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Analysis of Policy Environments

ABBREVIATED VERSION

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in collaboration with the Consortium

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GenPORT

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Content

Main Findings

- While all European Member States should have transposed EU directives into national legislation to ensure equal opportunities and treatment for women and men in the fields of employment, working conditions and social security, severe gaps occur between the declaration of policies and their implementation in the research sector specifically. This is confirmed by the fact that progress towards representative equality has been slow, with notable exceptions such as in some of the Western and the Nordic countries.
- The scope and the regulatory density of gender equality legislations differ to a great extent in the European member states. Due to the EU gender equality and anti-discrimination framework, basic provisions on gender equality, equal treatment/opportunity and anti-discrimination are in force. Apart from this, the main focus lies on the gender balance in decision-making and the reconciliation of work and family.
- Concerning higher education legislation, there is a great gap between those countries without any gender specific regulations and those countries which have a wide range of provisions on gender balance, gender in education and research, gender equality plans, gender officers, gender budgeting etc.
- Gender mainstreaming is the leading strategy adopted by the EU Institutions and most of the Member States for achieving gender equality in all areas of policy-making, including the research, higher education and innovation sector. Despite official commitment to mainstreaming gender, instituting a (national) infrastructure for realizing equality between women and men is still a strategic objective in many national systems, thus not (fully) in place.
- The policy approach of mainstreaming gender has led some countries to disperse responsibilities for gender equality without necessarily providing for adequate diffusion of gender expertise.
- National actors make use of hierarchical, procedural and evaluative steering instruments as well as combinations of those three types of policy steering for enhancing the effectiveness of policies.
- According to the data gathered, in all countries, regardless of the type of cooperation between funding agencies and governmental actors, funding agencies do not operate actively in the field of gender and science without governmental actors being active in the country too. However, in some countries, interventions in the field of gender and science in the research system are promoted solely by governmental actors without the active involvement of research funding agencies or other stakeholders.
- Governmental actors mostly hold mandates for monitoring and coordinating equality measures, as well as in implementing instruments in gender equality.
- According to our data, the majority of policy actors in the field of science and gender operate at a national level. Depending on the political structures of the different countries in general terms, and sometimes specifically to the higher education sector,

individual actors in gender and science operate nationally, regionally or locally. Regional governmental actors exist in the Nordic region under the framework of Nordic Council of Ministers, coordinating, among other policy fields, the research collaboration as well as gender equality policy collaboration of the five Nordic countries and related autonomous areas.

- All in all, the cross-country disparities between EU and associated countries regarding both the number of gender studies programmes and gender research centres, and the proportion of women in grade A positions draw a paradox picture: whereas the She Figures statistics show that women's representation in grade A positions is highest among Central and Eastern European countries such as Romania and Latvia, and lowest among Western and to some extent Southern European countries, e.g. Belgium or the Netherlands; when it comes to the potential of gender expertise by country, indicated by the number of gender studies programmes and gender research centres, we see a rather different picture. The numbers of gender studies programmes and gender research centres is relatively high in Western and North European countries (and Greece from Southern Europe as an exception), thus the data indicate the likelihood of there being a relatively high degree of gender knowledge and gender competence to consider gender aspects in research as well as in policy making. On the other hand, a high proportion of women in grade A positions does not necessarily mean there is a strong base for gender in research and thus good availability of gender competence.
- Although the analysis of the 91 instruments shows that the 'fixing the institutions'-approach has been implemented in many countries (15 of 21), the overwhelming amount of career advancement measures that exclusively address women suggests that direct support to women scientists still persists. Although instruments focusing upon women's recruitment, retention and career progression are still very prominent among most countries (16), strategies for structural change are very common, too.
- Numerous transformative approaches in the policy instruments we found combine strategies for structural change with career advancement actions, for example, but target and provide *incentives for organisations*. This reveals that (women's) inclusion or affirmative actions can certainly be part of a transformative approach implemented at the institutional level. Interestingly, in some countries very different measures with different approaches exist simultaneously, which include different targets, differently addressed genders and different types of practices. In these cases, a complex approach becomes visible and measures to advance, for example, are complemented – to different extents - by institutional and cultural changes and vice versa.
- Looking at the interrelation of institutional and national actors and programmes, the uniqueness of national policy infrastructures and the diversity of administrative systems indicate strong cultural and administrative integration, which makes it inevitable to analyse policy-making practices and processes with respect to the context of their implementation.

Introduction

The purpose of this report is to summarise the key 'gender and science' policy making infrastructures in Europe by reviewing the role of policy actors within the national science policy contexts, the issues that policies at different levels are addressing, and the key mechanisms by which they are doing so. The picture the analysis of policy environments generates informs all policy-related tasks of GenPORT. The report shall assist organising the portal's resources and community building activities in a way that responds to policy makers' realities. It will also feed directly into the design and delivery of GenPORT's topical policy briefs, maximising their utility for policymakers at a practical level. Information provided through the analysis of policy environments in this report is considered as one of three key information sources GenPORT produces to help optimising the utility of the portal to public policy makers and science managers. It will be used side-by-side the 'User Needs Assessment Report' and the 'Thematic Research Synthesis' topical reports for each of GenPORT's gender and science-domains[1]. The overall aim of the report is to communicate the issues of 'gender and science' and their policy contexts to future users of the portal, including policy makers. Thus, the focus of this report is on the gender and science domains and only tangentially broaches the issue of other policy domains that flank the gender and science domains (e.g. the domain of general gender equality or gender equality in national labour markets).

A series of interviews conducted with policy stakeholders of two main stakeholder groups: public policy makers at European, national or regional level and local science managers, did not succeed to establish a sufficiently harmonised information standard for each level of policy making (above the institutional level) that would have directly enabled an analysis of policy making environments. Thus, the consortium agreed to complement information on national legislation, policy actors, strategies and implementation instruments in the sphere of gender and science through desk research. GESIS provided a template, potential sources of information and guidance on what information was needed to outline specific gender and science infrastructures, the placement of (key) policy actors within the national science policy contexts as well as issues current policies address and key mechanisms by which they are doing so. The level of information gathered and analysed - first and foremost - is the one of national policy making in Europe.

This report does not claim to present an exhaustive account of national gender and science policies or of the gender equality measures implemented in the EU and countries associated to the European research area. Rather, the sample of policies and instruments we discuss at legal, strategic and operational levels represents trends and tendencies. Moreover, it is not the aim of this report to evaluate the impact or efficiency of policy strategies or measures, but to demonstrate basic 'gender and science'- infrastructures with regard to the degree of complexity and complementarity of existing measures and thus to the degree of a country's

[1] GenPORT's Gender and Science domains comprise: Education and Training; Career Choices, Pathways and Development; Agenda setting, Policy and Implementation; Knowledge Production, Application and Communication; Histories and Futures.

activity in the gender and science. This analysis is based on data gathered by GenPORT partners and covers the following countries: Austria, Belgium, Croatia, the Czech Republic, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Lithuania, Luxembourg, the Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Spain, Sweden, Switzerland and the United Kingdom.

Methodology

This report looks at policy issues, key mechanisms, and the contexts of science policy making, and names relevant actors that effect and affect 'gender and science' at different levels. In order to provide a broad picture of national environments, it discusses legislative, strategic and operational policy instruments. Following Bothfeld/Rouault's typology,[2] we distinguish three types of steering instruments in gender equality: hierarchical steering instruments, procedural steering instruments and evaluative steering instruments.

Hierarchical steering instruments are implemented by enforcement; the organisations addressed are obliged to reach defined normative objectives. Objectives are usually precise and measurable, thus, achievements can be monitored and ideally are. If the pre-defined goals are not reached, sanctions can be put in place. Examples of hierarchical steering instruments are legal provisions such as anti-discrimination, or gender quotas. Further, the scope and effectiveness of hierarchical steering instruments can vary if other legal provisions or rules, for example, exclude some scopes of application from the actual regulation (e.g. if a quota only applies to committees or boards in the private sector, but not the public sector and vice versa). The effectiveness of this type of instrument can depend on its 'visibility'; the effectiveness can be improved, for example, if a regulation is controversially discussed or if it acts as a political symbol, e.g. quotas.

Procedural steering instruments is the implementation of gender equality offices at universities or mandatory gender equality plans in organisations. These instruments are put in place to establish new practices and routines within institutions, rather than to achieve concrete, pre-defined (and quantitative) goals. New conditions of processes and practices are defined, for example the inclusion of gender equality officers in recruitment processes. Sanctions can be put in place if the legally binding procedures are not met. Procedural steering instruments can be enforced by legal frameworks, incentives (e.g. through evaluative instruments like audits or rankings), cooperation or information/persuasion. Another example for this type is the institution's duty to report about the internal status quo of gender equality, forcing the organisations to reflect and to broach the issue of gender in organisations.

Evaluative instruments can prove effective through institutions' changed perception of gender inequalities and biases or by comparisons with other institutions. By changing the

[2] Bothfeld, Silke and Rouault, Sophie (2015): Was macht eine effiziente Gleichstellungspolitik aus? Das Instrument Frauenquote im internationalen Vergleich. In: WSI Mitteilungen 1/2015, pp. 25-34

perception of gender equality issues, organisations learn latently to evaluate themselves with regards to gender equality and where they stand in comparison to other institutions. These instruments usually incorporate information or persuasion motives and can effect cultural and structural change (e.g. regarding persistent stereotypes). Evaluative instruments can be regulated by law, too, as for example, the non-legal requirement to report to an authority or coordinating agency. Hence, organisations can also be sanctioned if objectives are not met. Yet, organisations also commit to self-evaluation voluntarily. Owners of the instrument may provide organisations with new knowledge and specific trainings or offer specific instruments to support the evaluative approach. Similar to the first two types of steering instruments, evaluative instruments can have a binding character but monitoring of specific indicators can be embedded in the instrument. However, potential sanctions tend to be more effective if valued significant by the organisations.

The mere existence of policy instruments does not necessarily generate effectiveness. According to the authors, steering instruments are much more effective if thoroughly differentiated and if instruments of different steering types are combined consciously. Hierarchical steering instruments, for example, can deepen their impact and further their scope, if additional procedural and evaluative instruments are put in place.

When analysing policy instruments implemented to help the cause of gender equality in the field of science, Jalusic identifies three types of gender-concepts and visions of gender equality[3]: The first vision of equality politics (and policies) is described as the 'inclusion'-model. It can be described as a 'problem of achieving equality as "sameness"', and is linked to the strategy of equal treatment or equal opportunities. In this approach women are treated the same as men, they will be included in all societal areas, because women and men are perceived as being fundamentally the 'same' and any existing differences are evaluated as an issue of demography, of different degrees of access and opportunities. Power relations between women and men are almost never addressed within this model of (gender) equality; organisations and underlying structures are generally considered to be gender-neutral. Further, the aim of this policy approach is to include women in existing structures, thus assimilating women to the (male) standards and norms.

Secondly, the model described as 'reversal' or 'difference' model, represents 'difference affirmation – namely the difference from the seemingly universal but in fact male norm' (Jalusic 2009: 55). This approach to equality challenges the supposed sameness assumed in the first concept and offers the politics of recognition of women's differences. In contrast to the inclusion-model, this political strategy recognizes gender inequality, but gender inequalities are still perceived as a 'socially articulated, "natural" remnant' (ibid: 59). Thus, issues of gender (in)equality tend to be synonymously articulated as *women's* inequality or *women's* problems and *women's* alleged deficits (e.g. lack of resources or experience) or their alleged disadvantages (or even advantages, e.g. 'special female qualities').

[3] Cf. Jalusic (2009) Stretching and bending the meanings of gender in equality policies

Finally, the third approach to gender equality is described as 'displacement' or 'transformation' model. It attempts to go beyond the equality/difference dichotomy of the first two concepts, 'towards a thorough transformation of established institutions, norms and relationships' (ibid.: 56). Its proponents seek to deconstruct gendered organisations (and/or society itself). By questioning the gendered nature of processes and practices, the model aims at transforming the deeper structural conditions of relations between women and men, rather than simply providing access to positions or equal treatment. The displacement model is usually connected to deconstructive practises and to the gender mainstreaming theory. Moreover, it is often used in line with the concept of structural and political intersectionality and participatory strategies.

According to these types of approaches towards 'equality', we assign policy strategies respectively instruments in the field of 'gender and science' to the 'inclusion-type' (1), the 'reversal-type' (2) and the 'transformation-type' (3). The operationalization of these approaches was informed by the fuzzy-set ideal type analysis (Ciccia/Verloo 2012). In order to understand the issues which policies at different levels address and the key mechanisms by which they are doing so, we assessed the instruments that are in place in the EU and associated countries more closely by looking at specific indicators. For this purpose, we analysed the targeted subject of each policy instrument, on which gender each instrument focuses, whether each instrument is monitored (and if so: how?), as well as the type of practice the instrument aimed at. The analysis based on these indicators provides more detailed information about the complexity and complementarity of policy measures' targets, understanding of 'gender', and overall ambition.

Each of these indicators addresses crucial characteristics of gender policies that point to the implied 'equality' approach. On the basis of the three theoretical models, the following values for each category have been pre-defined:

Instrument	Target	Gender	Monitoring	Timing	Type of practices[4]	Models
Instrument 1	Individuals (1)	Women & Men	No monitoring	1-4 years		Inclusion
Instrument 2	Individuals (2)	Women	Personnel statistics or success rates	5-9 years		Reversal
Instrument 3	Organisations	None specifically	Process orientated indicators, e.g. gender budgeting	>10 years		Transformation

The first and the second model of equality concepts 'inclusion' and 'reversal' are more likely to address individuals, as they predominantly focus upon women's inclusion and the out-

[4] These are: Career advancement-, work-life-balance- and awareness-raising-measures and strategies for structural change. For more information see section 'Operational Orientations' (pp.23).

balancing of women's disadvantages, by giving additional support, e.g. special scholarships for women only. The third model 'transformation' focuses upon cultural and institutional change; hence, an instrument that targets at organisations mainly.

As instruments that mainly or exclusively target individuals can be an indicator for the existence of both the 'inclusion'- and 'reversal'-model an instrument has to be analysed in combination with the gender it addresses in the first place, to be allocated to one of the models. The emphasis on women and men of a policy instrument is here a characteristic of the 'inclusion'-model, as it does not differentiate between women and men, sees them as fundamentally same and often stresses the need for equal treatment of women and men or gives additional support for both genders, e.g. regarding parental leave or work-life-balance. Women (and women's disadvantages and alleged deficits) are the main focus within the 'reversal'-approach. Instruments exclusively or predominantly supporting women can be allocated to this model. Transformative action tends to emphasise and include a gender dimension rather than specifying which gender is the main focus. Therefore, these actions consider and address *gender dynamics* and their consequences, but do not target a specific gender group in a way instruments falling under the 'inclusion'- or 'reversal'-category do. For example, gender equality plans often include the obligation to consider the gender relevance of research content and curricula.

As monitoring can improve the scope and overall effectiveness of instruments, especially in order to achieve change on a deeper, structural level, monitoring indicators are relevant features. The lack of monitoring was defined as being a characteristic of the 'inclusion'-model as e.g. equal treatment policies should result in annulling differences between genders. Monitoring devices using personnel statistics or success rates as indicators are allocated to the 'reversal'-approach, because instruments tend to aim to improve the sex ratio in committees for example, as well as the student sex ratio. Consequently, process orientated indicators (e.g. gender budgeting) can be seen as a characteristic of the transformation model.

Lastly, instruments have been assigned to types of practices; career advancement instruments for example include mentoring, coaching, prizes, scholarships or specific programmes for the recruitment of women in the STEM field. Strategies for structural change are e.g. financial incentives, gender equality action plans, rankings, gender budgeting, diversity management, quotas or the implementation of gender mainstreaming. Sex-disaggregated statistics, gender- and diversity-trainings or the inclusion of gender and diversity aspects in teaching can all be grouped under the practices of 'awareness raising'. 'Work-Life-Balance' describes another type of practices that include reconciliation-measures or dual career programme, for example. On the basis of these indicators, each listed instrument has been analysed and each country's tendency towards a gender equality vision has been established.

Chapter 1 - National Science Landscape

Today, gender studies have been established in some form in nearly all EU and associated countries. Many research findings emphasise the need for gender competence as a necessary precondition to the implementation of policies in national systems (cf. Budde/ Venth 2010; Wetterer 2009). Three essential elements determine gender competence in this respect: commitment, (gender) knowledge, and enabling organisational factors. The establishment of gender studies as a full degree programme can be valued as indication of gender knowledge and gender expertise and therefore as a relevant influencing parameter for a higher degree of competence in the field of gender and equality. Of course, in some countries academic disciplines may also include gender perspectives or gender research groups (especially the political science or sociology, etc.) and thus also produce gender knowledge. For example, this 'dual strategy' of gender knowledge production i.e. the existence of de-nominated gender studies programmes and gender studies as a part of mainstream disciplines is characteristic to the Nordic countries. However, for this report, mapping all existing study programmes which include gender aspects within a country goes well beyond this report -, only full study programmes with gender de-nomination have been considered for this overview.

Women are underrepresented in decision-making bodies in which recruitment, funding and, more generally, strategic decisions concerning research are taken. Evidence clearly shows that women are underrepresented in academia and that this trend increases as they move up the academic career ladder (EC 2012; EC 2013; EC 2014). Thus, a common indicator for gender inequalities in national science labour markets is the proportion of women in 'Grade A' academic positions (cf. EC 2012). We will look at both indicators in the following section.

Only five out of the 25 analysed countries have 10 or more than 10 full gender study programmes at different degree levels (BA, Master). This applies to the United Kingdom (36 programmes), Germany (26 programmes), Sweden (at least 11 programmes), Greece (10 programmes) and Norway (also 10 programmes). In seven countries, the number of gender study programmes ranges from 5 (Lithuania) to 9 (Spain). Within the majority of the 25 analysed EU and associated countries, less than five gender study programmes exist on different degree levels (BA, Master) (13 overall: Portugal, France, Hungary, Iceland, the Netherlands, the Czech Republic, Poland, Belgium, Croatia, Romania, Slovakia, Estonia and Luxembourg). In Estonia and Luxembourg, there are no full gender study programmes at all; however, Luxembourg's higher education landscape comprises only one university.

Furthermore, the quantity of gender study degree programmes has to be analysed in relation to the size of overall national science landscapes and the quantity of higher education institutions, as a greater number of universities for example, provides the opportunity for the inclusion of diverse research foci. Here, some significant differences between countries become evident. First of all, countries with the largest higher education landscape do not necessarily show the highest numbers of gender studies programmes. Although the United Kingdom ranks high when it comes to the quantity of higher education

institutions and Germany has by far the largest science landscape (but still a rather small number of full gender study programmes in light of 583 higher education institutions and significantly less programmes compared to the UK). Other countries where more than 100 research and teaching institutions exist, offer relatively few full gender study programmes (e.g. France, Portugal or Spain). In contrast, some countries with an overall small higher education sector offer relatively many programmes (e.g. Iceland Norway). Also noteworthy are countries that have a relatively well developed higher education landscape, but less than five (or five, in the case of Austria) full gender study programmes (e.g. Hungary, Romania, Poland, Czech Republic or the Netherlands).

In some countries, cooperation between several universities complement gender study programmes at single universities, especially at doctoral level. In Norway, for example, a national graduate school in gender studies with seven universities as members exist. It organises at least one doctoral course every year. On a transnational level, the Sweden-based 'InterGender'[5] international doctoral school in gender studies is a consortium of universities from Sweden, Finland, Germany, Netherlands, and Norway.

Table 1: Overall number of higher education institutions and gender study programmes per country

Countries	Higher Education Institutions[6]	Gender study programmes[7]
UK	167	36
DE	583	26
SE	52	11
GR	68	10
NO	33	10
ES	171	9
FI	38	8
IE	28	7
CH	51	6
IT	96	6
AT	73	5
LT	36	5
FR	100	3
HU	67	3
IS	5	3
NL	60	3
PT	123	2
CZ	72	2
PL	68	2
BE	55	1
HR	51	1
RO	76	1
SK	41	1

[5] For more details see http://www.intergender.net/

[6] Number in this category comprises of the stated number of public universities, private universities, universities of applied sciences, higher educational colleges, polytechnics and countries' equivalents.

[7] Included are only full degree programmes in gender studies at Bachelor-, Masters- or and doctoral programmes.

EE	23	0
LU	1	0

Source: Own data.

In addition to gender studies programmes, institutions focusing on research on gender produce gender knowledge and can add relevant perspectives on enabling organisational factors building gender competence. In all of the 25 analysed countries except Luxembourg, at least one gender study research centre exist. A greater number of research centres have been established in Germany (25), in the United Kingdom (22), Sweden (14), Norway (12) and Switzerland (10). Also, in comparison to a rather small research sector, Iceland has several gender research centres.

In addition to cross-country differences when it comes to the number of full gender study programmes, significant disparities between EU countries exist regarding the proportion of women researchers in senior positions (grade A). The latest data (EC 2012) indicates that women's representation is on average higher in the new EU Member States than in the EU-15, where there are on average 18 % of women at grade A level, compared with 20 % throughout the EU-27[8]. Their proportions ranged from 36 % in Romania to 9 % in Luxembourg. The two EU Member States where the share of women among grade A academic staff is the highest (above 30 %) are Romania and Latvia. Both are countries with low research intensity measured by R&D investment. In contrast, the proportion of women in full professorial positions was significantly below European average in Luxembourg, Cyprus, Belgium, and the Netherlands. Between 2002 and 2010, women's presence at grade A level has somewhat strengthened in all countries except Estonia (cf. EC 2012: 90).

Cross-country disparities between EU and associated countries regarding, on one side, the number of gender studies programmes and gender research centres, and, on the other side, the proportion of women in grade A positions draw a paradoxical picture: whereas the She Figures statistics show that women's representation in grade A positions is highest among Central and Eastern European countries such as Romania and Latvia and lowest among Western and to some extent Southern European countries, e.g. Belgium or the Netherlands; when it comes to the potential of gender expertise by country, indicated by the number of full gender studies programmes and gender research centres, we see a rather different picture. The numbers of gender studies programmes and gender research centres is relatively high in Western and Northern European countries (and Greece from Southern Europe as an exception), thus the data indicate the likelihood of there being a relatively high degree of gender knowledge and gender competence to consider gender aspects in research as well as in policy making. On the other hand, a high proportion of women in grade A positions alone does not necessarily mean there is a strong base for gender in research and thus good availability of gender competence. In addition to study programmes with gender de-nomination, gender research outside gender studies programmes and named gender

[8] At the time the latest She Figures report was published, Croatia was still an acceding country.

research centres is important to take into account. It is difficult to estimate the extent of it from a comparative perspective.

Chapter 2 – Actors in Research and Gender

In the following section, the role of different types of actors for policy making in gender and science domains is explored based on the data gathered. More specifically, we looked at two dominating types of actors: governmental actors and funding agencies, along with their different mandates. Their operational tasks will be further discussed, so as to outline the various responsibilities of actors in the national policy making environment affecting gender and science.

According to the data available, within the national gender equality landscape, the involvement of governmental actors, on the one hand, and funding agencies, on the other hand, varies between countries. E.g. in Austria, Belgium, Switzerland, Germany, France, Ireland, the Netherlands, Portugal, and the United Kingdom, funding agencies take active roles along with governmental actors in gender and science. The 'gender and science' infrastructures of the Nordic countries, specifically of Finland, Iceland, Norway and Sweden are equally based on governmental actors and funding agencies alike. In Estonia, only governmental actors promote gender equality. Likewise, in Spain, Greece, Italy, and Luxembourg, governmental actors are active in gender equality without this general policy being enhanced by research funding bodies. Similarly, in Central and Eastern European countries, i.e. Croatia, Hungary, Lithuania, Poland, Romania, and Slovakia, the initiatives and strategies against gender inequalities in the research system is based on governmental actors only. The Czech Republic represents an exception to this, as both research funding and governmental actors are involved in the advancement of gender equality today. Apart from actors which can be distinctly assigned to governmental machineries and research funding, scientific institutions, science governance bodies and special interest groups take active roles in national policy environments affecting gender and science policy making.

The proportion of governmental actors in relation to other actors involved in gender equality varies significantly between countries. In some countries, interventions in the field of gender and science in the research system are solely pursued by governmental actors without the involvement of research funding agencies and in none of the countries research funding bodies outnumber governmental actors. Accordingly, in Austria, Switzerland, Germany, Finland, France, Ireland, Iceland, the Netherlands, Norway, Portugal, Sweden and the United Kingdom, the number of governmental actors actively engaged in gender and science policy making is higher than the number of funding agencies. Furthermore, regional governmental actors exist in the Nordic region under the framework of the Nordic Council of Ministers[9], coordinating (among other policy fields) the research collaboration as well as gender equality policy collaboration of the five Nordic countries and related autonomous areas.

[9] For more information see http://www.norden.org/en/nordic-council-of-ministers

Also, there is a joint Nordic body ('Nordforsk'[10]) within the Nordic Council of Ministers that provides funding for Nordic research cooperation as well as advice and input on Nordic research policy. Regardless of the type of cooperation between funding agencies and governmental actors, funding agencies do not operate actively in the field of gender and science without governmental actors being actively involved in the country too. This indicates that, in general terms, policy making as to advance gender equality is generally a governmental responsibility.

Against the background of the data available, different mandates regarding gender equality are allocated among governmental actors, research funding bodies, non-governmental organisations (NGOs) and other political actors in science, e.g. research councils.

Monitoring responsibilities clearly fall under the remit of governmental actors in the majority of cases and are dealt with by research funding bodies or NGOs only in very few instances. Equally, the coordination of gender equality measures, as well as the implementation of gender equality policy instruments (above institutional level) is mostly attributed to governmental actors, while funding agencies and political actors in science are only rarely charged with such mandates. Similar conclusions can be drawn in terms of the advancement of gender equality (in the labour market and public sector, science being a part of it), in which governmental actors are explicitly involved, compared to very few research funding agencies or political actors specifically in science.

Gathering information and giving advice on gender equality is a task that is shared between governmental actors, including subordinate agencies and other actors in science policy making, according to the data provided.

Actors in the gender and science policy infrastructures operate either at national, regional or local level depending on the constitution and scope of responsibilities allocated to them. Gender mainstreaming in policy making processes sometimes annuls the clear allocation of assignments, specifically in combination with the principle of subsidiarity and when monitoring and evaluation tasks lack specification in the higher education sector. The majority of actors in research and gender operate on a national level. However, in some countries[11], governmental actors and other actors in science policy making operate regionally, which reflects the regulative structure within these (federal) countries.

[10] For more information see http://www.nordforsk.org/en
[11] Belgium, Switzerland, Germany, Norway, Romania and the United Kingdom

Chapter 3 – Policy Frameworks: Legal, strategic and operational orientations

General equality policies, which apply to public institutions, show insufficient impact in academia (Bailyn 2003). A number of factors specific to the research sector have significant controls on career progression in public research institutions. These include co-option, peer review, stipends etc., which are based on the principles of academic merit and research selectivity (EC 2012; EC2014). The key problem is, however, that the mechanisms by which such elitism is protected tend to exclude talent along social and gender lines (Larivière et al. 2013).

Legal Frameworks

Most EU Member States aim to advance gender equality in the research sector through general gender equality law and policy. But those laws are designed for employment in general and many policies target at the public sector or labour market in general. They are inept of regulating the research sector given its particularities in terms of, for example, the relationship within it between labour market and education, the significance of external funding to individuals operating within it, the autonomy of institutions and the role of informal mentoring and peer-to-peer relationships.

Most of the countries have provisions which outline specific concepts of gender equality, anti-discrimination, equal treatment and equal opportunities in their general equality laws and/or constitutions; whereas only in seven countries these concepts are also included in the higher education or university laws (Austria, Switzerland, Germany, Hungary, Ireland, Norway, Portugal and Sweden). The concept of gender mainstreaming is only explicitly addressed in legal terms in three countries (Lithuania, Iceland and Germany)[12]. In Austria, Spain, France, Germany, Lithuania, Luxembourg and Poland, there exists legislation that tackles specifically gender and career progression in research professions.

All Member States but Hungary, Poland and Latvia have implemented the Recast Directive in the sense that harassment related to sex and sexual harassment are two separate concepts characterised as forms of discrimination[13].

Within the gender and science domains there is a main focus in the domain "institutional practices and processes". The issues addressed in the legal provisions are mostly limited to "gender-balance in decision-making" and "reconciliation of work and family". While Austria, Ireland[14], Finland[15], France[16], Spain[17], Croatia, Greece, parts of Germany, Italy, Norway[18] and

[12] In the UK, it is stated that gender issues in shaping policies, delivering services and employing staff should be considered.

[13] Cf. European Network of legal experts in the fields of gender equality: Harassment related to Sex and Sexual Harassment Law in 33 European Countries, 2012 (.ec.europa.eu/justice/gender-equality/files/your_rights/final_harassement_en.pdf)

[14] Austria and Ireland set the target to 40%.

[15] Finnish Gender Equality Act includes since 1995 a paragraph on 40% quota in public committees and boards.

[16] In France the law requires that electoral rolls for academic institutions be made with a view on gender balance.

Slovenia and Sweden[19] deal with the issue of gender representation in decision making committees at a legislative or governmental level, other countries leave the issue to research funding bodies or to other means: this is the case of Belgium, UK, parts of Germany, and Luxembourg. In other countries (Czech Republic, Cyprus, Denmark, Estonia, Hungary, Latvia, Lithuania, Malta, Netherlands, Portugal, Romania, Slovakia and the UK), no legal or governmental national-level measure specifically related to this target could be identified.

The data displays different levels of legal frameworks on work and family. Parental leave provisions are found in almost all countries[20]. In some states only mothers are addressed by the legislation, whereas in most of the laws the terms "family leave"[21] or "parental leave" are used. Few legal provisions facilitate the interruption of fixed term contracts on grounds of leaves and grant a prolongation to the employment span, e.g. in Norway or Germany.

Academic working conditions for researchers are rarely specifically addressed by the law (Italy, Germany). Only a few countries have specific provisions on the gender and science domain 'Career choices, pathways and development', e.g. mandatory quotas in recruitment (e.g. Austria, Germany, Norway). In Austria for example, women have to be appointed if they are equally qualified as their male competitors. But there is only one legally binding provision on target quotas in the state higher education law of Northrhine-Westfalia since 2014, that obliges the universities (of applied sciences) to implement a quota for new appointments for professorships for three years based on the cascade model.

The procedural steering through the instalment of gender equality plans is mandatory by law in at least seven countries (Austria, partly in Germany, Spain, Finland, Iceland, Norway and Sweden). As far as institutional practices and processes are concerned, the legal institutionalization of gender equality actors is not widespread. Only four countries have binding provisions on the implementation of gender equality officers (Germany, Austria, and Iceland) or gender units (Spain). The explicit implementation of gender monitoring apart from gender equality plans is regulated by law as obligatory in five countries (Austria, Iceland, Finland, Norway and Sweden). The concrete implementation of gender equality in terms of compliance regulations is rarely addressed by the law. In one of the German Länder, for example, committees have to be resolved immediately if the reasons for a gender imbalance have not been recorded[22].

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[17] Spanish Law foresees the nomination of evaluation committees, councils and bodies and provides incentives to institutions that can demonstrate an improvement in gender balance figures.

[18] Norwegian Gender Equality Act includes a paragraph on equal representation in public committees and boards.

[19] In Sweden equal representation is not regulated by a legal quota but is voluntarily applied principle.

[20] Switzerland is the only country with no federal parental leave provisions. For further information: ILO Report "Maternity and paternity at work", 13.5.2014 (http://www.ilo.org/global/topics/equality-and-discrimination/maternity-protection/publications/maternity-paternity-at-work-2014/lang--en/index.htm).

[21] Sweden uses the term „family leave and in Germany the right for a work leave can also result from caring for close relatives.

[22] § 11c Abs. 4 Hochschulgesetz NRW.

There are hardly any legal provisions covering aspects of education and training or *knowledge making* (an exception is Finland where gender equality legislation especially mentions education and educational institutions). The incorporation of the gender dimension in research or the support of gender research is only named in legal acts of three countries (Spain, Finland and Iceland). In Germany, a few state higher education laws formulate a mandate for the universities (with support of the gender equality officer) to promote gender research[23]. Raising awareness and sensibility is rarely addressed in legal provisions (Portugal and France). The relevant provisions stipulate the promotion of education on gender equality in higher education[24].

In a resuming analysis, four different clusters can be identified with regard to the scope and density of the legal framework:

- There is a group of countries which provide a *basic gender equality framework*. In these countries hardly any provisions or framework provisions exist. The main focus lies on policies and programmes and/or on the independency of the higher education institutions (e.g. Switzerland, Estonia, Hungary and Luxemburg). In higher education laws, gender equality is usually not addressed.
- A second country cluster has the same basic gender equality framework while stipulating additional provisions in *labour legislation or public sector laws* (e.g. Italy, UK).
- The third group of countries extends the legal framework to Higher Education Laws with a general *declaration of intent* regarding gender equality or equal opportunities (e.g. Portugal, Sweden)
- Finally, there is a small number of countries that have *specific provisions* on gender equality/equal treatment in their Constitution, Equality, labour and Higher Education legislation (e.g. Austria, Finland, Germany, Spain, Sweden, Norway). Except for Iceland and Finland, the lack of regulations in Higher Education laws generally implies a limited legal framework. The legal provisions on gender equality in Iceland and Finland are applicable to Higher Education institutions and cover a wide range of issues in all gender dimensions.

Thus, most features and issues addressed in national policy making environments with regard to gender and science do not base in legal provisions - they result from long-term or medium term strategic orientations and operative policy instruments which respect the expanded autonomies of higher education institutions.

[23] E.g. Lower Saxony and Berlin.

[24] In Portugal, the education system must „ensure equal opportunities for both sexes, namely through practices of coeducation and professional guidance, and raising awareness among those involved in education.

Strategic Orientations

Gender inequalities are driven and sustained by many complementary factors which are based in culture and occur in institutionalised sexisms and the gendered organisation of labour. In the research and innovation sector, inequalities become tangible in differences in career pace and success, in the difficulties of reconciling work and family needs, in the underrepresentation of women in research decision-making and in various gender biases relating to research funding and the creation of knowledge. They take effect cumulatively in the research sector to women's particular disadvantage.

In 1998 the European Committee of Ministers recommended mainstreaming gender as the paramount strategy to achieve equality between women and men by including a 'gender equality perspective' in the '(re)organisation, improvement, development and evaluation of policy processes' (ECM 1998). Most European states confirmed mainstreaming as their central approach to realise equality between women and men since then. According to the United Nations' Beijing Platform for Action, the implementation of gender mainstreaming requires political commitment, a structure for implementation and responsibilities, gender competence and knowledge on gender and the use of implementation methods and tools (cf. EIGE 2014). Consequently, the first step (commitment) towards the implementation of gender mainstreaming has been taken by most European Member states.

The ERA Progress Report 2014 identifies 17 Member States which developed gender equality strategies in public research to various degrees (AT, BE, DE, DK, EL, ES, FI, FR, HR, IE, LT, LU, NL, PL, SE, SI, UK)[25]. When looking at strategic orientation documents in specific policy fields, based on characteristics of steering, policies and strategies can be assigned to three main types of instruments (Cf. Bothfeld/Rouault 2015):

- **Hierarchical steering**: direct objective, forced by regulation, direct impact on foreseen change (e.g. quota)
- **Procedural steering:** indirect objective, substantiated through addressee; incentive, cooperation or regulation; indirect-structural impact (e.g. gender equality plans, equality officers)
- **Evaluative steering:** indirect objective, self-commitment, addresses elaborate problem and strategy to address it; latent impact through cultural change and learning, (e.g. monitoring and reporting duty, audits)

National policies in the field of gender and science often pursue mixed approaches and vary between hierarchical steering, e.g. quota, procedural steering e.g. gender equality plans, and in fewer countries, evaluative steering e.g. reporting duties, voluntary audits. While the issue of gender imbalances in decision making bodies is more often addressed in strategic documents by hierarchical steering mechanisms, in form of quotas or normative objectives, the strategic responses to the issue of the underrepresentation of women in (research)

[25] Among these countries five have specific laws / acts regulating gender equality in public research: AT, BE, ES, FI, FR. Cf. ERA Progress Report 2014

leadership positions, e.g. grade A professorships often is of a procedural or evaluative nature, i.e. through incentives for the recruitment of women or just monitoring of gender ratios of staff.

Issues addressed by specific policies and strategies

At national level, two major predominant themes can be identified in current policies and strategic orientation documents: 1) equal representation of women and men in the labour market, in some policies the research and higher education labour market specifically, and 2) enhancing, instituting and operationalising of gender-related management infrastructures for the implementation of gender equalities, awareness-raising and information on gender inequalities.

The following section groups the most relevant policy issues we retrieved from analysing strategic documents in the field of gender and science according to GenPORT's thematic domains.

- **Education and Training**

Across Europe, policy strategies in the field of education and training address two principal issues, gender differences in learning, like access to education, choices of education and gender bias in the graduate population; and the limited consideration of gendered knowledge into teaching/learning content and materials.

- Inclusion of gender perspectives in learning and teaching
    - inclusion of gender in teaching curricula
    - enhancing gender research and gender in teaching
    - promotion and enhancement of gender sensitive education
    - gender inequality and human rights in the education sector
- Elimination of gender inequalities in learning and teaching
    - balancing gender representation in student education (e.g. STEM)
    - reducing boy's dropout from education and training
    - eliminating gender differences in learning outcomes

- **Career choices, pathways and development**

When looking at issues concerning the academic labour market, the predominant concern mentioned in the strategies is the underrepresentation of women in research professions, and specifically in leading positions in academia.

- Objective to reach equal representation of women and men in the labour market, including research professions specifically STEM, vertical and horizontal segregation
    - Enforcement of equal opportunities or gender equality (in general terms)
    - Making working conditions in research more attractive for women and men

    - Increasing female participation
    - Economic equality between women and men, also: economic independence
- Women in leadership positions
    - Increase of the number of women in leadership positions
    - Access of women to leadership positions

- **Agenda setting, policy and implementation**

Several objectives mentioned in overarching policies and strategic orientations point to operational steering mechanisms, e.g. the institutionalisation and implementation of gender equality steering mechanisms at subordinate level, including gender equality plans, data monitoring, gender budgeting, increasing awareness and building gender competence. The only normative objective relating directly to the underrepresentation of women in science relates to the issue of gender imbalances in research decision making:

- Improving and enhancing
    - Enhancement of institutionalisation and implementation of instruments (effectiveness issue)
    - Strengthening gender mainstreaming in policy development, including in STI
- Institutionalisation and implementation
    - Instituting of a gender equality policy in the organisation (RFO)
    - Including gender in contractual agreements between HEI and GOV
    - Implementation of equal opportunity measures
    - Institutionalising and supporting the implementation of gender action plans in universities
    - Making available sex-disaggregated monitoring data (HR and budget)
- Boosting awareness and capacity
    - Development of guidelines, e.g. on the collection of monitoring data
    - Increasing awareness on gender (issues, differences, inequalities)
    - Building gender competence in the public and private sector
- Gender balance in research decision making
    - Gender balance in selection and evaluation committees, expert councils

- **Knowledge production, application and communication**

National and regional policies outline the need to support gender studies, mainstreaming gender in other research domains and are much less concerned with the gendered content and inequalities in communication materials, specifically in ICT.

- Supporting gender studies
    - Support to gender studies
    - enhancing gender research and gender in teaching

    - support to gender research
- Strengthening research with gender perspectives
    - integration of gender dimension in research
    - examination of the gender dimension in science and research (content)
- Gender in science communication materials, digital applications
    - strengthening gender studies and research with gender perspective; gender in communication
    - reducing gender-bias in digital applications (content and users)

The country profiles indicate at least two periods of time in the last years, in which policy reforms across the EU took place: end of 1990s after the United Nations' fourth world conference on Women 1995 and the approval of the Beijing Declaration and Platform for Action[26] and more recently around the year 2012 through the inclusion of gender equality objectives in the European Unions' policy shaping the European Research Area[27]. In addition, activities in the field (not necessarily addressing research in particular), is notable in some EU member states in preparation to the states accessions to EU, resulting in less activity afterwards and in many cases to full resolution of structures, strategies and monitoring at the time of the financial crisis post 2008. On the other hand, Finland and Sweden had been exercising gender equality policies in general, and in science and research, long-term before they joined the EU in 1995.

Monitoring and regular assessments of efficacy and effectiveness of policies are crucial prerequisites for successful policy implementation. Sex-disaggregated statistics are, overall, show little harmonisation across member states. European-wide collections and comparisons of statistics is funded and implemented regularly but on ad-hoc basis by the European Union, i.e. through the "She Figures" and other ERA-related reports. Only few sex-disaggregated statistics of the higher education sector are available through Eurostat (mostly personnel statistics, excluding scholarship holders and non-uniform with factoring PhD-students). A few member states, such as Sweden, have legal regulations stipulating that all person statistics should be sex-disaggregated. Only a few Member States address the issue of monitoring gender equality indicators specifically in their research and innovation legislation and policies.[28] In the Nordic region, NIFU, Nordic Institute for Studies on Innovation, Research and Education includes gender in its statistical monitoring of the research and innovation sector[29]. Much less common than personnel statistics is monitoring of expenses, i.e. gender budgeting concerning salaries, success rates and funding amounts differentiated by sex of applicants, budget spent on work-life balance. However, some gender equality policy instruments which follow an "evaluative" steering approach unite

[26] http://www.un.org/womenwatch/daw/beijing/pdf/BDPfA%20E.pdf
[27] COM(2012) 392 final, http://ec.europa.eu/euraxess/pdf/research_policies/era-communication_en.pdf
[28] Cf. for Austria, http://wissenschaft.bmwfw.gv.at/bmwfw/wissenschaft-hochschulen/gender-und-diversitaet/programme-und-initiativen/gender-monitoring/
[29] http://www.nifu.no/en/about-nifu/, http://www.nifu.no/files/2013/01/Nordic-Research-2012.pdf

monitoring and procedural steering mechanisms, e.g. Norway's gender equality award (that was discontinued in 2014), Athena SWAN Charter and others. In those cases, monitoring indicators and the issues policy instruments address show a high degree of congruency.

Operational Orientations

When mapping and analysing gender equality policies in European countries, instruments provide valuable information about national implementation approaches. As discussed in the first section of this report, implementation approaches can be categorised based on their concept of 'gender' and 'gender equality' respectively. Jalusic (2009) suggested three types of gender equality policy approaches: first, the 'inclusion'-approach that is linked to the strategy of equal treatment, second, the 'reversal'-approach within which gender equality issues are often simultaneously articulated as women's problems or women's inequalities and which aims to out-balance women's disadvantages, and lastly, the 'transformation'-approach that seeks to achieve institutional or cultural change, especially regarding the gendered structure of organisations. In line with these implementation approaches, 91 policy instruments in the field of gender and science were collected and analysed. The analysis based on the following indicators, derived from Jalusic's argued three gender equality types: first of all, it was assessed whether a measure addresses individuals or organisations (or both). Secondly, the approach to gender the instruments focus upon was analysed. An instrument's monitoring mechanism is the third indicator (e.g. are annual reports, success rates or personnel statistics required?), and the instrument's timing (i.e. lifespan) the fourth. Lastly, instruments were allocated to the following types of practice:

1. **Career advancement** (this includes for example scholarships, fellowships, special grants, awards, mentoring programmes, coaching and career trainings, networks or bridging grants.)

2. **Strategies for structural change** (this includes input-related incentives for organisations, the inclusion of a gender dimension in research content, gender and diversity action plans, gender mainstreaming implementation mechanisms, diversity management, quotas, gender budgeting or agreements and charters with fixed targets for organisations.)

3. **Work-Life-Balance** (this includes instruments aiming to improve the reconciliation of family and work life, e.g. special parental or maternity leave regulations, dual career programmes or flexible working hours, etc.)

4. **Awareness raising** (i.e. gender-segregated statistics, gender equality monitoring, gender and diversity trainings, implementation of queer-, masculinity-, gender- or diversity-aspects in education and research, measures aiming to reduce stereotypes, gender portals and information services.)

In addition to these four types of practice, several of the analysed instruments combine these types. On the basis of these indicators, instruments were assigned to the three implementation approaches above ('inclusion', 'reversal', 'transformation'). Instruments of 21[30] EU and associated countries are included; for four countries no data about instruments were obtained (Slovakia, Romania, Lithuania and Iceland). The 91 analysed instruments of 21 countries can be seen as a representative but not exhaustive collection, which serves as the basis for the description of national tendencies regarding the countries' implementation approach.

With regard to the target of the instruments, 15 out of the 21 countries have implemented instruments that target organisations and provide incentives for institutional change to promote gender equality rather than addressing individuals (Austria, Belgium, Switzerland, Germany, Estonia, Finland, France, Greece, Croatia, Ireland, the Netherlands, Norway, Portugal, Sweden and the United Kingdom). 44 of the 91 analysed instruments exclusively target organisations (i.e. about half of all instruments). The majority of countries have measures in place that target individuals (17 out of 21, these are: Austria, Switzerland, Czech Republic, Germany, Spain, France, Greece, Croatia, Hungary, Ireland, Italy, Luxembourg, the Netherlands, Norway, Poland, Portugal and the United Kingdom) and this applies to 35 of the 91 instruments. Based on our data, in only nine countries instruments that address individuals *as well as* organisations are in place (in Austria, Belgium, Switzerland, Germany, Finland, Ireland, the Netherlands, Norway and Sweden). This is the smallest group of instruments and only comprises 12 of the 91 measures.

Regarding the types of practice of the analysed instruments, most of the instruments are either career advancement measures or strategies to promote gender equality in universities and research institutions. Not many measures exclusively focusing on work-life-balance or awareness-raising exist within the 91 instruments. In addition to the four 'exclusive' types of practice, instruments combining these types exist. As the largest group of practice-types, 40 of 91 instruments can be categorised as targeting at structural change. These exist in 15 of the 21 countries (AT, BE, CH, DE, EE, FI, FR, GR, HR, IE, NL, NO, PT, SE and UK). Some instruments address women or women and men; however, most of them rather concentrate on the inclusion of a gender dimension, gender dynamics or on gender equality in general than emphasising gender differences. About a third of all instrument (32 out of 91) are 'career advancement'-measures and are in place in 15 out of 21 countries (in AT, BE, CH, CZ, DE, ES, GR, HR, HU, IE, IT, LU, NL, PL, SE and UK). Significantly, almost all 32 'advancement'-instruments address women only and - in most cases – their career progression, retention or recruitment. One measure in Luxembourg and two measures in the United Kingdom target women as well as men. Not many instruments have as their main objective awareness-raising, only four instruments fall under this category; one in Estonia,

[30] These are Austria, Belgium, Switzerland, the Czech Republic, Germany, Estonia, Spain, Finland, France, Greece, Croatia, Hungary, Ireland, Italy, Luxembourg, the Netherlands, Norway, Poland, Portugal, Sweden and the United Kingdom.

one in Sweden and two in the United Kingdom[31]. Similarly, only four of the 91 analysed instruments are work-life-balance-orientated measures. These have been implemented in Switzerland, France, Hungary and Norway. However, it should be underlined that in some countries, such as Finland and Sweden, general legally guaranteed work-life balance provisions are extensive and also concern those employed in the research sector.

Some of the instruments include more than one practice: three instruments include career advancement practices as well as practices aiming to improve the work-life-balance for researchers (in the Czech Republic, France and Poland). In France (two instruments) and in Norway (one instrument), measures have been implemented which combine a practice for awareness-raising with a strategy for structural change. Further, three of 91 instruments include advancement practices *and* strategies for structural change at the same time (in Austria, Germany and Ireland). Lastly, in Ireland, one measure targets women's career advancement and additionally aims to raise awareness for issues regarding women in STEM (WITS – Women in Technology and Science[32]).

With regard to the implementation approaches of instruments, four groups have been identified. Within the first group, instruments follow a transformative approach and within the second, instruments either aim at 'inclusion' or 'reversal'. Instruments allocated to a third group combine transformative action with aspects following the 'inclusion'- or 'reversal'-approach**.** Lastly, there are also instruments including aspects which follow a 'transformation'-, 'inclusion'- and 'reversal'-approach in equal terms and thus cannot be allocated to one of the approaches primarily. Most of the instruments show indications of the 'inclusion'- or 'reversal'-approach, closely followed by transformative measures. A smaller number of instruments combine transformative measures with aspects aiming at 'inclusion' or 'reversal' and only a few measures contain aspects of all three implementation approaches.

With 37 of the 91 measures, instruments following the 'inclusion'- or 'reversal'-approach form the largest group. The vast majority of these measures address individuals; yet, three instruments target individuals *and* organisations at the same time (one each in Austria, Belgium and Switzerland). Further, almost all measures but five are directed to women. The five instruments aim at women and men (e.g. through support grants for researchers with (child) caring duties). All in all, these 37 measures are mostly measures to advance and few are work-life-balance practices, however, some combine both themes. One instrument also comprises strategies for structural change together with career advancement action and another can be described as a device for career advancement that also seeks to raise awareness. In 17 of 21 countries these instruments, following the 'inclusion'- or 'reversal'-approach, exist (AT, BE, CH, CZ, DE, ES, FR, GR, HR, HU, IE, IT, LU, NL, NO, PL and UK).

[31] However, awareness-raising often is a side-effect of implementing instruments and in some countries specific actors (e.g. information centres) are in charge of awareness-raising initiatives to specific target populations.

[32] Cf. http://witsireland.com/cms/.

As the second largest group, 33 of the 91 analysed instruments qualify as transformative measures; they provide incentives for organisations to promote gender equality and seek to implement the consideration of a gender dimension into institutional practices and processes. Predominantly, the measures in this first group are practices for structural change, however, one of the instruments (the French Charter for Equality between Women and Men in Higher Education and Research Institutions[33]) includes aspects of a strategy for structural change as well as actions for awareness-raising, and three of the measures are exclusively awareness-raising-devices (the expert reports on gender and innovation by the Swedish innovation agency VINNOVA[34], and in the United Kingdom the RAEng/Royal Society/BIS programme[35] that focuses on increasing diversity in the scientific workforce as well as the Think, Act, Report-project[36] that seeks to encourage organisations in the public and private sector to share how they promote gender equality). Out of the 21 represented countries, 15 countries established and implemented one or more transformative instruments (AT, BE, CH, DE, EE, FI, FR, GR, HR, IE, NL, NO, PT, SE and UK).

The third group of instruments combines transformative action with aspects following the 'inclusion'- or 'reversal'-approach. 16 of 91 instruments fall under this category and these have been implemented in 9 of the 21 countries (in Austria, Germany, Estonia, France, Ireland, Netherlands, Norway, Portugal and Sweden). A significant difference to the other groups is the variation of types of practices in combination with a mostly homogenous target group. Here, the vast majority of measures address organisations, with the exception of one instrument that targets individuals *and* organisations and one instrument exclusively focusing upon individuals. However, there is no overarching trend concerning the types of practice; these are career advancement instruments as well as strategies for structural change, work-life-balance or awareness-raising-devices, and measures comprising different practices. Lastly, there is a small group of measures that contain different aspects of all three identified implementation approaches and thus do not show a stronger tendency towards one of the models. This applies to five of the 91 policy instruments. Most of these target individuals as well as organisations, but primarily focus upon women and their alleged disadvantages. Two instruments are strategies for structural change and measures to advance at the same time, two instruments are devices for career advancement and one instrument is a strategy for structural change, exclusively.

The analysis of 91 instruments in 21 EU and associated countries indicates a significant variation between countries in the complexity and complementarity of implementation approaches in gender and science domains. Although instruments focusing upon women's career recruitment, retention and progression are still very prominent among most countries

[33] Cf. http://cache.media.education.gouv.fr/file/Espace_Europeen_de_la_Recherche_-_E.E.R./12/7/charte_Egalite-dossier_274127.pdf.
[34] Cf. http://www.vinnova.se/en/Our-acitivities/Innovativeness-of-specific-target-groups/Individuals-and-Innovation-Milieus/Needs-Driven-Gender-Research-for-Innovation/Publications/.
[35] Cf. https://royalsociety.org/news/2012/more-diverse-scientific-workforce/.
[36] Cf. https://www.gov.uk/government/policies/creating-a-fairer-and-more-equal-society/supporting-pages/think-act-report

(16), strategies for structural change are very common, too. Interestingly, in some countries very different measures with different approaches exist simultaneously, which include different targets, different approaches on gender and different types of practices. In these cases, a complex approach becomes visible and career advancement measures, for example, are complemented – to different extents - by institutional and cultural changes and vice versa. This applies to Austria, Belgium, Finland, France, Germany, Ireland, the Netherlands, Norway, Sweden, Switzerland and the United Kingdom. It also applies to a much lesser extent, with a main focus on general gender equality, to Croatia, Portugal, Estonia and Greece. The former and the latter – but mainly in the domain of general gender equality - implemented career advancement measures as well as strategies for structural change (and in some cases awareness-raising- and work-life-balance-devices, additionally) and have instruments that target organisations as well as individuals. In contrast, in some analysed countries only advancement-measures or work-life-balance-measures exist that target individuals (CZ, ES, HU, IT, LU, PL). The complexity and complementary approach of the first group that hints at a greater activity in the gender and science domain and the latter group's focus on women's advancement is in line with other findings and categorisations into active, relatively inactive and inactive countries (cf. for example EC 2014; EC 2009; EC 2008).

In 2007, the European Commission changed its gender equality approach from supporting women directly to 'fixing the institutions' (cf. EC 2014: 12). Although the analysis of the 91 instruments shows that the 'fixing the institutions'-approach has been implemented in many countries (15), the overwhelming amount of career advancement measures that exclusively address women suggests that direct support to women scientists still persists. However, the numerous transformative instruments found which combine strategies for structural change with career advancement actions for example, but target and provide incentives for *organisations*, reveal, that (women's) inclusion or affirmative actions can certainly be part of a transformation approach, implemented at institutional and cultural change.

Chapter 4 – Relation between local and national level

National academic systems are made of complex and diverse administrative sub-systems, depending on the legal constitution of their elements, and gender and research policy-making usually is a multi-actor responsibility and takes place at different levels simultaneously (i.e. local, regional and national) (cf. EC 2014).

The EU does not require Member States to operate with specific policy instruments which would e.g. encourage sustainable implementation of local gender equality policies. In principle, the actual design of policies and the implementation of these policies lay in the hands of each Member State or science institution respectively (cf. EC 2014). Thus, variations inside national implementation procedures enforce diversity in the distribution of responsibilities for gender and science policy-making; i.e. countries differ when it comes to the question who (at which level) designs what policy - and the ways it is implemented may differ according to the type of science institution. The following section summaries two

examples of variations found in the case of the designing and implementation of gender equality plans.

In the first example, gender equality plans at universities and in research funding bodies are required by law and implemented 'top-down' at national state level. In Spain, the law on universities of 2007 (LOMLOU 4/2007) requires all higher education institutions to produce gender equality plans and periodic reports about the implementation of these plans accordingly. Further, the *Science, Technology and Innovation* Law of 2011 obligate public research bodies to adopt gender equality plans which will be subject to annual monitoring. The plans should include incentive measures for those centres to improve their gender indicators corresponding to annual monitoring. Formal objectives of these institutional gender equality plans are defined within the Spanish Strategy of Science, Technology and Innovation (2013-2020), which is the overall framework: i.e. strengthening gender studies and research through gendered perspectives, diminishing the underrepresentation of women in the science labour market, making sex-disaggregated statistics available and developing gender sensitive tools for dissemination/communication. The Spanish Ministry of Economics and Competitiveness (MINECO) and its Women and Science Unit formally controls the implementation of equality plans through periodic reports.

In contrast, the gender equality plan of the Swedish Research Council is an example of a 'bottom-up' implementation of policy instruments.[37] It is based on the Ordinance on the Research Councils hiring researchers (1986:364) that requires gender balance of grant applicants and on the Swedish Discrimination Act (2008:267), and the Swedish Research Council and its board are responsible for initiating and implementing the plan. The gender equality plan includes the following objectives: an equal gender distribution in the councils' evaluation panels, ensuring that the percentages of female and male applicants for grants from the Swedish Research Council correspond to the percentages of women and men among the potential research grant applicants, ensuring that women and men have the same success rates and receive the same average size of grants, taking into account the nature of the research and the type of grant. The Research Council provides monitoring reports with statistics on success rates by gender and reports to the government.

All in all, the uniqueness of national infrastructures in the science domain, the institutional autonomies, the conversation of subsidiarity principles and the diversity and variation of administrative systems require that an analysis of policy-making practices and processes fully considers the local national environment and respects the context of the policy instruments' implementation.

[37] Cf. http://www.vr.se/download/18.70a7940b146b8f937949f953/1403793852159/Strategy+Gender+Equality+SRC+2014.pdf

Chapter 5 – Conclusion

The data gathered for our analysis of policy environments in the field of 'gender and science' show broad varieties of types of actors involved in policy making; legal and strategic instruments for steering policy, as well as different approaches to gender and equality. Gender mainstreaming is the leading strategy adopted by EU institutions and EU Member States. Responsibilities for mainstreaming gender are dispersed among different institutions and actors. Building national infrastructures for mainstreaming and gender equality still belongs to strategic policy objectives in many countries.

In terms of the involvement of research funding and governmental actors, funding agencies do not operate actively in the field of gender and science without the involvement of governmental actors being involved in the field too. In some countries, however, governmental actors operate without funding agencies at all. Generally, our findings indicate that governmental actors rather hold mandates in monitoring and coordinating equality programmes and measures, and operate nationally, regionally or locally, depending on the individual political structures of the respective country.

Important EU directives on equal treatment and equal pay have been transposed into national legislation in all EU member states regarding employment in the public sector. Major gaps can be identified between general commitments to or adoption of policy objectives and their implementation in the public research and education sector. Most advanced policy strategies, in terms of complexity and complementary of approaches can be found in some Western and the Nordic countries. Gender equality legislations differ between European member states. For instance, there are differences between the countries' higher education legislation, as some countries do not have any gender specific regulations, whereas others put forward a wide range of provisions for the higher education and research sector on gender equality.

The number of women in grade A positions is highest in Central and Eastern European countries and rather low in Western and Southern European countries. The numbers of gender study programmes and gender research centres, which indicate the relative potential for obtaining gender knowledge and gender competence, are rather low in Central and Eastern European countries and relatively high in Western and Nordic countries (and Greece as an exception). This indicates that good representative equality in terms of equal numbers of women and men in senior academic positions do not necessarily imply a high potential for gender knowledge in research.

The analysis of instruments for the implementation of gender equality measures within the countries shows that advancement measures address women predominantly, but may also aim at structural change, i.e. following the 'fixing the institutions'-approach. National policy infrastructures and respective administrative systems vary between countries to a high degree and thus, notions of 'gender' and 'equality'-related objectives need to be analysed in light of the context of specific policy instruments.

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Annex 1

Template for data collection WP 4.1

Instructions

The questions in this questionnaire help us with the analysis of policy making environments. The overall purpose of this task is to understand the key gender and science infrastructures, the placement of actors within the national science policy context, the issues which policies at different levels are addressing, and the key mechanisms by which they are doing so.

The answers to the questions 1-15 should be based on a desk research. Relevant resources for the desk research are listed below:

STI policy landscape:

- ERA Progress Report 2013 country reports:
http://ec.europa.eu/research/era/eraprogress_en.htm

- Innovation Union Scoreboard 2013 Country Profiles:
http://ec.europa.eu/enterprise/policies/innovation/files/ius-2013_en.pdf

- She Figures 2012: http://ec.europa.eu/research/science-society/document_library/pdf_06/she-figures-2012_en.pdf

- Researchers Report 2013 Country Profiles:
http://ec.europa.eu/euraxess/index.cfm/services/researchPolicies

- Stocktaking 10 years of Women in Science Reports:
http://ec.europa.eu/research/science-society/document_library/pdf_06/stocktaking-10-years-of-women-in-science-book_en.pdf

- UNESCO Institute for Statistics: R&D data Country Profiles:
http://stats.uis.unesco.org/unesco/TableViewer/document.aspx?ReportId=198&IF_Language=eng

- Meta-Analysis reports on gender in science:
http://ec.europa.eu/research/science-society/document_library/pdf_06/meta-analysis-of-gender-and-science-research-synthesis-report.pdf

- ERAWATCH – Platform on Research and Innovation policies and systems (country reports): http://erawatch.jrc.ec.europa.eu/

- MORE2-Study 2013, Mobility Patterns and Career Paths of Researchers (country reports): http://ec.europa.eu/euraxess/index.cfm/services/researchPolicies

-The Gender Challenge in Research Funding – assessing the European national scenes (country reports, data available until about -2007 for 29 countries):

http://ec.europa.eu/research/science-society/index.cfm?fuseaction=public.topic&id=1406 (page bottom)

Education Policy Landscape:

Eurycide / EURYPEDIA- The European Encyclopedia on National Education Systems: http://eacea.ec.europa.eu/education/eurydice./eurypedia_de.php

Scientix: http://www.scientix.eu/web/guest/home

Labour Market Policy Landscape:

- Eurofound: http://www.eurofound.europa.eu/surveys/index.htm

- EIRO: http://www.eurofound.europa.eu/eiro/country_index.htm

- Equality Pays Off (Country Profiles): http://ec.europa.eu/justice/gender-equality/equality-pays-off/spotlight-on-your-country/index_en.htm

Gender Equality Policy Landscape:

- EIGE (Gender Equality Index- Country profiles) http://eige.europa.eu/content/document/gender-equality-index-country-profiles

Besides the Erawatch-data, we would especially recommend consulting two key resources:

The Researchers' Report 2013 Country Profiles (http://ec.europa.eu/euraxess/index.cfm/services/researchPolicies) and the

European Research Area Facts and Figures 2013 (http://ec.europa.eu/research/era/eraprogress_en.htm) for the respective countries. However, these recommendations serve as a guideline. We are aware that there might be more fitting resources in the respective countries, so please feel free to consult any other resources that might seem appropriate to you and insert corresponding URLs where appropriate.

When you fill out the questionnaire, please refer to the resources that you are using. This will provide us with a list of resources that can be included in our GenPORT resource list.

This questionnaire is designed to be filled in per country. If this is not feasible as there are too many countries (e.g. for the Central and Eastern European Cluster), you may pick the countries you fill in the form for according to your interviews done with policy stakeholder and informants.

Our questionnaire is based partly on a model of the national research structure available on Erawatch (http://erawatch.jrc.ec.europa.eu/erawatch/opencms/information/country_pages/. This model is available for most of the European countries. In case that the model is not available for one or several of the countries within your country

cluster, Erawatch provides a written explanation of the relevant actors. We kindly ask you to then use this written explanation and comment on this one.

1. Country:

2. Please indicate the number of institutions

	Number
Non-university Research institutions	
Public universities	
Private universities	
Universities of applied sciences, (Private) colleges of teacher education	
Number of gender studies centers	
Number of gender study programmes	
Number of RFO	

3. Does the country have a strategy on gender in science?

a. If yes, what are the objectives of this strategy? Do these objectives refer to the domains of

- **Science labour market?**
- **Education?**
- **Research?**
- **Innovation?**

b. If yes, what is the timeframe to reach the objectives?

c. Does the country have a national agreement on gender mainstreaming? Please elaborate.

4. Please take a look at the structure of the research system of the respective country:

http://erawatch.jrc.ec.europa.eu/erawatch/opencms/information/country_pages/

a. Please indicate those actors that are focusing on gender equality:
b. If necessary please add a description of other actors/units/committees focusing on gender and equality:

5. Please specify the role/mandate of each of the actors
For example: a gives advice to b, b responsible for monitoring, control of c, c initiates d, d reports to a etc.

6. **Please specify the indicators used in the reports mentioned under question 5.**

7. **Please indicate the legal basis/acts relevant to the field of gender in science. Please note that relevant laws and acts might stem from different domains, such as science labour market, education, research and innovation. Please list only those laws/acts intersecting with gender in science and state which of the following categories they belong to:**

- **International Treaties**
- **EU-Law (treaties, directives)**
- **Constitutional law**
- **Legislation/Laws (state and federal)**
- **Decrees, regulations etc. (legislative instruments of lower status than laws)**
- **Case law/legal precedents**

8. **Are Gender Equality plans based on legislative provisions? Please comment briefly.**

9. **Are offices for gender equality based on legal provisions? Please comment briefly.**

10. Gender Equality in research: please list the key instruments

Instrument name	URL	Brief description of the instrument	Is the instrument targeting individuals or organisation	If possible please describe briefly whether and how the instrument is monitored	Which law/act is this instrument based on?

The table above was provided for questions 10-15.

11. Gender in research: please list the key instruments

12. Gender equality in student education: please list the key instruments

13. Gender in student education: please list the key instruments

14. Gender equality in innovation: please list the key instruments

15. Gender equality in labour market: please list the key instruments