 6).

- **The Swedish Research Council** (SRC) aims to maintain a balanced share in its evaluation committees, with a minimum of **40%** of each sex. Emphasis is put also on **balance among chairs**. Supportive measures include a rule that in case balance is not reached, this fact has to be stated in the decision-making material, where it has to be duly justified and actions taken to achieve an equal gender distribution must be named (Swedish Research Council 2014). The gender distribution of evaluation committees is included in the research council's annual report to the government, which underlines the important role of political backing in realizing measures supporting gender balance.

- The rule of **40%** proportion of underrepresented sex is applied also in case of membership in all assessment bodies or committees in the **Irish Research Council** – IRC (Irish Research Council 2013: 9), in the Swedish governmental innovation agency **Vinnova** (Lasinger, Nagl 2019), or in case of committees, groups and panels appointed by **NordForsk** providing funding for Nordic research (European Commission 2018).

- To cross the current **30%** proportion of underrepresented sex among reviewers (both remote reviewers and members of evaluation committees) is a goal set by **Volkswagen Foundation**. Similarly, the **Austrian Academy of Sciences** – OeAW wants to attain at least 30% representation of both sexes on its panels, including committees and commissions awarding fellowships and prizes (Lasinger, Nagl 2019).

- Similar initiatives have been observed in other organizations, such as the **German Research Foundation** – DFG (German Research Foundation 2018) or in **the Luxembourg National Research Fund** – FNR (2018).

- **A gradually increasing target** – to reach 20% share of women on committees and panels in 2016, and 30% in 2020 – has been set by the **Natural Sciences and Engineering Research Council of Canada** (NSERC) within its Framework on Equity, Diversity and Inclusion (NSERC 2019). The relatively lower aim is related to a more difficult acquisition of women members in **STEM fields**, where NSERC works. Besides efforts to increase gender balance, NSERC is also concerned with **other aspects of diversity**. It collects self-identification data from all applicants and committee members concerning age, gender, indigenous identity, and status as a member of a visible minority group or person with a disability. It is a tri-agency commitment, implemented together with the Social Sciences and Humanities Research Council (SSHRC) and the Canadian Institutes of Health Research (CIHR). This data collection process aims at monitoring the equity performance of funding programmes and designing new measures that achieve greater equity, diversity and inclusion in research.

### 2.3.5 STRATEGIES SUPPORTING GENDER BALANCE APPLIED IN FIELDS WITH A LOW SHARE OF UNDERREPRESENTED SEX

Documents of some RFOs explicitly name as a problematic fact that in case of some evaluation committees and review processes focused on **STEM fields, the targets set for the underrepresented sex are hard to reach**. For example, the DFG monitoring report on gender equality from 2018 (DFG 2018) mentions that despite efforts undertaken its share of women evaluators in engineering stays around 8% and the share of women in program panels (committees for oral evaluation and decision) is also very low. The report ascribes the slow speed of changes partly to the age structure of expert bodies. Difficulties with reaching the set targets have been mentioned also by the Volkswagen Foundation (Lasinger, Nagl 2019) and the Swedish Research Council (2014). They agree that there is **a risk in repeated use of some experts who represent a given minority** in their fields to reach a desired balanced share, while **overloading these experts** with evaluation work.

What other strategies can RFOs use to support their efforts at increasing the gender balance? As it has been already mentioned, one possibility is a temporary choice of "less ambitious targets". In connection with the **university sector**, the so-called **cascading model** has been discussed. This

model tries to set realistic targets based on real shares of an underrepresented sex in individual disciplines. The proportion that a minority group should have, is derived from the ratio of women to men in the career level immediately below.[5] This model has been used in Sweden since the late 1990s. Nevertheless, this model is **problematic because the determination of numbers is not as straightforward an operation** as it might seem, and also because it can to a certain extent help in maintaining the existing state of affairs (Wallon, Bendiscioli, Garnkel 2015). In a more general way, setting targets based on the proportions of women and men in a respective scientific discipline is sometimes called **"dynamic quota"** (see, e.g., European Commission 2017).

In any case, RFOs can use the above-mentioned mechanism only to a limited extent, because it is not clear from what values the targets should be derived (it could be the share of female graduates in Ph.D. fields of a given discipline or of junior researchers, but concerning the often international composition of committees, it should be considered whether to draw on national or international data). Furthermore, the situation gets complicated by the fact that commitees do not always respect disciplinary divisions.

An important tool of real change are various **supportive measures**. We have already mentioned the effort of the Science Foundation Ireland to increase participation of women (and also of other groups) through the development of **IT tools to facilitate remote participation in panels** for members whose capacities can be limited as a result of family commitments or other impediments (Science Foundation Ireland 2016: 6). To increase the proportion of women, the Academy of Finland (2019), whose evaluation panels are very balanced with some exceptions (STEM fields), uses a **network created to help Finnish women researchers** advance to key positions in science and research. This network also serves as a resource for recruiting reviewers. A crucial supportive measure is also **continuous monitoring of the gender composition of review panels, regular publication of results, as well as the consistent planning of activities** focused on removing imbalance (e.g. Academy of Finland 2019, Swedish Research Council 2014).

## 2.4 PRACTICAL RECOMMENDATIONS FOR INCREASING GENDER BALANCE AMONG REVIEWERS AND IN EVALUATION COMMITTEES

The following part aims to offer a set of practical recommendations that can help RFOs in increasing gender balance of individual components involved in the evaluation of research proposals. It focuses mainly on gender balance among peer reviewers (experts working individually and usually on a remote basis) and evaluation committees (or panels) presenting the next step of the evaluation process and reaching a collective agreement on the evaluation for all proposals within a call.[6] These recommendations are **intended mainly for RFOs' management, administrators responsible for the evaluation process and RFOs' gender experts**. Due to differences in the evaluation of proposals in different RFOs (see European Commission 2009) various solutions are suggested in order to fit more types of evaluation processes.

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[5] E.g. the proportion of full professors is calculated based on the proportion of female associate professors in particular scientific discipline.

[6] There is usually some overlap between these groups (selected individual reviewers may e.g. act as rapporteurs).

## 2.4.1 ACTIVITIES FOCUSED ON GENDER BALANCE AMONG PEER REVIEWERS

- Actively and **regularly** (e.g. once a year) **monitor the share of women and men among your peer reviewers, including the levels of concrete fields**.

- Monitor **real division of proposals between male and female reviewers** (number of proposals reviewed by men and women), **based on main project disciplines**.

- **Publish the results** of your monitoring on your website, and in your annual report (best by using timelines).

- Try to achieve a **40% proportion** of women among peer reviewers, if possible, **in all fields**. In case your continuous monitoring shows **a significant underrepresentation** of women in some fields (which is typically the case of **STEM fields**), **set gradual targets, and increase them annually by several percent**. Even in the initial phase, the share of women **should not be set lower than 20%**.[7] However, it is important to start with focused activities.

- Before starting any activity, it is necessary to **inform relevant employees** about its **meaning** (benefits of gender balance), **objectives and concrete goals**. For this internal communication, arguments summarized on p. 9 can be used (equal opportunity to take part in decision-making about the distribution of resources, broadening the points of view in discussions, opportunity to get familiar with the evaluation process and expected standards, elimination of the problem of "tokenism" etc.).

- In the case of an online (or any written) campaign, **choose grammatical forms that explicitly address women** (female as well as male grammatical gender). **Consider publishing information that women candidates are welcome to apply.** If you are using **visual material** in your recruitment, choose materials that **include women** (and other underrepresented groups). These techniques tend to support women in their decision to apply.

- If recruitment is **conducted by your RFOs employees** (or your external collaborators), **who address candidates** based on their "field knowledge", **ask them to focus on qualified women experts** when searching for potential candidates.

- If you search for new peer reviewers based on **consultations with stakeholders or nomination** procedures, **communicate clearly in the call that you are (also) interested in suggested female reviewers** (e.g., via a formulation that women candidates are welcome). It is also possible to **require nomination of candidates of both sexes**.[8]

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[7] To set the initial targets in fields with a very low proportion of women, it is possible to use national or international data on the share of women-scientists in the given fields (with the aim to reach a higher, e.g. double share). These shares differ across generations, and so there is a risk that this method could conserve the existing state of affairs. A unified 20% target can be more useful to achieve progress, while also being transparent and easy to remember.

[8] Nevertheless, to avoid any exclusions based on the binary definition of sex, it should be made clear that persons of all genders are welcome.

- In case of a reported low share of women peer reviewers in concrete fields, **it is possible to focus the campaign/call solely on women.**[9]

- **Connect with female expert networks** that exist in many countries and ask them for sharing your call or for active nominations.

- When addressing universities and research institutes with your call, keep in mind that your offer does not necessarily reach women candidates. Especially **nominations of candidates (or their active addressing by institutions) offer a big room for gender bias** (an unconscious identification of the notion of scientific excellence with maleness or a tendency to choose visible male experts in leading positions) and so-called **old boys' networks** (priority orientation at the networks of one's male friends). Therefore **consider whether the system of nomination or active choice by institutions can be replaced by an open call** (e.g., through relevant scholars servers, scientific journals, social media etc.).

- State explicitly in your instructions that **candidates can mention in their CV any relevant career breaks** (e.g., as a result of care for children/other persons, or longterm illness). When evaluating CVs and selecting peer reviewers, **consider these breaks**. (It is ideal if those who select candidates have been instructed about possible gender bias.)

- **Once a year**, always in the same time, plan the meeting of all relevant parts of your organization, which will discuss the monitoring results and **plan activities for the next year** focusing on increasing the balance (including a timeframe and a concrete division of responsibility).[10]

### 2.4.2 ACTIVITIES FOCUSED ON GENDER BALANCE IN EVALUATION COMMITTEES

- Actively and **regularly** (e.g., once a year) **monitor the share of women and men in your evaluation committees**.

- **Publish the results** of your monitoring on your website, and in your annual report (best by using timelines).

- Try to achieve a **40% share of women in each committee** (concrete activities are suggested below) and **set this rule as an explicit organization goal**.

- In case your continuous monitoring shows a significant **underrepresentation** of women in some of your committee (which is typically the case of **STEM fields**), **set gradual targets**, and increase them annually by a few percent. Even in the initial phase, the share of women

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[9] In most European countries, this approach is not qualified as discriminatory, but as a form of equality measure, which can help to mitigate disadvantages that women face in certain fields.

[10] All objectives and measures should be SMART, i.e. specific, measurable, attainable, realistic and time-related, feasible within a certain timeframe and within the available resources (EIGE 2016).

should not be set lower than 20%.[11] Keep in mind that only a **30% representation** enables disadvantaged groups to **stop being in the position of "tokens"**, and **effectively participate** in proceedings.

- Keep also **balanced shares of chairpersons and vice-chairs**.

- In case of **gender imbalanced committees**, try **appointing members of the underrepresented sex in one of these positions** (see also Ahlqvist et al. 2015).

- If you search for new committee members based on **consultations with stakeholders or nomination** procedures, **communicate** clearly in the call that you are (also) **interested in suggested female members** (e.g., via a formulation that women candidates are welcome).

- It is also possible to **require nomination of candidates of both sexes**.

- In case of a reported low share of women evaluators in concrete fields, it is possible **to focus the campaign solely on women**.[12]

- To receive nominations, it is possible to **address female expert networks** that exist in many countries.

- If recruitment is **conducted by your RFOs employees** (or your external collaborators), **who address candidates** based on their field knowledge, **ask them to focus on qualified women expert**s when searching for potential candiates. It is again possible to use the above-mentioned **female networks**.

- Consider whether the participation of women on panel meetings could be increased via **IT tools enabling remote participation** and whether this way would be feasible for your organization.

- **Once a year**, always in the same time, plan the meeting of all relevant parts of your organization, which will discuss the monitoring results and **plan activities for next year** focusing on increasing the balance in committees (including timeframe and concrete division of responsibility).[13]

- Before starting any activity, it is necessary to **inform relevant employees about its meaning** (benefits of gender balance), **objectives and concrete goals**. For this internal communication, arguments summarized on p. 9 can be used.

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[11] To set the initial targets in fields with a very low proportion of women, it is possible to use national or international data about the share of women-scientists in the given fields (with the aim to reach a higher, e.g. double share). These shares differ across generations, and so there is a risk that this method could conserve the existing state of affairs. A unified 20% target can be more useful to achieve progress, while also being transparent and easy to remember.

[12] In most European countries, this way is not seen as discriminatory, but as a form of equality measure, which can help to mitigate disadvantages that women face in certain fields.

[13] All objectives and measures should be SMART, i.e. specific, measurable, attainable, realistic and time-related, feasible within a certain timeframe and within the available resources (EIGE 2016).

- When appointing members of evaluation committees, **keep all mechanisms transparent**. It is considered as good practice to **publish them on your website**.


### 2.4.3 SUPPORTING GENDER BALANCE IN BOARDS

As it was stated above, the composition of boards (i.e. RFOs´ governing bodies) is usually **not easy to influence from inside RFOs**, as its members are named by the government or appointed by a given ministry based on nominations of relevant actors such as higher education institutions and research institutes, or they are elected by the research community (European Commission 2009). Even if the concrete practice in individual organizations and states slightly differs, organization boards participate (to a lesser or greater extent) in the evaluation of research proposals. Apart from this, their gender composition has a significant symbolic aspect. As it has been presented, the proportion of men and women is subjected to regulation by the European Commission, as well as by many **nation-states** (while **many of them set the target to 40%** participation of the underrepresented sex). We offer several basic tips how to support gender balance among members of organization boards in situations, when it is not required by law:

- **Communicate openly and continuously the fact that your organization cares about equal opportunities for women and men.**

- In case you can (formally or informally) influence the text of **nomination calls**, communicate that you are **interested in applications** (also) **by women**, or **require nomination of candidates of both sexes**.

- Try to communicate your interest in reaching gender balance in boards also to research community.


### 2.4.4 BEYOND NUMBERS: PROCEEDINGS RULES AS A WAY TO A BALANCED INFLUENCE OF WOMEN AND MEN

Even if balanced composition of committees and boards is an important precondition for equal influence of women and men in decisions about the direction of research and supported projects, the increased proportion of women does not guarantee that they obtain corresponding space in proceedings and will be able to exert their influence. Therefore, it is also necessary to see **how the proceedings are conducted**. Several useful tips can be found in the reports from gender equality observations in the Swedish Research Council's evaluation panels (viz Ahlqvist et al. 2015, Söderqvist et al. 2017). Between 2008 and 2016, SRC led several series of observations of evaluation panels and committees with the aim to reveal general patterns in the evaluation process for funding applications with regard to gender. This analysis of evaluation procedures and panels found that the **proceedings tend to be to a large extent influenced by communication habits and sitting order**. In certain committees, men's speaking time was twice as long as that of women, they interrupted their colleagues and on the contrary, women evaluators belittled their own competence and changed their preliminary evaluation in response to other evaluators more frequently.

In response to these findings, SRC formulated several goals (Ahlqvist et al. 2015):

- **keeping of a prescribed sitting order** (which stimulates participation of women and people with lower status to join in discussion),
- **explicit rules on who and when can talk**,
- **a clear role of chairpersons** (rules enabling them to effectively influence the group dynamics).

SRC also continued to meet with the panel members and tried to facilitate a common understanding of concepts such as merit or excellence. It elaborated a general strategy to eliminate the occurrence of bias. An introduction to this strategy and other relevant methods to eliminated gender bias will be described in the second part of this guideline.

## 3   GENDER SENSITIVITY AND DIVERSITY AWARENESS IN EVALUATION OF RESEARCH PROPOSALS

It has been known for a long time that the status of women scientists is worsened by the fact that organization setting and culture of universities and research institutions are not gender neutral. **The image of a proper scientist is implicitly modelled upon the male pattern** and institutions see persons that fit this image as ideal employees. Such a person has characteristics that are attributed to men (self-confidence, ambition, competitiveness), is not burdened by care for children or other relatives and does not have career gaps. It is someone who can devote to work in any time and be mobile. This gender setting, which is **woven into organization structures and cultures**, to a certain extent **projects into evaluation of grant proposals**.

As it is shown in the aggregate data of success rates in European public RFOs, **women succeed in grant competitions far less often than men** (European Commission 2019). At the same time, it seems that women have lower success rates, **especially when applying for high prestige awards or higher volumes of funding** (European Commission 2009). What are the reasons for this situation? It is obvious that we face a complex phenomenon with multiple causes. **This part of the guidelines focuses on three following levels of the issue:**

1.  Numerous research points to **the role of gender bias**: performance of women and men is often not judged in the same way, women have to perform better to be seen as equivalently qualified candidates as men (cf. Wenneras, Wold 1997; Steinpreis, Anders, Ritzke 1999; Kaatz, Gutierrez, Carnes 2014; Van der Lee, Ellemers 2015; Helmer et al. 2017; Witteman et al. 2019). **Similar mechanisms enter into the assessment of other groups**, such as ethnic minorities (cf. Ginther et al. 2011, Bertrand, Mullainathan 2004).

2.  Parenthood, mainly maternity, is a special challenge when making an academic career, because the culture of academic institutions is not often very compatible with it, as it is built on a career model of an ideal-typical man (Acker, Webber 2009; Toffoletti, Starr 2016). This problem is reflected also in the environment of RFOs: even if **parental leave** (taken mostly by women) can mean a long career break in some countries, a whole range of RFOs do not consider temporary barriers like this in their evaluation of research involvement and publication.

3.  **Indicators of excellence and productivity** that evaluation of researchers focuses on can be partially gendered. These indicators can thus better answer to research outputs produced by men (Nygaard, Bahgat 2018, Mihaljević-Brandt, Santamaría, Tullney 2016, Teele, Thelen 2017).

Unequal access to research funding is a serious problem as research **funding has a fundamental impact on individual careers of scientists** – it enables them to participate in research and publication, and at the same time is one of the indicators of scientific excellence (Husu, Callerstig 2019). Therefore, these guidelines aim to offer a set of recommendations focusing on increasing gender sensitivity and eliminating gender bias in the evaluation of research proposals. Their implementation can help to achieve a more just distribution of research funding. The recommendations are intended for those who participate in the evaluation, i.e. reviewers and

members of evaluation panels, but also to those who design and manage the evaluation process – RFOs management, administrators responsible for the evaluation process and RFOs gender experts.

## 3.1 ELIMINATION OF IMPLICIT BIAS IN EVALUATION

Implicit bias can be seen as part of stereotypes prevailing in society about various groups of people. They are connected to our need to grasp complex reality. We create diverse categorization and **cognitive shortcuts**, which make information processing effective and manageable. Internalized cognitive schemes that relate, e.g. to people of a certain age, regional affiliation, religious beliefs or members of some sex, are interrelated with the culture we live in. By acquiring the culture throughout the socialization process, they become shared to certain extent. However, they also are influenced by experience, which we make during our lives or which is mediated to us by others. Even though these internalized schemes can be helpful (for example, when we are facing a danger and need to make fast decisions), they **can often lead to faulty processing of information**. They can result in increased attention to information that confirms our expectations and overlooking other facts. Thus, bias is created.

Obviously, bias is nothing exceptional, it affects all people. It is possible to distinguish explicit bias and implicit (unconscious) bias. In the first case, it can be a conscious positive attitude we have, e.g. to people who studied at the same university or come from the same town (however, conscious bias can also mean a negative attitude). On the other hand, implicit bias influences our approach on a more subliminal level, be it in positive or negative way. Mental associations and interference with our judgment are created rather automatically. **When the quality of proposals and real competences of applicants need to be evaluated, it is of key importance to reflect on implicit bias**, and also **actively work to eliminate its impact.** The decisions that are made influence individual scientific careers and supported projects (CIHR 2019).

The following text will focus mainly on implicit bias related to gender and some other characteristics that can play a role in the evaluation of grant proposals. It means characteristics that can be **known from the names of applicants and their CVs** (e.g. gender, ethnicity). Since some RFOs also conduct oral interviews, evaluation can be influenced by bias connected to physical appearance (skin colour, ethnicity, disability or obesity). Below, several concrete examples of how implicit bias works in evaluation practice (not necessarily in RFOs) are presented.

### 3.1.1 EXAMPLES OF IMPLICIT BIAS IN EVALUATION

- A well-known study by Wenneras and Wold (1997) has shown that female candidates for postdoctoral grants applying with one of the main funding agencies for biomedical research in Sweden had to have a much better publication portfolio (concerning the number of publications, their prestige, main authorship, etc.) to get the same evaluation as their male colleagues.

- The fact that social expectations about different abilities of women and men impact the evaluation process was also proved by an experimental study using fictive CVs with changed – female and male – names (Moss-Racusin et al. 2012). Biological and physical science faculty

from research-intensive universities were asked to evaluate the materials of a student applying for the job of laboratory manager, while part of them received the same material under a male name and part of them under a female name. The supposedly male applicant was seen as significantly more competent and hireable than the (identical) female applicant. The research participants also suggested a higher starting salary for him and offered him more career mentoring.

- Steinpreis, Anders and Ritzke (1999) found similar results concerning the evaluation of women in early stages of their careers. They sent a CV of a real-life psychologist at two different stages in her career (at an early stage and the tenure-review level) to 238 randomly selected academic psychologists. To one half of the evaluators, the CV was presented under a male name and to the other half, under a female name. The evaluators, both men and women, were more likely to vote to hire a male job applicant. The experience of the supposedly male applicant with teaching, research, and service were more often seen as adequate in contrast with his (identical) female counterpart. However, in the evaluation for a tenure position, similar bias did not have an effect.

- A comparable experiment focusing on ethnic bias was done by Bertrand and Mullainathan (2004). In response to job offers in Boston and Chicago newspapers, they sent CVs, while part of them were given "African-American-sounding names" (such as Lakisha Washington or Jamal Jones) and part of them "white-sounding names" (such as Emily Walsh or Greg Baker). The candidates with "white-sounding names" received more offers for personal interviews.

- The intersections of ethnic and gender bias were studied by Eaton et al. (2019), who tried to determine by an experiment whether physics and biology professors evaluate differently fictive postdoctoral candidates of different gender and ethnicity. Again, identical CVs were furnished with male or female names and tried to invoke Asian, Black, Latin or White race. Faculty in physics exhibited a gender bias favouring male candidates as more competent and more hireable. Besides, supposedly Asian and white candidates were seen as more competent and hireable by both physics and biology professors. The physics professors' perspective implied a significant intersectional disadvantage: black women and Latino women and men candidates were rated the lowest in hireability compared to all others.

- A study of grant application proposals from the years 2000–2006 and subsequently awarded grants within one of the schemes under the National Institutes of Health has shown that African Americans[14] had a 10% lower chance than whites to receive funding. This result occurred even if the influence of other variables was tested, such as applicant's educational background, country of origin, training, previous research awards, publication record, and employer characteristics (Ginther et al. 2011).

- In an experiment dividing investigator-initiated funding applications into two new grant programmes (one with and one without an explicit review focus on the qualities of the principal investigator) the Canadian Institutes of Health Research (Witteman et al. 2019) proved that gender gaps in grant funding are attributable to less favourable assessments of women as principal investigators, not of the quality of their proposed research.

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[14] During the application process, investigators self-identified their race and ethnicity.

The above-mentioned cases show that the **performance of women and men is often evaluated differently, because of expectations about different male and female abilities**, which influence our judgement.[15] **Gender bias impacts the evaluation of both male and female evaluators** (Moss-Racusin et al. 2012, Steinpreis et al. 1999). Since science used to be historically male domain, scientific activities – mainly in technical fields – tend to be seen as primarily related to men. This often means white men, as a result of which people of different ethnicity (but also of other social groups) also experience unjust treatment.[16] This effect **often** works **against our will and in contradiction to values we adhere to** (AAMC 2010).

Becoming aware of this problem and of the fact that it concerns all of us is the first step towards the elimination of its negative impact. Besides evaluation of research proposals, the negative impact is reflected in the process of hiring and promoting and also in the higher share of women (and most probably also other underprivileged groups) among people with unwillingly part-time jobs or precarious contracts. They also contribute to abandoning scientific careers by women (Gvozdanović, Maes 2018). It is thus evident that **bias can have a cumulative effect**. If the evaluation of research proposals is to support the best projects and the most excellent scientists, measures must be taken to make sure that the impact of bias does not obscure actual quality.

### 3.1.2   HOW CAN FUNDERS HELP TO ELIMINATE GENDER AND OTHER BIASES?

Bias is not something that depends on individual evaluators only, but is to a great extent influenced by policies and practices of RFOs. **Attention must be paid to the structure of the evaluation process and meeting proceedings, as well as to the control of group dynamics.** The following part will introduce possible intervention measures, which RFOs can implement in order to eliminate implicit bias. Afterwards, techniques for individual peer reviewers and evaluation panel members will be suggested.

**Integrating the commitment to eliminate the influence of bias in evaluation into institutional policy**

The commitment to a just evaluation without gender and other biases should be explicitly formulated in an institutional policy. Clear communication in this regard supports the efforts of evaluators and motivates applicants from marginalized groups to submit projects with your organization.[17]

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[15] Due to experienced incongruity between the female gender role and leadership roles, specific bias influences evaluation of women aspiring to leadership positions, as a result of which it is difficult for women to get these positions (e.g. Eagly, Karau 2002), which seems to be true also for positions of principal investigators.
[16] Various studies focusing on bias in evaluation of proposals mentioned for example bias related to age, affiliation or nationality (e.g. Lee et al. 2012).
[17] Research has shown that a lower share of women in the applicant pool is related with a lower chance to succeed (van Ommeren et al. 2005).

**Gender sensitive evaluation criteria and their formulation**

Similar to all materials for applicants, also evaluation criteria and instructions for evaluators **should be formulated in a gender sensitive way**, which does not implicitly connect the idea of the right candidate with qualities attributed to men. According to Kaatz et al. (2014), expressions like "competitive" or an emphasis on scientists willing to engage in "risk-taking" or achieve "technological breakthrough" can be seen as bias-enhancing conditions. A similar effect may have an emphasis on "excellence". As it was stated by Husu and Callerstig (2019), more significant gender bias is found with excellence-marked funding.

Attention should also be paid to **the gender sensitivity of the criteria for evaluating scientific excellence themselves** – men and women should have the same chance to fulfil these criteria. To reach this aim, it is advisable to:

- Consider periods of leave when evaluating proposals (for further specification of this measure, please see p. 33-34).
- Assess scientific excellence based on a wider spectre of research outputs (not only or predominantly on articles in international journals, but also based on other outputs, such as book chapters, textbooks or outputs, which aim to impact policy and practice). There may be partial gender differences in publication patterns (for further information and instructions, see p. 34-35).

**Awareness-raising activities for evaluators and chairs of evaluation committees**

- **The commitment** to a just evaluation without gender or other biases should be **included in the instructions for all levels of evaluation**, with **guidelines** how to eliminate one's own bias for individual evaluators (possible inspiration can be found on p. 30-32).

- RFOs should provide **training** for peer reviewers and panel members (and many RFOs do this). Besides face-to-face trainings, it is possible to use existing training modules and videos created by some RFOs:

  *Recruitment Bias in Research Institutes*
  (created by the Catalan Research Centres Institute – Institució CERCA 2016):
  https://www.youtube.com/watch?reload=9&v=g978T58gELo

  *Unconscious Bias Training: What You Don't Know – The Science of Unconscious Bias and What to Do about It in the Search and Recruitment Process*
  (created by the Association of American Medical Colleges – AAMC 2010):
  https://surveys.aamc.org/se.ashx?s=7C7E87CB561EC358

  *Unconscious bias training module*
  (created by the Canadian Institutes of Health Research – CIHR 2019):
  https://www.chairs-chaires.gc.ca/program-programme/equity-equite/bias/module-eng.aspx?pedisable=false

*Understanding unconscious bias*
(created by the Royal Society in 2015):
https://youtu.be/dVp9Z5k0dEE

- Because of their important role in the evaluation process, **chairs should be offered face-to-face trainings or briefings.**

- **A short briefing** – reminding the members of evaluation panels about the goal to eliminate bias and pointing out the basic tactics for reaching this goal – should be conducted **before each evaluation panel's proceedings.**

**Pre-determined seating arrangements at panels' proceedings**

A means that can help to eliminate bias indirectly is the use of pre-determined seating arrangements at panel proceedings (Ahlqvist et al. 2013, 2015). The aim is to achieve a seating arrangement that **alleviates the role of existing status hierarchies** (based not only on gender, but also on affiliation, seniority, age, etc.), shields the influence of individuals dominant in interaction or various groups, and **facilitates equal opportunity to express one's opinion about the evaluation for all**. Even if there seems to be no definite relationship between the balanced composition of evaluation bodies and elimination of gender bias in the process (see European Commission 2009, Vernos 2013), increased participation of all panel members in discussion can already strengthen the objectiveness of evaluation. Concrete factors that need to be considered are, for example, who sits closest to the chair of the panel and who sits next to whom.

**Clear and consistently applied criteria**

- Set unambiguous criteria for proposal evaluation and determine which of them have priority. Communicate these criteria to evaluators and also to applicants.

- Make it clear what is considered as fulfilment of each criterion and how is it going to be measured. What is, for example, understood under "applicant's merits", "research excellence" or "applicant's independence"? Make sure that the same definition is applied in the process to all applicants (Ahlqvist et al. 2013, 2015, Fine, Handelsman 2012, GENOVATE 2016).

- In the instructions, ask evaluators to avoid vague and subjectively motivated evaluation (Raymond 2013, Artiles Viera et al. 2017).

- Also, notify them that they should strictly avoid introducing information about applicants and their proposals, which are not included in the application, and any speculation about the applicants (Ahlqvist et al. 2013).

- Try to ensure that evaluators assess any application as a whole and their evaluation is not influenced by one or a few selected aspects (Fine, Handelsman 2012).

**Clarified responsibilities of chairpersons**

A chairperson has a considerable power to influence the proceedings, and thus also conditions that may contribute to bias. Therefore, chairs are key persons who should receive training in this area. At the same time, they should have basic guidelines that help them to influence the panel proceedings in a way that precludes bias. Mainly the following rules should be clarified (Ahlqvist et al. 2013):

- The chairperson determines who speaks. S/he is to ensure that panel members do not speak without being asked and that there is an equal distribution of who speaks and for how long.
- The chairperson actively prevents panel members from bringing up informal information about applicants and unfounded speculation not related to the content of application.
- The chairperson concludes the discussion of an application.

**Pre-set rules for project presentation and discussion**

- Formalize the rules for project presentation during the proceedings – presentation structure and type of presented information (Ahlqvist et al. 2013).
- Panel members should be informed about the proceeding's rules – who speaks when, who introduces and who concludes the discussion of an application (Ahlqvist et al. 2013).

**Enough time for every project**

Research has shown that time pressure is an important factor in which bias can occur and have influence on decision-making. Therefore, it is necessary to plan the proceedings, so that there is enough time for each project (Fine, Handelsman 2012, Kaatz et al. 2014).

**Creating an atmosphere in which perceived (gender) bias can be discussed**

Try to create an open and nonjudgemental environment in which it is acceptable to discuss perceived bias in the evaluation of others and learn from each other how to do things better (Raymond 2013).

**Inviting a gender expert or gender observer to panel proceedings**

This step, known mainly from the Swedish Research Council (Ahlqvist et al. 2013, 2015; Söderqvist et al. 2017), is taken to identify possible gender patterns and bias[18] in the evaluation process. The observations do not aim at direct intervention, but rather at revealing problematic spots of the evaluation process that potentially encourage unjust treatment. Its result brings recommendations that fit the concrete organization on how to change existing practices and how to train all participants of its evaluation processes. Regular observations then facilitate monitoring of the proposed changes.

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[18] Even if the Swedish Research Council does not explicitly focus on bias related with ethnicity or disability, it is, of course, possible to focus observations on diversity in a more general meaning.

**Blinding of applications or using lottery practices in selecting projects for support**

A tool that can mitigate gender and other bias in the assessment of excellence is the **blinding of applications**. It is based on a principle of withholding data that could lead to revealing applicants' identity to evaluators. This initiative has been developed, for example, by the Irish Research Council (2016), which has already accumulated sufficient data proving the positive impact of this mechanism on the share of women among successful grant applicants (at the same time indicating the scope of gender bias impact).[19]

Recently, blinding of applications was also started by the Austrian FWF in its 1000 Ideas Programme.[20] This programme addresses creative and innovative projects with high transformative potential, which might not, considering their unconventional design, succeed in common funding schemes. FWF requires proposals to be written in such a way that it is not possible to reveal the identity, the career level of the researchers or the name of the research institution, which they are affiliated to. A very similar concept is used by the Villum Experiment Programme of Danish Velux Foundations.[21]

In 2013, RFOs also started to use **aspects of lottery** in grant funding (or its last round), which should eliminate not only bias, but also other problems connected with the traditional peer-review process. This tool was used for the first time by the Health Research Council of New Zealand, which applied it in its grant scheme Explorer Grant in 2013.[22] A similar mechanism has been used by Volkswagen Stiftung in its programme Experiment![23] and by the Swiss National Science Foundation[24].

**Monitoring of success rates and publishing the results**

Of course, part of the measures for elimination of (not only) gender bias include regular monitoring of gender distribution among applicants in individual funding programmes, share of success rates by gender of the principal investigator and members of research teams. This information, and subsequent recommendations for improvement, should be regularly **discussed with the organization management**. It should also be **available on the RFO's website**.

### 3.1.3  HOW CAN INDIVIDUAL EVALUATORS TRY TO ELIMINATE BIAS?

The above-mentioned institutional practices can significantly help in eliminating the influence of bias in evaluation, however, **the most decisive part of the effort lies in the activities of individual peer reviewers and evaluation panel members**. If you belong in this target group, read on to find out what you can do to make sure that your evaluation of the quality of proposals and qualification of applicants is not marked by gender, ethnic and other types of bias.

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[19] The Irish Research Council states in its Progress Update from 2016 that the introduction of gender-blind assessment for its calls for STEM postdoctoral schemes lead to a significant increase of the share of women among successful applicants. Before anonymization (in 2013), the share of women succeding in the competion was 35%, and after its implementation it rose to 43%, and to 45% in the next year.

[20] https://www.fwf.ac.at/en/research-funding/fwf-programmes/1000-ideas-programme/

[21] https://veluxfoundations.dk/en/technical-and-scientific-research/villum-experiment

[22] https://gateway.hrc.govt.nz/funding/researcher-initiated-proposals/2020-explorer-grants

[23] https://www.volkswagenstiftung.de/sites/default/files/downloads/MB_100_e.pdf

[24] https://www.nature.com/articles/d41586-019-03572-7

**Accept the fact that your evaluation is not less influenced by stereotypes and bias than the evaluation of others**

Everybody makes cognitive shortcuts that make orientation in reality easier. You have probably also experienced in your life that someone interacted with you based on stereotypes connected to certain gender, younger or older age, ethnicity or sexual orientation. You might have been underestimated, because you studied or worked at an institution with lower prestige. These situations happen in everyday reality, and also at project evaluation. **Bias is not dependent on intelligence or education; to a certain extent, everybody is biased.** Probably, this also happens to you, and sometimes also when you evaluate projects. As it was shown in a hiring experiment, **those who believe in their personal objectivity, give more biased evaluation** (cf. Kaatz et al. 2014). The willingness to accept one's own error is an important step to a just evaluation of others.

If you are interested in getting an idea of how biased you are in your evaluation, you can take the **Implicit Association Test** created by scientists from Harvard University. The test is available here[25]: https://implicit.harvard.edu/implicit/takeatest.html

**Try to keep in mind how bias works and consciously lower the impact of stereotypes on your evaluation**

As the above-mentioned examples show (p. 24-25), there are implicit expectations that women (or members of non-majority groups) have different cognitive skills, are less devoted to science or have lower ability to lead a (research) team.
Possible problematic aspects in the evaluation process and recommendations on how to act in similar situations are shown in a very illustrative short **video by the Catalan Research Centres Institute** (Institució CERCA)[26]: https://www.youtube.com/watch?v=g978T58gELo

**Reserve enough time for evaluation**

Research has proved that time pressure and "multi-tasking" increase the influence of cognitive bias on decision-making (Kaatz et al. 2014). For example, in an experiment related to work performance ratings accorded men and women in traditionally male jobs, men were evaluated more favourably than women when evaluators were busy doing some other tasks ore were under time pressure. When they have enough time, the effect of gender bias was lower (Martell 1991).

**Use the same criteria for all applicants**

When evaluating women and men, often, different criteria are used. For example, co-authoring publications sometimes gives rise to doubting women's thought independence, while the same is not true with men (Ahlqvist et al. 2013). When evaluating, define what you consider as the fulfilment

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[25] The website offers a whole range of tests. To find out more about your gender bias, choose the test "Gender-Science IAT", which takes approximately 10 minutes. After completion, questions about demographic data follow, but it is possible not to answer them and press OK. Analyses of results of more than 15 years across more than 10 million participants has shown that 75% of people who took the test have exhibited biases (AAMC 2010).

[26] This video has been recommended also by European Research Council: https://erc.europa.eu/thematic-working-groups/working-group-gender-balance

of a given criterion and make sure that the same definition is applied to all applicants (Ahlqvist et al. 2013, 2015, Fine, Handelsman 2012).

**Be prepared to defend the reasons for your evaluation**

Avoid vague and subjectively motivated evaluations (Raymond 2013, Artiles Viera et al. 2017).

**Think about the criteria for assessing scientific excellence**

Do both men and women have the same opportunity for fulfilling these criteria?
Are various types of outputs that scientist make considered (besides articles in international journals, also book chapters, textbooks or outputs focused on changing policy and practice)? Women and men may have a slightly different output pattern (see p. 34-35).

**Evaluate an application as a whole**

Do not base your evaluation on a single aspect or several aspects of the assessed material (Fine, Handelsman 2012).

**Examine your own judgment in evaluation**

In order to examine how bias influences your decision, you can try the following techniques:

- To counteract stereotype imaging, try to adopt the perspective of someone in a stereotyped group (AAMC 2010, CIHR 2019).
- When evaluating someone from a group that is usually linked to stereotypes, imagine someone from the group who does not fit the stereotypes or whom you admire (AAMC 2010, CIHR 2019).
- Occasionally, try to think whether your evaluation would change if the applicant were of a different gender or from a different institution (Kaatz et al. 2014).
- Generally, focus on the justification of your decisions and try to determine whether they could be influenced by rationalizations reflecting an unconscious bias (Raymond 2013, The Royal Society 2015).
- In case you are aware of a certain stereotype you have, try to consciously replace it with accurate information (CIHR 2019).

**Notice possible bias in others**

It is far easier to notice bias in other people's judgement than one's own. In case you notice it, point it out in a sensitive way (Pronin, Lin, Ross 2002, The Royal Society 2015).

## 3.2    ACCOUNTING FOR CAREER BREAKS

An important part of proposal evaluations is the evaluation of the **scientific excellence of candidates**, which should help to assess their ability of realizing the project and producing quality results. **Attention is focused on candidates' CVs, primarily on their list of publications**, which are seen as an indicator of excellence. To be an excellent scientist means to present **a linear and focused career track**. Gaps and possible deviations are often perceived as a negative signal (Bozzon, Murgia, Poggio 2019, van den Brink, Benschop 2012).

**Parenting** is undeniably one of the factors that can temporarily threaten research and publication productivity. Even if **the situation in individual countries differs greatly**, as it is dependent on the duration of maternity and parental leave and the system of childcare, the period of parenting is often related to certain career breaks. In countries with a long parental leave and/or insufficient system of public care for young children, this can mean several years of **break in scientific research and publishing**. Since it is mainly women who bear the primary responsibility for caregiving, their CVs often suffer from a long gap that is deeply gendered (e.g. Vohlídalová 2013).

Of course, the same problem is experienced by care-giving men. Due to the gendered nature of care and division of household tasks (e.g., Schiebinger, Gilmartin 2010) and due to the fact that most female scientists live in dual-career partnerships with other scientists or persons making career in other areas (e.g. Schiebinger et al. 2008), women as a group are more significantly affected. The impact of this problem can be a very serious one, because the time when people usually have children coincides with the period of forming one's career, and one's future career progression often depends on what is achieved during this period.

**Sensitive practices of RFOs that account for the time spent by intensive childcare can mean substantial help** with an early return of (primarily) women to their research activities. At the same time, they can significantly affect the retention and progression of women in research careers – it is a known fact that the effect of "leaky pipeline" is strongest mainly in the early stages of academic career, namely at postdoctoral level (e.g. Kahlert 2014). In order to attain sensitivity towards the effects of caring responsibilities on research careers, it is possible to use some of the following measures. Many of them are already practiced by some RFOs; but they have not become the standard yet:

**When evaluating proposals, consider periods of leave:**

- Create a "special circumstances section" in your grant applications, where candidates can state any events that explain their gaps in research productivity (not necessarily only leaves for family care, but also long-term illness, etc.).
- Dependent on your local conditions (especially the length of parental leave), set clear rules for accounting for possible career breaks.[27]
- Inform both candidates and evaluators ahead in time that periods of leave will be accounted for.

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[27] See also GENOVATE (2016).

**Extend eligibility windows in programmes with age or time limits:**

- If some of your grant schemes apply maximum time limit – e.g. years after Ph.D. completion – until one can apply, make possible the extension of this limit for those who can prove they have taken care of a child.
- The same can be applied in case of age limits (e.g., when only candidates younger than 35 years of age can apply, in junior grants, etc.).
- The concrete length of extension of the eligibility window can be set either based on your local conditions (maximum duration of parental leave), or by the actual time taken off as parental leave.
- The extension of an eligibility window should also be allowed for medical reasons.
- Information about this possibility should be widely accessible, so that potential candidates can count on it ahead.

## 3.3    CONSIDERING A WIDER SPECTRUM OF RESEARCH OUTPUTS

Long-term research has shown that men have more publications than women, as a result of which women can appear as less excellent scientists (cf. Nygaard, Bahgat 2018, Schiffbänker 2020). Nevertheless, many studies have proved that the situation is more complicated than it seems on the first sight. Lower numbers of published works should be partially seen as a reflection of second-rate status of women in higher education and research institutions. Even if many academics prefer research to teaching (Krause 2009, Kwiek 2012), women often can devote less time to research, because they spend more time in teaching-related activities and perform significantly more service (O'Meara et al. 2017, Misra, Lundquist, Templer 2012, Guarino, Borden 2017).[28]

However, the observed difference in publication decreases, when the influence of other variables is studied, such as career length (Huang et al. 2020)[29] or the leaves of absence (Nygaard, Bahgat 2018). Besides of all the above-mentioned factors, it is necessary to consider that publishing itself is a gendered practice. Among research output types that are usually regarded as the best indicators of performance and excellence are mainly publications in international scholarly journals written in English (Nygaard, Bahgat 2018). In addition, analyses of publication patterns in various fields indicate that also research outputs produced by women and men differ to some extent. For example, a study of publication patterns of mathematicians has shown that women tend to publish less often in the top journals (Mihaljević-Brandt, Santamaría, Tullney 2016). According to another study from the social sciences, **women have a more diverse publication profile**; besides articles, they also focus on book chapters. And they also have fewer international team publications (Nygaard, Bahgat 2018). A study from political science pointed out that the top journals often profile

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[28] In relation with a lower number of publications, we need to remember that publication performance of women and men are often not assessed in an objective and unbiased manner. Evaluation is permeated gender bias, as a result of which women often need to show better performance to be seen as candidates with the same qualification as men (see p. 24-25).

[29] The authors claim that men often have longer careers (measured as the time between their first and last papers). This difference is caused mainly by a higher drop-out rates of women, which in their opinion signals existence of factors that complicate women's persistence in academic careers.

in quantitative methodology, which is not compatible with a more frequent qualitative focus of women (Teele, Thelen 2017).

Despite undeniable field differences, it seems that productivity indicators are gendered. The form of "gender gaps" variates substantially according to the way productivity is defined and measured (Nygaard, Bahgat 2018). **The conception of productivity and excellence prioritizing journal articles** has been seen as generally **limited** in a growing number of approaches evaluating the outputs of scientific research. This trend can also be seen in the **San Francisco Declaration on Research Assessment**[30] from 2012, which gives concrete recommendations for RFOs, academic institutions, and other parties. RFOs are mainly asked, when evaluating researchers, **not to focus on journal-based metrics (or the prestige of the journal)** as a surrogate measure of the quality of articles, and instead to consider the value of all research outputs in addition to journal publications. There is a **call for a wider conception of impact**, including the influence on policy and practice.

Among institutions that actively implement this approach are the Dutch Research Council (NWO) and the Netherlands Organisation for Health Research and Development (ZonMw). Besides the departure from bibliometric indicators, they experiment with the requirement of a more narrative CV form, or with stating several key impactful outputs rather than a complete list of publications (VSNU et al. 2019, Herschberg 2020). This approach can be inspirative not only in relation to the possible gendered nature of publication reality and productivity indicators, but also as far as strengthening the practical impact of research on society is concerned.

In relation to the above-mentioned observations and existing activities, **the following practices can be recommended:**

- When evaluating individual researchers, do not focus only on publications in prestigious international journals, but also consider other outputs as valuable (books, book chapters or textbooks).
- Do not exclude outputs which aim to impact policy and practice (such as various reports or scientific dissemination).
- Clearly communicate these principles in the instructions for candidates and evaluators.
- Consider adapting the application form, so that it does not require a whole CV, but a brief narrative summary of relevant experience and stating of a limited number of key impactful outputs.

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[30] https://sfdora.org/read/

# 4 CONCLUSIONS

RFOs belong among key actors influencing women´s position in research and higher education. Funding has an important impact on individual careers of scientists, as it enables them to participate in research and publishing activities. It has also become one of the indicators of scientific excellence. This impact of funding is further strengthened as a consequence of the increased role of competitive funding of research in many countries in the last decades. However, in most countries, fewer women than men apply for funding, and there are also gender gaps in success rates. Unequal access to research funding may then lead to their worsened position in academia, greater precarity or even to leaving academia. It may result in a loss of talent and efforts of women.

RFOs have a significant capacity to promote gender equality in the research ecosystem and stimulate important changes. The areas of possible reach of RFOs are multifold. The aim of these contextualized guidelines was to provide a set of recommendations on how to improve the evaluating process, make it more just and sensitive to gender or other differences. These guidelines, intended for evaluators and all those who are managing the process of evaluating research proposals, focused on two areas – gender balance among evaluators and their gender sensitivity and diversity awareness.

The underrepresentation of women in the evaluation process is a general phenomenon, and it is well-documented that a greater unbalance occurs in STEM fields. Several recommendations on how to assure an increased gender balance at every stage of the evaluation process have been formulated. Although, as has been argued, the increased share of women among evaluators does not automatically decrease gender bias in evaluation, as both men and women tend to undervalue women's accomplishments, there are also many other benefits that activities in this area may bring. These relate, for example, to enhancing women´s experience with grant application systems or symbolic benefits connected to the fact that women take part in decisions concerning resource redistribution and of the grant system as such. This may, in turn, increase the share of women among grant applicants.

The importance of the strategies to mitigate gender and other biases in the evaluation of research proposals lies also in the gendered culture and structural settings of higher education and research institutions (implicitly modelled upon the pattern of a white male employee) and the cumulative effect of bias. One of the advantages of competitively funded research is that funding may provide individuals with a certain opportunity to disentangle from the sedimented power structures of their institutions. When the quality of proposals and scientific excellence of candidates are assessed independently, it strengthens in principle the position of those who may otherwise face various barriers (women, ethnical minorities, early career researchers etc.). However, to reach this emancipating effect, an active approach is needed. If the evaluation of research proposals is to support the best projects and the most excellent scientists, measures must be taken to make sure that actual quality is not obscured by the impact of bias.

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