How to improve the research cultural environment

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Chapter I: Structural Integration of Gender Equality

This section covers the literature concerned with how to design, implement and pursue successful policies aiming at achieving gender equality in science. The works reviewed in this section in particular discuss the issues of well-design policies, factors that enhance of hinder conducting effective monitoring of gender equality and making gender equality sustainable as well as the problems of gender-balanced composition of decision-making bodies and the powers of gender equality offices.

1. General conditions for effective gender equality policies

Within the GENERA Fields of Action policies refer to all programmes, strategies, courses or principles of action and objectives that aim at achieving transformative change towards gender equality directly and indirectly.

International organizations have widely tackled the problem of gender inequality in labour market, including the area of science and research. Ensuring women's equal access to science and technology became one of the strategic objectives (B.3) set by the UN in the Beijing Declaration and Platform of Action. The UN established the Gender Advisory Board in 1995 to provide advice to the United Nations Commission on Science and Technology for Development (UNCSTD). It monitors the implementation of the recommendations made by the Commission on gender and science and technology, and provides assistance in their implementation. Moreover it advises the Commission on the gender implications of its new work programmes (About the GAB n.d.).

As far as the European context is concerned, the idea of equal pay for equal work was one of the first areas of gender equality to be referred to in the EU's policies (Article 141 of the Treaty of Rome 1957). The first step towards European gender equality policy in the field of science was the European Commission communication entitled **“Women and science” - Mobilising women to enrich European research**“, in which significant efforts to increase women's participation in the EU research programmes and establishment of a working group on “Women and science” were announced (EC 1999). It was immediately followed by the Resolution on Women and Science, in which the Council of European Union (1999) invited both member states and the Commission to contribute to the assessments of the situation of women in research area and on-going policies as well as to the development of further initiatives to promote women in science (EC 2001; Jurviste, Stull 2015)[1)]. While since then some progress has been made in the member states, women remain under-represented in the EU research and science (Jurviste, Stull 2015; She Figures 2015).

Accordingly, the EU (as well as the UN and other international organizations) may be seen as a self-defined gender equality norm-setter and policy-inspirer/initiator and its impact on gender equality

policies and practices in its member states can be analysed. At the same time it is necessary to acknowledge that gender equality and gender equality policies are geographically contextualized, which means that they are affected by different cultural and political traditions and current patterns of separate countries and/or regions. In fact there are substantial differences within the group of European societies in understanding gender, diagnosing and prognosticating of the problem of gender inequality, the degree of politicizing gender inequality, targeting certain groups with actions, locating the problem of gender inequality and defining solutions to it (comp. Verloo, Lombardo 2007). Similarly, there are varied and complex differences throughout Europe in the content and quality of gender equality policies. They are argued to be linked to “to the content and nature of the civil society/state interface, political opportunities and coalitions or opponents, and to the wider environment, most importantly gender regimes but also the wider international environment” (Verloo et al. 2011: 53). Therefore there are various patterns of Europeanisation[2)]) of gender equality, or various patterns of domestic adaptations to the EU's gender equality policies rather “than simple reactions to 'Brussels'” (Radaelli 2004: 4).

Conducive national legislative and policy backgrounds have been recognized to be important facilitators of institutional change for gender equality in RPOs and RFOs in Europe. Together with international standards and polices they can produce powerful incentives for introducing GEPs[3)]) (Linková et.al. 2007; Lipinsky 2014; Vinogradova, Jänchen, Obexer-Ruff 2015, Zippel, Ferree, Zimmermann, 2016|). However, European countries differ significantly in legislation and policies for integrating gender equality in research institutions, similarly as in general gender equality legislation and policies (Forest, Arnaut, Mergaert 2016). They have been divided into two broad categories: 1. “proactive countries, which promote and monitor gender equality in research and research funding with active policies and measures”, and 2. “countries relatively inactive in this area, with few, if any, initiatives” (EC 2009: 5).

Within the category of proactive countries three distinct subgroups were identified. The first subgroup consists of Finland, Norway and Sweden which have been particularly active in promoting gender equality in research and research funding since the late 1970s - early 1980s, as well as Denmark and Iceland. The second proactive subgroup includes Austria, Germany, Switzerland, Netherlands and Belgian Flanders. They have more recently introduced advanced gender equality policies and measures. At the same time they encounter the largest under-representation of women in research in Europe. The third group of proactive countries combine innovative measures adopted more recently than the Nordic countries with larger proportions of female researchers than in the previous group. These characteristics refer to the United Kingdom, Ireland and Spain. The rest of European countries - including 17 Member States and two associated countries (BG, CY, CZ, EE, FR, GR, HR, HU, IL, IT, LT, LU, LV, MT, PL, PT, SI, SK, TR) were identified in 2009 as 'relatively inactive' with little reaction to policy impulses relating to gender equality (EC 2009). This classification seems to hold currently true, however France has improved its position from relatively inactive to proactive (Lipinsky 2014: 13), namely to the subgroup of countries that have recently introduced advanced policies and measures and, at the same time, have relatively large under-representation of women in research (compare European Commission 2016). While *de jure* gender equality is granted all over Europe, the gap between proactive and inactive countries seems however to widen (Lipinsky 2014: 18).

Austria, Spain, Germany, Norway, Italy, Finland and France have legal provisions in place that obligate universities and/or other public research institutions to explicitly create equality plans. In addition, in Denmark, Sweden, Hungary and Iceland, laws require workplaces over a certain size to draw up gender action plans. In seven other countries (Belgian Flanders, Switzerland, Croatia, Estonia, Romania, Turkey, United Kingdom) a legal basis or other rules exist for the creation of gender equality plans; however equality plans are not explicit or obligatory instruments (Lipinski 2014; EIGE b; Vinogradova, Jänchen, Obexer-Ruff 2015)[4)]. “In other cases, gender action plans are used without

explicit requirement and other tools could be in place to encourage institutional changes." (Lipinsky 2014: 19)

As previously mentioned, practices centred on gender-equality in research organizations have been a prime concern for the institutions of the European Union and beyond (EC 2010:119). The 2014 ERA Survey of the RPOs demonstrated that, in fact, many European RPOs introduced solutions aimed at combating gender inequality in a research workshop in 2013 or prior. Among the RPOs, the main recommendations and the ensuing surveying pertained to the following measures:

- flexible career trajectory (e.g. enabling career interruptions, returning schemes after career breaks);
- 'gender-aware' working conditions;
- provisions for having dual-career family arrangements;
- gender-sensitive promotion measures;
- support for leadership development (e.g. mentoring and/of networking opportunities for female researchers)
- targets to ensure gender balance in recruitment committees
- work-life balance measures (e.g. parental leaves, flexible working arrangements) (see EC 2010, Castano et al. 2010).

Among all mechanisms, the European RPOs across different countries have had the highest preponderance for implementing introduction of work- life balance measures, while the provisions to enable the adoption of a flexible career trajectory came second and also appear to be a relatively widespread practice to support gender equality (EC 2015:121). Importantly, in the survey there has been no definite conditionality between introducing Gender Equality Plans and deployment of gender-equality measurements in general. In other words, not all RPOs who have adopted gender equality measures have adopted a GEP, or vice versa.

Apart from existence of political will and commitment at the highest level and supportive and harmonized national legislative and policy frameworks that are in compliance with international standards and guidelines (EC 2003; McGregor, Bazi 2001; Verloo et al. 2011; European Commission 2012a, European Commission 2012b; Lipinsky 2014; UNDP 2014), other general recommendations for efficient gender equality policies in research and science can be formulated. Firstly, it is acknowledged that these policies should be comprehensive and tailored. This means they should relate to various aspects of gender inequality in the institutions and employ a wide range of short, medium and long-term initiatives, which will be implemented at various institutional levels and depend on national, local and institutional contexts (Lee, Faulkner, Alemany 2010; Lipinsky 2014; Pépin et al. 2014). Comprehensiveness also means tackling both surface and deep levels of gendering processes and, therefore, systematical integration of individual level initiatives with the initiatives for institutional and cultural change. This requires targeting not only individual women and addressing their needs and gender composition, but also challenge the mechanisms that produce inequalities within scientific professions, including the deeply embedded images of ideal workers and associated symbols and ideologies (Morimoto et. al. 2013; Mühlenbruch, Jochimsen 2013)[5]. In this context it is argued that "simplistic, ad hoc or piecemeal solutions cannot eradicate systematic, historical, and widespread gender underrepresentation and inequalities" (Bilimoria, Liang 2012: 6). Instead, it seems inevitable to fundamentally change "how an organization conducts its day-to-day operations (who we are), as well as how the organization views itself in the future (who we want to be)." (Bilimoria, Lang 2012: 6)

Secondly, it is argued that the policies on gender equality in research and science should set gender-related targets, for example with regard to vertical segregation and the share of women in decision-making committees (McGregor, Bazi 2001; Lee, Faulkner, Alemany 2010; Lipinsky 2014; EIGE 2016).

Therefore, thirdly, it might be necessary that these policies include (temporary)__ special measures__ “to overcome the effect of historical discrimination and accelerate the attainment of substantive equality for women” (UNDP 2014: 33). Special measures - named also specific or positive measures - refer to all actions “aimed at favoring access by members of certain categories of people, in this particular case, women, to rights which they are guaranteed, to the same extent as members of other categories, in this particular case, men” (EIGE Gender Equality Glossary and Thesaurus). They encompass “a wide variety of legislative, executive, administrative and other regulatory instruments, policies and practices, such as outreach or support programmes; allocation and/or reallocation of resources; preferential treatment; targeted recruitment, hiring and promotion; numerical goals connected with time frames; and quota systems” (CEDAW 2004). Among these instruments there are both soft and hard measures. Soft measures include normative pressure, encouragement, guidelines, recommendations and targets initiated by external stakeholders (such as national governments and international organizations) and research organizations themselves. They are collected in various documents, including the European Charter for Researchers and Code of Conduct for their recruitment, LERU's self-commitment to act against gender bias, the Athena Swan Charter, or Talent to the Top-Charter (Lipinsky 2014). However, so far it remains unclear whether these incentive programmes bring about sustainable changes in recruitment procedures and diminish gender bias in faculty recruitment (Lipinsky 2014: 25). Therefore, while voluntary targets can achieve much, binding regulations and hard measures are believed to be the only way to effect change in some cases. These include legislative quotas used as a measure to counter the underrepresentation of women scientists in decision-making positions in research organizations (Rees 2002; Mühlenbruch, Jochimsen 2013).

Fourthly, it is acknowledged that gender equality policies should be a multi-actor _ responsibility__ as regards formulating priorities, supporting institutions with implementation, assessment of performance and continuous monitoring. There should be well established collaboration between science policy-makers, research performers and research funding organizations (Lipinski 2014; see also Verloo et al. 2011). At the same time, there should be agreement between the institution's leadership and associated departments or institutes (Lipinski 2014; Morimoto et. al. 2013).

Fifthly, it is underlined that gender equality polices should have human, financial and institutional resources necessary for implementation, monitoring and enforcement of laws (Verloo et al. 2011; EIGE 2016). In this context it has been found that gender equality committees that operate on the national level or in the organizations of higher education “tend to be equipped with advisory tasks rather than broader decision-making competences” (Lipinsky 2014: 18). Similarly in other contexts, including engineering organizations, it has been revealed that lack of funding and other resources remained a major obstacle to change (Lee, Faulkner, Alemany 2010).

Sixthly, it is argued that the policies should be embedded into existing structures and management procedures, which will ensure institutional change towards gender equality and strengthen the sustainability of planned measures. Simultaneously, it will guarantee the incorporation of gender-sensitive and gender-specific actions into standard management procedures (e.g. gender training or gender-sensitive recruitment, EIGE 2016).

Seventhly, gender equality policies should be accountable _ and transparent__ in their goals. Accountability refers to “aligning interventions targeting different institutional levels in accordance with a broader plan for institutional change” and - in case of universities - “considering the incongruous aspects of the academic bureaucracy” (Morimoto et. al. 2014: 410)[6]. Transparency means that “changes in policy, including reformulations of existing policies, must be transparent to faculty at all levels and implemented in a consistent and clear manner. Otherwise the uneven nature of change processes will likely reproduce patterns of inequality: men will use their existing networks to navigate changes, while women will have to simultaneously navigate changes and build their professional networks” (Morimoto et. al. 2013: 411).

Eighthly, gender equality plans should be flexible and resilient as this allows “for the reassessment of gender-specific priorities for the institution at different levels” and for “the adaptation and reshaping of gender equality measures, in cooperation with (the growing circles of) stakeholders, based on insights and/or data in order to ensure that targets and objectives are achieved” (EIGE 2016: 1). In other words, action plans should be kept “open to new needs and opportunities” (Cacace 2015: ix).

Ninthly, policies should be adequately publicized and promoted so that all stakeholders know about existing policies and procedures; “It is not enough if a policy is 'on the books'; organisations need to follow through by making staff aware of specific measures and creating opportunities to discuss any questions or issues they may have” (Lee, Faulkner, Alemany 2010: 91; see also McGregor, Bazi 2001).

2. Monitoring of gender equality policies and sustainability of gender equality gains

This subsection covers the discussion on the facilitators of effective monitoring systems implemented in an organization to assess where gender equality actions are needed and whether the adopted policies have been successful.

Development of monitoring and evaluation practices is an important aspect of gender equality plans in research organizations. Monitoring increases the robustness and sustainability of gender equality strategies, provides visibility and enables measuring actual progress. It allows not only for assessing program effectiveness but also for drawing upon lessons learnt from implemented initiatives and helps identify areas for further improvement (McGregor, Bazi 2001; Lee, Faulkner, Alemany 2010; European Commission 2012a; Lipinsky 2014; EIGE 2016). Monitoring of gender equality policies is also essential because “the effects of a given organizational practice often vary—across social groups, organizational levels, labor markets, and industries” (Tolbert, Castilla 2017: 7) and not all measures intended to promote equity in organizations succeed in doing so (compare Kalev et.al. 2006; Castilla, Benard 2010; Kalinoski et.al. 2013; Tolbert, Castilla 2017). These findings suggest that “the quest for 'best practices'— connoting ones that yield positive results across the board and under all conditions—is a quixotic one”(Tolbert, Castilla 2017: 12).

Mechanisms of monitoring gender equality policies in science and research vary considerably throughout Europe. Monitoring is performed by different parties, most often by governmental bodies, but also research organizations themselves, NGOs or some institutions on own status. Monitoring strategies range from relying only on HR statistics to depending on a combination of activity reports and HR statistics. Other instruments are less established. They include so-called 'income reports' providing details on gender pay gaps, which e.g. all Austrian public institutions including universities are obliged to provide every year. It has been demonstrated that “monitoring instruments (regular reporting, performance indicators, human resources statistics, etc.) depend on the type of organisation and can vary within a national science system; within the institutional setting it can also vary by department” (Lipinsky 2014: 20).

While it is agreed that valid indicators to measure the institutional and cultural change should be created, there is also a conviction that progress towards gender equality in research is difficult to monitor. A difficulty in creating valid indicators for measuring institutional change processes relates to the existing differences in size and research objectives between specialized research institutions (e.g. technical institutes, internationally renowned science organizations, small teaching universities, internationally leading research universities etc.), which “makes it very complex to directly compare institutional performance and outcomes beyond sex-disaggregated human resources statistics” (Lipinsky 2014: 11).

Nevertheless a few recommendations for monitoring and evaluating processes can be formulated. Firstly, monitoring should be exercised by RFO's and RPO's themselves, but coordinated centrally and controlled by civil society actors, including scientific and professional societies (creation of a cross-university, inter-institution monitoring body - Committee on … 2006a; Lee, Faulkner, Alemany 2010). Secondly, monitoring should include a variety of tools, including HR statistics, performance indicators, activity reports and budget reports. Statistics can be developed into equality indicators, which allow the measurement of change as policies are introduced (European Commission 2012a; Science Europe 2017)[7]. Thirdly, progress __needs to be __measured and benchmarked against other institutions (European Commission 2012a)[8]. Fourthly, policy evaluations should focus not only on the successes of specific policy measures, but also on shortfalls and unintended effects (McGregor, Bazi 2001; Lee, Faulkner, Alemany 2010; European Commission 2012a; Lipinsky 2014; Wharton 2015). “A common understanding of the functions and constraints of evaluation exercises in relation to gender equality measures and policies is a reasonable means for enabling real advancements in policy and practice” (Lipinsky 2014: 18). The problem of unintended consequences of change should also be recognized, because “well-intentioned and planned organizational change can be resisted, deflected, or transformed in ways that undermine rather than facilitate desired outcomes” (Wharton 2015: 12). Fifthly, results of monitoring should be disseminated, __made public and visible__ (Committee on … 2007; McGregor, Bazi 2001: 70-72; European Commission 2012a: 39). Sixthly, instances of good practice could be rewarded and made visible for others to learn from, through national or employer-level prizes (McGregor, Bazi 2001; Lee, Faulkner, Alemany 2010).

Sustainability refers to all measures taken to ensure that the undertaken efforts are integrated in the organization's long-term planning. When it comes to providing for the future sustainability of the actions initiated under a gender equality programme, dynamic planning is necessary. The results of the STAGES[9] project showed that “the quest for sustainability starts from the very beginning, through the arrangements which are setup for implementation, which are then progressively scrutinised to get to viable solutions for securing their continuity” (Cacace 2015: ix). While some actions may become sustainable from the start, other will need to be redefined, modified, merged or otherwise transformed. Additionally, transition phases may be needed, “where the teams still continue to cooperate in the delivery of the action by gradually reducing their efforts as new institutional actors take over.” (Cacace 2015: ix).

It has been also observed that sustainability and resilience of gains related to gender equality can be easily challenged by a number of factors, such as change of leadership, budget cutbacks, or apathy. Therefore, certain steps to avoid reduced or limited sustainability should be taken. Firstly, it is necessary to “embed a commitment to both gender equality and the work related to the Gender Equality Plan into multiple organisational structures. This means that support, buy-in and commitment for the Plan will need to be sought from multiple stakeholders and not only allocated to a specific school or department” (EIGE 2016: 3). Secondly, in order to make gender equality a long-term objective it is essential to incorporate gender equality perspective and aims into the institution's steering documents, including the long-standing development strategy (Swedish Secretariat for Gender Research 2016) and “allocate gender equality work to a specific multi-annual budget” (EIGE 2016: 3). Thirdly, it is important to “create and implement regular accountability, monitoring and evaluation structures, and/or tools into a Gender Equality Plan to flag when sustainability begins to lag and to indicate actions needed prior to crisis points being reached” (EIGE 2016: 3).

It has also been suggested that to bring about sustainable changes towards gender equality in science and research, it may not be enough to have incentive programs and the voluntary use of “soft measures” to counter gender imbalances (Lipinsky 2014). Setting fixed targets with deadlines and binding obligations may be necessary[10] (Mühlenbruch, Jochimsen 2013).

3. Gender balance in gate-keeping positions and empowering gender equality bodies

Increasing women's participation in decision-making bodies and equipping gender equality related boards with enough power to effect change are the further conditions of structural integration of gender equality in science. This subsection covers the evidence on how to efficiently and sustainably achieve gender balance in all relevant boards, bodies and committees, as well as the conditions of effective performance of gender equality office.

It is a well-established argument that efficient gender equality strategies should aim at increasing the number of women in scientific 'gate-keeping' positions. Gate-keeping refers to the control of the definition of merit and the means of exercising academic power, influencing or controlling “the access to a particular scientific field, allocation of resources and information flows, content and development of a field, and external image of a field” (cit. after Kalpazidou Schmidt 2012: n. p.). Hence, gate-keeping positions include not only the top management of research institutions and evaluation panels of research funding agencies but also “committees which set the research agenda, are involved in the shaping of the future of their institution by hiring new researchers and teachers, serve as tutors for Master's and PhD students or have a high visibility, such as: strategy committees of national science foundations, national academies, academic and research institutions or advisory boards of research and/or education ministries or the European Commission; hiring committees for faculty and research positions, but more especially also committees who make decisions and/or recommendations on leading research positions; tenure and promotion committees; PhD committees; committees for (re) designing curricula; review boards for research proposals, review boards of journals; prize committees; programme committees which decide on whom to invite as (key note) speakers” (European Commission 2012a: 31).

The presence of a critical mass of women in decision-making roles is believed to be one of the factors of enabling environment for advancing gender equality in science (McGregor, Bazi 2001: 24) and in the society as a whole (Williams, Diaz, Gebbie, El-Sayed 2005). It is argued that increasing the proportion of women in leadership positions not only increases visibility of female scientists and gives them “opportunity to influence others and affect scientific policy”, but also enhances health of scientific disciplines themselves through “draw(ing) on the widest possible spectrum of talented individuals from both genders”, assuring diversity of views and leadership styles and improving the research environment (Williams, Diaz, Gebbie, El-Sayed 2005: 16). It is also argued that better presence and visibility of women in decision-making bodies should counteract biases against female scientists, support gradual changes in stereotypes and encourage other women to pursue scientific career and to aspire to leading positions in science (EC 2001: 58; EC 2008a: 27). Therefore, the European Charter for Researchers and the Code of Conduct for the Recruitment of Researchers (2005: 25) urges that selection committees bring “together diverse expertise and competences and should have an adequate gender balance (…).” However, at the same time it is urged that “persons with disproportionate committee and administrative duties should be provided with additional research and support staff or reduced teaching assignments to ensure that their research does not suffer” (European Commission 2012a: 31).

Introducing quotas is one of the methods for achieving gender balance and counteracting sexist hiring which has been for long argued to be an important cause of the underrepresentation of women in academic science (Shen 2013; Williams, Ceci 2015). Quota - as well as target - regulations have been implemented throughout Europe to decision-making, such as scientific committees, advisory boards, expert groups, university governing bodies, etc. Yet they have been less often used to staff recruitment or fellowship awarding (Lipinsky 2014: 12)[11]. However, the suitability of quotas for

science has been debated. It is argued that in “academia, where merit and autonomy have a central value, sanctions and incentives” applied to quotas “could be seen as compromising either, and therefore corrupting the system” (Wallon et.al., 2015: 16; see also Laas 2007; Vernos 2013; EIGE 2016). Additionally, it is debatable whether more women in various committees and boards will increase female representation in science and their promotion. Evidence from promotions in the Spanish public university system proves that while in exams to full professor positions evaluators tended to favor same-sex candidates who belong to their own academic network, in exams to associate professor positions, both male and female evaluators tended to prefer male candidates. Moreover, the gender gap was larger, when candidates were evaluated by a female associate professor from their own institution (Zinovyeva, Bagues 2011; see also Młodożeniec, Knapińska 2013). At the same time data from hiring experiments carried out lately in the USA showed that when men and women faculty members evaluated hypothetical female and male applicants for assistant professorships in biology, engineering, economics, and psychology, they “preferred female applicants 2:1 over identically qualified males with matching lifestyles (single, married, divorced), with the exception of male economists, who showed no gender preference” (Williams, Ceci 2015: 5360). Therefore it is argued, that “mechanism resulting in women's underrepresentation today may lie more on the supply side, in women's decisions not to apply, than on the demand side, in antifemale bias in hiring” (Williams, Ceci 2015: 5365). At the same time it has been acknowledged that while real-world data challenge the image of STEM as an inhospitable male bastion, the image itself is self-perpetuating and may discouraged potential female applicants (William, Ceci 2015: 5365). Therefore, while the results of this study may prove the elimination of gender bias and sexism in hiring in the STEM fields, they surely need replication both outside the American context, in reference to other than assistant professorship career stages, inside non-university research organizations and specifically in the field of physics.

The results of the studies on the impact of gender composition of decision-making bodies on hiring and promotion practices are ambiguous. At the same time, they validate the claim that members of such bodies - regardless of their sex - need to be able to address their own biases and make informed decisions, which often requires taking part in gender-awareness trainings. The arguments for such trainings as an important element of gender equality programmes in science are developed in the next sections of this paper.

Transparency and fairness of selection procedures are less disputable conditions for gender balance in decision-making bodies. It is recognized that “open, transparent procedures work to lessen the influence of informal old-boy networks that often exclude women” (EC 2008a: 29). However, the reality fall short of the recommendation for transparent and fair procedures. In 2012 it was observed that in many European scientific institutions both structures and processes lacked clarity (European Commission 2012a: 20). It manifested itself in: 1. the lack of clarity about how committees or advisory bodies function and are constituted, 2. establishing membership in such bodies through existing members bringing in acquaintances (co-optation), 3. insufficient information on vacancies and application procedures in the openings to such bodies, and 4. lack of limits for service periods on such bodies and committees, which is believed to prevent the influx of fresh ideas and new perspectives (European Commission 2012a: 20). The persistence of informal and not transparent recruitment procedures sustains male dominance in editorial boards, peer panels, and selection committees for professorships and, therefore, reproduces the established power system of science (Kalpazidou Schmidt 2012). Therefore “it is advisable that the terms for membership on committees and boards be limited to an appropriate duration in order to avoid stagnation. The working conditions of such committees and boards should be published and the criteria of how procedures are structured and how decisions are reached should be transparent and objective: there should be no doubts as to how and where decisions are reached. A regular review of processes and gender audits of such bodies ensures accountability and leads to increased transparency” (European Commission 2012a: 32-33).

Analogic conclusions were drawn from cyclical observations of evaluation process in the Swedish Research Council, a central government agency tasked with funding basic research of the highest scientific quality. The researchers carrying out these studies found “that when various informal structures or unstated assessment criteria have an influence on the evaluation process, this has an adverse effect on gender equality.” (Ahlqvist et. al. 2015: 21; see also Ahlqvist et. al. 2013). Hence, they formulated a number of detailed recommendations aimed at greater formalization and clarification of the whole process. The recommendations included, but were not limited to: 1. Striving for an even gender composition of every evaluation panel, and for international representation, 2. developing procedures for the use of pre-determined seating arrangements to promote a good discussion climate, 3. drawing up explicit guidelines for the structure of evaluation meetings, 4. clarifing the roles and responsibilities of the chair and producing clear instructions for how the meeting should be conducted, 5. reviewing the instructions and the information provided to the reviewers during recruitment as well as instructions and procedures for screening meetings from a gender equality perspective, 6. developing training on gender equality issues that is mandatory for all who participate in the evaluation, 7. clarifing the evaluation criteria of „aplicants's merit” and independance, and 8. developing guidelines for the use and calibration of the grades (Ahlqvist et.al. 2015; see also Vinkenburg 2017).

A well-equipped and well-located gender equality body (e.g. a dedicated unit, working group, team, or office) has been identified as a success factor to promote gender equality through institutional change in research and higher education settings. Such a body coordinates and monitors gender equality efforts and ensures the implementation of gender equality actions with the support of and in cooperation with leadership and executive bodies (e.g. human resources department). It also ensures that human resources, knowledge and expertise are available in-house (EIGE 2016: 1). To ensure resilience and impact of gender equality efforts, the gender equality unit heads “should have a title which fully expresses their proximity to the governing body, and they should preferably be chosen from amongst the faculty or be prominent leaders of research groups who continue their main activities in teaching and research on par with their peers. Therefore it goes without saying that adequate and permanent resources should be made available to them, both regarding staff who are experts in gender issues as well as a budget which will allow for activities (…)” (European Commission 2012a: 27).

4. Recommendations and good practices

This subsection summarizes main recommendations concerning structural integration of gender equality in research organizations in the subfields of policies, monitoring, sustainability, scientific gate-keeping positions and gender equality body. Where possible, examples of good practices utilizing these recommendations are described.

According to the results of literature review policies on gender equality in research should:

- have supportive and harmonized national legislative and policy frameworks that are in compliance with international standards and guidelines (EC 2003; McGregor, Bazi 2001; Verloo et al. 2011; European Commission 2012a, European Commission 2012b; Lipinsky 2014; UNDP 2014)
- be supported with political will and commitment at the highest level (McGregor, Bazi 2001; Lipinsky 2014)
- be comprehensive and tailored, which mean:
    1. relating to various aspects of gender inequality in the institutions,
    2. employing a wide range of short, medium and long-term initiatives, which will be

implemented at various institutional levels,
3. tackling both surface and deep levels of gendering processes and, therefore, systematical integration of individual level initiatives with the initiatives for institutional and cultural change,
4. depending on national, local and institutional contexts (Lee, Faulkner, Alemany 2010; Morimoto et. al. 2013; Mühlenbruch, Jochimsen 2013; Lipinsky 2014; Pépin et al. 2014).

- set gender-related targets (McGregor, Bazi 2001; Lee, Faulkner, Alemany 2010; Lipinsky 2014; EIGE 2016)
- include (temporary)__ special measures__ (Rees 2002; CEDAW 2004; Mühlenbruch, Jochimsen 2013; Lipinsky 2014; UNDP 2014)
- be a multi-actor _ responsibility__ (Morimoto et. al. 2013; Lipinski 2014; see also Verloo et al. 2011)
- have human, financial and institutional resources necessary for implementation, monitoring and enforcement of laws (Lee, Faulkner, Alemany 2010; Verloo et al. 2011; Lipinsky 2014; EIGE 2016)
- be embedded into existing structures and management procedures (EIGE 2016)
- be accountable _ and transparent__ in their goals (Morimoto et. al. 2013)
- be flexible and resilient (Cacace 2015; EIGE 2016)
- be adequately publicized and promoted (Lee, Faulkner, Alemany 2010; McGregor, Bazi 2001).

Examples of good practices include:

**CNRS (France): ** the Transformative Gender Action Plan (T-GAP) was constructed “as a flexible scheme to be adapted through discussions with the local implementation teams, with CNRS Senior Management, as well as following reviews and assessment carried out by the external evaluator. Based on the collected quantitative and qualitative data, the devised T-GAP takes into account the recent evolution of the national legislative and regulatory context as well as European recommendations and good practices already implemented by peer institutions in Europe and North America” (Pépin et al. 2014: 5); gender equality contact points are to be created in all CNRS regional delegations located over the country; a comprehensive collection of sex-disaggregated statistics (“parity” booklet) is being published yearly and disseminated broadly across CNRS, serving as a model for other national research organisations as well as French universities. Tailored data factsheets have been also prepared for recruitment and promotion juries (Pépin et al. 2014).

Monitoring of policies on gender equality in research should:

- be coordinated centrally and controlled by civil society actors (Committee on … 2006a; Lee, Faulkner, Alemany 2010)
- include a variety of tools (European Commission 2012a)
- measure and benchmark progress against other institutions (European Commission 2012a)
- focus not only on __the successes of specific policy measures, but also on __shortfalls and unintended effects (McGregor, Bazi 2001; Lee, Faulkner, Alemany 2010; European Commission 2012a, Lipinsky 2014, Wharton 2015)
- results of monitoring should be disseminated, __made public and visible__ (Committee on … 2007; McGregor, Bazi 2001; European Commission 2012a: 39)
- instances of good practice could be rewarded and made visible for others to learn from, through national or employer-level prizes (McGregor, Bazi 2001; Lee, Faulkner, Alemany 2010).

Examples of good practices include:

**University of Ferrara (Italy) **:The “Bilancio di Genere” (“Counting Gender” Report) aims at, most importantly, monitoring the participation of women in the organisation among students, professors, clerical workers and all decision-making bodies, and evaluation of Positive Action Plan implemented at the university. It is considered a national best practice and the university has been granted funding to prepare a guidelines for other institutions to implement in Italy similar practice. It would ease gathering statistical information on the theme across the country.
http://www.unife.it/progetto/equality-and-diversity/bilancio

Ensuring sustainability of policies on gender equality in research requires:

- dynamic planning (Cacace 2015)
- embedding a commitment to both gender equality and the work related to the Gender Equality Plan into multiple organisational structures (EIGE 2016)
- incorporating gender equality perspective and aims into the institution's steering documents, including the long-standing development strategy (Swedish Secretariat for Gender Research 2016)
- allocating gender equality work to a specific multi-annual budget“ (EIGE 2016)
- implementing regular accountability, monitoring and evaluation structures, and/or tools into a GEP to flag when sustainability begins to lag and to indicate actions needed prior to crisis points being reached (EIGE 2016)
- setting fixed targets with deadlines and binding obligations (Mühlenbruch, Jochimsen 2013).

Achieving gender balance in gate-keeping positions:

- requires that persons with disproportionate committee and administrative duties be provided with additional research and support staff or reduced teaching assignments (European Commission 2012a)
- may require introducing quotas, however their impact on substantive gender equality needs further verification
- requires breaking the persistence of informal and not transparent recruitment procedures (Kalpazidou Schmidt 2012; EC 2008a; European Commission 2012a)
- requires that terms for membership on committees and boards be limited to an appropriate duration (European Commission 2012a).

Examples of good practices include:

**Siauliai University (Lithuania). **Considering the striking underrepresentation of women in the university's Council, the Council Election Tactics and Strategy Plan were developed within the EU-funded structural change project INTEGER in order to encourage a gender-balanced representation of the Council. Several activities were undertaken in order to empower female candidates to run in the university's Council elections, such as: communication with the highest management staff at SU through formal meetings; consultation with the university lawyer about the possible ways of making women's representation in the Council's election; participation in the preparation of the election regulations; search for women candidates from SU representatives according to criteria such as loyalty to the university and commitment to implement gender equality at the university. As a result of these initiatives, the number of women to the Council significantly increased from 0% in 2011 to 36.3% in 2014 .
http://eige.europa.eu/gender-mainstreaming/tools-methods/gear/legislative-policy-backgrounds/lithuania

**The Helmholtz Association (Germany): ** The Helmholtz Mentoring Programme for young women is an integral part of the Association's strategy to ensure equal opportunities for men and women at all Helmholtz Centres. It aims to raise the number of women in executive-level positions, where they are still significantly underrepresented.
https://www.helmholtz.de/en/jobs_talent/funding_programs/helmholtz_mentoring_programme/

**Ghent University (Belgium) - Procedure of the election of the Board. **As a result of introduction of a new procedure which requires 40/60 % gender-balanced representation of members the Board of Governors (Raad van Bestuur), the University of Ghent achieved balanced representation of men and women as a result of elections in 2014. As new regulations state, each faculty is required to propose at least 1 male and 1 female candidate, and in case there is unequal representation as a result of election, the “candidate with the least votes from the overrepresented sex (compared to other faculties) has to give way to the faculty's candidate of the other sex with the highest number of votes.” Interestingly, it was men not women who was at the end positively discriminated (a women had to give way to men). The Flemish law and policies oblige public universities to assure representation of 1/3 to 2/3 of men and women in all the decision-making, advisory and expert bodies.
http://eige.europa.eu/gender-mainstreaming/good-practices/belgium/new-election-procedure-board-ghent-university

Finally, the gender equality unit within the organization should be:

- placed in close proximity to the governing body
- headed by people recruited from amongst the staff/the faculty who continue their activities in research and/or teaching
- equipped with adequate and permanent resources, both expertise and a budget (European Commission 2012a).

**Examples of good practices include: **

**Kapodistrian University of Athens (Greece). **The Gender Equality Office (established in 2012) is in charge of gathering gender statistical data on scientific and administrative staff and students of the University of Athens, writing Annual Reports reflecting on the statistics collected, and reporting on the progress towards gender equality (including the universities' policies and practices). The website of the Office is systematically updated in order to inform the university community about the activities of the Office, as well as relevant scientific activity of other universities and research organizations. The office's website constitutes a channel of communication between faculty members and students on issues related to gender equality in higher education and provides self-learning tools for gender studies and issues from a gender perspective. However, the office is facing problems due to the lack of budget and staff (EIGE Greece Promoting Gender Equality In Research - Initiatives For Gender Equality By Research Performing Organizations.
http://eige.europa.eu/gender-mainstreaming/tools-methods/gear/legislative-policy-backgrounds/greece

**University of Luxemburg (Luxemburg): ** Gender delegate: Since 2003, the gender delegate advices the rectorate of the University in all matters relating to gender equality. The activities are based upon three pillars: Development and implementation of infrastructural measures, promotion of gender research, implementation of the gender aspect in academic teaching. The overarching aim is to create a new gender culture enabling equal, respectful and supportive interactions beyond all discrimination, between all genders, studying and working at the University of Luxembourg.

http://wwwen.uni.lu/university/about_the_university/organisation_chart/organisation_chart_rectorate_central_administration/gender_delegate/reports_statistics_and_other_documents

**The CERCA Institute (Spain). ** http://cerca.cat/en/women-in-science/ The Equal Opportunities and Diversity Management Committee has proposed an Equality Plan based on the analysis of statistical data (on women's participation, women's presence in senior positions and others), which commits every center to implement equality and diversity plan (paying special attention to gender and ethnic diversity). Four areas of actions are mostly important:

- Leadership, vision and strategy in CERCA centres (e.g. in each center there is a person responsible for diversity management, equal participation in conferences of men and women, women present in executive and scientific boards)
- Recruitment, promotion and the organisation of work. Measures to prevent bias.
- Encouraging gender awareness in research.
- Accountability and monitoring.(.e.g “Ensuring the indicators and statistics collected by the CERCA centres are broken down by gender, in particular data on governance, research and administration.”, inclusion of the theme in the centers' annual reports) (CERCA Institute 2014).

CUG (Italy). The Unique Guarantee Committee for Equal Opportunities in Public Administrations for workers' wellbeing and against discrimination (CUG), since 2011, all public institutions, universities included, are committed through national legislation to create CUG (presicely: Comitati Unici di Garanzia per le pari opportunità, la valorizzazione del benessere di chi lavora e contro le discriminazioni), being the committees which are occupied with equal opportunities, well-being of employees and anti-discrimination. The general aims of CUG are the following:

- Making proposals or designing actions: e.g. of action plans, promotional actions, analysis and creation of programmes, actions to improve working conditions, acts for prevention of discrimination, violence, mobbing, gender budgeting
- Consultation: about administrative acts of the institutions
- Verification: if there exist discrimination, mobbing, etc.

Consiglio Nazionale delle Ricerche (Italy). National Research Council of Italy includes in its strategic document with 3 year programme (2014 -2016) specific priorities linked to gender equality - and declares to sustain the functioning of the CUG (Committees for Equal Opportunities... described above). The programme points to certain activities of the Council:

- Spreading knowledge on gender and gathering statistics, leading research on the theme
- Career monitoring of the employees in order to identify gender discrimination
- Actions to combat discrimination, also of a cultural character that hinder realization of equal opportunities at work
- Action to stop introduction of discriminatory regulations or laws
- Improving job conditions so they are gender-friendly, developing flexible work conditions, support to institutional care in organisations, reducing “gender-linked risk”
- Supporting women scientists and their participation
- Gender balance in governing bodies, committee, examining bodies (1/3 of women)
- Promotion of gender budgeting.

Istituto Nazionale di Fisica Nucleare (INFN) (Italy). The National Institute for Nucleare Physics of Italy has recognized the CUG in its Statute as an Internal Organism of working. From 2002 INFN has developed an three-year Affirmative Action Plan. The current one is based on the European document (European Commission 2012a), on the Report on the Organizational well-being and on the gender audit report of GENISLAB project. The general objectives of this Action Plan are:

- to increase the transparency of decision-making processes and to increase the information flow;
- to remove the unconscious biases form institutional practices;
- to promote excellence through the promotion of diversity;
- to improve research through the integration of a gender perspective;
- to modernize the personnel management and the working environment.



1)
For the further developments in the EU's undertakings in the field of gender equality in research see for example Forest, Arnaut, Mergaert 2016.
2)
Europeanisation is here understood as consisting of "processes of a) construction, b) diffusion and c) institutionalisation of formal and informal rules, procedures, policy paradigms, styles, 'ways of doing things' and shared beliefs and norms which are first defined and consolidated in the EU policy process and then incorporated in the logic of domestic (national and subnational) discourse, political structures and public policies" (Radaelli 2004: 3; Lombardo, Forest 2011: 7
3)
These incentives include financial awards (in Norway), medal awards (Athena Swan) and 'HR excellence in research' logo awarded by the EU (Lipinsky 2014: 20
4)
In Lipinsky's report Germany was classified together with seven other countries where GEPs are not explicit or obligatory instruments. However, as currently higher education acts in all German Länder obliges universities to issue gender equality plans and a provision of the Federal Equality Law obliges non-university public research institutions to issue a gender equality plan, it seems justified to place Germany among the countries where legal provisions on gender equality in research are mostly advanced (Forest, Arnaut, Mergaert 2016).
5)
The rationale for this effort is that organizations – including academia – are "not simply neutral arenas in which (pre-existing) gendered relations are played out, but a crucial element in ongoing constructions and reconstructions of gendered identities, experiences, and relationships" (Garforth, Kerr 2009: 380).
6)
It has been argued that universities have "a unique bureaucratic and power structure that creates specific challenges to equity efforts" (Morimoto et. al., 2013: 399). The structure is characterized by the combination of formalized institutional-level policies and procedures with decentralization and relative independence of faculty members. Therefore gendering in academic institutions occurs along departmental, college, and university levels (Morimoto et. al., 2013: 409).
7)
In this context it is worth mentioning the postulate of harmonization of data on R&D personnel to be comparable between countries within EU (EC 2003).
8)
Benchmarking can be understood as "a permanent process of learning and continuous quality improvement through the identification, understanding and adaptation of practices of other organisations" (cit. after: Cacace 2009: 228).
9)
The European project "Structural transformation to achieve gender equality in science – STAGES", funded by the European Commission under the 7th Framework Programme and co-funded by the Italian Government aimed at launching "strategies for structural change in research organisations to address the many and interconnected layers of the problem of gender inequality in science from an integrated perspective" (Cacace 2015: v).
10)

For example while the European Commission proposed in 2004 to set targets for women's representation in science at the national level of the EU Member States (to increase the number of women in leading positions in public research to 25% by 2010, and the proportion of female new recruitments to at least 33% by 2010), there were no deadlines for achieving these proposed targets (Sretenova 2010: 12)
[11)]

One of the exception is the European Commission, which in 1999 already set a 40% target not only for all committees and advisory boards, but also Marie Curie-Skłodowska Fellowships. A number of German research organizations (including Helmholtz Association, Friedrich-AlexanderUniversität Erlangen-Nürnberg (FAU) and German Leibniz Association) has introduced to their gender action plans quotas based on a cascade model.

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