

## **D 3.3 Monitoring of ERA priority 4 implementation – update and final assessment**

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## Executive Summary

European Research Area (ERA) Priority 4 focuses on gender equality and gender mainstreaming in research and innovation. The objective is to foster scientific excellence and a breadth of research approaches by fully utilising gender diversity and equality and avoiding an indefensible waste of talent. Within their National Action Plans (NAPs), European Union Member States and Associated Countries are asked to develop policies which address gender imbalances particularly at senior levels and in decision making and which strengthen the gender dimension in research. The aim of GENDERACTION Work Package 3 (WP3) is to analyse the implementation of Priority 4 in NAPs, identify good practices and develop recommendations for the next ERA Roadmap as well as its monitoring of gender equality. The first and second report of WP3 informed the work of WP4 Mutual Learning and Capacity-Building Activities and WP5 Policy Advice.

The final report of GENDERACTION WP3 provides an update of the previous reports and complements the analysis by considering not only Member States but also Associated Countries. The analysis draws on multiple data sources (results from an analysis of NAP documents, ERA progress reports, surveys among members of the Standing Working Group Gender in R&I conducted in 2017, 2019 and 2021 as well as on expert interviews with members of the Standing Working Group Gender in R&I). The report pursues a threefold aim:

- 1) to provide a set of indicators for monitoring NAP implementation,
- 2) to assess NAP implementation based on these indicators, and
- 3) to formulate recommendations for the next period of ERA implementation.

Our analysis shows that 26 of the 28 EU Member States and four Associated Countries participated in the ERA process by submitting and implementing a National Action Plan (NAP). For several countries, the ERA Roadmap was the initial spark that triggered the development of their first-ever gender equality strategy for R&I (e.g. Cyprus, Luxembourg, Malta or Norway). In others, the NAP was used to consolidate and further develop existing policies which support gender equality in R&I. Member States had considerable scope when it came to developing a NAP within the framework of the ERA Roadmap. This allowed the NAPs to be aligned with the actual circumstances in each country (e.g. by addressing specific gender inequalities, building on existing experience with gender equality policies and involving relevant national stakeholders).

Based on the available information we developed a typology of countries with respect to NAPs and NAP implementation. We distinguish therein between six clusters of countries:

- Countries with a **comprehensive and consistent NAP** and corresponding implementation (Austria, Belgium, Germany, the Netherlands, Norway, Slovenia, Spain and Sweden)
- Countries with **focused NAPs** (Cyprus, Denmark, Finland, Ireland, Luxembourg, Malta, Portugal and Switzerland) which address two out of three ERA gender equality objectives
- Countries with **inconsistencies** within the NAP or between the NAP and its implementation (Greece, Italy and UK)
- Countries with **actionistic** NAPs (Czech Republic, Estonia, Lithuania and Poland) which do not contain a context analysis but formulate priorities and/or implement measures
- Countries with **focused NAPs** but **without implementation** (Bosnia Herzegovina, Croatia, Latvia and Turkey)
- Countries without a NAP (Hungary and Slovakia) or with a NAP but **without gender equality priorities** (Bulgaria and Romania).

It is striking that the cluster of countries which the GENDERACTION assessment categorises as good practice countries with regard to NAP Priority 4 implementation differs significantly from the countries identified as the leading group in the ERA Progress Report 2018 (EC 2019a). According to this report, Croatia, Lithuania, Latvia and Romania belong to Cluster 1, which contains the best-performing countries in terms of the share of women in Grade A positions. However, our analysis identified Austria, Belgium, Germany, the Netherlands, Norway, Slovenia, Spain and Sweden as the countries with comprehensive and consistent NAPs.

This difference in assessment results from different approaches to gender equality and correspondingly, from different indicators used to measure the implementation of gender equality policies. While the GENDERACTION assessment focuses on the implementation process of gender equality policies based on multiple data sources and indicators, the ERA progress report focuses on the development of the headline indicator and two supporting indicators. This approach is too limited to provide meaningful information for the assessment of progress towards gender equality in R&I.

Experiences with the NAP implementation and the results achieved so far show the potential of the instrument to initiate (further) development of gender equality policies. However, it is also evident that the process linked to the ERA Roadmap development, implementation and monitoring does not provide incentives to increase engagement regarding gender equality in R&I for countries that are relatively inactive. Consequently, the gap between experienced and inactive countries with regard to gender equality in R&I is widening.

Our recommendations focus on three areas and aim at supporting a more coherent gender equality policy in R&I. (1) Experiences with the NAPs 2015-2020 indicate a need for an **adaptation of the NAP development and submission procedure**, including the provision of more detailed guidance for NAP development, the involvement of relevant national stakeholders and the consideration of gender equality in other ERA priorities. (2) The analysis of NAP implementation produces results which are not in line with the ERA progress report as the countries identified as top performers by these approaches differ. Hence, a **meaningful set of indicators for monitoring NAP implementation** needs to be developed. GENDERACTION suggests a combined approach using quantitative (available) indicators and qualitative/survey data provided by the countries. (3) The varying goals and focus of gender equality policies presented in NAPs indicate a lack of a European **gender equality discourse**. We recommend using the NAP development, implementation and monitoring processes for consolidating a gender equality discourse for R&I in the EU. This discourse should aim at establishing a shared understanding of gender equality and common goals at the EC and MS/AC level. The European Commission recently intensified the discourse about gender equality in R&I when introducing the upcoming GEP requirement in Horizon Europe. This increased interest in gender equality issues in some of the more inactive countries regarding gender equality in R&I and made more advanced countries think about a further development of the existing policy mix to provide support for RPOs. However, a common understanding of gender equality and its goals is the basis for mutual learning activities which our respondents identified as a key driver for the (further) development of national gender equality policies.

An important argument in a gender equality discourse is to stress the positive relationship between gender equality on the one hand and innovation and excellence on the other hand. The analysis shows no positive correlation between the share of women in Grade A and the innovation and excellence indicators. But the higher a country scores on the Gender Equality

Index, the higher its innovation potential. Similarly, the correlation between the share of RPOs with GEPs and the innovation indicators are significant and positive. Hence, an increasing share of RPOs with GEPs is positively correlated with a country's innovation potential. This argument also strengthens current European strategies regarding gender equality in R&I like the upcoming GEP requirement for applicants in Horizon Europe.

## Abbreviations

|        |   |
|--------|---|
| AC:    | Associated Countries, countries associated to Horizon 2020  |
| ARES:  | Académie de recherche et d'enseignement supérieur (Belgium)   |
| AT:    | Austria   |
| BA:    | Bosnia and Herzegovina  |
| BE:    | Belgium   |
| BG:    | Bulgaria  |
| BMBFW: | Federal Ministry of Education, Science and Research (Austria)   |
| CH:    | Switzerland   |
| CY:    | Cyprus  |
| CZ:    | Czech Republic  |
| DE:    | Germany   |
| DFG:   | German Research Foundation (Germany)  |
| DK:    | Denmark   |
| EC:    | European Commission   |
| EE:    | Estonia   |
| EIGE:  | European Institute for Gender Equality  |
| EL:    | Greece  |
| EMM:   | European Monitoring Mechanism   |
| ERA:   | European Research Area  |
| ERAC:  | European Research and Innovation Area Committee   |
| ES:    | Spain   |
| EU:    | European Union  |
| EU13:  | Member States which joined the EU from 2004 onwards (Bulgaria, Croatia, Cyprus, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Malta, Poland, Romania, Slovakia and Slovenia).                        |
| EU15:  | Member States which joined the EU by 1995 at the latest (Austria, Belgium, Denmark, Finland, France, Greece, Germany, Ireland, Italy, Luxembourg, the Netherlands, Portugal, Spain, Sweden, United Kingdom) |
| FI:    | Finland   |
| FP:    | Framework Programme   |
| FR:    | France  |
| FWB:   | Fédération Wallonie-Bruxelles (Belgium)   |
| GCI:   | Glass Ceiling Index   |
| GE:    | Gender Equality   |
| GEI:   | Gender Equality Index   |
| GEP:   | Gender Equality Plan  |
| GPC:   | High Level Group for Joint Programming  |
| H2020: | Horizon 2020, EU funding scheme   |
| HEI:   | Higher Education Institution  |
| HES:   | Higher Education Sector   |
| HG:    | Helsinki Group (predecessor of SWG GRI)   |
| HR:    | Croatia   |
| HRS4R: | Human Resources Strategy for Researchers  |
| HU:    | Hungary   |
| IE:    | Ireland   |

|          |  |
|----------|--|
| IL:      | Israel   |
| IS:      | Iceland  |
| IT:      | Italy  |
| LT:      | Lithuania  |
| LU:      | Luxembourg   |
| LV:      | Latvia   |
| MT:      | Malta  |
| MS:      | Member States  |
| NAP:     | National Action Plan   |
| NL:      | The Netherlands  |
| NO:      | Norway   |
| OMCI:    | Observatory for Women, Science and Innovation (Spain)            |
| OTM-R:   | Open, Transparent, Merit-based Recruitment                       |
| PL:      | Poland   |
| PSF:     | Policy Support Facility  |
| PT:      | Portugal   |
| RDIC:    | Research, Development and Innovation Council (Czech Republic)    |
| RFO:     | Research Funding Organisation                                    |
| R&I:     | Research and Innovation  |
| RO:      | Romania  |
| RPO:     | Research Performing Organisation                                 |
| SE:      | Sweden   |
| SFIC:    | Strategic Forum for international S&T Cooperation                |
| SI:      | Slovenia   |
| SK:      | Slovakia   |
| S&T:     | Science and Technology   |
| STEM:    | Science, Technology, Engineering and Mathematics                 |
| SWG GRI: | Standing Working Group on Gender in Research and Innovation      |
| TACR:    | Technology Agency of the Czech Republic                          |
| TR:      | Turkey   |
| UHR:     | Universities Norway  |
| UK:      | United Kingdom   |
| UNESCO:  | United Nations Educational, Scientific and Cultural Organization |
| WoS:     | Web of Science   |
| WP:      | Work Package   |

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# 1 Introduction

European Research Area (ERA) Priority 4 focuses on gender equality and gender mainstreaming in research and innovation. The objective is to foster scientific excellence and a breadth of research approaches by fully utilising gender diversity and equality and avoiding an indefensible waste of talent. Within their National Action Plans (NAPs), European Union Member States are asked to develop policies which address gender imbalances particularly at senior levels and in decision making and which strengthen the gender dimension in research. Member States and Associated Countries should initiate gender equality policies in research performing organisations (RPOs) and research funding organisations (RFOs). They should also monitor the effectiveness of such policies on a regular basis and adjust measures as necessary.

The aim of GENDERACTION Work Package 3 (WP3) is to benchmark the implementation of Priority 4 in national ERA roadmaps or NAPs<sup>1</sup>. WP3 focuses on identifying best practices in national legal and policy environments which support progress towards achieving Priority 4. The results of WP3 informed the work of WP4 Mutual Learning and Capacity-Building Activities and WP5 Policy Advice.

The first report of GENDERACTION WP3 (D3.1, Wroblewski 2018) report showed that different countries take different approaches to NAPs and that the level of implementation of gender equality policies differs from country to country. While some countries describe their full gender equality policy mix in their NAPs, others restrict their description to the current focus of their gender equality policy or a process to further develop the existing policy mix. At the other end of the spectrum are countries which only formulate a general commitment to gender equality or do not even address it at all in their NAPs. Furthermore, NAPs differ regarding the concept of gender equality used. While some countries address all three ERA gender equality objectives (increasing the share of women in all fields and hierarchical levels of R&I; structural change to abolish barriers for women's careers; integration of the gender dimension in research content and teaching), others only focus on one or two. An online survey revealed differences between EU15 countries and newer Member States (EU13 countries which joined the EU from 2004 onwards) in several respects. For 57% of newer Member States the NAP was the first policy document on gender equality in R&I, a fact that only holds for 25% of EU15 countries. Priority 4 is more likely to be interlinked with other priorities in EU15 countries (39% versus 14%). EU13 countries refer more frequently to difficulties regarding the development of Priority 4.

The second report in GENDERACTION WP3 (D3.2, Wroblewski 2020) builds on the results of the first report on NAP implementation and pursued a threefold aim:

- 1) to provide a set of indicators for monitoring NAP implementation,
- 2) to assess NAP implementation in EU28 countries based on these indicators, and
- 3) to formulate recommendations for the next period of ERA implementation.

The third and final report complements the analysis by including associated countries experiences with NAP development and implementation as well as considering current developments in the context of recommendations.

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<sup>1</sup> For purposes of readability, we will refer to these in the remainder of this report simply as National Action Plans (NAPs), a term which is used as a synonym for national ERA roadmaps.

The analysis is based on multiple data sources which complement each other (see section 9.3 for an overview on data sources):

- The starting point for GENDERACTION was a document analysis – in most cases the NAPs. A list of documents included in the analysis is provided in chapter 8.1.
- In autumn 2017, an online survey on NAP development and implementation was carried out among members of the Standing Working Group on Gender in Research and Innovation (SWG GRI). The results of this survey are provided in the first report of GENDERACTION WP3 (D3.1, Wroblewski 2018).
- In early 2019, the survey was updated using the “Progress Tool” developed by the GPC Task Force for the analysis of the implementation of Priority 2a. Members of the SWG GRI received a short e-mail questionnaire and the progress tool adapted for Priority 4 measures. A total of 24 countries provided information on the current state of their NAP implementation.
- To complement the available data, the SWG GRI agreed that GENDERACTION WP3 could conduct expert interviews with its members regarding NAP development and implementation. In a meeting of the SWG GRI in April 2019 in Brussels its members were asked if they would agree to participate in an interview. Representatives of 12 countries agreed to do so. They were all subsequently contacted, and finally nine interviews were realised from May to July 2019. In summer 2021 interview requests have been sent to representatives from ACs to include their perspectives on the ERA roadmap and its implementation in the final report. Three additional interviews could be realised (see Appendix 9.1.3 for a list of interviewees).
- Furthermore, in Spring 2021 a short questionnaire was sent to members of the SWG GRI to get a final assessment of the development regarding gender equality in R&I at national level. 18 countries provided answers.

The final report on NAP implementation starts with a description of the ERA process and the manner in which gender equality is addressed in different phases of ERA development (Chapter 2). In a next step, the GENDERACTION approach to monitoring and the set of indicators used to assess NAP implementation is presented (Chapter 3). The Priority 4 implementation status is then analysed using indicators referred to in the ERA progress reports (Chapter 4). This is followed by an analysis of NAP implementation based on the data collected in GENDERACTION (Chapter 5). Chapter 6 focuses on stakeholders’ perspectives on NAP development and implementation. Based on interviews with members of the SWG GRI and the questionnaire conducted in 2021 their assessment of NAP development and implementation as well as challenges regarding gender equality in R&I, which should be addressed in future NAPs, are discussed. Finally, the main results are summarised and used as the basis for the formulation of recommendations for the next ERA Roadmap (Chapter 7).

## 2 Gender Equality in the European Research Area

The political concept of the European Research Area (ERA) was first launched in 2000 with the publication of the European Commission's "Towards a European Research Area" Communication (EC 2000). The main objectives of this initiative were to boost Europe's competitiveness, to improve the coordination of research activities on both a national and a European level, to develop human resources and to increase the attractiveness of European research to the best researchers from all over the world. The EU's Framework Programme for Research, Technological Development and Demonstration was considered to be the most important instrument for the implementation of the European Research Area.

In 2007, progress in the development of the ERA was assessed and new perspectives presented in the form of a Green Paper (EC 2007). The Green Paper underlines the importance of ERA for the European Union to become a leading knowledge society. It also confirms the main ERA objectives. "The ERA concept encompasses three inter-related aspects: a European 'internal market' for research, where researchers, technology and knowledge can freely circulate; effective European-level coordination of national and regional research activities, programmes and policies; and initiatives implemented and funded at European level" (EC 2007: 5). In December 2008, the Competitiveness Council formulated a 2020 Vision for the European Research Area which was endorsed by the European Council (Council of the European Union 2008). The outlined vision of the ERA is based on six dimensions, namely: realising a single labour market for researchers; developing world-class research infrastructures; strengthening research institutions; sharing knowledge; optimising research programmes and priorities; and opening to the world through international cooperation in science and technology (S&T).

A third phase in the development of the ERA began in 2012 with the new Communication and Council Conclusions (EC 2012), which led to the adoption of the ERA Roadmap 2015-2020 (ERAC 2015). The purpose of this roadmap is to identify a limited number of top priority actions that will have the biggest impact on Europe's research and innovation whilst fully recognising that national research and innovation systems across Europe have different characteristics and specificities. It is up to the Member States to identify and decide which approaches to pursuing the ERA are most suited to the structures and dynamics of their own national research and innovation systems in the implementation of these actions (Council of Europe 2015: 3). The ERA Roadmap also makes provisions for monitoring in conjunction with ERA Progress Reports. This monitoring should be kept as lean as possible to avoid additional administrative burdens yet also be clear and workable at both national and EU level.

The ERA Roadmap defines six priorities for policies to pursue ERA at national level:

- Priority 1 – Effective national research systems
- Priority 2a – Jointly addressing grand challenges
- Priority 2b – Making optimal use of public investments in research infrastructure
- Priority 3 – An open labour market for researchers
- Priority 4 – Gender equality and gender mainstreaming in research
- Priority 5 – Optimal circulation and transfer of scientific knowledge
- Priority 6 – International cooperation.

The gender dimension in science and research has been addressed in several ways in this process. For instance, the Communication "Towards a European Research Area" explicitly

addresses the underrepresentation of women “There are not enough women in research in Europe” (EC 2000: 17). The need for action to increase the share of women in science and research is justified by the leaky pipeline phenomenon (decreasing female participation in science compared to the share of women among graduates) as well as discriminatory mechanisms and their anticipation by women. The Communication also refers to the EC Communication “Women in Science” (EC 1999), a policy document which formulates the aim to “encourage women to take part in European research” (EC 1999: 3). The European Commission (EC) already envisaged the development of a coherent approach to increase the share of women in its Fifth Framework Programme (FP5), which included the Marie Curie scholarships as well as corresponding advisory groups and assessment/monitoring panels aimed specifically at promoting research by, for and on women. In other words, its goal was not only to increase female participation in research but also to strengthen gender issues in research content (“research for women” and “research on women”).

The aforementioned Green Paper also calls for initiatives to increase the share of women in science and research. “It is thus essential to establish a single and open European labour market for researchers, ensuring effective ‘brain circulation’ within Europe and with partner countries and attracting young talent and women into research careers.” (EC 2007: 11) In contrast to the EC Communication “Women in Science” (EC 1999), the Green Paper does not address the gender dimension in research content.

In the third phase of the development of the ERA (see, e.g. EC 2012; Council of Europe 2012), the focus of the gender dimension in the ERA is widened and formulated more explicitly. Gender equality and gender mainstreaming in research is defined as one of six ERA priorities “to end the waste of talent which we cannot afford and to diversify views and approaches in research and foster excellence” (EC 2012: 4). Priority 4 now defines three dimensions of gender equality: (1) the representation of women in science in general, (2) the representation of women in decision-making positions as well as structural and cultural barriers which lead to an underrepresentation of women in decision making, and (3) the integration of gender in research content. In the years that have since followed, the European Commission and the Council of Europe refer to this definition of gender equality – e.g. in the Council’s conclusions on the European Research Area Roadmap (2015) or in the recent ERA Progress Report (EC 2019a).

The European Council has declared that realising the ERA necessitates the monitoring of progress in close connection with the European Semester and invited the European Commission to establish such a monitoring mechanism. Consequently, the European Monitoring Mechanism (EMM) was developed by the European Commission in close collaboration with Member States, with the aim of assessing compliance to the ERA at the levels of national and regional policies, RFOs and RPOs (EC 2019b: 2). For each priority a headline indicator and complementary indicators were defined. The EMM defined the share of women in grade A positions in higher education institutions as the headline indicator for Priority 4 and the share of female PhD graduates as well as the gender dimension in content constituted the complementary indicators. This already represented a further development to the ERA progress report 2016 (EC 2017) which focused only on the headline indicator (for further details on the indicators, see Chapter 3.2).

The European Research Area and Innovation Committee (ERAC) is a main actor in the ERA context. ERAC is a strategic policy advisory committee that advises the Council, the

Commission and Member States on the full spectrum of research and innovation issues in the framework of the governance of the European Research Area. Its mandate was decided by the Council in October 2015. The Committee is co-chaired by the Commission and an elected representative from a Member State. The Council provides its secretariat. ERAC members are the European Commission and the EU Member States. Non-EU countries which are associated to EU research and innovation programmes may participate as observers in its activities.<sup>2</sup>

ERAC currently has three Standing Working Groups: Open Science and Innovation, Human Resources and Mobility, and Gender in Research and Innovation. The committee can also meet in two dedicated configurations, which were established by the Council and are chaired by an elected representative of an EU Member State: (1) the High Level Group on Joint Programming (GPC), which contributes to the preparation of the debates and decisions of the Competitiveness Council on joint programming and (2) the Strategic Forum for international S&T Cooperation (SFIC), which advises the Council and the Commission on the implementation of a European Partnership in the field of international scientific and technological cooperation.

In September 2020 the European Commission launched the Communication “A New ERA for Research and Innovation” which reinforced its commitment to gender equality in order to strengthen the European R&I potential (EC 2020). The Council of the European Union also formulated a strong commitment to gender equality in R&I with its conclusions from December 2020 and May 2021. The Council conclusions focus on gender equality in the context of research careers as well as the development of inclusive gender equality plans at RPO level which also address the gender dimension in R&I. The European Council defines the element of inclusiveness as a broad, gender-balanced and non-discriminatory participation of researchers and national and regional actors and R&I stakeholders across Europe in ERA activities. Furthermore, the first strategic plan for Horizon Europe considers gender equality as a crosscutting priority and foresees supporting actions strengthening the ERA through the promotion of inclusive gender equality (EC 2021). In July 2021 a joint conference of Slovenian Presidency of the Council of the EU and European project GENDERACTION took place which provided the opportunity to reflect on developments during the ERA period 2016-2020 and upcoming challenges regarding gender equality in R&I.<sup>3</sup> Participants including representatives of the European Commission, EU Member States, research funders, ERA stakeholders and experts discussed a draft of the Ljubljana Declaration on Gender Equality in Research which introduced priorities for the forthcoming presidencies and will be presented in September 2021.

Hence, there is a commitment to strengthen and further develop ERA gender equality policies at European as well as national level and to integrate gender equality objectives in new policy instruments like the Pact for R&I, the ERA Scoreboard or the ERA Governance. E.g. the discussion for the new ERA governance will be held in the framework of the ERA Forum for Transition, which is a working group of the European Commission that met for the first time in

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<sup>2</sup> The following countries currently have observer status: Albania, Armenia, Bosnia and Herzegovina, Faroe Islands, North Macedonia, Georgia, Iceland, Israel, Moldova, Montenegro, Norway, Serbia, Switzerland, Turkey, and Ukraine.

<sup>3</sup> For a summary of the discussion see: [https://genderaction.eu/wp-content/uploads/2021/07/PR\\_DeepeningERA\\_Through\\_Gender\\_Equality.pdf](https://genderaction.eu/wp-content/uploads/2021/07/PR_DeepeningERA_Through_Gender_Equality.pdf)

February 2021. Specifically, the 2021 Forum is working on the following topics: Pact for R&I (key principles and values for R&I in Europe, priority areas for ERA Actions, common approaches for the implementation of specific objectives), ERA Governance, ERA Pilot Actions, ERA Policy Agenda, ERA Scoreboard).<sup>4</sup>

In the following, we will focus on the question of how gender equality is considered by Member States when implementing the ERA Roadmap 2016-2020. Our analysis is based on key ERA documents at European and national level, a survey of national stakeholders involved in the development and implementation of the national ERA Roadmaps or NAPs as well as a series of interviews with experts. It is also based on the assumption that sustainable gender equality policies in the ERA require a shared understanding by all stakeholders involved in NAP implementation of the problem to be addressed and the main objectives. Such a common understanding is the result of a discursive process. Vice versa, the lack of a common definition of problems and objectives can be interpreted as a lack of a discourse. We understand discourse to be “thematically connected and problem-related semiotic (for example oral or written) occurrences that relate to specific semiotic types, which serve particular political functions” (Reisigl 2008: 99; see also Wodak 2008). Hence, we start from the position that problems are not given but rather social constructs (see Bacchi 2009).

Applied to our context, this means that “gender mainstreaming”, “gender analysis” and “gender equality” are discursively constructed forms of social knowledge. Equality policies are part of this productive process, for example with regard to the way the problem of gender inequality is presented and which solutions are proposed (Bacchi 2000). This is why we focus in our analysis of the implementation of NAPs on how the gender equality problem has been represented in policy making (both in documents and policies).

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<sup>4</sup> <https://era.gv.at/news-items/era-forum-for-transition-established-to-realise-the-new-european-research-area/>

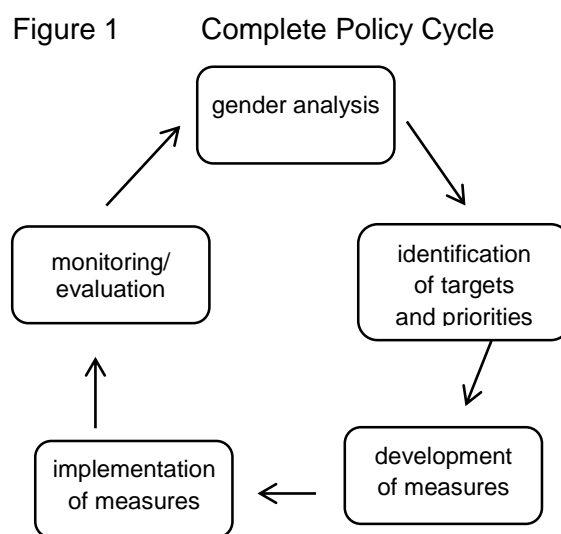
### 3 Monitoring of Priority 4

Before we go on to present the results of our empirical analysis, we would first like to outline the GENDERACTION approach to monitoring as well as the proposed set of indicators for monitoring the implementation of ERA Priority 4.

#### 3.1 GENDERACTION approach to monitoring

As already discussed in our first report on national roadmaps and mechanisms in ERA Priority 4 (Wroblewski 2018), we assume that efficient and effective gender equality policies are developed and implemented following a complete policy cycle (May, Wildavsky 1978; Bergmann, Pimminger 2004).

This implies that gender equality policy objectives and priorities must be formulated based on an analysis of the status quo with regard to the three gender equality dimensions (gender analysis). The next steps are to design and implement measures to achieve the desired objectives. The implementation of these measures should constantly be monitored. Ideally, this monitoring should be accompanied by an evaluation of the measures – either in parallel with the implementation to identify starting points for further development of the measures or ex post to measure their effectiveness.



Source: based on May, Wildavsky 1978

For the purposes of this report, we define monitoring in line with the definition proposed by Markiewicz and Patrick (2016: 12) as: “the planned, continuous and systematic collection and analysis of program information able to provide management and key stakeholders with an indication of the extent of progress in implementation, and in relation to program performance against stated objectives and expectations.”<sup>5</sup>

##### 3.1.1 Purpose of monitoring

Continuous monitoring generally pursues four goals which together support the efficient use of resources:

- Monitoring should provide an overview of current developments in the context of the policy of interest. In the Priority 4 context, relevant indicators refer to the number of higher education institutions (HEIs) and the development in the total number of professors and researchers. This information is necessary to interpret the monitoring indicators.
- The core function of the monitoring is to provide information about policy implementation (e.g. number of policies implemented, number of participants in training programmes and

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<sup>5</sup> This does not include a systematic determination of the quality and value of the policies or measures implemented or their contribution to the achievement of goals and objectives, which would be the task of an evaluation.

share of women, number of beneficiaries of subsidies and share of women, budget spent on specific measures). This information makes accountability of stakeholders transparent and provides first indications of suboptimal implementation.

- In an ideal case, the indicators used in a monitoring system also provide the basis for policy steering. This would require that targets for specific policies are formulated in a way that corresponds to the indicator(s) (e.g. when the performance agreement between a government ministry and a university contains the target to increase the share of women in professorships, and the monitoring includes a corresponding indicator).
- The information described helps to identify deviations from planned implementation and consequently the need to adapt policies or their implementation at an early stage.

### 3.1.2 Principles of monitoring

Efficient monitoring should be based on the following principles (see also Wroblewski et al. 2017).

In general, monitoring systems are **based on empirical data** which is available on a regular basis and easily accessible. In most cases, monitoring indicators consist of quantitative indicators which are derived from the main objectives in a policy field. However, objectives cannot always be formulated in a quantifiable manner. In such cases, qualitative indicators should be included.

A monitoring system should include **indicators which describe the context** of the policy or measure, the **expected output or outcome** of a policy as well as its **implementation**. Examples of context indicators in the field of national gender equality policy in R&I are the numbers of male and female researchers or the number of research institutions. An example of an indicator which describes the expected output is the share of women among newly-appointed professors. Potential outcome indicators are the share of female professors or the share of women in decision-making bodies.

Indicators focusing on the implementation of policies should represent the number of participants in programmes, the budget spent on programme implementation or the number of complaints addressed to an equality officer. Indicators focusing on the implementation of policies should be derived from a logic model or a programme theory that has been explicitly formulated for the concrete policy.<sup>6</sup>

Monitoring indicators should be developed with the participation of the main stakeholders. The aim is to establish an **agreed set of indicators** which all relevant stakeholders accept as meaningful and relevant. This agreed set of indicators should likewise be based on a data source which all stakeholders define as reliable.

The agreed set of **indicators** should be **available at regular intervals** (e.g. yearly or monthly). The timing should be linked to the planned intervals for presentation and discussion of monitoring results (e.g. in the form of annual or monthly reports).

Monitoring results should be **presented and interpreted on a regular basis**. This presentation will both contribute to a gender equality discourse in the concrete policy field and provide the basis for policy learning. Monitoring results allow the overall political strategy and

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<sup>6</sup> A logic model should indicate the goal of a policy (intended impact), then the changes (outcomes) that need to be made to achieve that goal, then all the things that need to be delivered (outputs) to bring about those changes and the activities that need to be carried out in order to ensure that the planned outputs are delivered. For further information, see W.K. Kellogg Foundation (2004).



the concrete policy design to be reviewed. They also facilitate the assessment of progress towards the planned outcome. If deviations from the expected outcome are identified, an analysis of the underlying mechanisms and causes should be carried out. Lessons learned (success stories as well as failures) should also be identified.

Finally, a monitoring system should be seen as a “**living tool**” which has to be adapted when policies are changed.

### 3.1.3 Level of ERA monitoring

In line with the principles outlined above, the monitoring of progress towards the ERA should represent two different levels: (1) the aggregate level and (2) the level of the implementation of the NAP or concrete policies.

Relevant aggregate indicators are provided on a regular basis by the She Figures. The She Figures contain context indicators (e.g. size of sectors in R&I – university, state and business enterprise) as well as potential outcome indicators (e.g. share of women in Grade A). Three She Figures indicators are also used in the ERA Progress Report for Priority 4: The EMM headline indicator “Share of women in Grade A positions in the higher education sector” and the supporting indicators “Share of female PhD graduates” and “Gender dimension in research content”. This means that the EMM indicators focus on two of three ERA gender equality objectives, namely female representation in Grade A and among PhD graduates as well as gender in research content. **The second gender equality objective – abolishing structural barriers for careers of women – is not considered.**

Furthermore, **the existing monitoring of ERA progress does not consider the implementation of NAPs or concrete policies.** As a consequence, the implementation of NAPs or policies remains a black box. Due to a lack of information, a positive development in the EMM indicators is interpreted as a consequence of successful gender equality policies. To avoid a misleading interpretation of developments, GENDERACTION advocates a **combined approach** using indicators that focus on both the aggregate and the implementation levels.

In the following section, we propose a set of indicators to measure progress towards gender equality. Some of these indicators are taken from the She Figures, while others require primary data collection.

## 3.2 Proposed set of indicators

A comprehensive monitoring system for NAP implementation should consider indicators at the aggregate level for the three main gender equality objectives as well as indicators which focus on the implementation of NAPs or concrete policies. We therefore propose the inclusion of additional indicators at the aggregate level (see Wroblewski et al. 2019) – such as the share of female researchers to draw more attention to the non-university sector – as well as indicators for the second ERA gender equality objective (abolishment of structural barriers for women’s careers).

**Table 1: Aggregate indicators**

| Indicator  | Definition   | Source  |
|--|--|---|
| <b>Objective 1 – Increasing female participation in R&amp;I</b>      |  |   |
| Share of women researchers   | This indicator represents the share of women researchers, broken down by country, in the researcher population in all sectors of the economy.  | Eurostat – Statistics on research and development, She Figures                            |
| Share of women in Grade A positions in the higher education sector   | This indicator enables the tracking of the progress made with regard to the presence of women at the highest level of academia.  | Women in Science database, DG Research and Innovation, ERA progress report                |
| Share of female PhD graduates  | This indicator pertains to Priority 4 (and relates to gender balance in career progression) and measures the graduation rate for women at the highest level of tertiary education. Its aim is to characterise the rate and progress of the graduation of women from doctoral programmes.   | Eurostat data   |
| <b>Objective 2 – Structural change</b>                               |  |   |
| Share of female heads of institutions in the higher education sector | This indicator represents the number of female heads of institutions in the higher education sector (HES) for a given year.  | Women in Science database, DG Research and Innovation; She Figures                        |
| Glass Ceiling Index  | The Glass Ceiling Index (GCI) is a relative index comparing the share of women in academia (grades A, B and C) with the share of women in top academic positions (grade A positions; equivalent to full professors in most countries) in a given year. The GCI can range from 0 to infinity. A GCI of 1 indicates that there is no difference between women and men in terms of their chances of being promoted. A score of less than 1 means that women are more represented at grade A level than in academia in general (grades A, B and C) and a GCI score of more than 1 indicates the presence of a glass ceiling effect, i.e. women are less represented in grade A positions than in academia in general (grades A, B and C). In other words, the higher the GCI value, the stronger the glass ceiling effect and the more difficult it is for women to move into a higher position. | Women in Science database, DG Research and Innovation; She Figures                        |
| Share of RPOs that have adopted a gender equality plan               | Using ERA survey data, this indicator presents the share of respondent RPOs who indicated that they had adopted a gender equality plan in a given year.  | HEI and PRO surveys; She Figures 2018 (MoRRI project), She Figures 2015 (ERA Survey 2014) |
| Share of women on boards, members and leaders                        | This indicator shows the extent to which women are involved in top decision-making committees which have a crucial impact on the orientation of research in a given year.  | Women in Science database, DG Research and Innovation; She Figures                        |
| <b>Objective 3 – Gender dimension in research content</b>            |  |   |
| Gender dimension in research content (2007–2014)                     | This indicator relates to the share of a given country's scientific production (measured by the number of peer-reviewed scientific publications by full counting) in which a gender dimension has been identified in the research content relative to the same share at world level. The resulting indicator is a specialisation index, whereby a score above 1 means that a country is specialised (i.e. puts more emphasis on the gender dimension in its research output relative to the score for the world as a whole), while a score below 1 means that it is not specialised relative to the world as a whole.  | Computed by Science-Metrix using WoS data (Clarivate Analytics)                           |

GENDERACTION also proposes the inclusion of **qualitative indicators for NAP implementation** in the monitoring and derives relevant qualitative indicators from an analysis of NAP documents:

- NAP contains context analysis (yes/no)
- Dimensions addressed by context analysis
- Objectives formulated in NAP (yes/no)
- Dimensions addressed by objectives
- Concrete policies/measures formulated for ERA objective 1 (yes/no)
- Concrete policies/measures formulated for ERA objective 2 (yes/no)
- Concrete policies/measures formulated for ERA objective 3 (yes/no)
- Links between other ERA priorities and Priority 4 (for each priority: yes/no)

These indicators are in line with the complete policy cycle approach as well as the criteria for good practice NAPs which have been developed within the GENDERACTION project (see Wroblewski et al. 2018).

#### **Good practice NAPs**

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

To measure the progress of NAP implementation the ERAC Working Group on Priority 2a developed a progress tool which counts policies/measures that are mentioned in the NAP and are already implemented. For each measure implemented, the status is also mentioned (on time, with delay, terminated).

A main shortcoming of this approach is that all policies/measures count equally. In other words, a comprehensive policy aimed at structural change in universities with a significant budget and a prize for women researchers which is awarded once a year both have the same weight in the monitoring.

To assess the significance of such policies or measures, GENDERACTION developed a set of criteria to identify good practice measures (see Wroblewski et al. 2018).

**Good practice policies/measures**

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

We therefore propose to complement the qualitative indicators on NAP implementation with the number of good practice policies/measures.

## 4 State of implementation regarding Priority 4

### 4.1 State of implementation of Priority 4 based on aggregate indicators

The most important indicator for measuring progress regarding ERA Priority 4 is the share of women in Grade A positions, the “headline indicator”. According to this headline indicator, the top group (Cluster 1) is made up of the following EU Member States and Associated Countries: Romania, Latvia, Croatia and Lithuania. Of these countries, Lithuania and Romania did not formulate a gender equality strategy (Priority 4) in their NAPs. Countries which score highest in the headline indicator also achieve an above-average score in at least one of the supporting indicators. The following countries also achieve an above-average score and make up Cluster 2: Bulgaria, Finland, Slovenia, Norway and Turkey.

The top group for the supporting indicator – the share of female PhD graduates – is made up of the following EU Member States and Associated Countries: Iceland, Slovenia, Cyprus, Latvia and Lithuania. A further eight EU Member States also achieve an above-average score for this indicator and make up Cluster 2: Portugal, Croatia, Romania, Estonia, Poland, Bulgaria, Slovakia, Italy and Finland.

Romania, Slovenia, Turkey, Bosnia Herzegovina and Slovakia form the top group of EU Member States and Associated Countries for the second supporting indicator – gender in research content. The group of countries in Cluster 2 is made up of Hungary, Portugal, Iceland, Estonia, Lithuania, Sweden, Croatia, Norway, Finland, Denmark, Israel, Luxembourg, Spain, Malta and Bulgaria.

Seven countries achieve an above-average score and are placed in Cluster 1 or 2 for all three indicators: Bulgaria, Croatia, Finland, Latvia, Lithuania, Romania and Slovenia (see also Table 6 in Chapter 9.2).

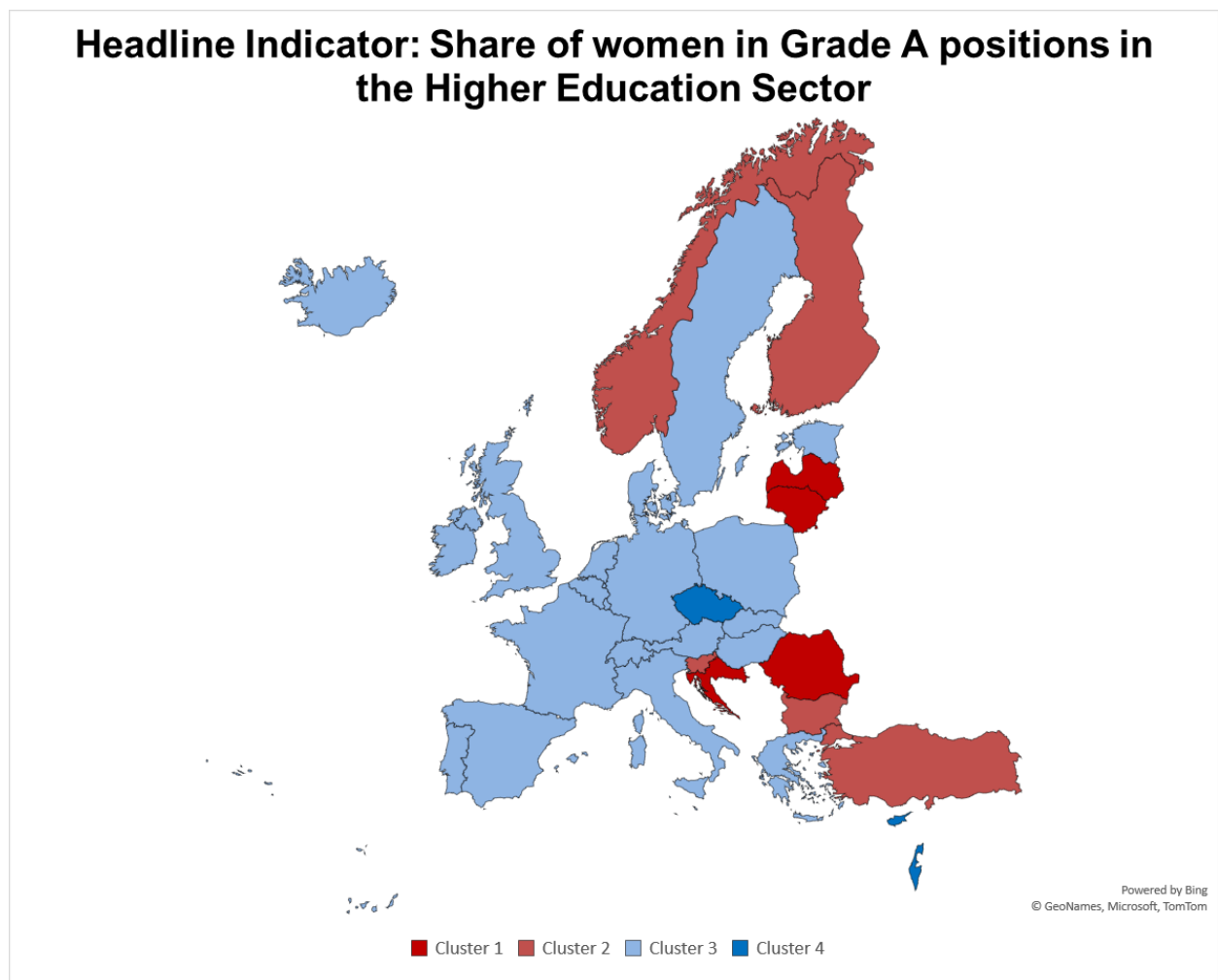
**Table 2 EMM indicators for Priority 4**

|             | Grade A (2016) | PhD (2016) | Publ (2014) |
|-------------|----------------|------------|-------------|
| <b>EU28</b> | 0.24           | 0.48       | 1.05        |
| <b>AT</b>   | 0.23           | 0.42       | 1.02        |
| <b>BE</b>   | 0.18           | 0.47       | 0.95        |
| <b>BG</b>   | 0.37           | 0.53       | 1.07        |
| <b>CY</b>   | 0.13           | 0.60       | 0.88        |
| <b>CZ</b>   | 0.15           | 0.43       | 0.91        |
| <b>DE</b>   | 0.19           | 0.45       | 0.89        |
| <b>DK</b>   | 0.21           | 0.48       | 1.10        |
| <b>EE</b>   | 0.24           | 0.54       | 1.27        |
| <b>EL</b>   | 0.22           | 0.49       | 0.92        |
| <b>ES</b>   | 0.21           | 0.51       | 1.08        |
| <b>FI</b>   | 0.29           | 0.52       | 1.16        |
| <b>FR</b>   | 0.22           | 0.45       | 0.73        |
| <b>HR</b>   | 0.41           | 0.55       | 1.24        |
| <b>HU</b>   | 0.20           | 0.47       | 1.51        |
| <b>IE</b>   | 0.21           | 0.48       | 0.62        |
| <b>IT</b>   | 0.22           | 0.52       | 1.04        |
| <b>LT</b>   | 0.39           | 0.58       | 1.26        |
| <b>LU</b>   | 0.17           | 0.40       | 1.10        |
| <b>LV</b>   | 0.41           | 0.58       | 0.98        |
| <b>MT</b>   | 0.21           | 0.41       | 1.08        |
| <b>NL</b>   | 0.19           | 0.49       | 1.05        |
| <b>PL</b>   | 0.24           | 0.54       | 1.01        |
| <b>PT</b>   | 0.26           | 0.55       | 1.50        |
| <b>RO</b>   | 0.54           | 0.55       | 2.72        |
| <b>SE</b>   | 0.25           | 0.45       | 1.25        |
| <b>SI</b>   | 0.29           | 0.61       | 2.21        |
| <b>SK</b>   | 0.25           | 0.52       | 1.65        |
| <b>UK</b>   | 0.26           | 0.46       | 1.03        |
| <b>AC</b>   |                |            |             |
| <b>BA</b>   | n.d.a.         | 0.45       | 1.91        |
| <b>CH</b>   | 0.23           | 0.44       | 1.04        |
| <b>IL</b>   | 0.14           | 0.50       | 1.10        |
| <b>IS</b>   | 0.26           | 0.64       | 1.45        |
| <b>NO</b>   | 0.28           | 0.50       | 1.17        |
| <b>TR</b>   | 0.28           | 0.46       | 2.11        |

Grade A = Share of women in Grade A positions in the higher education sector; PhD = Share of female PhD graduates; Publ = Gender dimension in research content; n.d.a. = no data available; colour code refers to the clusters in Figure 2.

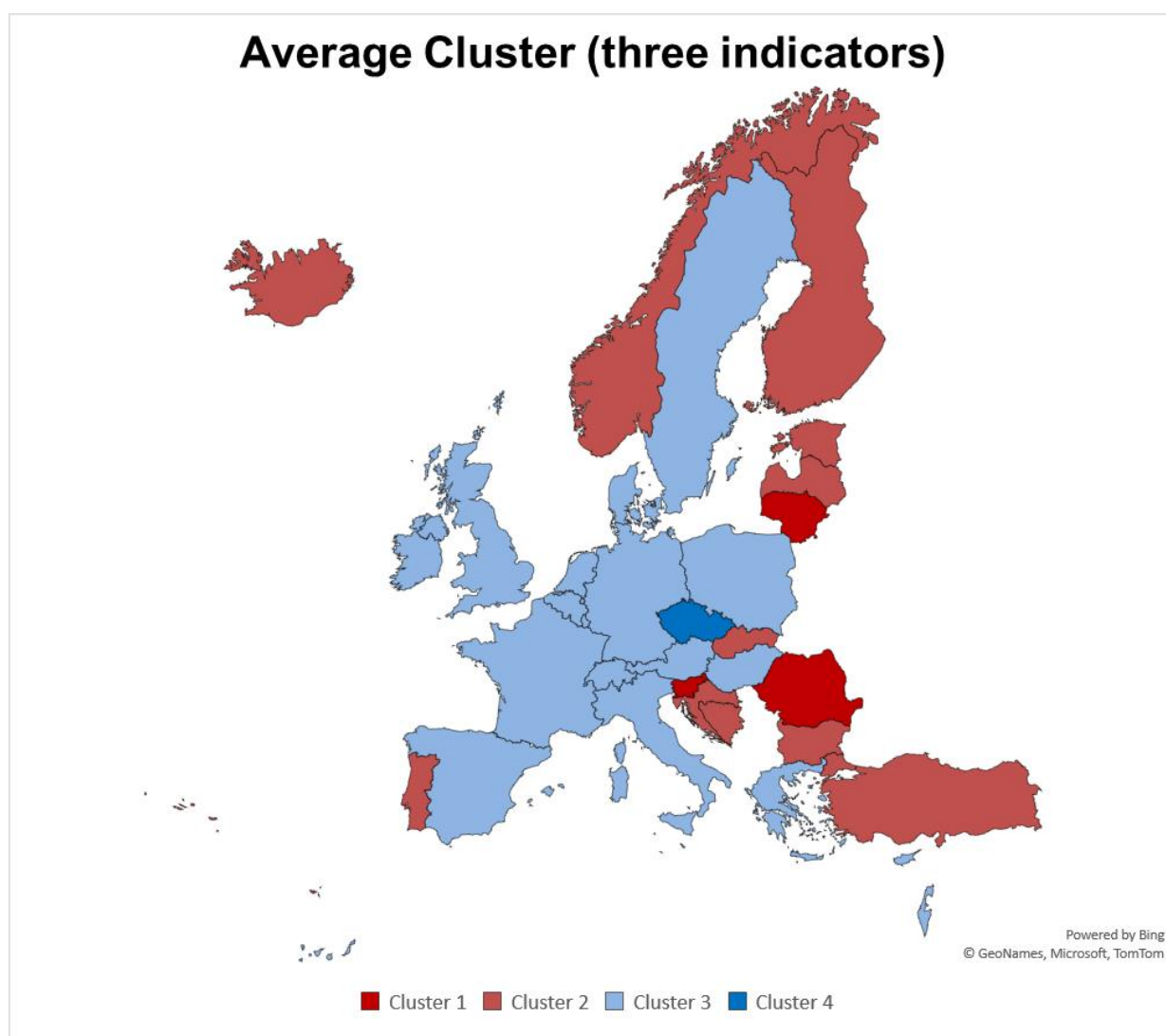
Source: ERA Progress Report 2018 (EC 2019a)

**Figure 2** EU countries by EMM Cluster: headline indicator



Source: ERA Progress Report 2018.

**Figure 3 EU countries by EMM Cluster: average of the three indicators for Priority 4**



Source: ERA Progress Report 2018.

However, the picture changes when we expand the picture to include indicators that focus on structural barriers for female careers. For instance, countries like Bulgaria and Romania, which are located in the top group for the share of women in Grade A positions, score below the EU average for female participation in top management (Heads of HEIs). In contrast, countries like Austria, Denmark or Sweden score above the average for female participation in top management but demonstrate only slow progress for the headline indicator (share of women in Grade A positions). A similar result is obtained when we consider the share of women on boards. Norway, Luxembourg, Sweden, Romania, Bulgaria, Iceland, Finland and Ireland score highest on this indicator. Of these, only Romania features in Cluster 1 for the share of women in Grade A positions.

The countries in Cluster 1 or Cluster 2 for the headline indicator score below the average for the implementation of gender equality plans (GEPs) in RPOs. This suggests that they do not see the need for GEPs since the share of women in Grade A positions in their countries is already above average. This interpretation is in fact a reduction of gender equality to one single dimension – female representation. The only exception here is Finland, which scores high for both indicators (headline indicator and implementation of GEP). In eight countries, three out of



four of RPOs have a GEP (Austria, Belgium, Germany, Spain, Finland, France, Sweden and UK).

**Table 3 Additional indicators at aggregate level**

|             | Heads of HEIs (2017) | GCI (2016) | Boards | RPOs with GEPs |
|-------------|----------------------|------------|--------|----------------|
| <b>EU28</b> | 0.22                 | 1.64       | 0.27   | 0.56           |
| <b>AT</b>   | 0.26                 | 1.55       | 0.38   | 0.74           |
| <b>BE</b>   | 0.21                 | 1.74       | 0.19   | 0.83           |
| <b>BG</b>   | 0.15                 | 1.16       | 0.46   | 0.14           |
| <b>CY</b>   | 0.10                 | 2.60       | 0.13   | 0.50           |
| <b>CZ</b>   | 0.15                 | n.d.a.     | 0.17   | 0.14           |
| <b>DE</b>   | 0.18                 | 1.77       | 0.23   | 0.93           |
| <b>DK</b>   | 0.27                 | 1.65       | 0.33   | 0.50           |
| <b>EE</b>   | 0.30                 | n.d.a.     | 0.15   | 0.00           |
| <b>EL</b>   | 0.11                 | 1.42       | 0.17   | 0.50           |
| <b>ES</b>   | 0.08                 | 1.85       | 0.39   | 0.75           |
| <b>FI</b>   | 0.12                 | 1.53       | 0.45   | 0.79           |
| <b>FR</b>   | 0.12                 | 1.63       | 0.36   | 0.82           |
| <b>HR</b>   | 0.31                 | 1.23       | 0.12   | 0.20           |
| <b>HU</b>   | 0.17                 | 1.94       | 0.25   | 0.39           |
| <b>IE</b>   | 0.17                 | 2.16       | 0.44   | 0.60           |
| <b>IT</b>   | 0.24                 | 1.68       | 0.20   | 0.39           |
| <b>LT</b>   | 0.33                 | 1.42       | 0.31   | 0.00           |
| <b>LU</b>   | 0.00                 | 1.62       | 0.53   | n.d.a.         |
| <b>LV</b>   | 0.37                 | 1.35       | 0.32   | 0.00           |
| <b>MT</b>   | 0.20                 | 1.08       | 0.38   | 0.00           |
| <b>NL</b>   | 0.18                 | 1.70       | 0.33   | 0.44           |
| <b>PL</b>   | 0.18                 | 1.78       | 0.24   | 0.22           |
| <b>PT</b>   | 0.29                 | 1.69       | 0.30   | 0.25           |
| <b>RO</b>   | 0.16                 | 1.04       | 0.50   | 0.20           |
| <b>SE</b>   | 0.42                 | 1.59       | 0.52   | 0.95           |
| <b>SI</b>   | 0.32                 | 1.39       | 0.42   | 0.22           |
| <b>SK</b>   | 0.17                 | 1.74       | 0.23   | 0.13           |
| <b>UK</b>   | 0.24                 | 1.63       | n.d.a. | 0.91           |
| <b>AC</b>   |                      |            |        |                |
| <b>BA</b>   | n.d.a.               | 1.00       | 0.28   | n.d.a.         |
| <b>CH</b>   | 0.30                 | 1.52       | 0.27   | n.d.a.         |
| <b>IS</b>   | 0.30                 | 1.41*      | 0.46   | n.d.a.         |
| <b>IL</b>   | 0.22                 | 2.33       | 0.24   | n.d.a.         |
| <b>NO</b>   | 0.31                 | 1.49       | 0.54   | n.d.a.         |
| <b>TR</b>   | 0.09                 | n.d.a.     | n.d.a. | n.d.a.         |

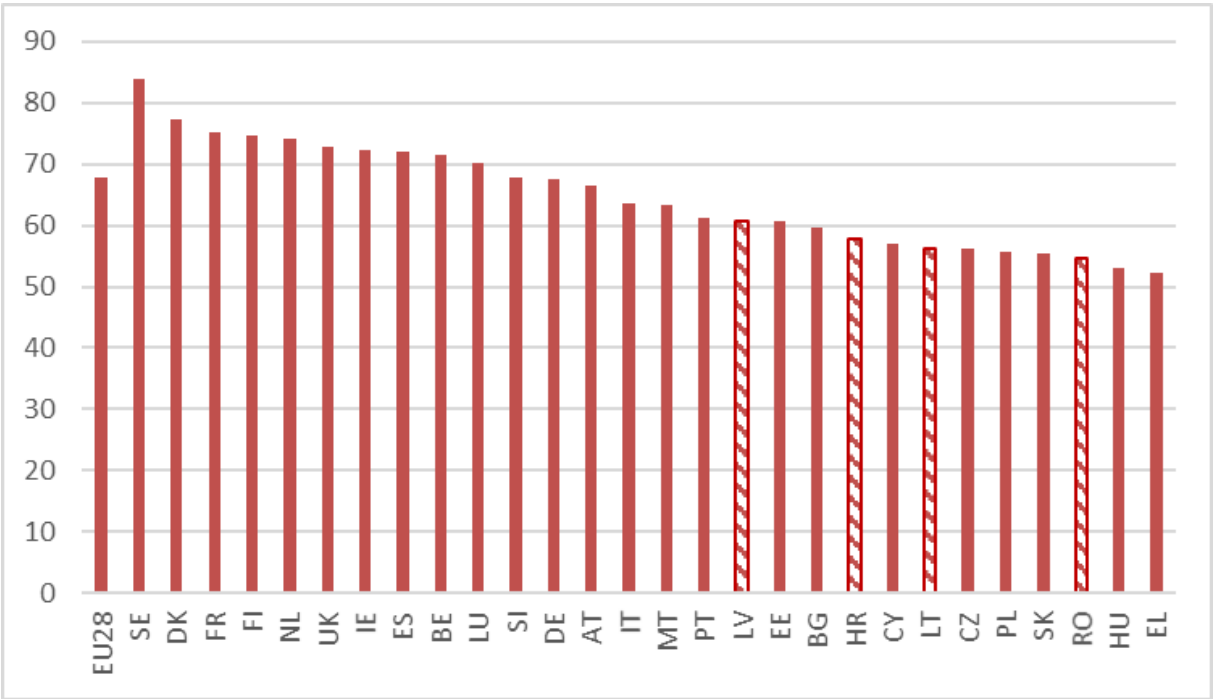
Heads of HEIs = Share of female heads of institution in the higher education sector; GCI = Glass Ceiling Index; Boards = Share of women on boards, members and leaders; RPOs with GEPs = Share of RPOs that have adopted gender equality plans; n.d.a. = no data available; colour code refers to the clusters in Figure 2.; (\*) Reference year: 2013; Source: She Figures 2018.

The difference between those countries which score high for the headline indicator and those in which a majority of RPOs have GEPs supports the interpretation that these represent different gender equality dimensions. To demonstrate this discrepancy, the Gender Equality Index for the whole country (EIGE 2020) is considered as a relevant context indicator. The headline indicator (women in Grade A positions) is correlated with the Gender Equality Index (which represents the level of gender equality in several fields).

The **Gender Equality Index** is a comprehensive measure for assessing the general state of the art and for monitoring progress in gender equality across the EU over time. Hence, it provides a context indicator for gender equality in R&I. The EIGE Gender Equality Index relies on a conceptual framework that embraces different theoretical approaches to gender equality and integrates key gender equality issues within the EU policy framework. The index measures gender gaps and takes into account the context and different levels of achievement of Member States within a range of relevant policy areas: work, money, knowledge, time, power and health. It also offers insights into violence against women and intersecting inequalities (for more information see EIGE 2017). The Gender Equality Index is only available for EU Member States (EU28).

Figure 4 shows the Gender Equality Index for each individual EU Member State as well as the EU average. All EU Member States in Cluster 1 for the EMM headline indicator for Priority 4 (share of women in Grade A positions) score below the average on the Gender Equality Index.

**Figure 4      Total Gender Equality Index 2018**

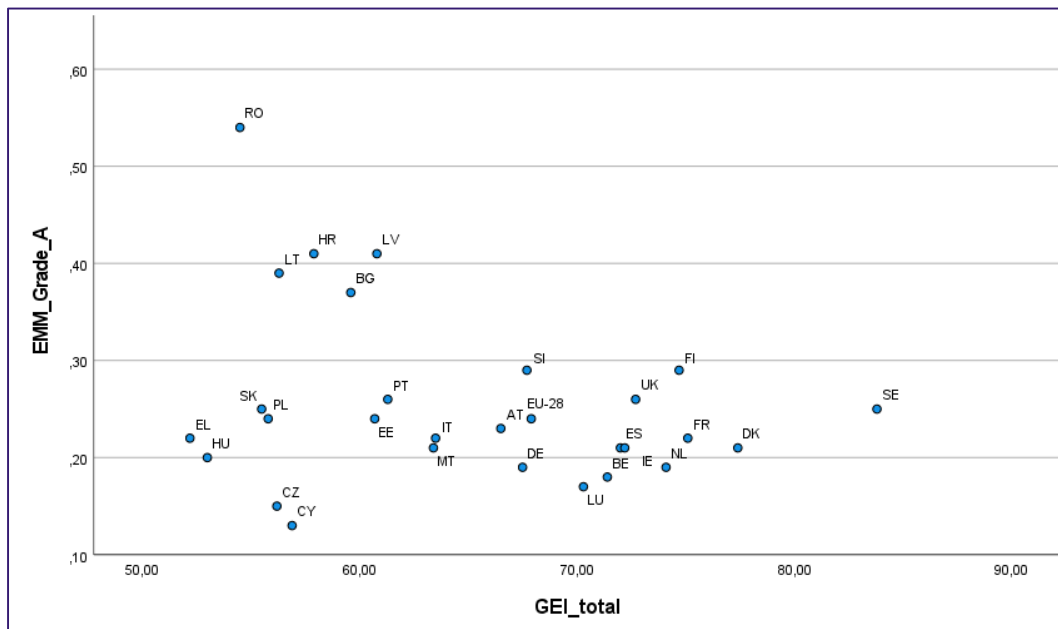


Source: EIGE 2020.

Figure 5 shows the scatter plot of the Gender Equality Index (GEI\_total) and the EMM headline indicator (share of women in Grade A positions) for each EU Member State. The broad distribution of points shows that there is no or only a minor correlation between the two indicators. The Pearson Correlation amounts to -0.286 (not significant), which indicates a negative relation between the two indicators: When the share of women in Grade A positions

increases, the value of the overall Gender Equality Index decreases. A possible explanation for this negative relationship could be that a Grade A position is not attractive enough for men, who can find alternative non-university research positions (see, e.g. Latvian ERA Roadmap 2016) or more attractive positions outside research.

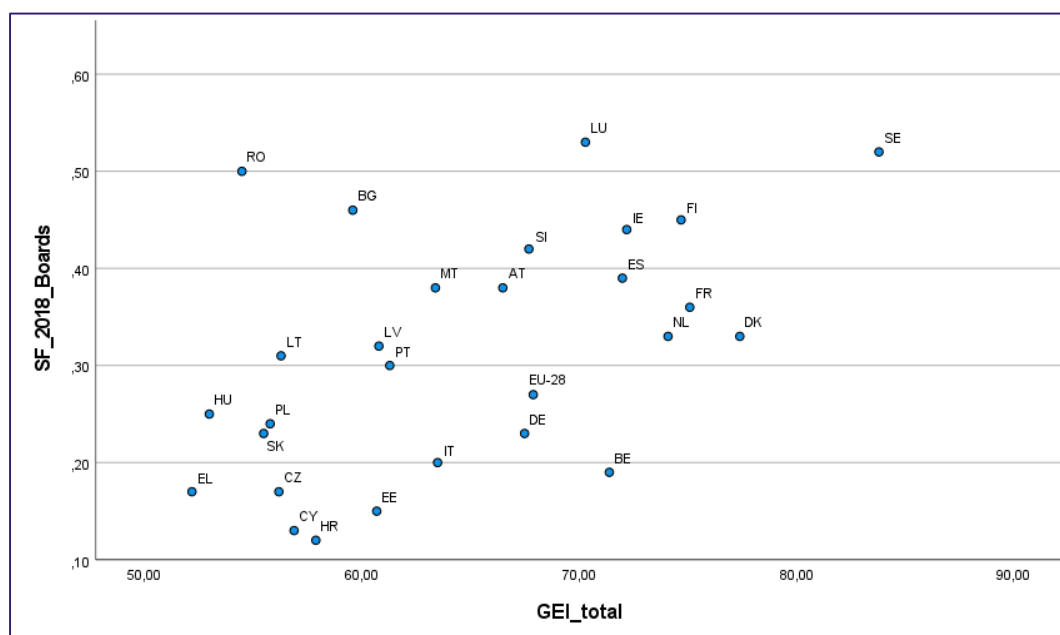
**Figure 5 Scatter plot of Gender Equality Index and EMM headline indicator (women in Grade A positions)**



Source: ERA Progress Report 2018, EIGE 2020.

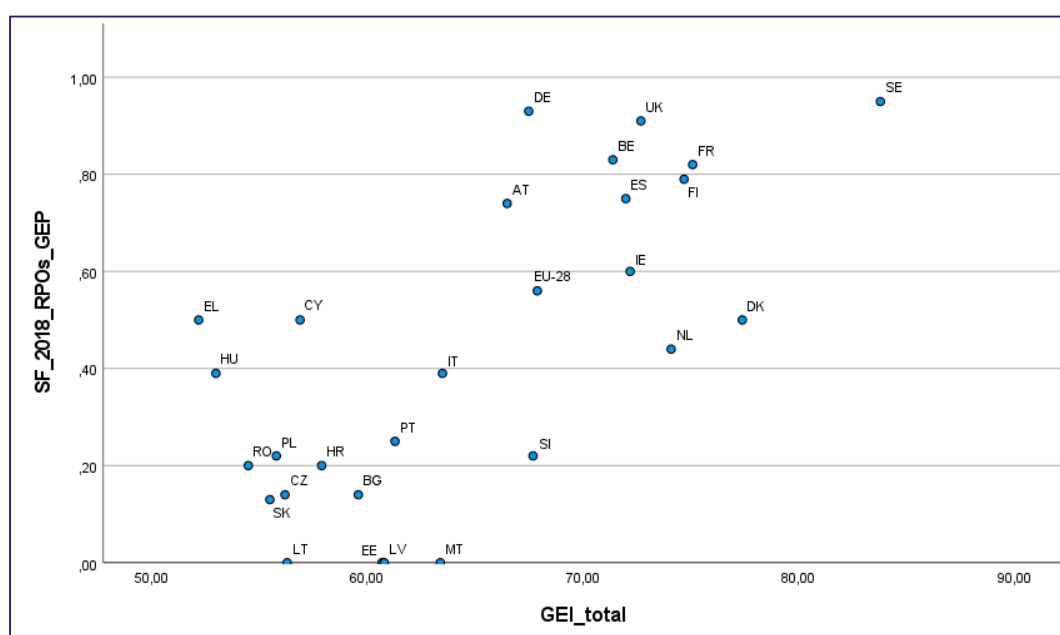
In contrast, the Gender Equality Index is significantly and positively correlated with the share of women on boards and the share of RPOs with GEPs. Hence, countries with a high level of gender equality in general are more likely to have more women on boards in R&I, i.e. in positions of power. Furthermore, it is more likely that an RPO in these countries will have a GEP. The correlation between the Gender Equality Index and the share of women on boards is 0.509; the correlation between the Gender Equality Index and the share of RPOs with GEPs is 0.694. This also indicates that the headline indicator (women in Grade A positions), which refers to the first of the three ERA gender equality dimensions, only affords a partial picture of gender equality in R&I. The second ERA gender equality dimension (structural change) seems to contribute more to gender equality than female representation alone.

**Figure 6 Scatter plot of Gender Equality Index and the share of women on boards**



Source: She Figures 2018, EIGE 2020.

**Figure 7 Scatter plot of Gender Equality Index and share of RPOs with GEPs**

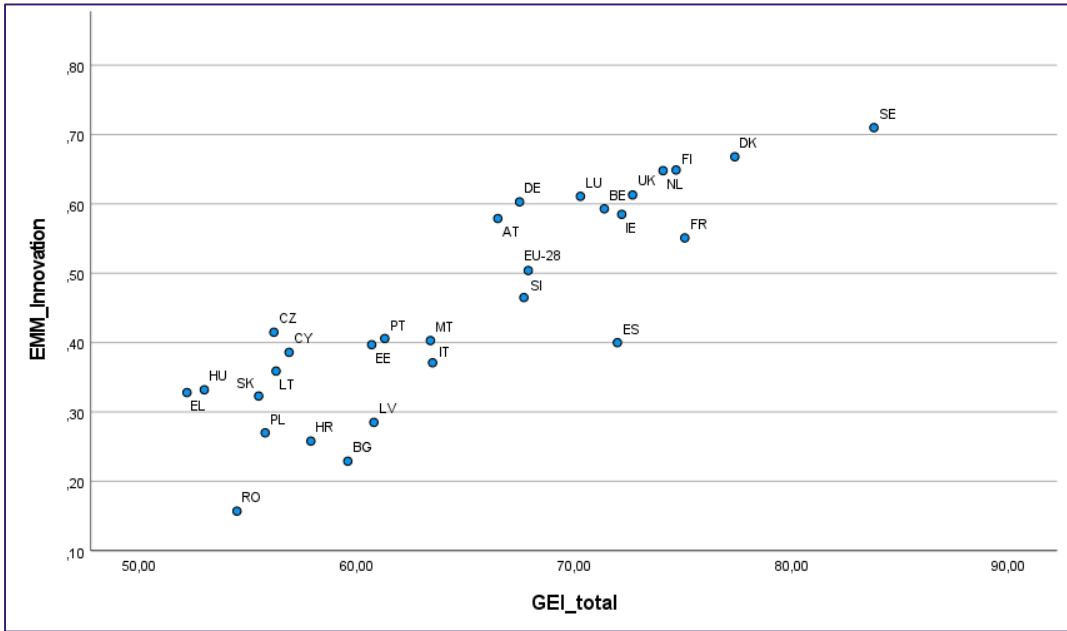


Source: She Figures 2018, EIGE 2020.

The main argument to support the development of comprehensive gender equality policies based on the three-dimensional ERA gender equality construct is provided by the correlation of the EMM indicators for NAP Priority 1 and the Gender Equality Index. The correlation between the Gender Equality Index and the European Innovation Scoreboard Summary Innovation Index is 0.871 and the correlation with the Adjusted Research Excellence Indicator is 0.849. Hence, **the higher a country scores on the Gender Equality Index, the higher its innovation potential** (see also SWG GRI 2018). Similarly, the correlation between the share of RPOs with GEPs and the innovation indicators are significant and positive (the correlation between the share of RPOs with GEPs and innovation is 0.734 and the correlation with

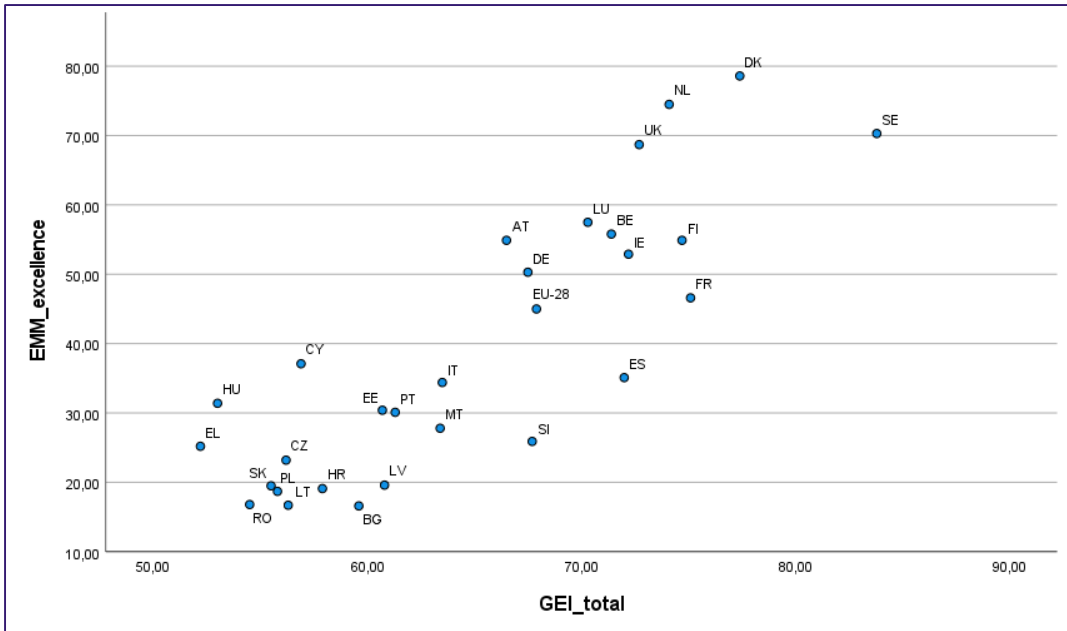
excellence is 0.752). This means that an increasing share of RPOs with GEPs is positively correlated with innovation potential. In contrast, the correlation with the EMM headline indicator for Priority 4 (share of women in Grade A positions) and the innovation and excellence indicators are negative (-0.502 for innovation and -0.450 for excellence).

**Figure 8      Scatter plot of Gender Equality Index and European Innovation Scoreboard Summary Innovation Index**



Source: ERA Progress Report 2018, EIGE 2020.

**Figure 9      Scatter plot of Gender Equality Index and Adjusted Research Excellence Indicator**



Source: ERA Progress Report 2018, EIGE 2020.

## 4.2 Differences between groups of countries

The descriptive analysis of the status quo of gender equality in European countries reveals significant differences between EU15 and EU13 countries. Most of the “newer Member States” (EU13), which joined the EU from 2004 onwards, are characterised by a high female participation in R&I. The average share of women in Grade A positions in EU13 countries is 29.5% compared to 22.1% in EU15 countries. The gap in the shares of women among PhD graduates is smaller but nevertheless significant: while the average share of women among PhD graduates is 53.2% in EU13 countries, the average for EU15 is 47.6%. Hence, the average for the indicator “Gender dimension in content” also differs: 1.37 for EU13 and 1.03 for EU15 countries.

Compared to these significant differences between EU13 and EU15 countries for the EMM indicators, the differences between indicators which address the second dimension of gender equality – share of female heads of HEIs, Glass Ceiling Index or share of women on boards – are not significant. Significant differences only arise for the share of RPOs with GEPs. Many more RPOs in EU15 countries implement GEPs than those in EU13 countries (67.1% versus 16.5%).

For sake of completeness, the average indicators for Associated Countries are mentioned in Table 4. However, since the group contains only six very heterogeneous countries, the averages are not very informative. Furthermore, the range of the indicators of Associated Countries is broader compared to EU15 and EU13 countries. For instance, the EMM indicator for excellence varies between 13,2 and 97,5 for Associated Countries compared to a range between 16.6 and 37.1 (EU13) or between 25.2 and 78.6 (EU15). The indicators for Norway and Iceland are more in line with EU15 countries, while Turkey and Bosnia Herzegovina are comparable with EU13 countries.

The insignificant differences regarding female representation in top management and boards as well as the Glass Ceiling Index indicate that gender equality policies compensate for the lower representation of women in Grade A positions. Moreover, the significant differences regarding RPOs with GEPs support the assumption that GEPs initiate structural change.

Even stronger arguments for gender equality policies are provided by the gaps between EU13 and EU15 countries for the Gender Equality Index and the innovation indicators. The average Gender Equality Index score in EU13 countries is significantly lower than its counterpart in EU15 countries. As far as the correlation between the Gender Equality Index and innovation capacity is concerned (see Chapter 4.1), countries which are interested in increasing their innovation potential should also invest in comprehensive gender equality policies.

**Table 4      Average indicators for EU15, EU13 and Associated Countries**

|   | EU13  | EU15  | AC     |
|---|-------|-------|--------|
| Share of women in Grade A positions in the higher education sector    | 29.5% | 22.1% | 27.2%  |
| Share of female PhD graduates   | 53.2% | 47.6% | 49.8%  |
| Gender dimension in research content                                  | 1.37  | 1.03  | 1.46   |
| Share of female heads of institutions in the higher education sector* | 22.4% | 19.3% | 22.8%  |
| Glass Ceiling Index*  | 1.52  | 1.68  | 1.55   |
| Share of women on boards, members and leaders*                        | 28.3% | 34.4% | 35.8%  |
| Share of RPOs that have adopted gender equality plans                 | 16.5% | 67.1% | n.d.a. |
| Gender Equality Index   | 56.3  | 68.2  | n.d.a. |
| European Innovation Scoreboard Summary Innovation Index               | 0.32  | 0.55  | 0.56   |
| Adjusted Research Excellence Indicator                                | 23.3  | 52.7  | 45.9   |

\* Difference between EU13 and EU15 in means statistically not significant (at 0.05).

n.d.a. = no data available.

Note: Average of indicators, no adjustments made.

Source: ERA Progress Report 2018, She Figures 2018.

## 5 Implementation of NAP Priority 4

### 5.1 Analysis based on NAP documents

The analysis of NAP implementation described above is based on the analysis of aggregate indicators. In this approach, the NAP (e.g. its strategic goals, concrete policies or measures) remains in a black box. The analysis does not consider how gender equality is defined or which objectives and concrete policies are formulated. As already mentioned, GENDERACTION developed a set of criteria to identify good practice NAPs and support the development of future NAPs.

Not all of the criteria mentioned in Chapter 3.2 will be applied to the analysis of NAP implementation because they are not addressed in the outline of the national ERA Roadmaps (ERAC 2015). Hence, our analysis of NAP documents focuses on a core set of indicators derived from the criteria for good practice NAPs:

- NAP contains a definition of gender equality – yes/no.
- NAP is based on an empirical baseline assessment (context analysis) – yes/no.
- NAP addresses ERA gender equality objective 1 – increasing female participation in R&I – in the context analysis – yes/no.
- NAP addresses ERA gender equality objective 2 – structural change – in the context analysis – yes/no.
- NAP addresses ERA gender equality objective 3 – integration of the gender dimension into research content – in the context analysis – yes/no.
- NAP formulates priorities for ERA gender equality objective 1 – yes/no.
- NAP formulates priorities for ERA gender equality objective 2 – yes/no.
- NAP formulates priorities for ERA gender equality objective 3 – yes/no.
- Priority 4 is addressed in other priorities (mainstreaming gender) – yes/no.
- Policies/measures addressing objective 1 are implemented – yes/no.
- Policies/measures addressing objective 2 are implemented – yes/no.
- Policies/measures addressing objective 3 are implemented – yes/no.

With the exception of Hungary and Slovakia, all EU countries formulated and submitted a NAP. Most countries submitted their NAP in 2016, Poland, Sweden and Turkey did so later (2019). France's NAP is not available in English and has therefore not been included in our qualitative analysis.

It is striking that only ten out of 29 NAPs (35%) contain a **definition of gender equality**. In some cases (e.g. Austria, Cyprus, Greece, Slovenia, Norway), gender equality is defined through an explicit reference to ERA gender equality objectives. Some NAPs use an intersectional definition of gender. Denmark, for instance, defines gender as a social construct. The UK sees “gender inequality as part of diversity in general. Wider diversity issues include age, ethnicity, disability and sexual orientation.” Finland uses a multi-dimensional concept of gender (“genders”).

Five out of 29 NAPs (17%) do not contain an empirical assessment of the status quo of their gender equality policy. Eleven NAPs (38%) address all three gender equality dimensions (ERA objectives) in their **context analysis**, six address two dimensions and seven only address one dimension. The first objective – increasing female participation in R&I – is mentioned in almost all NAPs. The second objective – structural change – is mentioned in 20 NAPs (69%).



Compared to that, the third dimension is mentioned much less frequently: only eleven NAPs (38%) mention the objective to integrate the gender dimension into research content or teaching.

All but two countries which submitted a NAP also formulate **priorities regarding gender equality**. The NAPs of Bulgaria and Romania – who both score highly for the headline indicator (share of women in Grade A positions) but have low scores for innovation – do not contain any gender equality priorities. The Bulgarian NAP does not even have a section on gender equality and simply subsumes it under “Human Resources”. Romania states in its context analysis that the share of women in R&I is above the European average and that the share of female heads of RPOs is on the rise. Consequently, it sees no need for action: “This progress needs to be carefully monitored in the coming years and specific measures should be promoted in case the current positive trend is reversed.” (Romanian ERA Roadmap, p. 18)

The documents show several inconsistencies regarding context analysis and formulated priorities. Some countries discuss gender gaps in their context analysis but do not formulate corresponding priorities (Cyprus, Finland, Malta). Others do not include specific gender equality objectives in their context analysis but formulate priorities (Czech Republic, Estonia, Lithuania, Poland).

Another inconsistency is found when countries formulate priorities in their NAPs but do not implement concrete actions in the following years. 18 countries (62%) take actions for all the priorities formulated in their NAP.<sup>7</sup> Seven countries (28%) formulate priorities in their NAP but do not cover all of them in their defined actions (Estonia, Greece, Croatia, Ireland, Latvia, Poland, Slovenia). For more details on the implementation of policies and measures, see Chapter 5.2.

In most NAPs, gender equality is not addressed in other priorities. Thus, **gender is not mainstreamed in the NAPs**. Only 12 NAPs (41%) link Priority 4 with at least one other priority.<sup>8</sup> If there are links, they are mostly to Priority 3 “Open Labour Markets” (Austria, Czech Republic, Estonia, Greece, Latvia, Poland, Norway, Sweden, Switzerland, UK) or Priority 1 “Effective National Research Systems” (Greece, the Netherlands, Sweden). One NAP (UK) mentions gender equality in Priority 2 “Jointly Addressing Grand Challenges & Making Optimal Use of Research Infrastructure”, while another (Belgium) refers to it in Priority 6 “International Cooperation”.

This initial overview does not say very much about the intensity of implementation (regarding the number of measures, quality of measures, potential impact etc.). Hence, the following sections in this report focus on the number of concrete policies implemented as well as on good practice policies.

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<sup>7</sup> Austria, Belgium, Cyprus, Czech Republic, Denmark, Germany, Spain, Finland, Italy, Lithuania, Luxembourg, Malta, Netherlands, Portugal, Sweden, UK.

<sup>8</sup> Austria, Belgium, Czech Republic, Estonia, Greece, Latvia, Netherlands, Poland, Sweden, UK.

**Table 5 Qualitative indicators based on NAP documents and GENDERACTION survey**

|           | <b>NAP*</b> | <b>Def*</b> | <b>Context*</b> |              |              | <b>Priorities*</b> |              |              | <b>Links*</b> | <b>Implementation**</b> |              |              |
|-----------|-------------|-------------|-----------------|--------------|--------------|--------------------|--------------|--------------|---------------|-------------------------|--------------|--------------|
|           |             |             | <b>Obj 1</b>    | <b>Obj 2</b> | <b>Obj 3</b> | <b>Obj 1</b>       | <b>Obj 2</b> | <b>Obj 3</b> |               | <b>Obj 1</b>            | <b>Obj 2</b> | <b>Obj 3</b> |
| <b>AT</b> | yes         | yes         | yes             | yes          | yes          | yes                | yes          | yes          | yes (3)       | yes                     | yes          | yes          |
| <b>BE</b> | yes         | no          | yes             | yes          | yes          | yes                | yes          | yes          | yes (6)       | yes                     | yes          | yes          |
| <b>BG</b> | yes         | no          | no              | no           | no           | no                 | no           | no           | no            | no                      | no           | no           |
| <b>CY</b> | yes         | no          | yes             | yes          | yes          | yes                | yes          | no           | no            | yes                     | yes          | no           |
| <b>CZ</b> | yes         | no          | no              | yes          | no           | yes                | yes          | yes          | yes (3)       | yes                     | yes          | yes          |
| <b>DE</b> | yes         | yes         | yes             | yes          | yes          | yes                | yes          | yes          | no            | yes                     | yes          | yes          |
| <b>DK</b> | yes         | yes         | yes             | yes          | yes          | yes                | no           | yes          | no            | yes                     | no           | yes          |
| <b>EE</b> | yes         | no          | no              | no           | no           | yes                | yes          | no           | yes (3)       | yes                     | no           | no           |
| <b>EL</b> | yes         | yes         | yes             | yes          | yes          | yes                | no           | yes          | yes (1,3)     | no                      | no           | yes          |
| <b>ES</b> | yes         | no          | yes             | yes          | yes          | yes                | yes          | yes          | no            | yes                     | yes          | yes          |
| <b>FI</b> | yes         | yes         | yes             | yes          | yes          | no                 | yes          | no           | no            | no                      | yes          | no           |
| <b>FR</b> | yes****     |             |                 |              |              |                    |              |              |               | yes                     | yes          | yes          |
| <b>HR</b> | yes         | no          | yes             | yes          | no           | yes                | no           | no           | no            | no                      | no           | no           |
| <b>HU</b> | no          |             |                 |              |              |                    |              |              |               |                         |              |              |
| <b>IE</b> | yes         | no          | yes             | yes          | yes          | yes                | yes          | no           | no            | yes                     | no           | no           |
| <b>IT</b> | yes         | no          | no              | yes          | no           | yes                | yes          | no           | no            | yes                     | yes          | no           |
| <b>LT</b> | yes         | no          | no              | no           | no           | no                 | yes          | no           | no            | no                      | yes          | no           |
| <b>LU</b> | yes         | no          | yes             | yes          | no           | yes                | yes          | no           | no            | yes                     | yes          | no           |
| <b>LV</b> | yes         | no          | yes             | yes          | no           | no                 | yes          | no           | yes (3)       | no                      | no           | no           |
| <b>MT</b> | yes         | no          | yes             | yes          | yes          | no                 | yes          | no           | no            | no                      | yes          | no           |
| <b>NL</b> | yes         | no          | yes             | yes          | yes          | yes                | yes          | yes          | yes (1)       | yes                     | yes          | yes          |

|                             | NAP*   | Def* | Context* |       |       | Priorities* |       |       | Links*    | Implementation** |       |        |
|-----------------------------|--------|------|----------|-------|-------|-------------|-------|-------|-----------|------------------|-------|--------|
|                             |        |      | Obj 1    | Obj 2 | Obj 3 | Obj 1       | Obj 2 | Obj 3 |           | Obj 1            | Obj 2 | Obj 3  |
| <b>PL***</b>                | yes    | no   | no       | no    | no    | yes         | no    | no    | yes (3)   | no               | no    | no     |
| <b>PT</b>                   | yes    | no   | yes      | yes   | no    | yes         | yes   | no    | no        | yes              | yes   | no     |
| <b>RO</b>                   | yes    | no   | yes      | no    | no    | no          | no    | no    | no        | no               | no    | no     |
| <b>SE***</b>                | yes    | yes  | yes      | yes   | yes   | yes         | yes   | yes   | yes (1,3) | yes              | yes   | yes    |
| <b>SI</b>                   | yes    | yes  | yes      | yes   | yes   | yes         | yes   | yes   | no        | yes              | yes   | no     |
| <b>SK</b>                   | no     |      |          |       |       |             |       |       |           |                  |       |        |
| <b>UK</b>                   | yes    | yes  | yes      | no    | no    | no          | yes   | no    | yes (3,2) | no               | yes   | no     |
| <b>Associated Countries</b> |        |      |          |       |       |             |       |       |           |                  |       |        |
| <b>BA</b>                   | yes    | no   | no       | no    | no    | yes         | no    | no    | no        | no               | no    | no     |
| <b>CH</b>                   | yes    | yes  | yes      | yes   | no    | yes         | yes   | no    | yes (3)   | yes              | yes   | no     |
| <b>IS</b>                   | no     |      |          |       |       |             |       |       |           |                  |       |        |
| <b>IL</b>                   | no     |      |          |       |       |             |       |       |           |                  |       |        |
| <b>NO</b>                   | yes    | no   | yes      | yes   | yes   | yes         | yes   | yes   | yes (3)   | yes              | yes   | yes    |
| <b>TR</b>                   | yes*** | yes  | yes      | no    | no    | yes         | yes   | yes   | no        | n.d.a            | n.d.a | n.d.a. |

NAP = National Action Plan formulated; Def = NAP contains a definition of gender equality; Context = NAP contains a context analysis referring to objective 1 (increasing female participation in R&I), objective 2 (structural change) or objective 3 (integrating the gender dimension into content); Links = reference to Priority 4 in other priorities; Implementation = policies implemented for objectives 1, 2 or 3.

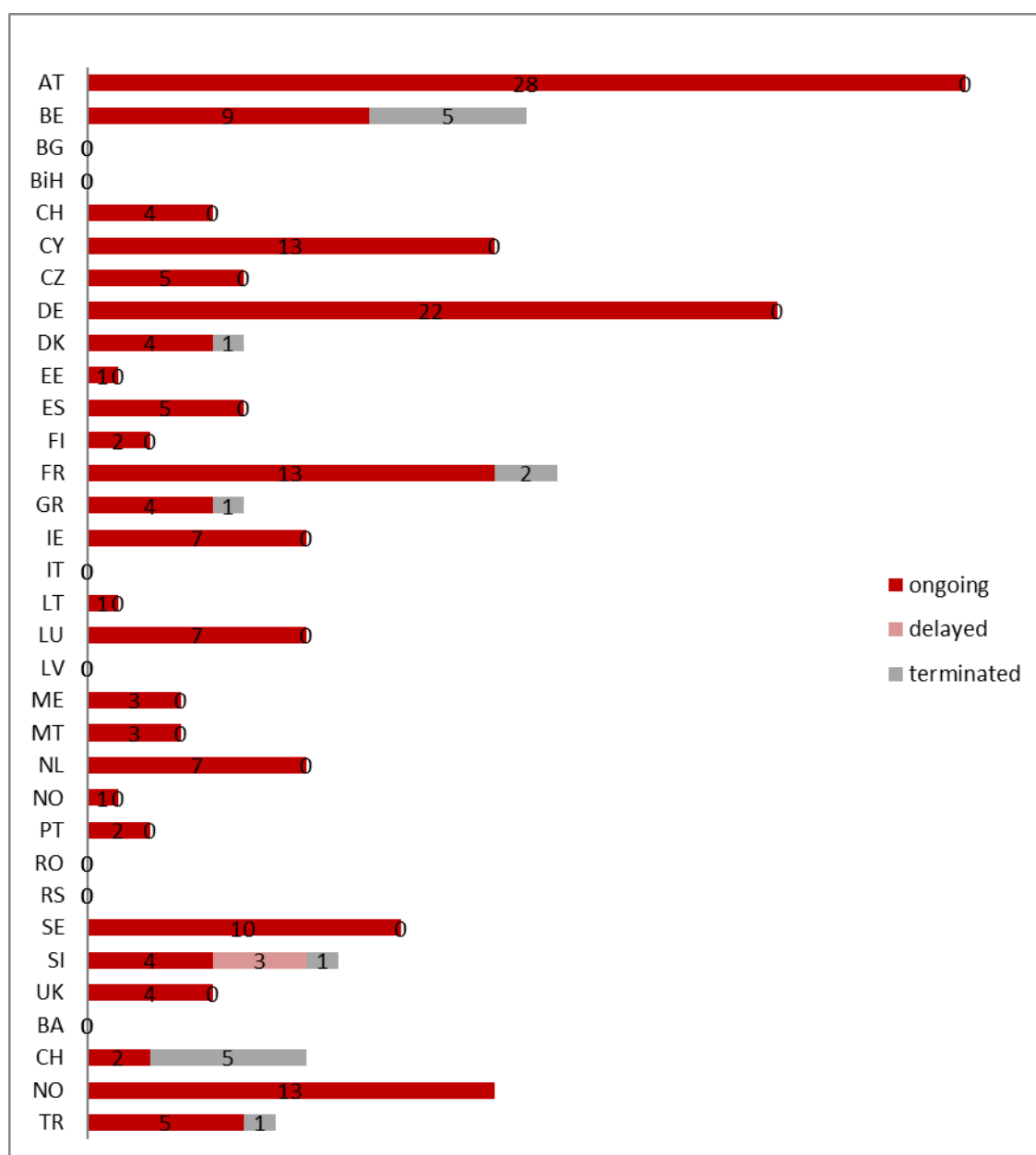
\* Based on NAP documents; \*\* Based on GENDERACTION survey 2017/2019 and progress tool; \*\*\* NAP released in 2019; \*\*\*\* only available in French.

Source: NAP documents.

## 5.2 Analysis based on the adapted progress tool

The High Level Group for Joint Programming (GPC), which is responsible for Priority 2a “Jointly Addressing Grand Challenges” in the ERA Roadmap, developed a progress tool to assess activities relating to the implementation of Priority 2a. This progress tool was adapted for Priority 4 by GENDERACTION. Members of the SWG GRI provided the information in spring 2019. Most countries who mentioned specific action(s) relating to Priority 4 also took such action(s). Greece implemented fewer measures than planned (4 instead of 9).

**Figure 10** Number of policies and measures implemented relating to NAP Priority 4



EU countries which submitted a NAP. Five countries (Croatia, Estonia, Ireland, Latvia, United Kingdom) did not provide information for the progress tool. Information for these countries is derived from an internet search.

Source: Information in progress tool provided by members of the SWG GRI.

The information shown in Figure 10 does not say much about NAP implementation because no information is available on the scope or potential impact of these policies or measures. To open up this black box, GENDERACTION collected information on concrete policies and measures through a survey of members of the SWG GRI. The second GENDERACTION report contained 102 factsheets which provided information on concrete policies (Wroblewski 2020).

### 5.3 Good practice policies and measures

The first report on the implementation of NAP Priority 4 (Wroblewski 2018) showed a broad variety of policies and measures introduced to support gender equality in R&I. They vary regarding the objectives addressed, approach, scope, resources and results. Some policies and measures have a long tradition and have been evaluated while others have been introduced recently. Furthermore, the respondents' assessment of whether a measure or policy is innovative or constitutes a good practice is based on different criteria. In some cases, recently introduced policies are defined as innovative because it is the first time that the topic is addressed by a policy or measure. In other cases, newly introduced measures with an innovative approach are not defined as good practice because no evaluation of the results is yet available. Hence, the survey results illustrate a need for a discussion of criteria for good practices. This topic was taken up in the first Mutual Learning Workshop and criteria for good practice have been defined (see chapter 3.2).

Applying these criteria 17 policies have been identified as good practices.<sup>9</sup> These policies or measures illustrate the broad scope of gender equality policies and the need to tailor them specifically to the given circumstances within the framework of the described policy cycle (see chapter 3.1). This includes that effective gender equality policies are provided with sufficient resources and that are monitored or evaluated.

#### 5.3.1 Good practice policies and measures to increase female participation in R&I (ERA gender equality objective 1)

Most countries have implemented policies aimed at increasing the share of women in R&I. The policies described below illustrate the broad variety of approaches that are used to pursue this goal. The Dutch "Talent Policies" are aimed directly at increasing the share of women professors by providing specific funding. Similarly, the German "Recruiting Initiative" aims at increasing the share of women in joint professorships through a quota regulation.

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<sup>9</sup> A policy or measure is defined as good practice when six of nine criteria are fulfilled. The number of good practices is probably underestimated due to missing information in some of the factsheets provided. For more detailed information on the good practices see Wroblewski (2020).

### **“Talent Policies”, Netherlands**

The Westerdijk Talentimpuls is an initiative aimed at increasing the share of women professors. The goal is to appoint an additional 100 female professors on top of the 200 which formed the target in a previous agreement. Universities are encouraged to promote female assistant professors to full professors and are offered compensation for the extra salary this entails as an incentive. To cover these costs, 5 million euros in funding has been made available for this project over the next 5 years. The project has not yet been evaluated but the Dutch Association of Universities will monitor progress in the universities.

### **“Recruiting Initiative”, Germany**

The initiative aims at increasing the share of women in key positions at Helmholtz Centres, a non-university RPO. Successful recruitment of outstanding scientists should lead to joint professorial appointments with universities and the early filling of senior management positions that become vacant. A target quota for new appointments stipulates that at least 50% of these positions should be filled by women. With a total budget of 32 million euros, three internal calls for the 18 Helmholtz Centres have been published. These resulted in 48 recruitments (30 of which were women).

The Austrian “Output-oriented Budgeting” approach is a more indirect initiative as the goal to increase the share of female professors is formulated at Federal level as well as in the government’s performance contracts with universities. The German “Programme for Women Professors” connects specific funding for female professors to the implementation of gender equality policies within a university.

### **“Gender Equality Goal in Output-Oriented Budgeting”, Austria**

Output-oriented budgeting describes the desired results of government-funded policies, forming a starting point for the work programmes in the federal ministries. Since all managing bodies have to take this regulation into account, this measure ensures that gender equality is now an integral part of the science and research policy agenda and is anchored in all relevant strategy and controlling instruments of the Federal Ministry of Science, Research and Economy.

The gender equality goal focuses on increasing the share of women in public university personnel as well as in management positions and professorships. A well-defined personnel structure and appropriate indicators contribute to first results: the glass ceiling index has decreased drastically and the number of women in leadership positions and on decision-making committees has increased. All in all, this measure has helped Austria to catch up with the European average. An evaluation was conducted in 2015 (BKA 2016) and from 2016 on annual implementation reports were published.

### **“Programme for Women Professors of the German Federal Government and the Länder”, Germany**

The Programme for Women Professors is based on the principle that a combination of two elements – increasing the number of female professors and achieving structural change – is the best approach to fixing the leaky pipeline in research and academia. Accordingly, universities which want to participate in the programme first have to submit equal opportunity plans and then receive funding for female professorships if they are evaluated positively. The two objectives are linked, since budget funds that are freed up by funded professorships must be used for equal opportunity measures.

The quality of the programme is ensured by evaluating the individual submissions according to specific conditions, e.g. whether the equal opportunity plan includes an analysis of the strengths and weaknesses of equal opportunity efforts and specific equal opportunities targets. Evaluations of the whole programme have been conducted after every phase, leading to multiple prolongations.

With an overall funding of 500 million euros from the Federal Government and the *Länder*, 528 professorships have been supported, numerous equal opportunities measures for female students, junior scientists and professors have been implemented and cultural change is evident in the increased relevance of people with responsibilities for equal opportunities. Most of these measures are continued even after funding has ceased.

The Belgian “Girls’ Day, Boys’ Day” programme and the German “National Pact for Women in STEM” focus on horizontal segregation in R&I, in particular the typical male and female degree choices. The Belgian measure addresses and endeavours to deconstruct gendered pupil stereotypes. The German initiative contains a bundle of measures aimed at increasing the interest of girls in technical professions.

### **“Girls’ Day, Boys’ Day”, Wallonia-Brussels Federation, Belgium**

The “Girls’ Day, Boys’ Day” project organised by the equal opportunities and compulsory education services in the Wallonia-Brussels Federation is based on the assumption that gender equality in science begins in compulsory education. The programme focuses on sensitising pupils to gender stereotypes, thereby encouraging them to make career choices based on their own interests. Pupils attend a classroom presentation on deconstructing stereotypes and then meet volunteer professionals from atypical professions for girls and boys. Through this measure, the underrepresentation of women in certain fields is countered.

The target group is twofold. The project concentrates mainly on first or second-level pupils. However, since teachers also take part in the sessions, the project also helps to sensitising them and thus changes the (structural) preconditions for their future classes.

The project was first introduced in 2012 and has continually increased its number of participating schools, reaching a total of 59 schools and 212 classes in 2016. The annual budget is 59,500 euros, which covers the costs of organising the project (since the professionals are all volunteers, the cost for the growing number of participants can be kept low.) Since 2013, the measure has been evaluated annually and the results published on the project’s website (<http://www.gdbd.be/index.php?id=11472>).

### **“National Pact for Women in STEM Careers”, Germany**

The National Pact for Women in STEM Careers, initiated by the German Federal Ministry of Education and Research and partners from industry and science, aims at attracting more women to professions in STEM areas. This is to be achieved using a vast number of projects that focus on four main goals: conveying a realistic picture of STEM professions, pointing out opportunities for women in these fields, stimulating women’s interest in STEM-related degree courses and attracting female university graduates to careers in technical companies and research organisations.

Given its diverse goals, the pact targets women in different stages of their lives, namely the transitions between school and higher education and between higher education and career. The initial results are manifold: a huge network of government, industry, science and media partners has been created and participates in an annual information exchange conference; an online platform with a project map of over 1,000 projects has been set up (<http://www.komm-mach-mint.de/>); brochures, a podcast with role models and an image database containing gender-sensitive images has been made available. With annual funding of 3 to 4 million euros, more projects will be implemented in the coming years.

#### **5.3.2 Good practice policies and measures to support structural change (ERA gender equality objective 2)**

Several policies and measures aim at initiating the development and implementation of comprehensive gender equality policies at institutional level. However, the approaches to pursuing this goal differ. The “Gender Mainstreaming Decree” is a legal measure which requires policies and budgets in the Wallonia-Brussels Federation to be subjected to a gender test.

### **“Gender Mainstreaming Decree”, Wallonia-Brussels Federation, Belgium**

The Gender Mainstreaming Decree, which came into force in 2016, is based on the assumption that specific actions to promote equality are not sufficient and that the government needs to question all its systems, procedures, decisions and actions from a gender equality perspective. The measure foresees that every action taken by the government be reviewed from a gender perspective and provides specific innovative tools (e.g. a mandatory gender test for all projects with concrete proposals for improvement and a gender budgeting procedure; both conducted by specially trained personnel) for doing so. The decree therefore involves and targets all members of administration and government in the Wallonia-Brussels Federation. A gender support group composed of two full-time members provides assistance and coordinates the implementation of the measure. An evaluation is planned when the measure has been fully implemented. However, initial results (e.g. the application of the gender test, the provision of training to 100 members of ministerial staff) can already be seen just one year after the decree came into force.

The approach used in Austria to support the development of gender equality policies at institutional level is based primarily on “Performance Agreements with Universities”. Universities commit themselves to implementing a defined set of equality policies in their performance agreements with the Federal Ministry of Education, Science and Research



(BMBWF). The “Diversitas” award and its supporting structure allow successful approaches to diversity-oriented equality policies to be highlighted. In Germany, the German Research Foundation’s (DFG) member organisation have committed themselves to gender equality. A Toolbox provided by the DFG supports the development of sustainable gender equality policies in RPOs.

#### **“Gender Equality – Performance Agreement with Universities”, Austria**

In Austria, the performance agreements are the main steering instruments in university-level higher education policy. The performance agreement is a contract between a university and the Federal Ministry of Education, Science and Research which defines the university’s budget for a three-year period and sets the targets it has to meet. The rectorate is responsible for the development and implementation of measures to reach these targets. The performance agreement also contains gender equality goals which are based on the main ERA gender equality objectives. Hence, universities commit themselves to three overall goals: gender balance in all positions and functions, structural change and integration of the gender dimension into research content. The implementation of the performance contract is monitored on an annual basis. The measure itself has also been evaluated.

#### **“Diversitas – Diversity Management Award for Higher Education and Research Institutions”, BMBWF, Austria**

The “Diversitas” award highlights achievements in diversity management in higher education and research institutions. The measure is targeted at all public and private universities as well as a number of research institutions. Interested institutions complete a questionnaire describing efforts that have recently led to a major diversity-specific advancement in their institution. The questionnaires are then evaluated by national and international experts using a set of predefined priorities and quality criteria (e.g. multidimensionality, intersectionality, resource orientation, sustainability, innovation and internal/external impact). Afterwards, the results are announced at a presentation event and published online.

The measure pursues several objectives. It sensitises organisations to a diversity-oriented culture and raises the importance of diversity in their organisational structures. Publishing the results establishes a collection of role models for future diversity management actions. The presentation event serves as a forum for networking and exchange of experiences. First awarded in 2016 by the Federal Ministry of Science, Research and Economy, the “Diversitas” award is now presented every two years and has a total budget of 150,000 euros. A documentation of the second call in 2018 is available in English (see [Focalpoints Diversitas 2018 – Diversity Oriented Developments in Higher Education and Research Institutions](#)).

### **“Research-Oriented Standards on Gender Equality with Toolbox”, Germany**

The German Research Foundation's (DFG) “Research-Oriented Standards on Gender Equality” are aimed at establishing sustainable gender equality policies in the scientific landscape by setting structural and personnel-related standards. Two elements in these policies are the use of the cascade model, which helps to increase the number of women at all academic career levels, and the Toolbox, which presents real-life examples of gender equality measures in German higher education research.

The standards have been adopted by the DFG and are also applicable to applicants for DFG funding. Some of the measures target a larger audience: the Toolbox, for instance, helps equal opportunity experts by providing them with ideas and inspiration for their own work.

First adopted in 2008, DFG member organisations regularly submit reports with a changing focus, e.g. on gender equality strategies or the share of female scientists. These reports highlight the positive effects of this measure such as the new importance of gender equality as a strategic management task and a sign of quality. The evaluation of the standards resulted in new recommendations for further improvements to the measure.

The policies described above indirectly aim to change the culture in science and research organisations. The Austrian Laura Bassi Centres explicitly aim to develop an alternative organisational culture to that encounter in ‘traditional’ RPOs.

### **“Laura Bassi Centres of Expertise”, Austria**

The Laura Bassi Centres of Expertise programme started in 2009 and finished in 2018. A total of 25.5 million euros in funding was provided for the programme. With funding of 320,000 euros per year/centre, eight research centres should develop and practice a new research culture. Each centre was funded for seven or eight years. They are headed by excellent female scientists, and work closely with industry. The focus is on team orientation, targeted personnel development and an efficient management culture, fostering more creativity from researchers. The evaluation of the programme showed its success in establishing female role models who manage Centres of Expertise and are committed to developing a management culture that tackles the existing gender bias in science and research (KMU Forschung 2014). The current focus of the Laura Bassi Programme is to support cooperation projects between women working at the interface of science and industry (focus on digitalisation).

In Iceland, an amendment to a law has been passed that obliges all companies with over 25 employees to obtain a "Pay Equality Certification".

### **“Pay Equality Certification”, Iceland**

With the law that came into force in 2018, the Icelandic government request from all companies with more than 25 employees to have a certificate issued by a third party that proves that they pay their employees fairly. The purpose of this obligatory certification is to enforce the current legislation prohibiting discriminatory practices based on gender and requiring that women and men working for the same employer shall be paid equal wages and enjoy equal terms of employment for the same jobs or jobs of equal value. This should secure equal pay to male and female researchers.

To receive this certificate, the companies have to go through a special certification process with an accredited certification body. Since 2020, companies are risking daily fines if they cannot show such a certificate. Social partnership organisations are responsible for monitoring whether the companies and institutions acquire their certificate and renew it every three years (<https://www.government.is/topics/human-rights-and-equality/equality/equal-pay-certification/>).

#### **5.3.3 Good practice policies and measures to integrate the gender dimension into research content and teaching (ERA gender equality objective 3)**

Five good practices address the third ERA gender equality objective (integrating the gender dimension into research content and teaching). The Austrian “FEMtech research projects” measure funds applied research projects which explicitly address the gender dimension in research content. The German “Networking and Transfer” initiative funds projects with a gender focus which promote dialogue between science and practice above all in the fields of medicine, economics, engineering and natural sciences. The Belgian inter-university “Master in Gender Studies” and the Cypriot “UNESCO Chair” aim at integrating the gender dimension into teaching and research. The Research Council of Norway formulated a comprehensive gender policy in 2014.

### **“Funding for Networking and Transfer” (Network Activities), Germany**

The Funding for Networking and Transfer measure, which ran from 2012 to 2020, has three main objectives: stronger networking among women, expanded research into equal opportunity strategies and increased national and international exchange of the research results. To achieve these objectives, the measure provided funding for a range of different projects.

The funding was targeted at excellent female scientists, gender equality practitioners and representatives of research institutions. The focus of the approved projects lies on topics that have previously been neglected in gender research such as medicine, economics, engineering and the natural sciences.

A total of 42 projects were funded with a budget of approximately 6.8 million euros. The initial results of these projects are already being highlighted in a large number of events and publications. The increased exchange of these results is evident in the number of international events that have already taken place (e.g. the Gender2020 Conference on Guiding a Change of Culture in Science in Bielefeld).

### **“FEMtech research projects”, Austria**

The FEMtech research projects have a twofold aim: to raise interest among scientists for gender-related applied research and to provide good practice examples of how to integrate the gender dimension into applied research and innovation. This is achieved by funding research projects which specifically address the gender dimension in technology and innovation with a total of 2,400,000 euros per year. Funded projects and the evaluation of the measures are presented online (<http://www.femtech.at/projekte>).

### **“Inter-university Master’s Degree in Gender Studies”, Wallonia-Brussels Federation, Belgium**

The specialised Master in Gender Studies is aimed at creating much-needed gender experts in different academic fields. It also helps to centralise and highlight research on gender that already exists. The programme is implemented by all six French-speaking universities in Belgium, each of which creates a core module and some optional modules specifically for this degree programme.

As a specialised Master’s degree, its target groups are students who already hold a Master’s degree or professionals who have worked in a field related to gender issues for at least five years. Both of these prerequisites ensure that the participants in the programme already have expertise which is then enhanced with gender expertise using a multi- and interdisciplinary approach. This gender expertise is developed by providing the students with a solid theoretical and methodological base before they write a research-based or traineeship-based thesis and by taking specialised modules in fields such as psychology, arts and humanities, social sciences, law, business or architecture.

The programme has been launched for the first time in 2017. An evaluation of the programme is planned.

### **“UNESCO Chair in Gender Equality and Women's Empowerment”, Cyprus**

The long-term goal of the UNESCO Chair in Gender Equality and Women’s Empowerment at the University of Cyprus is to promote a system of research, training, information and documentation activities in gender studies both in Cyprus and in all partner countries. This is achieved through a diverse set of measures, e.g. by supporting gender-specific research aimed at sensitising policy makers and developing good practices; developing and coordinating a gender studies postgraduate programme to train youth and stakeholders for a community of equality; organising national and international conferences for interuniversity exchange.

The chair is provided with an annual budget and the necessary human and material resources, such as a chair holder, two postgraduate students, an administrative team from the Department of Education at the University of Cyprus and several fully-equipped offices. The quality of the measure is ensured by annual evaluations by the UNESCO central office as well as an evaluation every four years for the renewal of the agreement and chairing.

### **“Policy for Gender Balance and Gender Perspectives in Research”, Norway**

In 2014, the Research Council of Norway (RCN) drew up a “Policy for Gender Balance and Gender Perspectives in Research”. This describes how the RCN aims at promoting gender balance and knowledge about gender dimensions in science and innovation nationally and internationally and how the RCN can systematically anchor the gender dimension in their own research and innovation funding. The policy comprises five focuses: 1) excellence in research initiatives, 2) trade and industry, 3) career policies tailored to the phase of life, 4) gender perspectives, and 5) collaboration and mutual learning.

A general goal of the RCN in the distribution of funding is that the gender imbalance is not greater than 40/60. Gender should be taken into account in all funded research projects if it is relevant and therefore special reference must be made to the gender dimension of research in applications. The RCN also cooperates with external stakeholders, such as the Committee for Gender Balance and Diversity in Research (KIF), which provides support and suggestions regarding gender and diversity for the Norwegian research area and whose members are appointed by the Ministry of Education and Research. (The Research Council of Norway 2019)

## **5.4 Typology of NAPs**

To summarise the data collected from different sources and described in the previous chapters, we developed a typology of NAPs and NAP implementation. We differentiate therein between six different groups of countries:

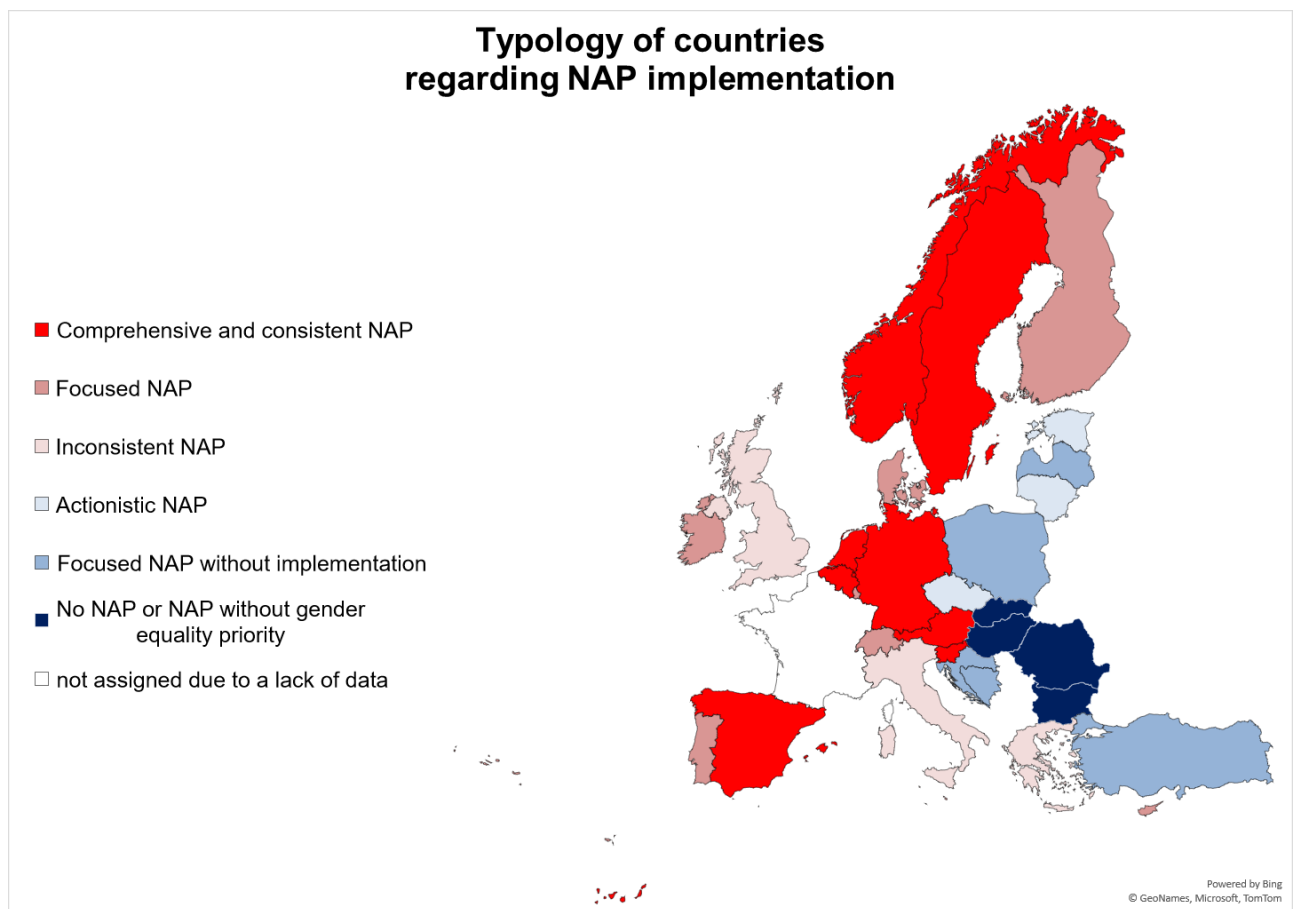
- (1) Countries with a **comprehensive and consistent NAP** and corresponding implementation. Austria, Belgium, Germany, the Netherlands, Norway, Slovenia, Spain and Sweden are assigned to this cluster. The NAPs of these countries contain a context analysis which addresses all three ERA gender equality dimensions (representation of women in science in general; representation of women in decision-making positions as well as structural and cultural barriers which lead to an underrepresentation of women in decision making; and the integration of the gender dimension in research content). The objectives and priorities of the NAP are derived from the context analysis and lead to specific measures which address the problems mentioned. With the exception of Slovenia, all countries assigned to this cluster implement policies or measures for all three ERA gender equality objectives.
- (2) The second group of countries have developed and implemented **focused NAPs**. Cyprus, Denmark, Finland, Ireland, Luxembourg, Malta, Portugal and Switzerland are assigned to this cluster. Four of these countries address all three gender equality objectives in their context analysis but focus on two of the three dimensions in their NAP priorities and implemented measures. The other four countries focus on two ERA gender equality objectives in the context analysis and formulate corresponding priorities and implement policies and measures for these two priorities.
- (3) The third cluster comprises countries with **inconsistencies** within the NAP or between the NAP and its implementation. Greece, Italy and the UK are assigned to this group. For instance, the Italian NAP only addresses the ERA structural change objective in its context analysis yet formulates priorities for the first and second ERA objectives. The UK NAP focuses in its context analysis on the first ERA objective but its priorities and implementation address the second objective.

- (4) The common feature in the fourth group of countries is that their NAPs do not contain a context analysis or only contain a very narrow one. Nevertheless, they do formulate priorities, and some of them have also implemented measures. This combination of a lack of problem analysis and formulation of priorities or implementation of measures generate an **actionistic NAP**. The Czech Republic, Estonia, Lithuania and Poland are assigned to this cluster.
- (5) Bosnia Herzegovina, Croatia, Latvia and Turkey form a specific cluster of **focused NAPs without implementation**. Both of their NAPs contain a context analysis and formulate objectives but neither country has so far implemented any measures.
- (6) The last group comprises countries **with no NAP** (Hungary and Slovakia) or **a NAP without gender equality priorities** (Bulgaria and Romania).

The analysis revealed significant differences between EU15 and EU13 countries. According to the results of our survey of SWG GRI members, the NAP was the first policy document on gender equality in R&I for 57% of newer Member States – a fact that only holds for 25% of EU15 countries. Priority 4 is more likely to be linked with other priorities in EU15 countries. Newer Member States refer more frequently to difficulties regarding the development of Priority 4.

As a consequence, it is not surprising that none of the EU15 countries are assigned to Clusters 4 to 6. This gap between EU15 and EU13 countries is not insurmountable as the examples set by Slovenia, Cyprus and Malta show. What matters are the preconditions and the types of support that aided the development of a comprehensive gender equality policy in R&I. It is also evident that good practice policies and measures are primarily to be found in countries in Clusters 1 and 2. This also illustrates a need for mutual learning between more and less experienced countries regarding gender equality in R&I.

**Figure 11** EU countries by NAP and NAP implementation typology



## 6 Stakeholders perspective on NAP

Interviews with members of the SWG GRI complement the information available from documents, the GENDERACTION survey and its update. The focus of the interviews lays on the assessment of NAP implementation as well as lessons learned for the further development of the ERA roadmap as a steering instrument (see Chapter 9.1 for the guiding questions for the interviews and the list of interviewees). All members of the SWG GRI who in principle agreed to give an interview (update of the survey in 2019) were contacted. Not all interviews could be realised but finally nine interviews representing seven countries were conducted between May and July 2019. In 2021 representatives from Associated Countries were contacted to complement the previous analysis. ACs without a NAP refused to give an interview, for one of the four ACs with a NAP an interview could be realised. Following a triangulation approach the interviews represent three different types of NAP and NAP implementation and complement the information available from other data sources (Flick 2018).

In spring 2021 a short survey was sent out to members of the SWG GRI asking for an assessment of NAP effects. Respondents were asked about the perceived most important changes regarding gender equality in R&I in their country during the NAP period (2016-2020) and about the most important challenges ahead which should be addressed in a new national strategy on gender equality in R&I. 21 experts representing 18 countries participated in the survey.

### 6.1 Assessment of NAP development and implementation

Countries with a comprehensive NAP (Austria, Belgium, Norway, Spain) share some common characteristics regarding gender equality in R&I.

- They already had experience with gender equality policies in R&I prior to the NAP (2016) and established structures for gender equality in R&I.
- In Austria, Belgium and Spain, a person or a unit in the Ministry for Science and Research is responsible for the development and implementation of gender equality policies. In addition to the person/unit responsible for gender equality policies in R&I, there is a supporting infrastructure for gender equality in place, e.g. the “Women in Science Committee”<sup>10</sup> (“Le Comité Femmes et Sciences”) for the French-speaking part of Belgium or the “Observatory for Women, Science and Innovation” (OMCI)<sup>11</sup> in Spain. In Austria, the monitoring system for R&I also contains specific gender monitoring.
- In Norway the Ministry of Education and Research appointed the Committee for Gender Balance and Diversity in Research (KIF) which supports and gives recommendations regarding measures that promote the integration of gender balance

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<sup>10</sup> The tasks of the “Women in Science Committee” (constituted in 2016 and hosted by the Academy of Research and Higher Education/ARES) are to elaborate statements and recommendations on gender equality issues in academia and science, to exchange information and good practices, to support the implementation of gender equality measures and to engage in the SWG GRI.

<sup>11</sup> The goals of the “Observatory for Women, Science and Innovation” (constituted in 2019 and formed by nine government ministries) are to analyse the situation of women in research and innovation, to encourage the implementation of gender equality policies and activities and to promote the improvement of the situation of women in science, technology and innovation in Spain. This includes monitoring policies, reporting, evaluating the impact of policies and making recommendations.



and diversity activities at universities, university colleges and research institutes, thus helping to increase diversity among the staff and in research. The board of the Norwegian Association of Higher Education Institutions (UHR) has been given organisational responsibility for the Committee and its secretariat.

- In these countries, the NAPs contain both existing gender equality policies (in place before 2016) and a commitment to further develop these policies (e.g. identified blind spots regarding gender equality). The Spanish NAP, for instance, focuses on measures to support the integration of gender into research content, while the Austrian NAP aims at supporting cultural change in science and research. The interview partners stress that this development focuses on national priorities which are in line with ERA Priority 4. Consolidating existing policies under the same umbrella – the NAP – is seen as a positive approach as it *“facilitates political communication about gender equality policies”, “increases the visibility of gender equality policies”* and *“gives us support for the national work”*.
- The further development of the existing gender equality policy mix takes different forms: in Austria, the NAP has led to intensified cooperation between the Federal Ministry of Education, Science and Research and the Federal Ministry for Transport, Innovation and Technology. In Spain, new topics such as gender in international cooperation emerged during the implementation of the NAP. In other respects, the further development of existing policies and the development of the NAP coincided (e.g. the establishment of the “Women in Science Committee” in Belgium or the “Observatory for Women, Science and Innovation” in Spain). In Austria, the topics of cultural change in science and research or a stronger orientation towards diversity in gender equality policies had already emerged before the NAP was developed. In Norway the focus of R&I policy on the gender dimension in research content was introduced with the NAP.
- This self-commitment is also highlighted by the fact that the NAP is a policy paper which has been formulated by the government and approved by the Council of Ministers (e.g. Austria, Spain).
- In all four countries, relevant stakeholders were involved in the development of the NAP and are also involved in or informed about its implementation. This stakeholder involvement takes different forms. In Belgium (Wallonia-Brussels Federation), for instance, the “Women in Science Committee” plays a crucial role in stakeholder involvement. In Austria, stakeholders are involved in the form of regular events like the European Forum Research. In Norway KIF, Universities Norway and the Norwegian Research Council were identified as stakeholders and are involved in the formulation of objectives and related activities.
- In addition to these forms of stakeholder involvement, formal and/or informal exchanges between experts for the different ERA priorities have been established in recent years (e.g. the ERA Roundtable in Austria, review meetings in Norway).
- A special characteristic of gender equality policies in R&I in countries with a consistent NAP is that communication about these policies at national level constantly refers to the EU/ERA policy. This not only reminds stakeholders of the NAP and the underlying ERA priorities but also ensures that inconsistencies in policy at different levels are avoided.

Malta and Cyprus, two countries with focused NAPs, share some of the characteristics of the countries with comprehensive NAPs. They are both EU13 countries but are also engaged in

gender equality in R&I. For instance, both countries have officers responsible for gender equality in R&I in their corresponding ministry. However, the supporting infrastructure is not as well developed as it is in the countries with comprehensive NAPs. They have also attempted to develop their NAPs using a participatory stakeholder approach: Malta, for instance, organised a workshop for each NAP priority to involve relevant stakeholders. However, the low visibility of the NAP at both national and EU level is evidently a problem. The NAP is known among the participating stakeholders but not beyond that group. The two countries have also made attempts to link national policies and the NAP: Cyprus introduced a new governance system for R&I in 2018 which affected the implementation of the NAP, while Malta has tried to link its national R&I policies with EU strategies, for instance by adapting its national research and innovation programme to bring it into line with Horizon 2020. However, in both countries the focus lies on national policies and national priorities which are not necessarily identical with ERA priorities.

Those countries which do not have a gender equality priority in their NAP or did not submit a NAP in 2016 (Poland, Slovakia) also have some characteristics in common. First and foremost, they are characterised by a lack of a discourse about gender equality – both in general and in R&I. At societal level, gender equality is seen as a threat to societal values (family life) and contradictory discourses (e.g. the pro-life movement). With regard to R&I, gender equality is not defined as a three-dimensional construct but is reduced instead to the representation of women in science and in leading positions. However, awareness of the structural barriers is low, and the main problem recognised is the reconciliation of work and childcare. The Polish NAP submitted in 2019 (p. 10) formulates this as follows: *“When implementing standards which are going to make the European Union a strong and innovative economy using the latest technological developments, one shall not forget about the need to create such working conditions (for researchers, particularly females but males as well), which will alleviate the conflict between work and private life.”* The third ERA gender equality objective, the integration of the gender dimension into content, does not feature at all as a topic in R&I policy.

Our interview partners did, however, stress that even when there is no political discourse about gender equality in R&I, there is a certain level of awareness of the topic. This is found among researchers who are involved in EU-funded projects and are gender aware (see also Bührer, Wroblewski 2019) and RPOs interested in obtaining the EU's HRS4R label and therefore have to develop gender equality plans.<sup>12</sup> The interview partners stress the importance of addressing and supporting institutions which apply for the HRS4R label precisely because they have to develop such a plan. They assume that if more prestigious RPOs have gender equality plans in place, this might also trigger a bottom-up influence on the gender equality discourse at national level. In Slovakia, after a change in government, this bottom-up interest in combination with the upcoming GEP requirement for applicants in Horizon Europe led to a commitment at ministerial level to support universities developing a GEP. It is planned to provide support via

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<sup>12</sup> The “Human Resources Strategy for Researchers” (HRS4R) supports RPOs and RFOs which implement the “European Charter for Researchers” and the “Code of Conduct for the Recruitment of Researchers” (both adopted by the EC in 2005) in their policies and practices. The implementation of the HRS4R strategy renders such institutions more attractive to researchers looking for a new destination. Since January 2017, a new, more demanding procedure has been in place, in which institutions have to apply to the EC for HRS4R recognition. A key point in this procedure is the need for institutions to make progress towards the principles of open, transparent, merit-based recruitment (OTM-R) which should ensure equal opportunities for all candidates.

the Centre of Scientific and Technological Information. However, concrete measures will be developed in cooperation with the Slovak Rectors Conference and gender experts.

## 6.2 Assessment of NAP process

All our interview partners concur in underlining the relevance of the autonomy of the Member States in defining their NAP objectives according to their national priorities.

In general, the NAPs confirmed or supported the further development of existing gender equality policies in countries which already had such a policy mix in place. However, they did not provide enough incentive for the more inactive countries to significantly increase their engagement for gender equality in R&I. Those countries with experience in gender equality and those that were in the process of developing their policy mix would have liked to have received feedback on the NAP they submitted. Some form of feedback – especially when developing the NAP – would have been helpful for more experienced countries and a valuable support for their less experienced counterparts. One interview partner suggested that *“there should be a better system of exchange and reporting in the next period. So that countries know that there are expectations from the EU level. You have to acknowledge that countries have different development stages (...) but the EC should be clear that there are objectives you should aim for.”* In another interview, it was suggested that targeted support for NAP development similar to the Horizon 2020 Policy Support Facility (PSF) should be provided<sup>13</sup>. A feedback mechanism would also allow questions to be raised if a country did not submit a NAP or define gender equality priorities.

The interviewees were critical of the low visibility of NAPs at EU and national level. They also felt that more structured guidance for the development of NAPs would be beneficial. They suggested supplying a template or a process description which contains the main elements of NAP development. This guidance should also include the three-dimensional ERA gender quality objective. The interviewees also stressed the importance of common goals for gender equality in R&I and were critical of the lack of comparability of NAPs, which results in the use of different gender equality concepts therein.

A very critical discussion developed regarding the ERA monitoring and EMM indicators. The interviewees agreed that national monitoring is more relevant for the political discussion on gender equality in R&I than the ERA Progress Report or the She Figures. Interviewees from countries with comprehensive NAPs stressed the fact that the development of gender equality policies is usually based on an empirical assessment (baseline analysis) which defines the problem to be addressed. Consequently, monitoring and the further development of the available data sources and indicators are also addressed in their NAPs (e.g. Austria, Spain). National monitoring systems are in line with She Figures but provide additional or more detailed information.

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<sup>13</sup> The Horizon 2020 Policy Support Facility (PSF) was launched in 2015 and provides EU Member States (MS) and associated countries (AC) with practical support in designing, implementing and evaluating reforms that enhance the quality of their R&I investments, policies and systems. The PSF provides best practice, independent, high-level expertise and guidance at the request of and MS or AC through a number of services such as peer reviews, mutual learning exercises and specific support. To organise this process, the EC issues an annual Call for Expression of Interest via the European Research Area and Innovation Committee. For further information, see: <https://rio.jrc.ec.europa.eu/en/policy-support-facility>.

Most interviewees were also critical when it came to the ERA Progress Report. They criticised the reference to the EMM headline indicator “Women in Grade A Positions” in their assessment of the NAP implementation for several reasons. They felt, for instance, that the indicator is not adequate for monitoring NAP implementation. In most cases, the contribution of NAP policies to an increase in the share of women in Grade A positions is indirect and will therefore only be effective in a long-term perspective. They also argued that a high share of women in Grade A positions does not mean that the structural barriers on the path to these positions have been abolished and that women and men in Grade A positions are employed on equal terms. They also lamented the fact that none of the indicators focus on structural change. Hence, the share of women in decision making roles is not addressed in the monitoring.

The interviewees partners also expressed doubts about the validity of the EMM indicator “Gender in Content”, assuming that there is a bias towards English-language journals and the “hard” sciences. In particular, the latter is seen as a gendered bias due to the underrepresentation of women in STEM fields.

A central topic in the interviews with stakeholders from countries with comprehensive or focused NAPs is the self-commitment to implement gender equality policies in R&I which is expressed by the NAP. This commitment would be underlined by specific reporting on NAP implementation. A specific report on the implementation of the NAP would also increase the visibility of the NAPs at national level and allow the identification of good practice policies and measures. In addition, it would increase transparency among countries and provide a starting point for mutual learning.

National reports on the implementation of NAPs (e.g. in the middle and at the end of the implementation period) would also provide a possibility to describe national developments or changes in the R&I context as well as changing political priorities (e.g. due to a new government). The interviewees were unsure if there would be a possibility to update the NAP in the event of a change in circumstances.

### 6.3 Assessment of NAP effects

Some countries developed a national policy on gender equality for the first time when implementing the ERA Roadmap at national level. This mainly applies for newer Member States which developed the first policy document on gender equality in R&I with the NAP. In other countries gender equality policies in R&I have been further developed and intensified in the period 2016-2020. However, some countries which have been rather inactive regarding gender equality in R&I before 2016 did not increase their efforts. For instance, Hungary and Slovakia did not formulate a NAP, Bulgaria and Romania did not address gender equality in their NAPs.

Countries with previous experiences regarding gender equality in R&I further developed and intensified their policies and engagement. In the context of the further development new cooperation structures at national level have been established, new foci have been introduced (e.g. diversity or gender in research content and teaching) or reflexive processes have been initiated. This mainly applies to countries with comprehensive or focused NAPs. The following examples illustrate the further development of existing gender equality policies in R&I.

In Austria the NAP was released as a ministerial council resolution which strengthened the binding force in its implementation. Priority 4 became a top priority in the financial planning of the Federal Ministry of Education, Science and Research. Furthermore, Austria continued the

application of gender equality criteria in the relevant strategic and steering instruments (e.g. Austrian National Development Plan for Public Universities, RTI strategy 2030, performance agreements with public universities and non-university RPOs).

Spain also established structures for gender equality policies at ministerial level while continuing existing policies (e.g. support of gender equality plans in RPOs and RFOs). In 2020 the Women and Science Unit & the Observatory Women, Science and Innovation (OMCI) became part of the competencies of the Cabinet of the Minister of Science and Innovation, enhancing the influence and visibility of the national structures to advance gender equality measures in R&I. This includes the commitment to launch the Spanish award-certification system on gender equality in R&I as well as the approval of the first gender equality officer of the State Research Agency.

The Belgium regions strengthened gender equality priorities in strategic documents (e.g. Wallonia-Brussels Federation Policy Declaration 2019-2024, New Walloon global gender plan 2021, Gender Charta signed by the rectors of the Flemish universities) and established new structures in the context of gender equality in R&I (e.g. Walloon STEM task force, regular meetings of Minister of education and university council (VLIR) High Level Task Force Gender). Furthermore, Belgium established an Interuniversity Master in Gender Studies (see chapter 5.3.3).

Ireland continued its gender equality policies during the period 2016-2020. However, Ireland already reached before the NAP a high implementation level. Irish higher education institutional have institutional gender equality plans in place and are committed to a mandatory quota of 40% of each gender in selection panels, national research funding requires an Athena SWAN Bronze award as an eligibility criterion etc. Germany prolonged already established initiatives like the Higher Education Pact or the Pact for Research and Innovating as well as targeted gender equality initiatives in the science system (e.g. to promote women in STEM). Furthermore, the third wave of the Programme for Women Professors of the Federal Government and the Länder started in the ERA Roadmap period (see chapter 5.3). Similarly, Switzerland maintained and expanded equal opportunities strategies and the implementation of measures which already reached a sound level at most universities. The further development of policies in Switzerland aims at expanding gender equality approaches by including all diversity aspects. Sweden also revised and continued existing policies like the government assignments to RFOs on gender mainstreaming (revised 2016), recruitment goals for female professors (revised and intensified several times) and on sex and gender in research content (released in 2018). Furthermore, Sweden addressed the gender dimension in research content with a government assignment to RPOs (2016) and RFOs (2018). Sweden systematically produced knowledge on gender-based violence and sexual harassment in higher education through several reports and reviews and established a government agency for gender equality (2018)<sup>14</sup>.

The Dutch government hosted the European Gender Summit in 2019<sup>15</sup> and used the conference as a catalyst for the development of a long-term vision and strategy regarding gender in R&I. Similarly, Finland hosted the conference “Research and Innovation Excellence through gender equality: New pathways and challenges” within its EU presidency in October

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<sup>14</sup> <https://www.jamstalldhetsmyndigheten.se/en>

<sup>15</sup> <https://gender-summit.com/past-summits/g17-eu>

2019. Finland also refers to the results of the conference when further developing existing gender equality policies.

Norway strengthened the focus on the gender dimension in research content in its policies. The Research Council of Norway has adapted a new and ambitious Policy for gender balance & perspectives in R&I (see chapter 5.3.3).

Malta established with the NAP new structures for gender equality in R&I. The NAP supported internal coordination and collaboration with other units on issues of gender equality in R&I (e.g. within the Malta Council for Science and Technology). Furthermore, collaboration between the university and the council have been established (joint projects). University of Malta is currently developing its first Gender Equality, Diversity and Inclusion Plan and already published a set of guidelines on good practice in inclusive language.

The Czech case also presents a significant further development since the submission of its NAP in 2016. Even though experts do not identify the NAP as the driving force of change, positive circumstances at political level, available external expertise, and a growing interest among researchers in gender equality issues in the context of EU funding schemes led to an increasing awareness and interest in the topic. Work-life balance measures for researchers represented a politically accepted entry point for gender equality policies in R&I. Furthermore, the Technology Agency of the Czech Republic (TACR) became a leader in gender equality measures among Czech and EU13 RFOs. Recently, gender equality received support of the Prime Minister who is also chair of the Research, Development and Innovation Council (RDIC). This development was supported by the constant cooperation with the National Contact Centre Gender and Science which provides trainings, consultations etc. for relevant stakeholders. Consequently, gender equality objectives in R&I have been included in recent strategic documents (Strategy of Equality of Men and Women 2021-2030, National Policy of Research, Development and Innovation 2021).

The Greek NAP has been classified as inconsistent in the analysis. However, since 2016 Greece developed a much more consistent gender equality policy in R&I. The further development focuses on structural measures. In 2019 a legal requirement has been formulated that universities have to establish Committees for Gender Equality. One of the main responsibilities of these committees is to develop Action Plans to promote substantive equality in the educational, research and administrative structures of universities.

Countries which developed the NAP in a participatory way also mention as a result that the policy discourse has been broadened. In some cases, this dialogue also led to an adjustment of the understanding of gender equality towards diversity and inclusion (e.g. Netherlands, Switzerland).

Most respondents mentioned the support of the SWG GRI and the GENDERACTION project regarding the (further) development of gender equality policies in R&I. In concrete the information provided within the SWG GRI and the possibility to exchange experiences are mentioned as helpful. Furthermore, the mutual learning workshops organised within GENDERACTION and the policy briefs provided are seen as helpful and supportive. Especially countries with fewer experiences regarding gender equality policies in R&I appreciate to get to know good practices of more experienced countries. However, some respondents mention that due to a lack of resources the support available couldn't be fully exploited.

## 6.4 Assessment of challenges ahead

Members of the SWG GRI have also been asked about the most important challenges ahead which should be addressed in a new national strategy on gender equality in R&I. Answers provided refer to specific topics which should be addressed in a new NAP as well as to the implementation of policies or related steering instruments.

Concrete topics mentioned are:

- Fighting against gender-based violence and harassment (e.g. professional training, effective sanctions for perpetrators)
- Development of measures to prevent increasing gender inequalities in R&I because of the COVID-19 pandemic
- Reconsidering the standards of scientific excellence
- Integration of the gender dimension into research and teaching content
- Supporting cultural change in RPOs
- Further development of gender equality policies by applying an intersectional approach. One interview partner talked about *“ongoing developments with an increased focus on intersectionality and inclusion, the gender+ focus and the acknowledgement that European countries are not homogeneous.”*
- Increasing girls’ and women’s interest in STEM disciplines
- Increasing the share of women in leadership and senior academic positions
- Tackling the gender pay gap in R&I
- Tackling gender stereotypes in R&I
- Implementing gender equality in international cooperation and mobility programmes

Respondents also mention challenges related to the implementation of policies and see a need for the development of related steering instruments:

- Countries which recently developed policies or political strategies to support gender equality in R&I see an upcoming challenge in the implementation of these policies (including the provision of sufficient resources). In this context the application of gender mainstreaming to all government initiatives is mentioned (e.g. consequent Gender Impact Assessment for R&I initiatives).
- When policies are already implemented, measures are needed to improve the impact of gender equality policies (e.g. monitoring) or to gather information on the status of implementation of policies at institutional level.
- Further development of monitoring in order to have intersectional and discipline-specific data which allows international comparisons.
- In several countries gender equality policies address universities or state RPOs. Respondents see a need for policies addressing the business sector and private RPOs.
- Establishment of structures (e.g. steering committees for gender equality at institutional level) which support the implementation of policies.
- Coordination of policies of different national authorities.
- Establishing a focused dialogue on gender equality with RPOs and developing research based support to gender mainstreaming activities for RPOs.

In addition, representatives from countries which just started gender equality policies in R&I the continuation or maintenance of political support is key to sustain recent developments.

## 7 Conclusions

European Research Area (ERA) Priority 4 focuses on gender equality and gender mainstreaming in research and innovation. The objective is to foster scientific excellence and a breadth of research approaches by fully utilising gender diversity and equality and avoiding an indefensible waste of talent. Within their national action plans (NAPs), EU Member States and associated countries are asked to develop policies which address gender imbalances particularly at senior levels and in decision making and which strengthen the gender dimension in research. The aim of GENDERACTION Work Package 3 (WP3) is to analyse the implementation of Priority 4 in NAPs, identify good practices and develop recommendations regarding gender equality for the next ERA Roadmap and its monitoring.

### 7.1 Summary of main results

Our analysis shows that 26 out of the 28 EU Member States and four Associated Countries participated in the ERA process by submitting and implementing a National Action Plan. For several countries, the ERA Roadmap was the initial spark that triggered the development of their first-ever gender equality strategy for R&I (e.g. Cyprus, Luxembourg, Malta or Norway). In others, the NAP was used to consolidate and further develop existing policies which support gender equality in R&I. Member States were given considerable scope when it came to developing a NAP within the framework of the ERA Roadmap. This allowed the NAPs to be aligned with actual circumstances in each country (e.g. by addressing specific gender inequalities, building on existing experience with gender equality policies and involving relevant national stakeholders).

The analysis of NAP implementation is based on multiple, complementary data sources (NAP documents, a standardised survey of relevant stakeholders and expert interviews). We used all the information collected to develop a typology of countries with respect to NAPs and NAP implementation. We distinguish therein between six clusters of countries:

- Countries with a **comprehensive and consistent NAP** and corresponding implementation (Austria, Belgium, Germany, the Netherlands, Norway, Slovenia, Spain and Sweden). The NAPs of these countries contain a context analysis which addresses all three ERA gender equality dimensions (representation of women in science in general; representation of women in decision-making positions as well as structural and cultural barriers which lead to an underrepresentation of women in decision making; and the integration of the gender in research content). The objectives and priorities of the NAP are derived from the context analysis and lead to specific measures which address all three ERA gender equality objectives.
- Countries with **focused NAPs** (Cyprus, Denmark, Finland, Ireland, Luxembourg, Malta, Portugal and Switzerland). Countries assigned to this group address two or three gender equality objectives in their context analysis but focus on only two of the three dimensions in their NAP priorities and measures implemented.
- Countries with **inconsistencies** within the NAP or between the NAP and its implementation (Greece, Italy and UK). The UK NAP, for instance, focuses on the first ERA objective in its context analysis but its priorities and implementation address the second objective.
- Countries with **actionistic** NAPs (Czech Republic, Estonia, Lithuania and Poland). The NAPs for these countries either do not contain a context analysis or only contain a very



narrow one. Nevertheless, priorities have been formulated and measures implemented in some countries.

- Countries with **focused NAPs** but **without implementation** (Bosnia Herzegovina, Croatia, Latvia and Turkey). These NAPs contain a context analysis and the formulation of objectives but no measures have been implemented so far.
- Countries without a NAP (Hungary and Slovakia) or countries with a NAP but **without gender equality priorities** (Bulgaria and Romania).

It is striking that the **cluster of countries which the GENDERACTION assessment categorises as good practice countries with regard to NAP implementation differs significantly from the countries identified as the leading group in the ERA Progress Report 2018** (EC 2019a). According to this report, Croatia, Lithuania, Latvia and Romania belong to Cluster 1, which contains the best-performing countries in terms of the share of women in Grade A positions. However, our analysis identified Austria, Belgium, Germany, the Netherlands, Norway, Slovenia, Spain and Sweden as the countries with comprehensive and consistent NAPs.

This difference in assessment results from different approaches to gender equality and the indicators used to measure the implementation of gender equality policies. While the GENDERACTION assessment focuses on the implementation process of gender equality policies based on multiple data sources and indicators, the ERA progress report focuses on the development of the headline indicator and two supporting indicators. This approach is too limited to provide meaningful information for the assessment of progress towards gender equality in R&I.

The focus of monitoring on one main dimension – the share of women in Grade A positions – is problematic not only for the assessment of NAP implementation but also for the discourse on gender equality as it allows gender equality be reduced to female representation. ERA progress report country snapshots do not include a discussion of the development regarding gender equality that refers to the three-dimensional construct defined in the ERA Roadmap (ERAC 2015). A broader discussion of the developments regarding gender equality in R&I among stakeholders at national and EU level would also support a gender equality discourse within the ERA. Such a discourse would support both the development of a common understanding of gender equality and mutual learning activities (e.g. by sharing information about good practice policies).

Our analysis reveals that the process initiated by the ERA Roadmap 2015-2020 has only had limited success in increasing the engagement of countries which have hitherto been fairly inactive regarding gender equality in R&I. While some countries (Cyprus, Luxembourg, Malta, Norway) developed a gender equality policy for R&I for the first time, others either did not submit a NAP (Hungary, Slovakia) or did not address gender equality issues in their NAP (Bulgaria, Estonia, Lithuania, Poland). This also illustrates the need for a gender equality discourse within the ERA aimed at establishing a shared understanding of gender equality and common gender equality goals.

Furthermore, our analysis shows no positive correlation between the share of women in Grade A and the innovation and excellence indicators. But the higher a country scores on the Gender Equality Index, the higher its innovation potential. Similarly, the correlation between the share of RPOs with GEPs and the innovation indicators are significant and positive. This means that an increasing share of RPOs with GEPs is positively correlated with a countries innovation potential.

## 7.2 Recommendations

Experiences with NAP implementation and the results achieved so far show the potential of this instrument to initiate the development of gender equality policies for the first time or, in the case of more experienced countries, to further develop and consolidate existing policies. However, it is also evident that the process linked to the ERA Roadmap development, implementation and monitoring does not provide incentives to increase engagement for gender equality in R&I in fairly inactive countries. Consequently, the gap between experienced and inactive countries is widening.

Since the ERA Roadmap is a European steering instrument that should contribute to a more coherent R&I policy, including gender equality, the recommendations formulated primarily address EU stakeholders (European Commission, Council of the EU). These recommendations are based on the assumption that the next ERA Roadmap will aim at

- strengthening national commitment regarding R&I based on a three-dimensional concept of gender equality,
- bridging the gap between active and inactive countries, and
- contributing to the further development of gender equality policies.

The recommendations address three topical areas:

- NAP development
- Monitoring of NAP implementation
- Development of a policy discourse.

### 7.2.1 NAP development

Experiences with the NAPs 2015-2020 demonstrate a need for **adapting the procedure to develop and submit NAPs**. The NAPs are structured differently. For instance, not all NAPs contain a baseline assessment of gender equality in R&I (context analysis) or concrete objectives, targets and measures. In our interviews, stakeholders called for more concrete guidance regarding the development of NAPs. At the same time, they stressed the importance of giving Member States the autonomy to decide on the focus of their own policies. Hence, **more detailed guidance** for NAP development which addresses the main procedural steps or elements would seem to be required. More specifically, NAPs should:

- include an assessment of the status quo of gender equality in R&I (context analysis) which covers all three gender equality dimensions,
- contain concrete targets or priorities derived from the context analysis,
- define responsibility, timeframes and budgets for concrete measures, and
- indicate how the implementation of the NAP and the concrete policies will be monitored.

Furthermore, it should be recommended that

- main stakeholders are identified and involved in the NAP development process, and
- gender equality is also addressed in the other priorities (gender mainstreaming).

The involvement of relevant stakeholders at national level could also support building a gender equality discourse at national level in the rather inactive countries. This would also support bottom-up initiatives from institutions or researchers interested in gender equality (e.g. researchers involved in EU-funded projects or institutions applying for the HRS4R label).

Recently, interest in such bottom-up initiatives has been triggered by the announcement of a GEP requirement for applications in Horizon Europe.

In our interviews, the stakeholders mentioned that feedback on a draft version of the NAP would have been helpful both for the development of the NAP itself but also for the discussion of NAP priorities with national stakeholders. They also suggested supporting NAP development by providing **specific support for policy development** similar to the Horizon 2020 Policy Support Facility (PSF)<sup>16</sup>. Such support would also contribute to the development of a shared understanding of gender equality and stimulate a catch-up process in the rather inactive countries.

### 7.2.2 Monitoring of NAP implementation

Our analysis of the implementation of the NAPs produces results which are not in line with the ERA progress report, thus suggesting that the latter is not a meaningful instrument for measuring NAP implementation. The current monitoring of ERA progress focuses not only on a restricted set of indicators but also on the aggregate level, which does not consider the structural change dimension and the implementation level. Hence, the dominance of the headline indicator (share of women in Grade A positions) brings with it the risk that gender equality will be reduced to one single dimension. This approach allows countries with a high representation of women in Grade A positions to neglect any need for gender equality policies even if women are underrepresented in decision making and no actions are taken regarding the other two objectives.

A **meaningful set of indicators for monitoring the NAP implementation** therefore has to be developed. The monitoring of NAP implementation (and not just progress in headline indicators) is necessary to strengthen the NAPs as a European steering instrument (both on a general level and for gender equality in particular).

GENDERACTION suggests a combined approach using (available) quantitative indicators and qualitative/survey data provided by Member States. This combined approach includes reporting by Member States, which would provide several advantages:

- A compulsory report on NAP implementation by Member States will increase their commitment to the NAPs and will make it more difficult to justify why no action has been taken.
- A report will allow Member States to present national developments, success stories and barriers regarding gender equality in R&I. Furthermore, it would provide them with a possibility to discuss relevant changes in their own national contexts (e.g. new priorities after a change in government).
- Experiences with concrete policies – especially good practice policies – could be used for mutual learning activities.
- A report would give the NAP more visibility at EU level and could be used for national dissemination activities regarding gender equality in R&I.

### 7.2.3 Development of a policy discourse

The different concepts of gender equality as well as varying goals and foci of the gender equality policies presented in the NAPs indicate on the one hand reference to theoretical concepts in a varying degree and on the other hand a lack of a European gender equality

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<sup>16</sup> <https://rio.jrc.ec.europa.eu/en/policy-support-facility>

discourse. The lack of a policy discourse leads to the situation that not all Member States refer to the three ERA gender equality objectives in their NAPs. Experiences from GENDERACTION WP3 also indicate the relevance of an ongoing research on policy implementation which feeds constantly back in the ERA governance structures and to relevant stakeholders (European Commission, European Council, Member States, Associated Countries). Especially a meaningful monitoring system provides a sound basis for strengthening and further developing gender equality policies in R&I.

The NAP 2016-2020 submission process did not include feedback from experts or the EC on the NAP which could have contributed to establishing a more consistent understanding of gender equality and its benefits (e.g. its contribution to innovation). A discourse on gender equality should already address the submission phase. The discourse should be initiated by the EC and involve ERA structures – especially the SWG GRI – as well as other relevant European and national stakeholders. It will be crucial to encourage national ministries for science and research to actively participate in this discourse. Members of the SWG GRI should act as mediators between the European and the national levels by promoting the topic, involving relevant stakeholders and engaging with other ERA priorities. This would require that SWG GRI delegates hold positions which allow them to pursue the implementation of gender equality policies at national level.

An adapted monitoring of NAP implementation could be used as a starting point for a gender equality discourse, for instance when the assessment of developments (e.g. regarding the share of women in Grade A positions) as well as the implementation of policies refer to the three main gender equality objectives. This would include the recognition of blind spots as well as troublesome developments (e.g. when policies strengthen gender stereotypes). A comprehensive and meaningful monitoring system could likewise be used to identify good practice policies.

Good practice policies represent a starting point for mutual learning activities which should be organised in a way that allows both more and less experienced countries to profit from the exchange. More experienced countries could use such mutual learning activities to reflect on and further develop their own policies, while their less experienced counterparts would receive support in developing NAPs that are targeted to their own particular circumstances. Mutual learning activities could take different forms such as bilateral or multilateral exchange focused on one specific topic or broader conference settings.<sup>17</sup> However, such a mutual learning approach not only requires common gender equality goals but also dedicated resources.

Another important aspect of a gender equality discourse is to stress the positive relationship between gender equality on the one hand and innovation and excellence on the other hand. To stress the link between comprehensive gender equality policies (like GEPs which address all three gender equality dimensions) could serve as a lever to engage more stakeholders in R&I in a gender equality discourse. This approach would also support mainstreaming gender into the other ERA priorities. The upcoming discussion of major societal challenges provides numerous opportunities discuss innovation and its application from a gender perspective – e.g. in the context of climate change, artificial intelligence, robotics.

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<sup>17</sup> The results of this report will feed into the planning of WP4 activities for 2020.

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#### Switzerland

Swiss Confederation; Federal Department of Economic Affairs, Education and Research (EAER); State Secretariat for Education, Research and Innovation (SERI) International Cooperation in Research and Innovation (2016): *Swiss National ERA Roadmap*. Bern. Retrieved from

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United Kingdom

Department for Business, Innovation and Skills (2016): *European Research and Innovation Area (ERA): UK National Action Plan. Position Statement*. London. Retrieved from [https://era.gv.at/public/documents/2903/UK\\_ERA\\_National\\_Roadmap.pdf](https://era.gv.at/public/documents/2903/UK_ERA_National_Roadmap.pdf)

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## 9 Annex

### 9.1 Expert interviews

The expert interviews were conducted face to face if possible (e.g. with participants in the GENDERACTION General Assembly in Cyprus in May 2019) or via telephone or Skype. They followed a set of guiding questions which the respondents received in advance. The set of questions was used in a flexible manner in line with the specific national contexts. Both the respondent and the interviewer signed an informed consent sheet before the interview began. Storage of recorded data, transcripts as well as informed consent sheets followed the requirement of D1 H Requirement No 1.

#### 9.1.1 Guiding Questions for Countries with a NAP

NAP priorities regarding gender equality

- How would you describe Priority 4 of the NAP? Is it a summary of existing policies? Is the NAP something in addition? Is it integrated into the general gender equality (GE) policy?
- Have GE policy priorities changed since 2016? (further development, concretization, change in priorities)?
- How would you describe the relevance of the NAP for GE policies in R&I? Does the NAP boost GE policies? Did the adoption of the NAP provide a window of opportunity for advancing GE policy in R&I?
- How well do you think the relevant stakeholders are informed about NAP Priority 4?

NAP implementation

- Did the implementation of concrete policies take place as planned?
- What are the important aspects in the implementation of the NAP? Which new/innovative measures have been introduced? Have new structures for GE policy been implemented? Have new priorities been introduced in GE policy in R&I?
- Has the NAP implementation changed over time? How?
- Are specific budgets allocated to NAP implementation?
- Did the development of the NAP or the implementation of specific measures initiate a change in structures for GE policies? (e.g. cooperation between different stakeholders, establishment of new structures for GE)?

NAP monitoring – ERA progress report

- How relevant is NAP monitoring / the ERA progress report at a national level?
- Are the results taken up/discussed at national level? If so, what are the outcomes of these discussions? (e.g. further refinement of the NAP actions, involvement of new stakeholders)
- Do you think the three indicators used for the ERA progress reports are appropriate for measuring progress in GE in R&I in your country? Do they allow you to further the agenda?



#### Further development of the NAP process

- If NAP monitoring is not used as a steering instrument/not taken seriously: What would be needed to use NAP/ERA monitoring as a steering instrument for GE policies?
- What would be needed to improve the process?
- What would be needed for the NAP to support GE at national level?
- Was the NAP helpful for the further development of national policies? If so, in what way?

#### 9.1.2 Guiding Questions for countries without a NAP

##### National ERA roadmap (NAP)

- Reasons why no NAP has been formulated?
- Which other specific national policies or strategies for GE in R&I are in place?

##### Priorities of GE policies in R&I

- How would you describe the priorities of GE policies in R&I?
- What are the main measures?
- Have the priorities of the GE policies changed since 2016? (further development, concretization, change of priorities, reduced importance of the topic)? Why is this the case?
- How would you describe the relevance of the ERA Roadmap (EU priorities) for national GE policies?

##### Implementation of GE policies

- Which concrete GE policies/measures/programmes in R&I have been implemented since 2016?
- Did the implementation of GE policies in R&I change over time? If so, how?
- Are specific budgets allocated for the implementation of GE policies in R&I?

##### EU monitoring – ERA progress report

- How relevant is NAP monitoring / the ERA progress report at the national level?
- Are the results taken up/discussed at national level? If so, what are the outcomes of these discussions (further refinement of the NAP actions, involvement of new stakeholders)?
- Do you think the three indicators used for the ERA progress reports are appropriate for measuring progress in GE in R&I in your country? Do they allow you to further the agenda?

##### Further development of NAP process

- If NAP monitoring is not used as a steering instrument/not taken seriously: What would be needed to use NAP/ERA monitoring as a steering instrument for GE policies?
- What would be needed to improve the process?
- What would be needed for the NAPs to support GE at national level?
- Was the NAP helpful for the further development of national policies? If so, in what way?

### 9.1.3 List of countries and experts participating in the expert interviews

#### Austria

Roberta Schaller-Steidl, Federal Ministry of Education, Science and Research

Silvia Neumann, Federal Ministry for Transport, Innovation and Technology

#### Belgium

Martin Degand, Direction de la Recherche Scientifique du Ministère de la Fédération Wallonie-Bruxelles

#### Bosnia and Herzegovina

Alma Hasanović, Adviser for International Cooperation and European Integration in Science, Ministry of Civil Affairs of Bosnia and Herzegovina

#### Cyprus

Anna Stavrinou, Directorate for Research, Innovation and Lifelong Learning, Secretariat of the National Board for Research and Innovation, Directorate General for European Programmes, Coordination and Development

#### Malta

Jennifer Casingena Harper, Malta Council for Science and Technology (MCST)

Jacqueline Grech, Malta Council for Science and Technology (MCST)

#### Norway

Heidi Holt Zachariassen, Committee for gender balance and diversity in research (KIF)

#### Poland

Anna Knapinska, National Information Processing Institute

#### Spain

Ana Puy, Ministry of Science, Innovation & Universities

#### Slovakia

Alexandra Bitusikova, Matej Bel University

## 9.2 ERA Monitoring indicators

**Table 6 ERA Monitoring indicators (ERA Progress Report 2018)**

|    | Country                   | Women in<br>Grade A<br>positions | Cluster | PhD<br>graduates | Cluster | Gender in<br>research<br>content | Cluster |
|----|---------------------------|----------------------------------|---------|------------------|---------|----------------------------------|---------|
| MS | Austria                   | 23%                              | 3       | 42%              | 4       | 1.02                             | 3       |
|    | Belgium                   | 18%                              | 3       | 47%              | 3       | 0.95                             | 3       |
|    | Bulgaria                  | 37%                              | 2       | 53%              | 2       | 1.07                             | 2       |
|    | Croatia                   | 41%                              | 1       | 55%              | 2       | 1.24                             | 2       |
|    | Cyprus                    | 13%                              | 4       | 60%              | 1       | 0.88                             | 3       |
|    | Czech<br>Republic         | 15%                              | 4       | 43%              | 4       | 0.91                             | 3       |
|    | Denmark                   | 21%                              | 3       | 48%              | 3       | 1.10                             | 2       |
|    | Estonia                   | 24%                              | 3       | 54%              | 2       | 1.27                             | 2       |
|    | Finland                   | 29%                              | 2       | 52%              | 2       | 1.16                             | 2       |
|    | France                    | 22%                              | 3       | 45%              | 3       | 0.73                             | 3       |
|    | Germany                   | 19%                              | 3       | 45%              | 3       | 0.89                             | 3       |
|    | Greece                    | 22%                              | 3       | 49%              | 3       | 0.92                             | 3       |
|    | Hungary                   | 20%                              | 3       | 47%              | 3       | 1.51                             | 2       |
|    | Ireland                   | 21%                              | 3       | 48%              | 3       | 0.62                             | 3       |
|    | Italy                     | 22%                              | 3       | 52%              | 2       | 1.04                             | 3       |
|    | Latvia                    | 41%                              | 1       | 58%              | 1       | 0.98                             | 3       |
|    | Lithuania                 | 39%                              | 1       | 58%              | 1       | 1.26                             | 2       |
|    | Luxembourg                | 17%                              | 3       | 40%              | 4       | 1.10                             | 2       |
|    | Malta                     | 21%                              | 3       | 41%              | 4       | 1.08                             | 2       |
|    | Netherlands               | 19%                              | 3       | 49%              | 3       | 1.05                             | 3       |
|    | Poland                    | 24%                              | 3       | 54%              | 2       | 1.01                             | 3       |
|    | Portugal                  | 26%                              | 3       | 55%              | 2       | 1.50                             | 2       |
|    | Romania                   | 54%                              | 1       | 55%              | 2       | 2.72                             | 1       |
|    | Slovakia                  | 25%                              | 3       | 52%              | 2       | 1.65                             | 1       |
|    | Slovenia                  | 29%                              | 2       | 61%              | 1       | 2.21                             | 1       |
|    | Spain                     | 21%                              | 3       | 51%              | 3       | 1.08                             | 2       |
|    | Sweden                    | 25%                              | 3       | 45%              | 3       | 1.25                             | 2       |
|    | United<br>Kingdom         | 26%                              | 3       | 46%              | 3       | 1.03                             | 3       |
| AC | Bosnia and<br>Herzegovina |                                  |         | 45%              | 3       | 1.91                             | 1       |
|    | Iceland                   | 26%                              | 3       | 64%              | 1       | 1.45                             | 2       |
|    | Israel                    | 14%                              | 4       | 50%              | 3       | 1.10                             | 2       |
|    | Norway                    | 28%                              | 2       | 50%              | 3       | 1.17                             | 2       |
|    | Switzerland               | 23%                              | 3       | 44%              | 4       | 1.04                             | 3       |
|    | Turkey                    | 28%                              | 2       | 46%              | 3       | 2.11                             | 1       |

Source: ERA Progress Report 2018, Tables 12, 13 and 14

### 9.3 Data sources

**Table 7 Overview of data sources per country**

|    | Country                            | NAP Documents | Survey 2017 | Progress Tool 2019 | Expert Interviews | Survey 2021 |
|----|------------------------------------|---------------|-------------|--------------------|-------------------|-------------|
| MS | Austria                            | Yes           | Yes         | Yes                | Yes               | Yes         |
|    | Belgium                            | Yes           | Yes         | Yes                | Yes               | Yes         |
|    | Bulgaria                           | Yes           | No          | No                 | No                | No          |
|    | Croatia                            | Yes           | No          | No                 | No                | No          |
|    | Cyprus                             | Yes           | Yes         | Yes                | Yes               | No          |
|    | Czech Republic                     | Yes           | Yes         | Yes                | No                | Yes         |
|    | Denmark                            | Yes           | Yes         | Yes                | No                | No          |
|    | Estonia                            | Yes           | No          | Yes                | No                | No          |
|    | Finland                            | Yes           | Yes         | Yes                | No                | Yes         |
|    | France                             | No*           | Yes         | Yes                | No                | Yes         |
|    | Germany                            | Yes           | Yes         | Yes                | No                | Yes         |
|    | Greece                             | Yes           | Yes         | Yes                | No                | Yes         |
|    | Hungary                            | No            | No          |                    | No                | No          |
|    | Ireland                            | Yes           | No          | Yes                | No                | Yes         |
|    | Italy                              | Yes           | Yes         | Yes                | No                | No          |
|    | Latvia                             | Yes           | No          | No                 | No                | No          |
|    | Lithuania                          | Yes           | Yes         | Yes                | No                | Yes         |
|    | Luxembourg                         | Yes           | Yes         | Yes                | No                | No          |
|    | Malta                              | Yes           | Yes         | Yes                | Yes               | Yes         |
|    | Netherlands                        | Yes           | Yes         | Yes                | No                | Yes         |
|    | Poland                             | Yes           | Yes         | Yes                | Yes               | Yes         |
|    | Portugal                           | Yes           | Yes         | Yes                | No                | No          |
|    | Romania                            | Yes           | Yes         | No                 | No                | Yes         |
|    | Slovakia                           | No            | Yes         |                    | Yes               | Yes         |
|    | Slovenia                           | Yes           | Yes         | Yes                | No                | No          |
|    | Spain                              | Yes           | Yes         | Yes                | Yes               | Yes         |
|    | Sweden                             | Yes           | Yes         | Yes                | No                | Yes         |
|    | United Kingdom                     | Yes           | Yes         | No                 | No                | No          |
| AC | Bosnia and Herzegovina             | Yes           | Yes         | Yes                | Yes               | No          |
|    | Iceland                            | No            | Yes         |                    | No                | No          |
|    | Israel                             | No            | Yes         |                    | No                | No          |
|    | Norway                             | Yes           | Yes         | Yes                | Yes               | Yes         |
|    | Switzerland                        | Yes           | Yes         | Yes                | No                | Yes         |
|    | Turkey                             | Yes           | No          | Yes                | No                | No          |
|    | Number of countries providing data | 29            | 27          | 25                 | 8                 | 18          |

\* Only available in French.