EFFECTIVE GENDER EQUALITY IN RESEARCH AND THE ACADEMIA

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Fighting Gender Biases as a Mark of Responsible Research and Innovation (RRI) – Working Paper

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Introduction: Gender Equality as part of RRI

The principles of Responsible Research and Innovation (RRI) have been core to EU research policies since FP7. RRI refers to "the comprehensive approach of proceeding in research and innovation in ways that allow all stakeholders that are involved in the processes of research and innovation at an early stage (A) to obtain relevant knowledge on the consequences of the outcomes of their actions and on the range of options open to them and (B) to effectively evaluate both outcomes and options in terms of societal needs and moral values and (C) to use these considerations as functional requirements for design and development of new research, products and services"[1]. As such, RRI implies that societal actors - researchers, citizens, policy makers, business and civil society organizations - work together during the whole research and innovation process in order to better align both the process and its outcomes with the values, needs and expectations of society.

In practice, RRI has been implemented through six key areas of action:

✓ Engagement, which implies that societal challenges should be framed on the basis of widely representative social, economic and ethical concerns, with the joint participation of all societal actors.

✓ **Gender Equality, addressing not only the underrepresentation of women in certain positions (vertical segregation) and disciplines (horizontal segregation) of Research Performing Organizations, but also the integration of research and innovation content.**

✓ Science Education which addresses the challenge of providing necessary knowledge and tools to future researchers and other societal actors, so as to fully participate and take responsibility in the research and innovation process.

✓ Open Access, based on the transparency and accessibility of research and innovation, for instance through the free online access to the results of publicly funded research

✓ Ethics, to ensure the respect of fundamental rights and of the highest ethical standards , with view to enhance the societal relevance and impact of research and innovation outcomes

✓ Governance, in order to make policymakers accountable for preventing unethical developments in research and innovation.

Gender equality and the integration of a gender perspective in research, were thus meant as one of the lever to be activated in order to achieve RRI.

Concretely, under FP7 and Horizon 2020 (H2020), RRI has been promoted through the Science with and for Society (SWAFS) objective, in form of specific support actions on each of the above mentioned

[1] European Commission (2013). "Options for Strengthening Responsible Research and Innovation - Report of the Expert Group on the State of Art in Europe on Responsible Research and Innovation", http://ec.europa.eu/research/science-society/document_library/pdf_06/options-for-strengthening_en.pdf (last accessed: October, 19th, 2017).

areas of actions, including gender equality. RRI has been furthermore addressed as a cross-cutting issue under H2020. Yet, it appears that each of the areas of actions which are constitutive of RRI, such as Ethics, Engagement, Open Access and Gender Equality, usually keep being addressed independently and remain self-referring[2]. While meant to be mutually reinforcing, by bringing research and innovation to a new stage where they are no longer conceived independently from the way European societies' needs, values and expectations, this approach has rather materialized in progress made in isolation from each other. For this reason, what is still missing, is a comprehensive discourse on the evolution towards responsible research and sciences and innovation with and for society.

Instead, under the EGERA project, we brought a lot of attention, to articulating gender equality and the integration of a gender perspective in research and higher education, with broader challenges posed to knowledge production and transfer. Policy actions devised as part of Gender Equality Action Plans (GEPs) to both enhance gender equality and the integration of gender in research contents and outputs, thus attempted to the greatest possible extent, to improve transparency, data accessibility, the respect of ethical principles in selection, recruitment and evaluation procedures. More generally, they were conceptualized so as to contribute to sustainable research and innovation communities.

In order to support this effort carried out at the level of each implementing partners, WP5, devoted to challenging research governance and evaluation models, paid attention to addressing these issues through the broader scope of RRI. In practice, arguments brought to challenge these models, were built so as to evidence the linkage between gender equality (a), the integration of gender in research (b) and the broader concept of RRI (c). This has been notably the case for measures devised to fight gender biases in the selection, recruitment and evaluation of researchers. Drawing upon the pilot study carried out by Sciences Po[3], a report was submitted, gathering information concerning the evaluation process of the staff (Academic and administrative) in each partner institution, focusing on the possible gender biases in these processes[4]. The identification of potential gender biases aimed at producing recommendations which would be transferable to other organizational contexts. These recommendations were compiled in one of the two charters published under EGERA[5]. In particular, this Charter[6] states that "along with research, educational activities and knowledge circulation to society - the "societal impact" of research -, are at stake", and acknowledge "that (RPOs and universities) share certain values and principles, such as equality, inclusion; fairness, transparency and accountability", thus committing to some of key RRI principles. More specifically, this Charter commits, among other, to:

a) **Addressing the situations and needs of both men and women** when designing internal policies, with a view to support gender equality, work-life balance and well-being at work.

[2] See for instance the conclusions of TRIGGER (FP7) project's final conference.
[3] *D.5.1: Pilot study on gender bias in governance and evaluation*. This study provided the empirical data for Albenga, Viviane (2016)
[4] *D.5.2: Analysis of gender bias in reports on evaluation*
[5] *D.5.3: Charter for GE in evaluation & governance*
[6] EGERA Charter on Gender Sensitive Governance in Research and Higher Education Institutions, accessible here from the egera.eu website.

b) Addressing the under-representation of women in senior and decision-making positions by monitoring appointment processes and provisions regulating decision-making. Depending on legal contexts, this may include but not be limited to **adopting mid- and long-term quantitative objectives and/or implementing pro-active measures for those positions or bodies where women remain underrepresented.**

c) **Preventing gender biases in internal procedures so as to define gender-sensitive standards for recruitment, qualification, appraisal, evaluation and career management**. Standards regarding individual career paths, geographical and upward mobility or academic performance should not favour either sex, but allow a diversity of experiences and promote an inclusive notion of academic excellence.

d) **Aiming at setting up performance indicators for the evaluation of research units, departments, teams or projects that do not favour either sex, but acknowledge a diversity of profiles and backgrounds**.

e) Periodically reviewing whether the results of teaching evaluation by students are not affected by significant gender biases and assessing the role granted to this evaluation in tight of this review.

f) Enhancing gender knowledge in all research areas and **pursuing the transformation of our academic cultures and practices for more gender sensitivity and transparency.**

g) Enhancing **gender knowledge circulation** by addressing gender in the content of academic curricula

So as to support the implementation of the commitments listed in this Charter, the EGERA community of practices, has foreseen the drafting of the present working paper, which contains a summary of the main challenges to be addressed when fighting gender biases as a mark of RRI, a typology of the different practices implemented in the European Research Area with regards to the recruitment and appraisal of women in research organizations, and a selection of "good" practices or practices with potential for inspiring further actions in other organizations. The summary draws upon the chapter published by the main author of this deliverable with Lut Mergaert on Incorporating Gender and Diversity in Research Management (Mergaert, Forest, 2015). Both the mapping and selection are based on primary sources such as the mapping carried out by the main author for EIGE, with view to support the design of the GEAR tool. The typology, however, is the one of the author, and the selection of practices results from the exchanges with partners carried out under the work package 5 of EGERA.

1. Summary of challenges

1.1 Recruiting and retaining women in scientific careers

Involving and retaining talented women in scientific and engineering careers is one of the major challenges confronting academic institutions in developed countries. Although this issue is not unique to the academic world but results from the long-established, and continuing, gendered

segregation of social activities, it resonates differently in science. Indeed, research has been built on a premise of objectivity. In natural science, it is still widely accepted that human behaviours or beliefs do not interfere with causal mechanisms. Scientific results are the outcome of tightly controlled procedures in which there is supposedly no space for subjective interference. Dependent and independent variables have been identified, and devices have been elaborated to control interfering variables. This position is not exclusive to natural sciences, mathematics or engineering (so-called "STEMs"). To some extent, the idealizations of objectively constructed knowledge and its approach to problem-solving have been adopted by the social sciences in order to strengthen their own scientific legitimacy. But the gendered composition of the academic profession itself provides evidence that sex and gender are also at stake in scientific research and should be properly addressed in order to prevent male-constructed norms, ethics or expectations being maintained as if they were universal. And if women now outnumber men or have, at least, closed the gap in a number of disciplines at undergraduate level, they are still less likely to follow academic careers. The explanations for this situation, which is changing more slowly than women's general involvement in scientific studies, are to be found in the very structure of the academic world.

1.2 Stereotypical expectations and differential value

Regardless of discipline, science has been overwhelmingly a male activity. This results from the assumption that science requires skills traditionally framed as male, such as dedication or conceptual speculation (Rowold 2009). For the same reasons, women were long excluded from higher education, because the social functions ascribed to their sex, such as reproduction or care, were thought to require moral values, humility and social or practical skills, rather than the knowledge provided by diplomas or degrees. As a result of this exclusion, which continued long after the removal of any legal barriers, scientific careers have been based on criteria devised exclusively by men: full dedication, hierarchy, and a linear and predictable career scheme. In many fields, the traditional career path still includes an early devotion to empirical research and later a shift to theorizing. It also entails the little value given to teaching activities. Although this model now varies from one country to another and over time, it has not yet been fully challenged.

The images of male and female researchers have thus been constructed in different ways with respect to their individual expectations and skills. This construction largely reproduces the differential functions and values ascribed to men and women in most human societies: male researchers are considered to be fully dedicated to their art, while women are expected to build families at some point, with a predictably negative impact on their dedication and readiness for promotion (Mergaert 2012). In the developed world, scientific disciplines have followed different institutionalization paths, at different paces. However, most have drawn on a cumulative process where ethical codes, promotion and evaluation procedures, publication rating and other key elements in assessing academic proficiency and excellence, have been defined in specific ways during a period when most academics were (white) men (Noble 1992). This process has entrenched strong biases, not only in recruitment and evaluation, but also in the very definition of the purpose and innovative content expected from research in a particular field.

1.3 Opaque procedures and unclear career perspectives

The lack of transparency in recruitment, promotion and funding procedures is often said to be a major obstacle to a more gender-balanced workforce and to women's empowerment in science (Rees 2011; Benshop, Brouns 2003; Husu 2004). This is not restricted to actual nepotism, but also applies to some extent to "open" selection processes by peers. These are traditionally thought to be paramount for assessing excellence and eliminating all possible biases. The publicity given to available positions and the use of 'objective', measurable criteria like bibliometrics do not always result, however, in fair, open and transparent processes. 'Old boy networks', endogenous reproduction and tightly delimited disciplinary fields still prevail in many academic environments, even when research organizations and universities adhere to basic rules of transparency. The elasticity of the academic world in accommodating to these requirements, compounded by the scarcity of job opportunities, jeopardizes the diversity of recruitment in many institutions, privileging standard profiles. In the absence of explicit equal opportunity strategies, this situation primarily affects women's chances to be recruited, promoted or funded. It has been demonstrated for over two decades now, that gender prejudices, more than any other variable, explain this situation[7]. Another issue frequently addressed in the literature, is the relative uncertainty of women scientists' career perspectives. Deeply entrenched in often implicit normative assumptions about their expectations or future choices, this situation affects their capacity to challenge for senior academic positions, while the ambitions of their male counterparts are often taken for granted or encouraged by senior colleagues (Gupta et al., 2004).

1.4 Women-unfriendly work environments

In addition to stereotypical expectations and opaque procedures, other features as limited flexibility in respect to working hours, working conditions and the organization's working culture, also coincide to make research environment unfriendly to women. While some of these features are fixed in written rules, many are largely unwritten, enacted in unchallenged understandings about what constitutes a typical working day or represents an ideal worker/employee or scientist. The gendered nature of social roles means that these unwritten rules affect men and women differently. Although this imbalance is not exclusive to research work in science and technology, this area appears to be particularly exposed to a traditional model of full commitment that pays little attention to issues of work-life balance. It should be emphasized that the construction of scientific profiles and careers in this way also affects men, for whom working conditions are increasingly experienced as incompatible with private life. In Europe, work-life balance has become a key factor for the attraction of the best talents and contrary to a widespread perception, work-life balance ranks second among factors of attractiveness in engineering, IT and R&D activities (European Commission, 2009: 16).

1.5 Re-thinking excellence: the new challenges of research management

Once sketched the main variables that still affect women's position in science, and with respect to the general principles of a Responsible Research and Innovation, one should start rethinking what

[7] As Wennerås and Wold (1997) show, even in a country like Sweden, 'a female applicant had to be 2.5 times more productive than the average male applicant to receive the same competence score'.

academic excellence actually means. Over the past decade, "excellence" has become the mantra of scientific communities in assessing scientific profiles. There is, though, no canonical definition of scientific excellence - simply a narrow set of assessment tools, such as a publication record in high-impact journals, project and funding management experience, and an academic career path reflecting a linear progression from PhD to full professorship or its equivalent in research institutions. This set of criteria, which also tends to neglect the specific characteristics of different disciplines, is fundamentally shaped by the traditional expectations outlined above, with a continuing negative impact on women candidates. Even when these criteria are measurable, such as those obtained through bibliometrics or through the evaluation of professors by students, recruiting and promoting scientists and academics is not an objective process, but the result of human interactions in which different sorts of biases keep playing a substantial role[8]. This is why the very definition of academic excellence needs to be examined with greater reflexivity and a broader range of criteria. The virtues of interdisciplinary work, proficiency with various methodologies, human resources management skills or familiarity with different work environments have a strong base in the literature on epistemology and on research management. Although the quest for excellence as an end in itself gives science its legitimacy, a gender-balanced workforce, and the attention paid to the gender dimension in research, should also be considered as potential marks of excellence, and valued in recruiting and promoting academics. If not challenged from a gender perspective, recruitment, selection and appraisal procedures and more generally, the very notion of academic excellence (Van den Brink, Benshop, 2012; Rees, 2011) and the global transformation of the higher education market (Musselin, 2017), are likely to keep conveying biases which are unfavourable to women's participation in research and the academia. This critical review, which should participate from the implementation of RRI principles, shall take place in a context where a growing number of RPOs and universities are getting involved in gender equality strategies including actions on academic recruitment.

2. Gender equality in academic recruitment: a state of play

According to EIGE (2016)[9], over 1,500 Research Performing Organizations (RPOs) and universities are currently engaged in a gender equality strategy, mainly in the form of Gender Equality Plans (GEPs). Although there is undoubtedly a dynamics in favour of the adoption of such strategies, there are also important gaps between respective member states. While in the UK or Germany, there are several hundreds of RPOs, universities or their components (at the level of faculties, centres or departments) committed to some sort of gender equality strategy, in other member states, they barely amount to a handful. Such gaps are primarily to be linked to: a) more or less favourable legislative and policy contexts; b) the existence of nation-wide initiatives such as the Athena Swan Charter in the UK and c) to the institutional level to which such strategies or GEPs ae deployed (department, faculty or RPO/university).

The same EIGE report also points out that a growing number of EU member states are equipped with a legislative and policy framework engaging higher education and research institutions to pursue

[8] See for instance the work carried out under EGERA on professors' evaluations: Boring, A. (2017) "Gender Biases in Student Evaluations of Teaching", *Journal of Public Economics*, 145: 27–41.

[9] EIGE (2016): *Analytical Paper on Gender Mainstreaming in the Academia* (2016), EIGE. EIGE (2016): Opinion Paper on Gender Mainstreaming in the Academia.

gender equality through provisions held in general gender equality legislations and/or in texts specifically dealing with research, innovation and higher education. This is the case for at least respectively 15 and 12 EU member states. Laws adopted since the late 2000s tend to more systematically include such provisions. At this level, however, dissimilarities can also be noticed: often rather unspecific, these provisions have acquired a binding dimension only in a few countries, as the german *Hochschulrahmengesetz* – Framework Act on Higher Education, 2007, reinforced by the obligation made to universities to adopt a GEP by the Federal Equality Act, the Spanish Law on Science and Innovation (2011) or more recently the French Act on Higher Education and Research (2013) and Gender Equality Act (2014).

This positive evolution is also evidenced by the development of policy frames through the implementation of soft mechanisms: action plans at the ministry level, inter-ministry conventions, charters or roadmaps to equality. Present in at least two-third of EU member states, these policy instruments nonetheless provide very differentiated contexts for achieving gender equality in research and the academia. They do constitute a true incentive for the adoption of effective measures in only about ten EU member states and only Austria, Germany, France, Spain, Sweden and the UK, demonstrate a certain degree of integration of the objective of gender equality in the relationships between RPOs/universities, and Research Ministries or Funding agencies. At least three factors enlighten this situation:

a) The federal dimension (Austria, Germany, Spain), which duplicates nation-wide policy frameworks with often even more sophisticated frameworks at the regional level (with lower or higher degrees of institutional isomorphism among regions)[10]
b) The embeddedness of gender mainstreaming in policy making, as in Austria, Spain or Sweden
c) The existence of a nation-wide, independent (non-public) initiative in favour of gender equality in research and the academia, as for Ireland and the UK with Athena-Swan. In 2016, nearly three quarters of all UK's RPOs and universities were involved in the scheme to some extent.

Athena Swan has thus became in barely a decade, a must-do for RPOs and universities involved in a highly competitive knowledge market. More recently, it has also become compulsory to get – and keep – a silver status in Athena Swan, for RPOs running for grants from one of the main UK's RFOs in the field of biomedical research.

In most of those countries which adopted a legislative and policy frame for achieving gender equality in research and the academia, the objectives of hiring more women in academic positions, and to appoint more of them in senior positions, feature high on the agenda. Yet, provided the autonomy of the academic field, and within this field, the one given to each specific research discipline, only the composition of governance structures is concerned by legislated gender quotas. Yet, achieving gender balance in academic recruitment features in most of adopted policy frameworks. This is for instance the case of the French Charter for Gender Equality adopted by the Ministry of Higher Education and Research, which call signatory institutions to achieve parity in all bodies and at all levels, and to prevent gender biases in research career management.

[10] Institutional isomorphism refers to processes of policy transfers among different governance bodies/levels, tending to convergence around specific institutional arrangements

Since the late 2000s, the European Union has also played an ever greater role in supporting the adoption of such objectives. Currently, the framework programme H2020 contains three objectives regarding gender equality:

1) Supporting gender balance in research teams
2) Ensuring gender balance in decision making so as to reach the 40-50% ratio set by the European Commission
3) Integrating the gender dimension in research

Moreover, the European Union's Council conclusions on the progresses towards gender equality in the European Research Area (December, 2015)[11], invite all RPOs and universities to set their own targets in terms of academic recruitments and appointment.

This EU policy is implemented through the evaluation of submitted applications to EU research funding, the dissemination of awareness-raising and gender training tools such as GEAR[12] or the Toolkit for integrating gender in EU-funded research[13], as well as dedicated funding schemes to implement GEPs in RPOs, RFOs and universities. As underlined in the mapping carried out for EIGE, those GEPs adopted in the realm of EU-funded so called "structural change" projects, are of a distinct nature. In particular, they can be distinguished by their comprehensive scope, innovative methodologies, and outreach. Besides, all those GEPs cover the issue of academic recruitment. However, in the absence of binding provisions regarding the implementation of gender quotas – except, in some cases, for the composition of recruitment committees, how far can they actually go to change figures of academic recruitment?

3. A mapping of good practices

In order to answer this question, we have drawn upon the collection of good practices carried out as part of the above-quoted EIGE and DG Research's report, and of the design of GEAR. We also mobilized different public documents produced under EU-funded projects on gender equality in the academia. Some of these documents specifically address the issue of academic recruitments, as the *Handbook on Gender Issues in Recruitment, Appointment and Promotion Processes*[14] published online by the FESTA project. Finally, we have also drawn upon the experience of EGERA. Located in eight countries and as much legislative and academic contexts, representing a wide array of disciplines, the partners of EGERA indeed embody the diversity of constraints and challenges in this matter. Through the compilation of a Structural Change Toolkit[15] and the pilot study carried out by Sciences Po regarding gender biases in evaluation, different initiatives have thus been analysed. The « good practices » or « practices with potential » summarized in this section thus originate in these different documents. None can be considered a ready-made solution but they illustrate the typology of tools briefly sketched below.

[11] http://eige.europa.eu/sites/default/files/council_conclusions_2015_1.pdf
[12] http://eige.europa.eu/gender-mainstreaming/toolkits/gear/action-toolbox
[13] http://www.genderportal.eu/projects/gender-eu-funded-research-toolkit-and-training
[14] http://eige.europa.eu/sites/default/files/festa_gender_issues_recruitment_appointment_promotion.pdf
[15] http://www.egera.eu/fileadmin/user_upload/Deliverables/D.7.5_Structural_ChangeToolkit.pdf

3.1 A Typology of practices

➔ Quotas

With the relative exception of the composition of recruitment committees, the implementation of gender quotas for academic recruitments and the composition of governance bodies, pose specific problems. Those are linked to the autonomy enjoyed by the academia with respect to other social spheres, and to the different definitions of academic excellence. If these definitions may vary from a context and a discipline to another, they usually coincide in a positive stance tending to make scientific and academic merits the product of « objective » criteria. This is done through the importance granted in particular to bibliometrics in high-impact journals. Arguments usually mobilized against gender quotas are therefore stronger in the academic sphere, where those are perceived as an intrusion in the autonomous functioning of the field, and more specifically to the principle of a recruitment *inter pares*. Moreover, in some domestic contexts, the legal hazard that the implementation of such quotas would entail – as potential claims for discrimination from the majoritarian sex – appear to be overestimated, since the EU case law defined rather strictly the conditions in which positive measures can be contemplated (posing the principle of a limited an proportionate implementation). For all those reasons, the implementation of gender quotas for academic recruitment remains scarce.

➔ Women-only academic positions

In Sweden and the Netherlands, some RPOs decided autonomously to open some positions for the underrepresented sex only. Yet, it is in Germany that this practice has become rather commonplace. In 2008, starting from the diagnosis of a strong under-representation of women (under 15%) in most prestigious academic positions, policy developments occured. A nation-wide agreement (*Gemeinsame Wissenschaftskonferenz*, GWK) on gender equality in research activities was reached among the federal level and the level of Länders, which share competency over universities and research policy. This agreement contains specific provisions on recruotment procedures, carreer progression and the appointment of gender equality officers in RPOs and universities. It also clearly states that unless duly justified exceptions, the under-represented sex should be preferred at recruitment. Additionnally, the Research and Innovation Pact adopted in 2011, invited research and higher education organizations to adopt their own quantitative targets for recruitment, using the « cascade model » (see 4.2) and to implement monitoring mechanisms. Yet, one of the most successful initiatives so far, has been the Federal Programme for female Professorship (so-called *Professorinnenprogramm*) which brings together the federal government and the Länder since 2007. To participate in this programme, and getting up to three positions of full professor position funded for 5 years, RPOs and universities are required to adopt a fully-fledged gender equality strategy and to maintain full professorships beyond the funding timeline.

➔ Equal opportunity employers

The notion – or label – of equal opportunity employer has developed also in the sector of higher education and research. This has been especially the case on the most internationally competitive academic markets as the UK, where some features of non-academic job market have been translated, breaching to some extent with a fully internal process of certification and selection, led among peer academics. In the UK, where this trend anticipated over the adoption of the Athena-Swan charter in 2005, it has accelerated since, as it constitutes one of the pillars of the strategies adopted by

universities and RPOs which joined the Athena-Swan award scheme. This notion materializes not only in job posting, but also in the communication by universities and RPOs of the different, non-purely academic rankings in which they feature well (based on the measure of different aspects such as diversity, gender equality, quality of life at work, etc.). This also appears in the advertising of in-house services such as day childcare, special leaves, mentoring schemes, etc. However, these policies are not necessarily based upon a comprehensive gender audit of the recruitment and appraisal practices, which is reflected in relatively low progresses in terms of gender balance for academic recruitments in the UK. It remains, though that properly applied, the notion of equal opportunity employer contributes to send positive messages to female candidates, which are of nature to increase the quality and quality of female job applications.

➔ **Fighting gender biases in recruitment and evaluation of researchers**

When addressed as part of comprehensive gender equality strategies, the issue of academic recruitment is often dealt with also through measures to prevent gender biases in the evaluation of academic profiles, both at recruitment and at the different levels of the career ladder. These actions can be rooted in challenging the common, male-centred, patterns of academic excellence, themselves anchored in deeply masculinized academic structures that came to light a time when the question of women's contribution to knowledge production was not even posed. Challenging these patterns can be supported by auditing recruitment practices, unravelling numerous biases such as the assumption that researchers should have linear career paths, the application of uniformously defined criteria for assessing international mobility, the participation to research networks and both the frequency and quality of research publications. Practices have thus developed to raise awareness on those biases among recruiters, and unravel underlying norms and implicit criteria lying behind allegedly purely measurable and objective academic merits.

➔ **Gender monitoring and planning of academic recruitments**

Some RPOs and universities opt for a more or less tight monitoring and planning of their academic recruitments in light of the objective of gender equality. This approach is monitored against quantitative goals set for certain disciplines and for a certain period of time. It can include the composition of gender-balanced recruitment committees (and if not, the delay of recruitment procedures until this condition is met), a threshold of female applications (which can or not take into account the size of the pool of potential candidates), under which the position can be maintained opened for further applications. This approach, which is however seldom adopted – except through the implementation of the "cascade mode" in Germany, can also entail sanctions of financial penalties for faculties, departments or units which do not meet their targets. This approach is notably adopted where exists a contract between RPOs/universities and RFOs/ministries, which sets clear objectives to that respect, as it is the case of Sweden. Some EU-funded projects, as GARCIA or FESTA, have also paid a great deal of attention to developing appropriate tools for such a monitoring (with a specific focus on early career stages in the case of GARCIA). Generally speaking, the development of these different strategies has been supported by the design of specific tools, in forms of guidelines, checklists, toolboxes…) which have been documented by EIGE as well as by some EU-funded structural change projects. Guidelines designed to make recruitment and appraisal procedures more transparent and hence, gender friendly, have been developed in Germany, Finland, the Netherlands and Sweden. Hereafter, we propose a selection of instruments designed under these different strategies.

3.2 Selection of good practices

Compulsory gender representation among job applications:

The University of Copenhagen ultimately distinguished itself by the implementation of several initiatives in the realm of academic recruitment, regarding in particular academic positions posting and the evaluation of applicants. For instance, the university has set up committees in charge to identify well in advance potential female candidates for the positions to be opened for applications. It also requires at least one candidate of either sex for a position to be filled by a recruitment committee also aiming at gender balance (and which should at least comprise one person of either sex). The full description of this policy can be accessed here.

Guidelines for the recruitment procedure:

As part of the EGERA consortium, the Radboud University of Nijmegen, in the Netherlands, illustrates a thorough codification of academic recruitment procedures, which contains objectives and statements with regards to gender equality. The university draws indeed upon the NVP Recruitment Code, developed by the Dutch Association for Human Ressources Management and Organizational Development. It provides a standard for transparent recruitment and selection procedures, following the five chronological stepts of the typical recrutment path in the Netherlands. The first aims at identifying internal applicants, to be favoured as per law. The second step consists in drafting the job post profile, including information about the university, the nature of the position and the expected results. The guidelines recommends not to focus on purely scientific aspects, but also on expected developments within the concerned department or unit with regards to its current composition in terms of disciplinary profiles, age, sex and origin), so as to evidence preferred profiles. Besides, expected qualifications are to be listed either as priority or optional (desired), provided that it is unlikely that an applicant will fit them all. The guidelines also require to indicate whether the position can be filled part time and which benefits or subsidies can be claimed for work-life balance purposes. For third step (job posting), the guidelines recommend to ensure dissemination towards pools of potential female candidates, and to set quantitative targets regarding the number of female applicants. It also formulates the option to proceed via a headhunting agency, so as to contact individually potential female candidates. At the stage of job interviews, it is recommended to recruitment committee members to rank applicants strictly on the basis of the qualifications defined in the job announcement. Questions are to be shared in advance among committee members, who are encouraged to stimulate applicants through practical cases, rather than letting them expounding their personal record. After recruitment and before occupying the position, information are to be communicated regarding the working conditions, and a welcome program, including potential mentoring or coaching, is to be offered.

Table 1. Competences described in the Competence Instrument for Dutch Universities

Competences	Behavioral indicators
Analyzing and Devising	
1. Vision	Takes the time to think ahead, concentrating on fundamentals
2. Conceptual capacity	Identifies patterns and trends in information
3. Analytical capacity	States clearly what the implication of a particular choice will be
4. Inventivity	Sees new ways of applying existing instruments
5. Capacity to learn	Shows that he or she learns from previous errors
6. Environment orientation	Handles cultural differences correctly
Communicating and Influencing	
7. Empathy	Articulates another's feelings and needs
8. Persuasiveness	Puts forward his or her proposals with enthusiasm
9. Cooperating	Offers colleagues help when they need it
10. Networking skills	Uses existing contacts effectively
11. Organisational sensitivity	Takes others' interests into account
12. Written fluency	Uses correct languages in letters, memo's, e-mails etc.
13. Verbal communication	Speaks in comprehensible language and explains jargon
14. Presenting	Briefly lists the essential points of a complicated matter
15. Negotiating	Searches actively for win-win situations in the longer term
Realising and Evaluating	
16. Planning and organising	Formulates measurable objectives for self and others
17. Monitoring	Maintains an overview of the work
18. Result orientation	Achieves objectives on schedule
19. Cost-consciousness	Takes care with the resources that he or she is managing
20. Commitment to the client	Adopts a 'happy to help' attitude
21. Accuracy	Checks own work for errors
22. Initiative	Takes initiatives in his or her work
23. Entrepreneurship	Looks for opportunities and possibilities
Managing and Supervising	
24. Managing for results	When performances disappoint, addresses the person(s) in question
25. Coaching	Supports less experienced colleagues with their work
26. Binding leadership	Invites staff to make their own contribution
27. Delegating	Also delegates prestigious tasks and responsibilities
28. Decisiveness	Quickly assumes a reasoned position
Personal Effectiveness	
29. Flexibility	Is open to changes in his or her tasks

30. Integrity	Takes care when handling confidential information
31. Stress-resistance	Recovers quickly from a setback or disappointment
32. Self-reflection	Asks for personal feedback

A check list for academic recruitment

As part of the EU-funded FESTA project, the Technical University of Istambul, the University of Limerick (IRL), The University RWTH of Aachen, the University Neofit Rilski (BG) and the Bruno Kessler Foundation (IT) jointly developped guidelines to gender-sensitive recruitment and appointment. Those include a checklist to support RPOs/Universities in the adoption of comprehensive approaches to the issue of academic recruitment:

- Is there a systematic focus on the recruiting of female scientists? Is there a defined recruitment process that specifies how females can be identified and contacted? Are they encouraged to apply?
- The job profile can narrow the number of potential candidates. Does the job profile encourage applications from a sufficiently large number of both female and male researchers?
- Unconscious biases may disadvantage female scientists in the evaluation process. Are there gender awareness initiatives or briefings in place for appointment commission members, in particular for influential persons? Is every person involved in the process aware of gender equality issues?
- Persons with strong positional and/or symbolic power can easily influence the decision making process.
- Is there a strategy to ensure a meeting culture that allows open discussions and involvement of every participant?
- Certain decisions are made within groups. Are these groups gender-balanced?
- Are the criteria explicit, transparent and weighted in a standard way? Are they fixed for the entire process?
- Are the criteria assessed with respect to potential inherent biases? When defining the criteria in the beginning, are procedures in place that allow to define criteria in a new, unbiased way? If this is impossible, is the commission willing to give biased criteria a smaller weight?
- It is important that only the criteria agreed upon have an impact on the decision and are applied equally to every candidate. Is there a routine process to ensure this?

Tenure track positions for high level researchers

Delft University of Technology is aiming to substantially increase the number of top female scientists. Delft Technology Fellowship offers since 2010 high-profile, tenure-track positions to top female scientists. The goal is to increase the current percentage of 12% of female senior researchers up to 20 % in 2020. The 5-year Fellowships are awarded to (external) female scientists from any country and from any of the disciplines in which the university is active. The fellowships are awarded at the Assistant, Associate or full Professor levels and include a start-up grant comprised between 100.000 Euros and 300.000 Euros). Selected candidates benefit from an informal mentoring scheme. Following a positive evaluation at the end of the tenure track, the fellow is awarded tenure.

Cascade model for monitoring and planning gender-sensitive academic recruitment

In several EU member states, RPOs have adopted the so-called « cascade model » for monitoring and planning academic recruitment in a gender sensitive way, which consists to set objectives regarding the expected proportion of women for each qualification level, based upon their actual proportion at the level below. Pioneer in its implementation, the Helmholtz Association decided to introduce flexible target ratios for the shares of female employees, following the cascade model. According to this model, the actual ratio of a career stage is regarded as the ideal ratio for the next career stage. A timeframe for reaching target ratios has been established, i.e. five years. Target ratios are a result of the ideal ratios which are then being weighted with the actual new vacancies on the respective career stage and other factors. Each Helmholtz Centre has its own target quotas. Currently, the GFZ committed itself on higher target ratios than the calculated target ratios. Meeting these target ratios can be challenging, as recognised by the organisation. However, this illustrates the organisation's motivation to promote equal opportunities through GFZ's human resources policy.

Conclusive recommendations

On the basis of selected good practices, and with view to help research performing organizations and universities to fight gender biases at recruitment as a mark of Responsible Research and Innovation, the EGERA community of practitioners would like to share the following conclusive recommendations:

- ✓ **To implement a participatory audit of selection and recruitment procedures, with view to give voice to different types of stakeholders, and to unravel potential biases, underlying and/or implicit norms behind allegedly purely meritocratic criteria based on measurable academic excellence**

This audit should aim at documenting and if necessary, challenging:

- The identification of research areas for which positions are likely to be opened for recruitment in the nearest future
- The definition and drafting of job profiles in terms of qualifications, skills, merits and missions, but also at the level of the information provided to potential applicants with regards to the working environment and conditions
- The channels used for their dissemination towards different pools of potential candidates of both sexes
- The definition and application of selection criteria, from job posting to personal interviews
- The composition of recruitment committees
- The interactions with applicants of both sexes during interviews
- The publicity given to the outcomes of the selection procedure, including with regards to the scoring of selection criteria
- The scope of the potential negotiation and information phase with the selected candidate

✓ **To perform a pluri-annual, consent-based monitoring of academic recruitment, in light of quantitative and qualitative objectives set with regards to diversity and gender equality**

The participatory audit shall support the implementation of a monitoring including:

- Short, mid- and long-term objectives per discipline and/or research units, departments or faculties, for instance following the "cascade model"
- Accountability mechanisms for research units/departments/faculties to provide regular information regarding their current staff composition, their own objectives, and their difficulties in identifying pools of female candidates
- Follow-up mechanisms at the level of the whole organization, so as to ensure that set objectives are met, that lessons about what works and what works less are widely shared, and that both challenges and successes, are known from the whole community

✓ **Setting-up awareness-raising actions on gender biases to the attention of all involved stakeholders categories such as directors of research unit, departments, faculties; members of scientific boards and other research governance bodies, Human resource department, and members of recruitment/appraisal committees.**

These actions and instruments should include:

- Clear guidelines for gender sensitive recruitment procedures, adapted to the actual practices of the institution, as evidenced in the audit. Those guidelines should be made public and easily accessible to all categories of stakeholders, including members of recruitment committees
- A checklist disseminated towards all categories of stakeholders, summarizing the main points of the guidelines, so as to guide them all along the process
- A briefing for all recruitment committees' members to equip them with valid information regarding career path assessment, selection criteria, potential gender biases, and the objectives of the institution as concerns recruiting women in academic positions at all levels
- Workshops devoted to gender-sensitive job profile drafting
- These tools could be complemented by video tutorials and tests as those developed for project Implicit at Harvard University

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