



Gender Mainstreaming

Gender in Research



Gender in Research

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1. Relevance of gender in the policy area

Promoting gender equality is a key principle of the EU in all its activities. European research still shows a pronounced under-representation of women, particularly in the hard sciences and in leadership positions. Gender equality in research is essential not only for fairness and inclusiveness, but because it could help address current and future deficits in skilled labour within the EU and support the transition to a fair, green and digital society ⁽¹⁾. Gender equality provides important leverage for enhancing the competitiveness of research and innovation (R & I) organisations in Europe, for increasing their innovation performance and for transforming them into more equitable and inclusive organisations.

According to the European Commission's *She Figures 2021*, women accounted for just 33 % of European researchers in 2018. Women are particularly under-represented in the business enterprise sector (BES) but also among inventors and founders ⁽²⁾. In addition to the low percentage of women researchers, women are also under-represented in top-level and decision-making positions in European research. The European Commission shows that – despite progress – gender inequalities in science persist.

Extensive research has been undertaken regarding the reasons and mechanisms that keep women away from research and from moving up the career ladder in this field. Studies have revealed gender-discriminatory practices, such as biased recruitment, promotion and funding processes and criteria. There is also a strong influence of gender stereotypes in relation to R & I. Gender discrimination in science may take different forms, sometimes overt, but most often

subtle and hidden. It may operate even in highly formalised and seemingly gender-neutral peer-review processes or selection and promotion procedures. Furthermore, working cultures in R & I organisations are experienced as not inclusive and frequently even toxic ⁽³⁾, especially – but not only – by women. Gender-based violence and sexual harassment have long been overlooked as sources for why women leave R & I.

Conventional research agendas often fail to take sex and gender differences into account and to distinguish different possible impacts related to gender. This phenomenon leads to omissions and distortions and may also result in missed market opportunities. But integrating sex and gender analysis into research sparks and enhances creativity by offering new perspectives and questions, and by opening new areas of R & I.

Gender equality in research is thus still influenced by a set of persistent gender inequalities:

- gender segregation in research and innovation;
- gender-related career challenges and gender imbalance in senior positions in academia;
- gender gaps in research productivity;
- gender bias in access to research funding;
- gender-blind and gender-biased research;
- gender-blind and gender-biased organisational culture and institutional processes.

⁽¹⁾ European Commission (2020), *Science, Research and Innovation Performance of the EU 2020 – A fair, green and digital Europe*, Publications Office of the European Union, Luxembourg (https://ec.europa.eu/info/sites/default/files/srip/2020/ec_rtd_srip-2020-report.pdf).

⁽²⁾ European Commission (2021), *She Figures 2021 – Gender in research and innovation – Statistics and indicators*, Publications Office of the European Union, Luxembourg (<https://op.europa.eu/en/web/eu-law-and-publications/publication-detail/-/publication/67d5a207-4da1-11ec-91ac-01aa75ed71a1>); See footnote ⁽¹⁾.

⁽³⁾ A toxic workplace culture is characterised by hostility, gossip, mistrust, power struggles, poor communication, negativity and selfishness. Fahie, D. (2019), 'The lived experience of toxic leadership in Irish higher education', *International Journal of Workplace Health Management*, Vol. 13, No 3, pp. 341–355, doi:10.1108/IJWHM-07-2019-0096. Sull, D., Sull, C., Cipolli, W. and Brighenti, C. (2022), 'Why every leader needs to worry about toxic culture', *MIT Sloan Management Review* (<https://sloanreview.mit.edu/article/why-every-leader-needs-to-worry-about-toxic-culture/>).

In the *European Research Area Policy Agenda* for 2022–2024 ⁽⁴⁾, the European Commission emphasises that gender equality will be pursued through promoting institutional change in R & I organisations. Gender equality plans (GEPs) are the main policy instrument used to achieve this change. Furthermore, it recommends that gender equality policies need to address intersections with other

diversity categories and potential grounds of discrimination, such as ethnicity, disability or sexual orientation. Increasing the inclusiveness of gender equality policies in this regard also means that efforts should be made to ensure an equal implementation of these policies in all Member States and in all R & I sectors, especially targeting organisations in the BES.

(4) European Commission (2021), *European Research Area Policy Agenda: Overview of actions for the period 2022–2024*, Publications Office of the European Union, Luxembourg (https://ec.europa.eu/info/sites/default/files/research_and_innovation/strategy_on_research_and_innovation/documents/ec_rtd_era-policy-agenda-2021.pdf).

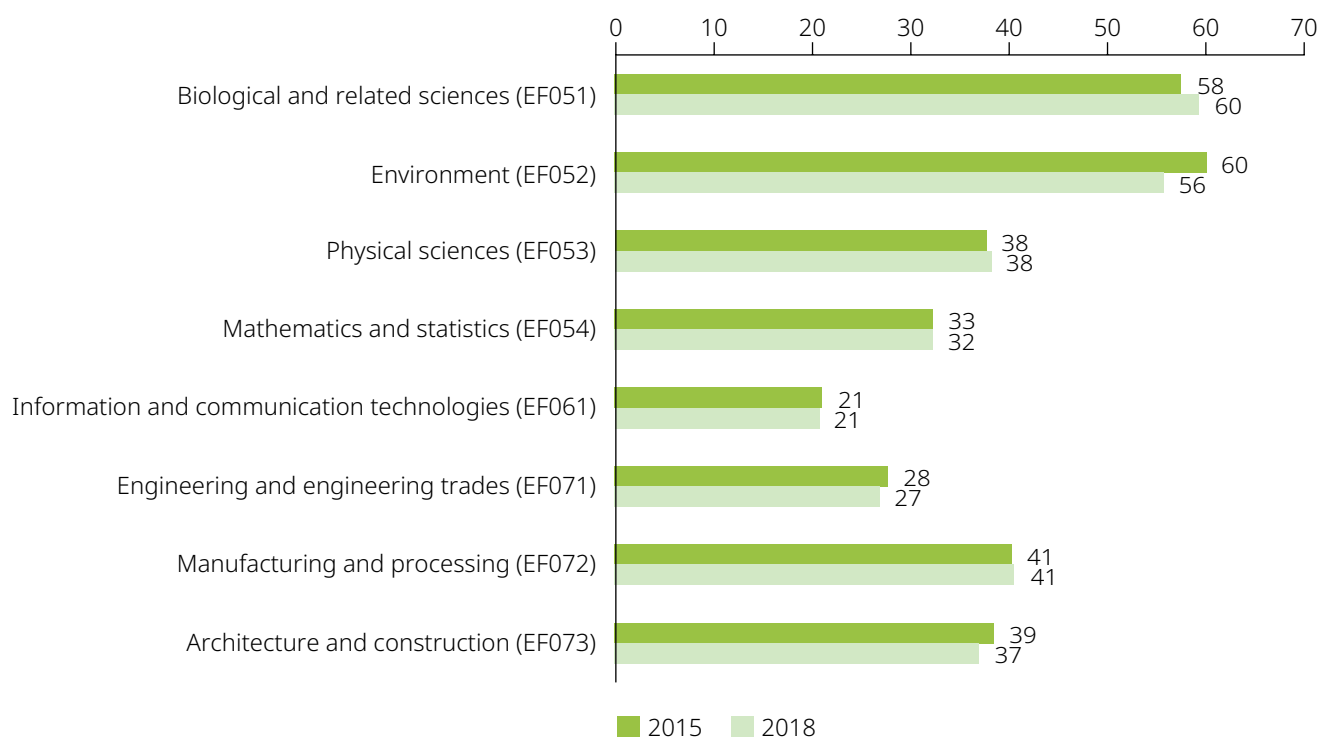
2. Gender inequalities in the policy area – main issues

2.1. Gender segregation in research and innovation

The latest edition of *She Figures 2021* reported that gender parity has almost been achieved among doctoral graduates in the EU. However, the data also show that gender gaps in specific fields of study continue to exist and contribute to gender segregation not only in education but also

in the R & I workforce. Women are still under-represented among doctoral graduates in the majority of science, technology, engineering and mathematics (STEM) fields at the EU level: women represent 38.4 % of doctoral graduates in physical science, 32.5 % in mathematics and statistics, 20.8 % in ICT, 27 % in engineering and engineering trades, 40.9 % in manufacturing and processing and 37.2 % in architecture and construction ⁽⁵⁾.

Figure 1. Proportion (%) of women among doctoral graduates, by narrow field of study in natural sciences, ICT and engineering, 2015 and 2018



Sources: *She Figures 2021*, Eurostat – education statistics (online data code: educ_uoe_grad02) and the Organisation for Economic Co-operation and Development (graduates by field).

Research shows that gender segregation in research is driven by the same root causes as gender segregation in the labour market as a whole: gender stereotypes, choice of study field,

⁽⁵⁾ European Commission (2021), *She Figures 2021 – Gender in research and innovation – Statistics and indicators*, Publications Office of the European Union, Luxembourg (<https://op.europa.eu/en/web/eu-law-and-publications/publication-detail/-/publication/67d5a207-4da1-11ec-91ac-01aa75ed71a1>).

gender division of labour and time constraints, and covert barriers and biases in organisational practices. In general, the influence of these factors seems to be diminishing among the younger cohorts of highly qualified women ⁽⁶⁾.

Despite the progress of gender equality among doctoral graduates in Europe, women continue to be under-represented in the R & I workforce: women are less likely to be employed as scientists and engineers compared to men: only 3.1 % of women in the labour force are employed as scientists or engineers, compared to 4.4 % of men. Furthermore, women accounted for only 32.8 % of the total population of researchers in the EU Member States in 2018. Since 2015, the proportion of women researchers has stagnated, although the compound annual growth rate of the number of women researchers between 2010 and 2018 amounted to 3.9 %, compared to 3.3 % for men. This means that the number of women researchers increased faster than that of men, but the difference between the compound annual growth rates is not big enough to lead to a higher share of women researchers among all researchers in the Member States.

In addition, gender segregation is visible between the main economic R & I sectors in Europe. The higher education sector (HES) and the government sector (GOV) have the highest proportions of women researchers (42.3 % and 43.7 %) compared to the BES (20.9 %). The compound annual growth rates between 2010 and 2018 for the number of women (and men) researchers are highest in the BES with 7 % for women and 5.8 % for men, whereas in the HES the compound annual growth rate amounted to only 2.8 % for women and 0.9 % for men. The R & I sector is therefore marked by clear differences regarding the representation of

women as researchers: in the HES and the GOV, the proportion of women and men researchers is gender balanced, while the BES is characterised by a considerable under-representation of women as researchers.

However, taking a closer look at the HES reveals that, despite the overall gender balance, there are also distinct patterns of gender segregation visible in the HES that are reflecting the gender gaps in different fields of study reported at the beginning of this chapter: the proportion of women researchers is considerably lower than that of men in natural sciences and in engineering and technology. Therefore, *She Figures 2021* concludes 'Horizontal segregation persists across fields of research and development (R & D), even in sectors where women researchers tend to be better represented' ⁽⁷⁾.

The gender segregation between the main sectors of R & I also has strong implications concerning the resources for conducting research. Overall, the R & D expenditure (in purchasing power standard) per capita researcher (in full-time equivalents (FTEs)) is quite different between the sectors: the BES, where the share of women researchers is lowest, has the highest spending per researcher, whereas in the HES, with a much higher share of women researchers, the R & D expenditure is considerably lower than in the BES ⁽⁸⁾.

2.2. Gender-related career challenges and gender imbalances in decision-making

Women scientists seeking to climb the career ladder are still facing a number of barriers ⁽⁹⁾. In 1999 already, the European Technology Assessment

⁽⁶⁾ Bettio, F. and Verashchagina, A. (2009), *Gender segregation in the labour market – Root causes, implications and policy responses in the EU*, European Commission, Directorate-General for Employment, Social Affairs and Equal Opportunities, Unit G, Luxembourg (<http://www.worldcat.org/oclc/468780010>); Thébaud, S. and Charles, M. (2018), 'Segregation, stereotypes, and STEM', *Social Sciences*, Vol. 7, No 7, p. 111, doi:10.3390/socsci7070111; Ecklund, E. H., Lincoln, A. E. and Tansey, C. (2012), 'Gender segregation in elite academic science', *Gender & Society*, Vol. 26, No 5, pp. 693–717, doi:10.1177/0891243212451904.

⁽⁷⁾ European Commission (2021), *She Figures 2021 – Gender in research and innovation – Statistics and indicators*, p. 94, Publications Office of the European Union, Luxembourg (<https://op.europa.eu/en/web/eu-law-and-publications/publication-detail/-/publication/67d5a207-4da1-11ec-91ac-01aa75ed71a1>).

⁽⁸⁾ European Commission (2021), *She Figures 2021 – Gender in research and innovation – Statistics and indicators*, p. 167, Publications Office of the European Union, Luxembourg (<https://op.europa.eu/en/web/eu-law-and-publications/publication-detail/-/publication/67d5a207-4da1-11ec-91ac-01aa75ed71a1>).

⁽⁹⁾ Elsevier (2020), *The researcher journey through a gender lens: An examination of research participation, career progression and perceptions across the globe* (https://www.elsevier.com/_data/assets/pdf_file/0011/1083971/Elsevier-gender-report-2020.pdf).

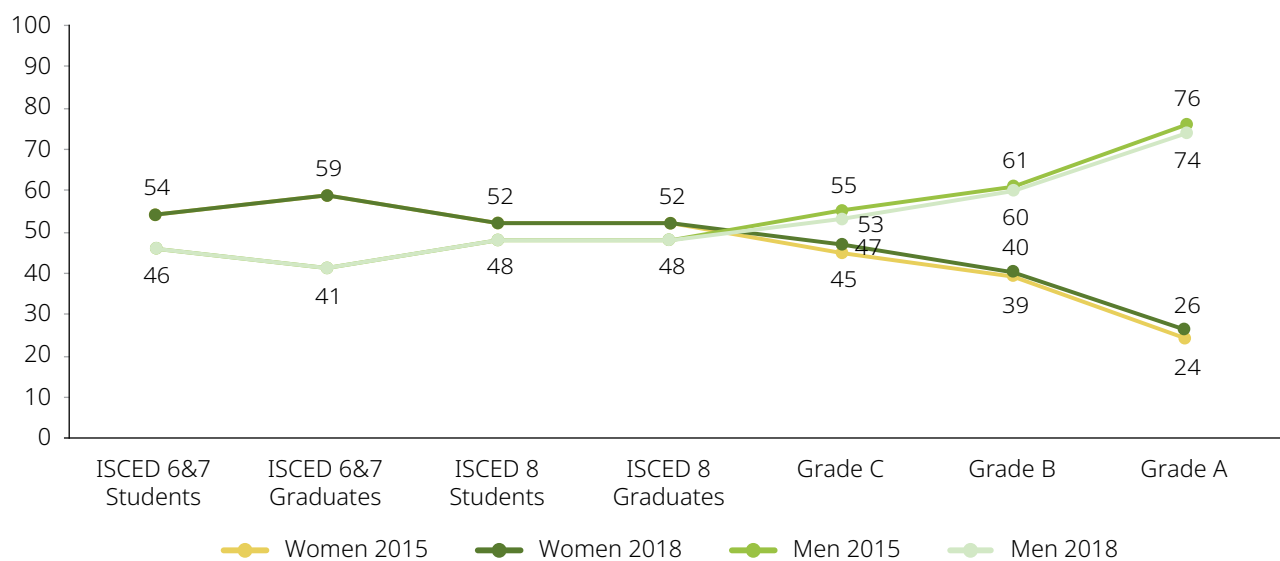
Network report ⁽¹⁰⁾ described the situation of women scientists in universities, research institutes and academies at that time, mentioning the continuous drop in the numbers of women at each level of the academic ladder.

This phenomenon is referred to by the image of a leaky pipeline. Ever since Berryman (1983) ⁽¹¹⁾ introduced this conceptual approach, the process of becoming a researcher has been conceptualised as a 'pipeline'. This image of a pipeline refers to the normative sequence of educational and employment stages of a typically scientific career. From this point of view, the decreasing proportion of women moving up the educational/professional hierarchy is attributable to women's higher rates of attrition from the science pipeline: at each

moment of transition from one educational/professional stage to another, the pipeline loses more women than men ⁽¹²⁾.

The latest data available in *She Figures 2021* show that the leaky pipeline is a persistent phenomenon: women amount to 54 % of bachelor and master students and to 59 % of bachelor and master graduates in the Member States, which slightly drops for doctoral students and graduates (both 48 %) and decreases further for Grade C (47 %), Grade B (40 %) and Grade A (26 %) ⁽¹³⁾. Between 2015 and 2018, the leaky pipeline hardly changed in the EU. Only at Grade A level, a slight increase of the share of women could be observed from 24.1 % to 26.2 %.

Figure 2. Proportion (%) of men and women in a typical academic career, students and academic staff, EU-27, 2015–2018



Sources: *She Figures 2021*, Women in Science database, Directorate-General for Research and Innovation – T1 questionnaires, education statistics (online data codes: educ_uoe_enrt03, educ_uoe_grad02).

⁽¹⁰⁾ European Commission (2000), *Science Policies in the European Union: Promoting excellence through mainstreaming gender equality – A report from the ETAN Expert Working Group on Women and Science*, Office for Official Publications of the European Communities, Luxembourg.

⁽¹¹⁾ Berryman, S. (1983), 'Who will do science? Trends, and their causes in minority and female representation among holders of advanced degrees in science and mathematics', Rockefeller Foundation, New York, United States (<http://eric.ed.gov/?id=ED245052>).

⁽¹²⁾ Polkowska, D. (2013), 'Women scientists in the leaking pipeline: Barriers to the commercialisation of scientific knowledge by women', *Journal of Technology Management and Innovation*, Vol. 8, No 2 (http://www.scielo.cl/scielo.php?pid=S0718-27242013000200013&script=sci_arttext).

⁽¹³⁾ *She Figures 2021* defines academic staff grades as:

Grade C – the first grade/post into which a newly qualified PhD (ISCED 8) graduate would normally be recruited within the institutional or corporate system;

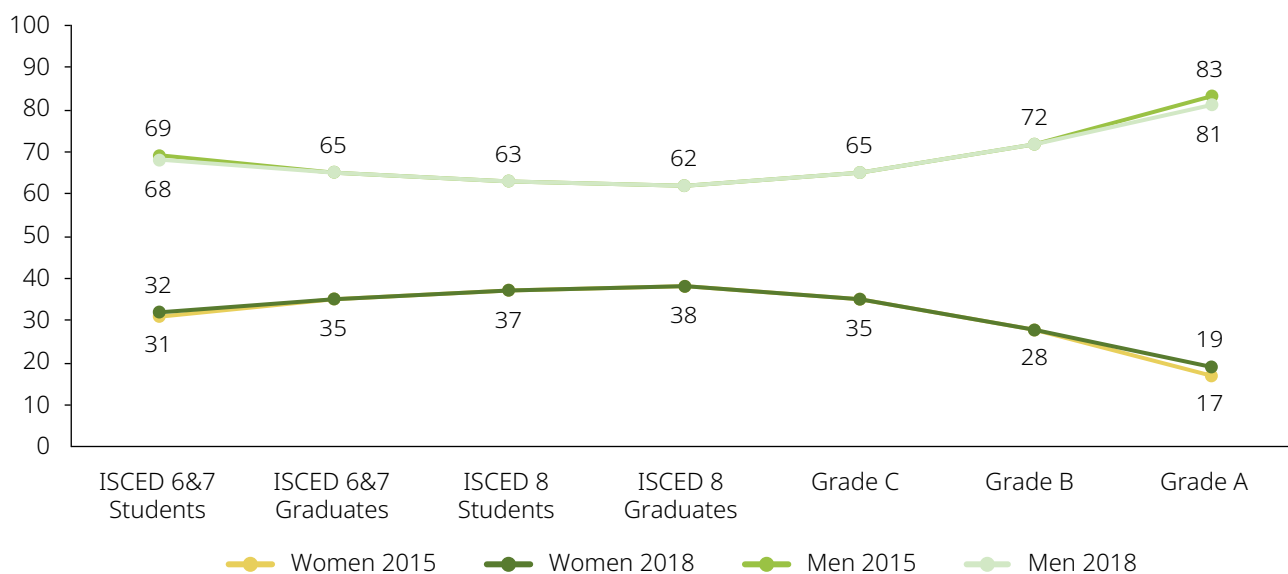
Grade B – all researchers working in positions that are not as senior as the top position (A) but definitely more senior than the newly qualified PhD holders (Grade C) (i.e. below Grade A and above Grade C);

Grade A – the single highest grade/post at which research is normally conducted within the institutional or corporate system.

She Figures 2021 also reports that the extent of vertical segregation is even more distinct in STEM fields. Although the share of bachelor and master students (32 %) and graduates (35 %) is considerably lower than for the whole population of students, the share of women increases a little bit for women doctoral students (37 %) and graduates

(38 %), but then drops to 35 % for Grade C positions, to 28 % for Grade B positions and to 19 % for Grade A positions. Additionally, the proportion of women among Grade A researchers has slightly improved for the STEM field since 2015 – from 17 % to 19 % in 2018 ⁽¹⁴⁾.

Figure 3. Proportion (%) of men and women in a typical academic career in science and engineering, students and academic staff, EU-27, 2015–2018



Sources: Women in Science database, Directorate-General for Research and Innovation – T1 questionnaires, education statistics (online data codes: educ_uoe_enrt03, educ_uoe_grad02).

The Glass Ceiling Indicator (GCI) ⁽¹⁵⁾ describes the relative chance of women compared to men to reach academic top positions. In 2018, the GCI amounted to 1.6 compared to 1.5 in 2015, which indicates that women still do not have the same chances as men to advance into academic top positions. Furthermore, the glass ceiling has become slightly thicker in the last years, meaning the chances of women have decreased a little bit further.

The vertical segregation is also evident in the data on women heading universities or research institutions and women on the boards of universities and research institutions. The latest figures show that only 23.6 % of higher education institutions (based on capacity to deliver PhDs) were headed by a woman rector in 2019. This figure has increased slightly since 2016 (21.2 %) ⁽¹⁶⁾. The proportion of women on boards adds interesting information to this overall pattern. In general,

⁽¹⁴⁾ European Commission (2021), *She Figures 2021 – Gender in research and innovation – Statistics and indicators*, Publications Office of the European Union, Luxembourg (<https://op.europa.eu/en/web/eu-law-and-publications/publication-detail/-/publication/67d5a207-4da1-11ec-91ac-01aa75ed71a1>).

⁽¹⁵⁾ The GCI is a relative index comparing the proportion of women in academia (Grades A, B, and C) to the proportion of women in top academic positions (Grade A positions, equivalent to full professorships 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 for being promoted. A score of less than 1 means that women are over-represented at Grade A level and a GCI score of more than 1 points towards a glass ceiling effect, meaning that women are under-represented in Grade A positions. In other words, the interpretation of the GCI is that the higher the value, the stronger the glass ceiling effect and the more difficult it is for women to move into a higher position.

⁽¹⁶⁾ European Commission (2021), *She Figures 2021 – Gender in research and innovation – Statistics and indicators*, p. 209, Publications Office of the European Union, Luxembourg (<https://op.europa.eu/en/web/eu-law-and-publications/publication-detail/-/publication/67d5a207-4da1-11ec-91ac-01aa75ed71a1>).

board data cover scientific commissions, R & D commissions, boards, councils, committees and foundations, academy assemblies and councils, along with different field-specific boards, councils and authorities. These boards exercise a crucial power of influence on the orientation of research. On average in the EU Member States, 31.1 % of board members were women in 2019, whereas in 2017 they represented only 27 %. Among leaders of these boards the proportion of women amounted to 24.5 % in the Member States in 2019 (2017: 20 %) (17).

That women are under-represented among Grade A researchers is also evident in the proportion of women Grade A positions among all women academic staff: only 7.6 % of all female academic staff are in a Grade A position, whereas 15.7 % of all male academic staff are employed in Grade A positions. Only a small proportion of women researchers are working in the highest positions in the R & I sector and the majority of women are in more junior research positions (18). This is also substantiated by the fact that women researchers are better represented in the younger age groups in the HES and GOV sectors, while in the older age groups fewer women are represented (19).

In 2019, women researchers in the HES were more often part-time employed (11.1 % of all women researchers in the HES) than men researchers (7.2 %) (20). Furthermore, women researchers in the HES tend to be employed in precarious contracts more often than their male colleagues: 9 % of women researchers and 7.7 % of men researchers worked under precarious contracts in the EU in 2019. Under the category of precarious working contracts, *She Figures 2021* has subsumed

researchers with no contracts, with fixed term contracts of up to 1 year or less or with other contracts (often associated with student status) (21). Additionally, women researchers are reported to be employed in positions characterised by a higher teaching load, less access to research funding, fewer opportunities to conduct (independent) research and limited career perspectives (22).

In summary, the glass ceiling effect is strongly reflected in the low representation of women in decision-making in academia. Despite an improved proportion of women at the different steps of the academic career ladder, women constitute a minority among the top levels of the academic hierarchy. In 2019, only a minority of institutions in the HES were headed by women and around a third of the board members were female.

2.3. Gender gaps in research productivity

Gender gaps in R & I are not limited to positions, working time or work contracts, but are also evident in R & I outputs like publications or patents. These outputs are of high importance in the meritocratic R & I field as researchers authoring more publications, especially in highly cited journals, and with higher numbers of citations or registering more patents and inventions are considered as more influential, productive and consequently as having achieved higher levels of excellence. This results in a higher reputation and a competitive advantage for grants, awards and

(17) European Commission (2021), *She Figures 2021 – Gender in research and innovation – Statistics and indicators*, p. 131, Publications Office of the European Union, Luxembourg; European Commission (2021), *She Figures 2021 – Gender in research and innovation – Statistics and indicators*, p. 203, Publications Office of the European Union, Luxembourg.

(18) European Commission (2021), *She Figures 2021 – Gender in research and innovation – Statistics and indicators*, p. 187, Publications Office of the European Union, Luxembourg.

(19) European Commission (2021), *She Figures 2021 – Gender in research and innovation – Statistics and indicators*, p. 114, Publications Office of the European Union, Luxembourg.

(20) European Commission (2021), *She Figures 2021 – Gender in research and innovation – Statistics and indicators*, p. 153, Publications Office of the European Union, Luxembourg.

(21) European Commission (2021), *She Figures 2021 – Gender in research and innovation – Statistics and indicators*, p. 155, Publications Office of the European Union, Luxembourg.

(22) van den Besselaar, P. and Sandström, U. (2017), 'Vicious circles of gender bias, lower positions, and lower performance: Gender differences in scholarly productivity and impact', *PLoS ONE*, Vol. 12, No 8, doi:10.1371/journal.pone.0183301; Heijstra, T. M., Steinhorsdóttir, F. S. and Einarsdóttir, T. (2016), 'Academic career making and the double-edged role of academic housework', *Gender and Education*, Vol. 29, No 6, pp. 764–780, doi:10.1080/09540253.2016.1171825.

positions within the R & I field. Therefore, measuring the R & I outputs of women and men researchers has received growing attention in the last decade.

She Figures 2021 reports that women authors were under-represented in the pool of active authors at all levels of seniority in the EU-27 between 2015 and 2019. The gender gaps in active authorship are widest in the fields of natural sciences and engineering and technology. Women authors also seem less likely to be lead authors compared to men researchers, but measuring the number of publications of women and men researchers makes evident that women in their early career stages publish a similar number of papers as men. As seniority increases, the publication gap between women and men widens, meaning that women in higher research positions publish less than men in the same positions⁽²³⁾. Regarding the impact of publications⁽²⁴⁾ authored by women or men, no significant gender differences are evident, regardless of seniority level⁽²⁵⁾. Women are also significantly under-represented among inventors in the EU-27. For every ten inventions held by men, only one was held by a woman⁽²⁶⁾. Between 2006 and 2018, the number of inventor teams composed only or mostly of women has increased only very slowly, by 0.03 % per year⁽²⁷⁾.

2.4. Gender bias in access to research funding

In order to maintain autonomy and ensure scientific excellence, access to research funding should be based on merit and individual scientific achievements. Scientific excellence, however, is not an absolute term but a composite of several determinants. In 2004 already, research funded by the European Commission⁽²⁸⁾ demonstrated that the term ‘excellence’ may hide several gender biases. This was confirmed by other research on academic hiring and research assessment procedures⁽²⁹⁾, which showed that research assessments are not based on merit and scientific achievements only, but are influenced by other factors like gender, nationality, academic rank, reputation of host institutions, disciplinary proximity of applicants and reviewers, nepotism, etc.

Despite this critical review of the ‘myth of meritocracy’ in R & I, there is an ongoing debate⁽³⁰⁾ on whether research funding assessments are influenced by gender bias and, if so, to what extent. On the one hand, there is evidence from different disciplines showing that female applicants are assessed less favourably, resulting in fewer research grants or awards and lower

⁽²³⁾ European Commission (2021), *She Figures 2021 – Gender in research and innovation – Statistics and indicators*, p. 225, Publications Office of the European Union, Luxembourg (<https://op.europa.eu/en/web/eu-law-and-publications/publication-detail/-/publication/67d5a207-4da1-11ec-91ac-01aa75ed71a1>).

⁽²⁴⁾ Impact is measured as field-weighted citation impact.

⁽²⁵⁾ European Commission (2021), *She Figures 2021 – Gender in research and innovation – Statistics and indicators*, p. 227, Publications Office of the European Union, Luxembourg (<https://op.europa.eu/en/web/eu-law-and-publications/publication-detail/-/publication/67d5a207-4da1-11ec-91ac-01aa75ed71a1>).

⁽²⁶⁾ European Commission (2021), *She Figures 2021 – Gender in research and innovation – Statistics and indicators*, p. 246, Publications Office of the European Union, Luxembourg (<https://op.europa.eu/en/web/eu-law-and-publications/publication-detail/-/publication/67d5a207-4da1-11ec-91ac-01aa75ed71a1>).

⁽²⁷⁾ European Commission (2021), *She Figures 2021 – Gender in research and innovation – Statistics and indicators*, p. 252, Publications Office of the European Union, Luxembourg (<https://op.europa.eu/en/web/eu-law-and-publications/publication-detail/-/publication/67d5a207-4da1-11ec-91ac-01aa75ed71a1>).

⁽²⁸⁾ European Commission (2004), *Gender and Excellence in the Making*, Office for Official Publications of the European Communities, Luxembourg (<https://op.europa.eu/en/publication-detail/-/publication/ce10dfb-4e36-49ed-a9ec-b2182c8b986f>).

⁽²⁹⁾ Van den Brink, M. and Benschop, Y. (2012), ‘Gender practices in the construction of academic excellence: Sheep with five legs’, *Organization*, Vol. 19, No 4, pp. 507–524, doi:10.1177/1350508411414293; Rees, T. (2011), ‘The gendered construction of scientific excellence’, *Interdisciplinary Science Reviews*, Vol. 36, No 2, pp. 133–145, doi:10.1179/030801811X13013181961437; Nielsen, M. W. (2015), ‘Limits to meritocracy? Gender in academic recruitment and promotion processes’, *Science and Public Policy*, doi:10.1093/scipol/scv052; Montes López, E. and O’Connor, P. (2018), ‘Micropolitics and meritocracy: Improbable bed fellows?’, *Educational Management Administration & Leadership*, Vol. 47, No 5, doi:10.1177/1741143218759090; for a general critical review of the vagueness of the notion of excellence, see Moore, S., Cameron, N., Eve, M. P., O’Donnell, D. P. and Pattinson, D. (2017), ‘“Excellence R Us”: University research and the fetishisation of excellence’, *Palgrave Communications*, Vol. 3, No 1, p. 803, doi:10.1057/palcomms.2016.105.

⁽³⁰⁾ For an overview, see Sato, S., Gyag, P. M., Randall, J. and Mast, M. S. (2020), ‘The leaky pipeline in research grant peer review and funding decisions: Challenges and future directions’, *Higher Education*, pp.145–162, doi:10.1007/s10734-020-00626-y.

funding amounts allotted. *She Figures 2021* reports that, in the EU Member States, the research funding success rates of women are 3.9 percentage points lower than those of men. Nevertheless, the picture between the different EU Member States and associated countries is more complex because in countries like Belgium, Bulgaria or Denmark, for example, women have higher success rates than men⁽³¹⁾. On the other hand, there is a growing body of literature stating that women and men have nearly equal chances to be successful in research funding applications across countries and disciplines and that gender bias does not influence the success rates of women and men. These mixed findings might be a result of the different methodological approaches used in these studies. Nevertheless, as some research funding bodies already have gender equality policies in place, these might correct for the implicit biases of reviewers and the final funding decision would therefore be unbiased although individual reviews are. More research and empirical evidence are needed to get a clearer picture of the situation and to draw properly informed conclusions and recommendations.

Beyond the gender bias in research assessments, women researchers also face significant barriers and challenges in their research careers and are less represented in higher academic ranks, which might lower the probability that they apply for research funding grants and awards. Although gender differences in application behaviour have not received the same attention as research on gender bias in research funding, there is evidence⁽³²⁾ that women apply less often for research grants and for smaller amounts of grant money.

Lastly, women are also under-represented in decision-making procedures in research funding bodies as a number of panels are not gender balanced or gender equal and women are also less often

contracted to review the quality of grant applications. That said, a higher representation does not necessarily have a positive effect on the prevalence of gender bias, it is a question of fairness and equal opportunities for women and men in R & I.

Although research results and empirical evidence are not fully conclusive, research funding is important for a successful research career: it allows researchers to establish independent research activities and programmes and is often used as an indicator for research excellence and productivity in research assessment processes for grants, awards or positions. Obtaining research grants is therefore decisive for publications, for the reputation of researchers, for getting permanent and higher positions and consequently more grant money. This connection between success in research funding, academic performance and successful research careers has been referred to as a vicious cycle that contributes to glass ceiling effects in the careers of women scientists. This is why transparent and bias-free research funding procedures are so important in the campaign to achieve gender equality in research careers and in the research system overall.

2.5. Gender-blind and gender-biased research

Because sex and gender are fundamental determinants of the organisation of life and society, acknowledging and taking these differences into account is paramount in the creation of scientific knowledge. Nevertheless, much research is still **gender blind** or **gender biased**. The *She Figures 2021* publication provides data substantiating the fact that research is still mostly gender blind: just under 2 % of EU publications between 2015 and 2019 included a sex/gender analysis. Data for the Horizon 2020 R & I programme show that only 3 %

⁽³¹⁾ European Commission (2021), *She Figures 2021 – Gender in research and innovation – Statistics and indicators*, p. 259, Publications Office of the European Union, Luxembourg (<https://op.europa.eu/en/web/eu-law-and-publications/publication-detail/-/publication/67d5a207-4da1-11ec-91ac-01aa75ed71a1>).

⁽³²⁾ Jebesen, J. M., Abbott, C., Oliver, R., Ochu, E., Jayasinghe, I. and Gauchotte-Lindsay, C. (2019), 'A review of barriers women face in research funding processes in the UK', PsyArXiv (<https://psyarxiv.com/27mdz/>); European Commission. 2009. *The Gender Challenge in Research Funding – Assessing the European national scenes*, Publications Office of the European Union, Luxembourg.

of the funded projects integrated a sex and gender dimension in their research programme ⁽³³⁾.

Research is considered as gender blind when research results are extrapolated to the population as a whole, without due consideration of the sample composition. For example, heart disease has been classified as a disease that primarily affects men and clinical standards were based on male pathophysiology and outcomes. The result was that women and gender-diverse individuals were often mis- and under-diagnosed as they showed different symptoms. Research that has taken sex analysis into account could show that the pathophysiology of ischemic heart disease is different for women and new diagnostic techniques could be developed ⁽³⁴⁾. There are, however, also examples and good practices from other disciplines or fields of technology, like artificial intelligence, machine learning, robotics, urban planning, transport technologies, agricultural technologies, that show why considering a sex/gender analysis in R & I processes is important and leads to more valid results ⁽³⁵⁾.

Some research funding bodies require the integration of sex/gender analysis into research proposals as part of their excellence or evaluation criteria. For instance, in its key funding programme for R & I (Horizon Europe), the European Commission demands the specification of how research proposals aim to integrate a sex/gender analysis into all its funding activities and asks reviewers to

evaluate this under the excellence criterion ⁽³⁶⁾. There are also other research funders in the EU Member States, like the Deutsche Forschungsgemeinschaft in Germany, the Irish Research Council or the Austrian Research Promotion Agency that recognise the importance of sex/gender analysis in research content and have devised specific policies to promote its integration into research programmes ⁽³⁷⁾.

Furthermore, there is research evidence that shows how the integration of sex/gender analysis in research processes can lead to innovation, full use of talent, an appeal for scientific careers and an increase in the quality of scientific research ⁽³⁸⁾.

2.6. Gender-blind and gender-biased organisational culture and institutional processes

In universities and research institutions, the majority of crucial decision-making procedures were established at a time when the presence and impact of women was limited. Although only slowly, 'structural change' to make universities and research institutions more gender-aware, thereby modernising their organisational culture, has been evolving over the years ⁽³⁹⁾.

A well-established body of research findings demonstrates the manner in which largely

⁽³³⁾ European Commission (2021), *She Figures 2021 – Gender in research and innovation – Statistics and indicators*, p. 259, Publications Office of the European Union, Luxembourg (<https://op.europa.eu/en/web/eu-law-and-publications/publication-detail/-/publication/67d5a207-4da1-11ec-91ac-01aa75ed71a1>).

⁽³⁴⁾ <http://genderedinnovations.stanford.edu/case-studies/heart.html>

⁽³⁵⁾ European Commission (2020), *Gendered Innovations 2 – How inclusive analysis contributes to research and innovation – Policy review*, Publications Office of the European Union, Luxembourg (<https://op.europa.eu/en/publication-detail/-/publication/33b4c99f-2e66-11eb-b27b-01aa75ed71a1/language-en>); European Commission (2013), *Gendered innovations – How gender analysis contributes to research*, Publications Office of the European Union, Luxembourg.

⁽³⁶⁾ European Commission (2021), *Horizon Europe (HORIZON) – Programme Guide*, Publications Office of the European Union, Luxembourg (https://ec.europa.eu/info/funding-tenders/opportunities/docs/2021-2027/horizon/guidance/programme-guide_horizon_en.pdf).

⁽³⁷⁾ European Commission (2021), *She Figures 2021 – Policy briefs*, Publications Office of the European Union, Luxembourg (<https://op.europa.eu/en/publication-detail/-/publication/d9fbd9da-4da0-11ec-91ac-01aa75ed71a1/language-en/format-PDF/source-249122093>); Swedish Secretariat for Gender Research (2021), *The Gender Dimension in Research and Innovation – Results from a global survey on research funding organisations* (<https://www.gu.se/sites/default/files/2021-04/The%20Gender%20Dimension%20in%20Research%20and%20Innovation.pdf>).

⁽³⁸⁾ League of European Research Universities (2015), *Gendered Research and Innovation: Integrating sex and gender analysis into the research process – Advice paper 18* (<https://www.leru.org/files/Gendered-Research-and-Innovation-Full-paper.pdf>).

⁽³⁹⁾ Ferguson, L. (2021) *Structural Change for Gender Equality in Research and Innovation – Analytical review*, Ministry of Education and Culture, Finland (https://julkaisut.valtioneuvosto.fi/bitstream/handle/10024/162958/OKM_2021_4.pdf); Sangiuliano, M. and Cortesi, A. (eds) (2019), 'Institutional change for gender equality in research – Lesson learned from the field', *Science and Society*, Edizioni Ca' Foscari – Digital Publishing, Venice, Italy.

unexamined errors in the way of assessing merit create inequitable outcomes for men and women. Research also shows that, despite good intentions and a commitment to fairness, both men and women are likely to undervalue women's accomplishments. This tendency is unsurprisingly embedded in institutional processes, such as recruitment, performance evaluation and advancement, which are widely perceived as objective and focusing only on selecting the most excellent candidates and applications. Changing these seemingly gender-neutral structures and processes is of utmost importance in promoting fairness and gender equality in organisations.

Beside these structures, research organisations are experienced as highly competitive, output focused and even toxic by women and other

groups. Moreover, gender-based violence and sexual harassment are prevalent in higher education and in research organisations, although exact figures are missing as many incidents remain unreported and there is a lack of large-scale research projects on the topic. Consequently, working cultures in R & I organisations are not experienced as inclusive and welcoming by women, resulting in feelings of isolation and non-belonging. This research gap will be closed by the EU-funded project UniSAFE⁽⁴⁰⁾.

Striving for more gender equality and inclusion in R & I therefore requires a complex set of interventions that aim at changing organisational structures, procedures and processes, but also their culture and the ways of knowledge production in R & I.

⁽⁴⁰⁾ <https://unisafe-gbv.eu/>

3. Existing gender equality policy objectives at the EU and international levels

3.1. EU level

3.1.1. The Council of the European Union

In 1999, the Council of the European Union adopted a resolution on women and science, in which the question of the under-representation of women in the field of scientific and technical research was recognised. The resolution also acknowledges that 'the gender mainstreaming of research policy is not limited to the promotion of women as research workers but should also ensure that research meets the needs of all citizens and contributes to the understanding of gender-relevant issues'.

With the 2007 Treaty of Lisbon, gender equality became a strategic objective for the development of both the EU and its Member States. Indeed, in 2000, the Lisbon Council set out the objective of making the EU the most competitive and knowledge-based economy in the world, capable of achieving sustainable economic growth with more and better jobs and greater social cohesion. To this end, it was stipulated that by 2010 women should fill at least 25 % of positions in the public research sector, so as to ensure a better representation of women in decision-making bodies.

The Council of the European Union (the Council) set gender equality and gender mainstreaming in research as one of the key priorities of the European research area (ERA) back in 2012, considering that the integration of a gender dimension into the design, evaluation and implementation of research needs to be improved to effectively foster R & I excellence ⁽⁴¹⁾.

In the conclusion of the ERA progress report in 2014, the Council of the European Union noted that there is a persistence of gender bias in careers, gender imbalance in decision-making roles and a lack of gender dimensions in most of the national research programmes. The Member States were invited to support gender mainstreaming and equal opportunities ⁽⁴²⁾.

The Council also openly endorsed the ERA's 2015–2020 roadmap, which aims at translating national equality legislation into effective action to address gender imbalances in research institutions and decision-making bodies, and better integrating the gender dimension into R & I policies, programmes and projects. The European Council called on the Member States to start its implementation through appropriate measures in their action plans or strategies by mid 2016 ⁽⁴³⁾.

On 18 November 2016, the Council adopted a draft council conclusion, containing measures to support early-stage researchers with the goal of raising the attractiveness of scientific careers and fostering investment in human potential in R & D. The conclusion of the Council reaffirms that gender issues are of particular importance in the context of scientific careers and invites the European Commission and the Member States to continue supporting and implementing gender equality actions and policies and to promote effective work–life balance measures. The Council also called upon the Member States to promote best practices and policies that seek to dismantle barriers to the advancement of women in research and enhance the diversity of the research community ⁽⁴⁴⁾.

⁽⁴¹⁾ https://www.consilium.europa.eu/uedocs/cms_data/docs/pressdata/en/intm/134168.pdf

⁽⁴²⁾ https://www.consilium.europa.eu/uedocs/cms_data/docs/pressdata/en/intm/146063.pdf

⁽⁴³⁾ <https://data.consilium.europa.eu/doc/document/ST-9351-2015-INIT/en/pdf>

⁽⁴⁴⁾ <https://www.consilium.europa.eu/media/24214/st14301en16.pdf>

Recently, on 26 November 2021, the Council adopted conclusions on the governance structure for the ERA and the ‘Pact for Research and Innovation in Europe’, thereby completing the deep reform of the ERA. The conclusion sets out priorities and establishes a governance framework for the ERA, including a policy agenda for 2022–2024. The shared values and principles outlined in the report contain gender equality and equal opportunities as one of the priority areas. The European Council clarifies the following requirements in this field for all Member States:

- encompassing gender balance in research teams at all levels, including in management and decision-making;
- combating gender-based violence and harassment;
- tackling gender bias;
- integrating the gender dimension into the content of R & I;
- taking account of diversity in the broader sense, including gender, racial or ethnic origin, religion or belief, social diversity, disability, age and sexual orientation, and combating discriminations on all grounds.

The Council’s conclusions propose specific ERA actions contained in the ERA’s 2022–2024 policy agenda, which will be implemented by the Member States on a voluntary basis, in cooperation with countries associated to the Horizon Europe programme⁽⁴⁵⁾.

3.1.2. European Commission

Following the 1999 Treaty of Amsterdam, which established equality between women and men as a specific task of the EU and a horizontal objective affecting all community tasks, the European

Commission formalised its commitment to advance gender equality in research in its communication ‘Women and science: Mobilising women to enrich European research’⁽⁴⁶⁾. In this document, the European Commission stressed the importance of the exchange of experience between Member States and of promoting women’s participation in a research-financed EU. The Commission also acknowledged the severe under-representation of women in science and set out an action plan to promote gender equality in science. Gender equality is to be understood in terms of the three dimensions that characterise the relationship between the issues of gender and science. In the 1999 EU communication, these three dimensions were referred to as ‘by, for and about’ (i.e. recognising the need to promote research by, for and about women).

Within the fifth framework programme (1998–2002), several efforts were made to promote gender equality in framework programme activities. This approach was broadened and reinforced during the implementation of the sixth framework programme (2002–2006), which established two main objectives: the target of 40 % women’s representation in committees, groups and panels and the integration of the gender dimension in research content. Further framework programmes give continuity to these two goals in order to foster scientific excellence.

Towards a European research area and Horizon 2020

In more recent years, the European Commission has addressed gender equality in research in two different ways: through its main funding instrument, Horizon 2020, and within the ERA in collaboration with Member States.

The creation of the ERA was proposed by the European Commission in its communication ‘Towards a European research area’⁽⁴⁷⁾ of January

⁽⁴⁵⁾ https://era.gv.at/public/documents/4616/st14308.en21_newERA_governance_CC_EN_final.pdf

⁽⁴⁶⁾ European Commission, Communication from the Commission of 17 February 1999 – ‘“Women and science”: Mobilising women to enrich European research’, COM(99) 76 final.

⁽⁴⁷⁾ European Commission, Communication from the Commission to the Council, the European Parliament, the Economic and Social Committee and the Committee of the Regions – ‘Towards a European research area’, COM(2000) 6 final (<https://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2000:0006:FIN:en:PDF>).

2000. The objective of creating the ERA was endorsed by the EU shortly afterwards at the March 2000 Lisbon European Council meeting. The issue of women and science is at the core of the ERA. The strategic objective of the ERA calls for an intensification of action that is needed to promote gender equality in science. Only by ensuring greater gender equality in science, in its widest sense, can science optimise the value that it brings to European society. The ERA pursues three objectives, namely gender equality in careers, gender balance in decision-making and the integration of the gender dimension into the content of research.

Since 2012, gender equality has been one of the key priorities of the Reinforced European Research Area Partnership for Excellence and Growth. To this end, the Member States were invited to remove barriers to the recruitment, retention and career progression of women researchers, to address gender balance in decision-making and to strengthen the gender dimension of research programmes. In particular, the ERA defined the following three objectives for gender equality in R & I, which also guided the efforts to promote gender equality in Horizon 2020:

- fostering gender balance in research teams, in order to close the gaps in the participation of women;
- ensuring gender balance in decision-making, in order to reach the target of 40 % of the under-represented sex in panels and groups and 50 % in advisory groups;
- integrating the gender dimension into R & I content and helping to improve the scientific quality and societal relevance of the produced knowledge, technology and/or innovation.

In Horizon 2020, gender was a cross-cutting issue and was mainstreamed in each of the different parts of the work programme, ensuring a more integrated approach to R & I. The legal basis reference document for the Horizon 2020 specific

programme document⁽⁴⁸⁾ stated that ‘promoting gender equality in science and innovation is a commitment of the Union. In Horizon 2020, gender will be addressed as a cross-cutting issue in order to rectify imbalances between women and men and to integrate a gender dimension in R & I programming and content’.

The science with and for society work programme⁽⁴⁹⁾ in Horizon 2020 funded specific initiatives in support of the gender equality strategy. Support was given to research-performing organisations and research-funding organisations in order to:

- remove barriers that generate discrimination against women in scientific careers and decision-making (supporting research organisations to implement GEPs);
- integrate a gender dimension into research content.

Gender equality in a new ERA and in Horizon Europe

In 2020 and 2021, however, a new ERA was launched together with a new R & I framework programme called Horizon Europe. Both aim to continue and intensify the efforts to promote gender equality in R & I. With the [new framework](#), the ERA will promote gender equality and diversity in R & I through inclusive GEPs along with the Member States and stakeholders. The objectives of this framework are promoting a gender-inclusive research culture, implementing sustainable change in R & I organisations and removing barriers to women’s career advancement.

In the [ERA policy agenda for 2022–2024](#), the European Commission focuses on the fight against gender-based violence in academic institutions. Furthermore, gender equality policies should open up to and integrate other categories of diversity and potential grounds of discrimination, such as ethnic origin, disability or sexual orientation. It

⁽⁴⁸⁾ Council Decision of 3 December 2013 establishing the specific programme implementing Horizon 2020 – the framework programme for research and innovation (2014–2020) (http://ec.europa.eu/research/participants/data/ref/h2020/legal_basis/sp/h2020-sp_en.pdf).

⁽⁴⁹⁾ European Commission (2013), Horizon 2020 – Work programme 2014–2015 – Science with and for society (http://ec.europa.eu/research/participants/data/ref/h2020/wp/2014_2015/main/h2020-wp1415-swfs_en.pdf#14).

supports the priority areas for gender equality set out in the [Ljubljana Declaration on Gender Equality in Research and Innovation](#):

- ensure fair, open, inclusive and gender-equal career paths in research and consider intersectional perspectives on gender inequalities;
- facilitate mutual learning opportunities through robust form-follows-function governance;
- address and counteract gender-based violence;
- employ existing and newly developed tools, such as GEPs, to facilitate systemic institutional change and remove institutional barriers;
- support active monitoring and evaluation to ensure continuous improvement;
- leverage synergies to enhance gender equality achievements within the ERA, but also within complementary fields, such as the European higher education area, Cohesion Policy Funds, innovation ecosystems and in international cooperation;
- underpin the above priorities and activities, and fully acknowledge gender mainstreaming as a horizontal principle.

To foster gender equality in R & I, from 2022, all public bodies, research organisations and higher education institutions from EU Member States or associated countries will have to submit a GEP when applying to the Horizon Europe fund. The GEP as an eligibility criterion of Horizon Europe has to fulfil the following four mandatory process-related requirements.

- **Public document.** A GEP is a formal document published on the organisation's website, signed by the top management and actively communicated within the organisation.
- **Dedicated resources.** A GEP must include a commitment to equip the implementation with sufficient resources and expertise in gender equality.
- **Data collection and monitoring.** A GEP should be informed through collecting and analysing sex- / gender-disaggregated data on personnel (and students, for the organisations concerned). Organisations should report progress annually based on specific indicators.
- **Training.** A GEP must include awareness-raising and training activities on gender equality for the whole organisation and trainings on unconscious gender biases for staff and decision-makers.

Furthermore, five recommended content-related requirements were defined for the GEPs:

- work-life balance and organisational culture;
- gender balance in leadership and decision-making;
- gender equality in recruitment and career progression;
- integration of the gender dimension into research and teaching content;
- measures against gender-based violence, including sexual harassment.

Mainstreaming gender equality into EU research and innovation instruments

The European Research Council (ERC) is a core part of Horizon Europe and has a work group dedicated to [gender issues](#). The third [ERC gender equality plan for 2021–2027](#) defines raising awareness about the gender policy at all levels as a key objective, along with the elimination of gender bias during evaluation and the promotion of gender balance amongst ERC candidates, peer reviewers and other bodies. Therefore, a level of 40 % representation of the under-represented group within decision-making bodies is aimed at. Furthermore, various actions against gender bias were implemented by the ERC and the [gendERC study \(2014–2016\)](#) analysed potential gender bias in ERC evaluation and grant allocation processes.

The European Innovation Council Advisory Board monitors the strategy and work programme of the European Innovation Council (EIC) and is composed of experts from different innovation areas. They call on the EIC and all other innovation actors to take immediate action to achieve gender balance along the entire innovation chain. Initial successes, such as prioritising women-led companies invited to interview pitches introduced in 2020, have been recorded. The advisory board announced the following recommendations in the [EIC's 2021 work programme](#):

- target an equal share of women leading research work packages in EIC pathfinder projects;
- 40 % of all bodies should be women, the future objective is 50 %;
- expand the share of women-led companies invited to EIC jury pitches to above 40 %;
- the EIC Fund should partner with a maximum number of women-led funds and funds with diverse management teams including female decision-makers;
- recommendation to introduce an innovation diversity prize.

Since October 2021, the EIC has been running the women leadership programme to promote the role of women in innovation and technology, alongside other women's development programmes and awards. The programme aims to enhance the skills and networking of women entrepreneurs and researchers supported by the EIC. It consists of specific training, networking events, one-on-one mentoring and a business coaching programme.

The European Institute of Innovation and Technology (EIT) promotes gender equality at all levels. In order to support schoolgirls and students, the [girls go circular project](#) of the EIT aims to develop entrepreneurship skills among schoolgirls through

challenge-based exercises. The EIT also promotes gender equality among students and alumni members with different activities, for example, the Women@EIT network or the collaboration with EIT Health's empowering women entrepreneurs in health innovation project. By offering training and support, the project promotes female entrepreneurs in health innovation. The EIT designated closing the entrepreneurial gender gap and considering gender balance and gender-sensitive approaches – in particular in areas where women are still under-represented, such as information and communication technologies, STEM – as objectives of their [2021–2027](#) strategy.

Aside from all these various policies, actions, mechanisms and bodies aimed at advancing gender equality in R & I, intersectional approaches are becoming increasingly important as they combine different inequality mechanisms. The EU is also taking intersectionality into account in the 2020–2025 [EU gender equality strategy](#), which contains key objectives and actions to achieve gender equality. The strategy combines gender mainstreaming and intersectionality as a cross-cutting approach. By integrating intersectionality into gender equality policies, other inequality grounds, for example, race, religion or sexual orientation, are also taken into account in R & I.

3.1.3. European Parliament

In February 2000, the European Parliament adopted a resolution⁽⁵⁰⁾ calling on Member States to increase the number of scholarships available to women in research and to pursue the goal of gender balance in scientific research at the national level.

In 2008, the Parliament adopted a resolution on women and science⁽⁵¹⁾. This resolution identifies possible intervention measures, including:

- enhanced monitoring of the situation of women in this field, since data broken down by gender are still insufficient;

⁽⁵⁰⁾ European Parliament resolution adopted 3 February 2000 (PE 284.656).

⁽⁵¹⁾ European Parliament resolution of 21 May 2008 on women and science (https://www.europarl.europa.eu/doceo/document/TA-6-2008-0221_EN.html).

- new training criteria for evaluation committees, requiring a balanced composition in terms of gender representation;
- introduction of evaluation criteria for research projects that pay particular attention to the presence of women in research units;
- criteria for personnel and research that go beyond criteria based on the number of publications and consider other abilities, such as the ability to collaborate on research and train young talent;
- financial resources intended specifically to support projects proposed by women, who typically encounter greater difficulty in accessing research funding.

The Parliament is committed to strengthening the values of equality and non-discrimination with legislation including, for example, the equal treatment directive (2006) or the work–life balance directive (2019). The work–life balance directive sets minimum requirements for Member States⁽⁵²⁾ in a bid to boost women’s representation in the workplace and strengthen the role of a father or an equivalent second parent in the family, thereby promoting gender equality.

In the Parliament, the Committee on Women’s Rights and Gender Equality is the principal political body in charge of advancing women’s rights and gender equality. The committee promotes gender mainstreaming by coordinating the Parliament’s gender mainstreaming network, sharing best practices in different policy areas. It was also responsible for drafting the new gender action plan, adopted in July 2020, as well as the roadmap⁽⁵³⁾ for its implementation, adopted in April 2021, which includes a range of specific actions. From 25 to 28 October 2021, the Parliament’s committees and delegations held a series of events aimed at highlighting the importance of gender equality and gender mainstreaming across different policy domains, including women in research.

In January 2021, the Parliament adopted a resolution on the gender perspective in the COVID-19 crisis and post-crisis period, addressing the harmful gendered and intersectional impacts of the pandemic and setting out recommendations⁽⁵⁴⁾ to overcome them. Among other things, the resolution addresses infection risks, increased domestic and gender-based violence, the increased burden of unpaid care work, and women’s participation in the labour market – problem areas affecting women in research.

3.2. International level

3.2.1. Council of Europe

From its inception, the Council of Europe has considered equality between women and men, in all spheres of public and private life, as a fundamental principle of human rights and democracy.

The Council of Europe transversal programme on gender equality, launched in 2012, aims to increase the impact and visibility of gender equality standards and to support their implementation in Member States. To achieve its aim and advance the gender equality agenda, the programme builds on the political and financial support of the Member States.

The Council of Europe also established several bodies commissioned to promote gender equality. The Gender Equality Commission is a Council of Europe Steering Committee composed of representatives of the 47 Member States. The mission of the Gender Equality Commission is to steer the gender equality transversal programme and to provide expertise and a forum for exchange on good practices and issues of concern. The gender equality rapporteurs work to identify ways to integrate a gender equality perspective in the functioning, policies, programmes and activities of their respective body or structure. They identify opportunities to

⁽⁵²⁾ European Parliament, Directive of the European Parliament and of the Council of 20 June 2019 on work-life balance for parents and carers and repealing Council Directive 2010/18/EU, OJ L 188/79.

⁽⁵³⁾ Shreeves, R. and Hahnkamper-Vandenbulcke, N. (2021), *Gender mainstreaming in the European Parliament – State of play*, European Parliament, Brussels, Belgium.

⁽⁵⁴⁾ European Parliament resolution of 21 January 2021 on the gender perspective in the COVID-19 crisis and post-crisis period (2021/2121).

develop new measures and activities to promote gender equality. The gender mainstreaming team is responsible for sharing information and expertise, providing visibility to results, identifying opportunities for joint action and making proposals to facilitate the implementation of the gender equality transversal programme.

In 2018, the Council of Europe adopted its latest gender equality strategy (2018–2023)⁽⁵⁵⁾, containing goals and strategic objectives directly affecting women in research:

- prevent and combat gender stereotypes and sexism;
- prevent and combat violence against women;
- ensure that women have equal access to justice;
- achieve balanced participation of women and men in decision-making;
- achieve gender mainstreaming in all policies and measures.

The 2019 Council of Europe recommendation⁽⁵⁶⁾ on preventing and combating sexism comprises a comprehensive catalogue of measures both to prevent and to condemn sexism, and it calls for specific action in such areas as education institutions, pointing out that sexist behaviour affects women disproportionately, leading to discrimination and preventing their full advancement in society.

3.2.2. United Nations

In ratifying the United Nations Convention on the Elimination of All Forms of Discrimination against Women (1979)⁽⁵⁷⁾, states made commitments to ensure equal rights for women and men in the field of education (Article 10) and to assure the

same conditions for career and vocational guidance and access to studies and for the achievement of diplomas in educational establishments of all categories. This equality shall be ensured in pre-school, general, technical, professional and higher-technical education, as well as in all types of vocational training.

Furthermore, the Beijing Platform for Action, adopted at the United Nations Fourth World Conference on Women⁽⁵⁸⁾, urged governments to take action to combat the continuous discrimination against women, which still persisted across countries as they prepared to enter the 21st century. The strategic objective B.3. 'Improve women's access to vocational training, science and technology and continuing education' outlines a number of actions to be undertaken by governments. These include diversifying vocational and technical training and improving women and girls' access to, and their retention in, education and vocational training in such fields as science, mathematics, engineering, environmental sciences, information technology and high technology, developing curricula and teaching materials and formulating positive measures to ensure women's better access to and participation in technical and scientific areas, especially areas where they are not represented or under-represented.

In accordance with its work programme for 2010–2014, the Commission on the Status of Women (CSW) considered 'access and participation of women and girls to [and in] education, training, science and technology, including for the promotion of women's equal access to full employment and decent work' as its priority theme during its 55th session in 2011. In order to contribute to a fuller understanding of the issue and to assist the CSW in its deliberations, the United Nations Division for the Advancement of Women, in collaboration with the United Nations Educational, Scientific and Cultural Organization (UNESCO), convened an expert group meeting (EGM) on gender, science and technology in 2010.

⁽⁵⁵⁾ Council of Europe (2018), *Council of Europe Gender Equality Strategy 2018–2023*.

⁽⁵⁶⁾ Council of Europe, Recommendation of 27 March 2019 on preventing and combating sexism (CM/REC(2019)1).

⁽⁵⁷⁾ United Nations (1979), The convention on the elimination of all forms of discrimination against women (<http://www.un.org/womenwatch/daw/cedaw/text/econvention.htm>).

⁽⁵⁸⁾ Beijing Platform for Action adopted at the United Nations Fourth World Conference on Women, 1995 (<http://www.un.org/womenwatch/daw/beijing/pdf/BDPfA%20E.pdf>).

The EGM explored the gender dimensions of science and technology and identified policies and programmes that can accelerate progress towards internationally agreed development goals, including the millennium development goals. It examined strategies for:

- increasing women's access to and use of technology, including more gender-responsive products;
- increasing women's access to and participation in science and technology education and training;
- eliminating barriers to women's participation in science and technology employment.

The EGM provided input for the report of the Secretary-General to the CSW (E/CN.6/2011/3)⁽⁵⁹⁾ and for the outcome of the CSW, the agreed conclusions and the set of policy recommendations to be implemented by all stakeholders⁽⁶⁰⁾.

In 2015, the United Nations resolution on the 2030 agenda for sustainable development was adopted. It states that women have a critical role to play in all of the sustainable development goals (SDGs), with numerous targets specifically recognising women's equality and empowerment as both the objective and part of the solution. The UN emphasises that women and girls must enjoy equal access to quality education, economic resources, political participation and equal opportunities for employment, leadership and decision-making. The resolution also stresses that investments to close the gender gap and to foster the systemic mainstreaming of a gender perspective are crucial.

SDG 4 concerns education. The goal is to ensure inclusive and equitable education and promote lifelong affordable learning opportunities for all, eliminate gender disparities, ensure equal access

to all levels of education and build on gender-sensitive education facilities.

SDG 5 includes a subset of goals seeking to achieve gender equality and empower women and girls:

- ending all forms of discrimination and sexual violence against women;
- ensuring women's participation and equal opportunities for leadership at all levels of decision-making;
- recognising the value of unpaid care work;
- enhancing the use of enabling technology (e.g. communication technology);
- adopting and strengthening sound policies and enforceable legislation for the promotion of gender equality and the empowerment of all women and girls at all levels.

Besides International Women's Day and the International Day of the Elimination of Violence against Women, the UN declared 11 February as the International Day of Women and Girls in Science⁽⁶¹⁾, thereby promoting the achievement of full and equal access to and participation in science for women. With that, the UN recognises the role of women and girls in science, not only as beneficiaries, but also as agents of change, acknowledging that there is a significant gender gap at all levels of STEM around the world.

3.2.3. The United Nations Educational, Scientific and Cultural Organization

Another UN agency, UNESCO, is required to promote gender equality as part of its mandate. UNESCO is one of the leading specialist UN agencies with a mandate covering five programme

⁽⁵⁹⁾ United Nations Commission on the Status of Women, Access and participation of women and girls in education, training, science and technology, including for the promotion of women's equal access to full employment and decent work: report of the Secretary-General (E/CN.6/2011/3) (http://www.un.org/ga/search/view_doc.asp?symbol=E/CN.6/2011/3).

⁽⁶⁰⁾ United Nations, Agreed conclusions on access and participation of women and girls in education, training and science and technology, including for the promotion of women's equal access to full employment and decent work (http://www.un.org/womenwatch/daw/csw/csw55/agreed_conclusions/AC_CSW55_E.pdf).

⁽⁶¹⁾ United Nations resolution on the International Day of Women and Girls in Science, 22 December 2015 (70/212).

areas: education, natural science, social and human sciences, culture, communication and information. These core areas of UNESCO's mandate are all crucial for advancing the global gender equality agenda.

In this context – and given its mandate in science and its past work on women in science – UNESCO has a key role to play in taking up these issues and working to overcome gender disparities in the access to, influence over and use of STEM. Over the last 30 years, UNESCO's science policy team has conducted studies on the role of women in science and the gender dimensions of policies related to the development and application of science and technology for sustainable development. It has supported the publication of one of the most comprehensive manuals on gender indicators in science and engineering.

UNESCO's Natural Sciences Sector works towards providing strong role models for women and girls in science throughout the world, thereby building the capacities of women in STEM. The STEM and gender advancement (SAGA) project also aims to contribute to reducing the gender gap in STEM fields in all countries and at all levels of education and research by determining, measuring and assessing sex-disaggregated data, and by taking an inventory of policy instruments that affect gender equality in STEM, in order to generate new and improved indicators to support future evidence-based policymaking. In addition, the sector works to promote women's participation in high-level processes that shape the science agenda and science policies, thus ensuring that the unique perspectives of women scientists and women knowledge holders are incorporated into solutions to the various challenges (e.g. climate change, biodiversity loss, freshwater management, health of the oceans, and developing green industries and societies) contained within the advancement of sustainable and equitable development (<https://uis.unesco.org/sites/default/files/documents/saga-sti-objectives-list-wp1-2016-en.pdf>).

The *UNESCO Science Report Towards 2030* ⁽⁶²⁾ provides valuable insights into the concerns and priorities of Member States and draws a comprehensive picture of the various facets of science, including gender-related issues (e.g. the gender gap in science and engineering). The report also contains steps to foster greater diversity in the scientific labour force for governments, and for research and science institutions:

- collection of data disaggregated by gender in key sectors;
- implementation of policies to promote the participation of women in science and innovation;
- steps to ensure that science and education systems are accessible;
- commitment to the equal representation of women in science, R & I management and decision-making;
- commitment to gender equality and diversity through funding, programming and monitoring of progress;
- introduction of fellowships and grants to increase the representation of under-represented groups;
- provision of supplementary support for women in the form of training, access to finance and backing for entrepreneurship.

The global UNESCO project ⁽⁶³⁾, supported by the government of Sweden, is engaged in improving the measurement and policies for gender equality in the STEM area in order to enhance countries' science, technology and innovation capacities (STI) to achieve the SDGs. The general objective of SAGA is to contribute to reducing the gender gap in the fields of STEM in all countries at all levels of education and research, by determining, measuring and assessing sex-disaggregated data and supporting the design and

⁽⁶²⁾ UNESCO (2015), *UNESCO Science Report: Towards 2030*, Paris, France (<http://uis.unesco.org/sites/default/files/documents/unesco-science-report-towards-2030-part1.pdf>).

⁽⁶³⁾ UNESCO (2016), 'Measuring Gender Equality in Science and Engineering: the SAGA science, technology and innovation gender objectives list (STI GOL)', *SAGA Working Papers*, No 1 (<https://unesdoc.unesco.org/ark:/48223/pf0000245006>).

implementation of policy instruments that affect gender equality in STEM. Furthermore, SAGA aims to analyse how policies affect the gender balance in STEM, undertakes inventories of STI gender equality policies, develops new and better indicators to provide tools for evidence-based policymaking, builds capacity in Member States for data collection on gender and prepares methodological documents to support the collection of statistics.

UNESCO also developed an STI gender objectives list based on different areas of objectives or policy impacts:

- social norms and stereotypes,
- primary and secondary education,
- higher education,
- career progression,
- research content, practice and agendas,
- policymaking processes,
- entrepreneurship and innovation.

The recently published *UNESCO Science Report (2021)* ⁽⁶⁴⁾ analysed the implications of the Fourth Industrial Revolution for women, concluding that the digital revolution needs to be inclusive. The findings of the 2021 engineering report ⁽⁶⁵⁾ indicate the decline in the enrolment of girls in natural sciences and engineering courses in schools and universities, and the lack of women engineers at universities.

⁽⁶⁴⁾ UNESCO (2021), *UNESCO Science Report: The race against time for smarter development* (<https://www.unesco.org/reports/science/2021/en/race4smarter-development>).

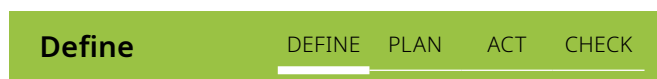
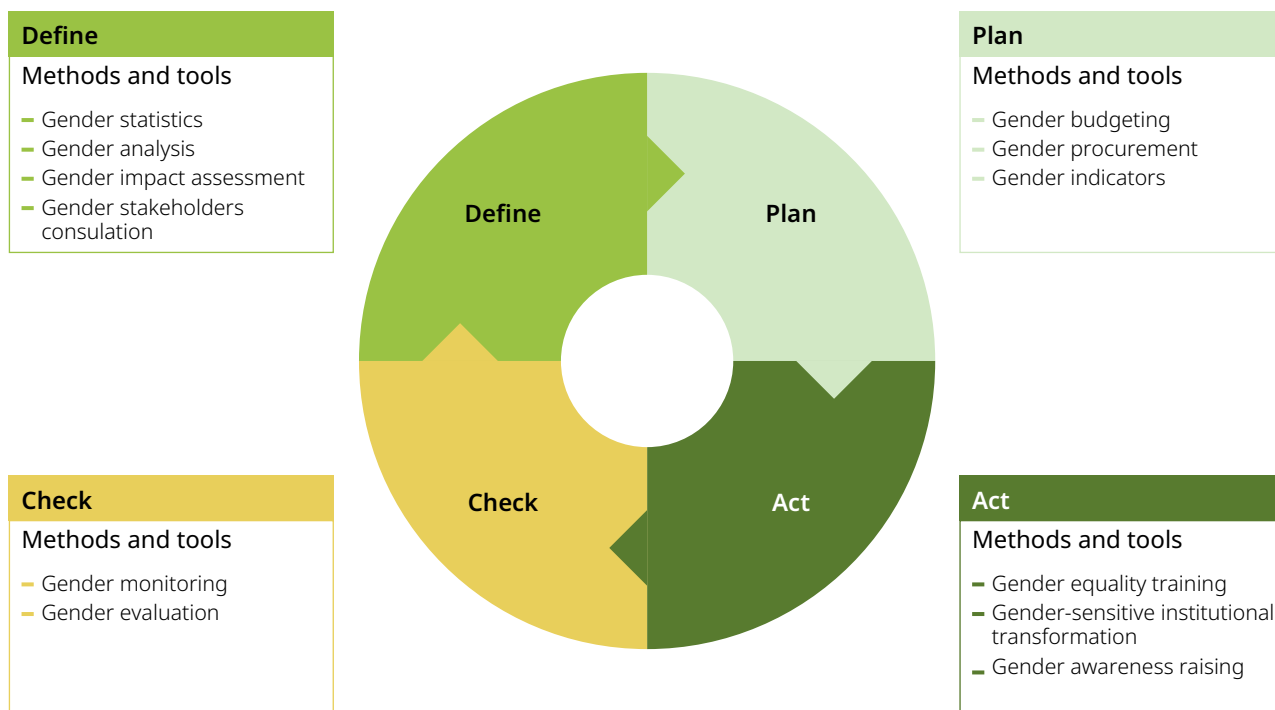
⁽⁶⁵⁾ UNESCO (2021), *UNESCO Engineering Report: Engineering for sustainable development: Delivering on the sustainable development goals*, (<https://en.unesco.org/reports/engineering>).

4. How and when? Research and the integration of gender into the policy cycle

The gender dimension can be integrated into all phases of the policy cycle. Below are some useful resources for and practical examples of mainstreaming gender into research policies. They are organised according to the most relevant phase of the policy cycle they may serve.

Within the research sector, mainstreaming gender means taking three different objectives into consideration: gender balance in research teams, gender balance in decision-making and the gender dimension in research content. The first objective is related to all the actions that stress the importance of including female scientists in research teams as it facilitates the participation of women in research and, at the same time, introduces the perspective of female scientists to the

analysis process. The second objective is related to all the actions aimed at considering the equal presence of women and men researchers among the top levels of the academic hierarchy. The third objective is related to all actions aimed at taking gender as a significant variable within any research content into account. This process of engendering research does not change the scope of the research; it provides new perspectives, raises new questions and uses new analysis tools to create a more complete picture of the problem. As men and women have different roles and power, their perspectives on a problem can be quite different. By combining their experiences and viewpoints, researchers can enhance the comprehension of a problem.



In this phase, it is recommended to gather information regarding the situation of women and

men in a particular area. This means looking for sex-disaggregated data and gender statistics, and checking for the existence of studies, programmes or project reports and/or evaluations from previous periods.

4.1. Examples of gender and research statistics

The European Commission's Directorate-General for Research and Innovation's *She Figures* report is the main source of comparable pan-European statistics on the state of gender equality in R & I.

Published every 3 years since 2003, *She Figures* is the European Commission's publication that presents human resource statistics and indicators in the research and technological development sector and on gender equality in science. It provides information on the situation of women in science and research, based on data collected every 3 years by the European Commission's Directorate-General for Research and Innovation, in close cooperation with the Helsinki Group on Women and Science and its statistical correspondents. It covers a wide range of themes, including the proportions of women and men among top-level graduates, academic staff and research/advisory boards, the working conditions of women and men researchers, the integration of the gender dimension into the content of peer-reviewed scientific articles and various indicators measuring gender gaps in scientific and innovation outputs. In *She Figures*, the joint repository for these data is referred to as the Women in Science (WiS) database.

In 2021, the European Commission published the seventh *She Figures* ⁽⁶⁶⁾. In addition to new data on gender equality in the EU, the handbook provides input on the indicators used for *She Figures 2021* ⁽⁶⁷⁾. The current version of the handbook aims to strengthen the ability of other stakeholders to systematically generate meaningful, systematic data on gender dimensions in R & I. Furthermore, the

She Figures 2021 policy briefs deal with, for example, women's presence, participation and progression in science, institutional culture and institutional change, and gender imbalance in Europe's research leadership (<https://op.europa.eu/en/publication-detail/-/publication/d9fbd9da-4da0-11ec-91ac-01aa75ed71a1>).

Eurostat's [statistics on research and development](#) is a collection of data concerning R & D expenditure and personnel, broken down by the institutional sectors of BES, GOV, HES and private non-profit (PNP). It also provides the total of all sectors. All data are broken down by the sectors of performance. R & D personnel data are available in FTEs, in head count (HC), as a percentage of employment and as a percentage of the labour force. The data are further broken down by occupation, qualification, sex, size class, citizenship, age group, field of science, economic activity (NACE Rev. 2 ⁽⁶⁸⁾) and region (NUTS-2 level ⁽⁶⁹⁾). At the EU level, the sector is the basis for the calculation of the main sex-disaggregated indicators concerning R & D, in particular for the *She Figures* publication and database.

The UNESCO Institute for Statistics started to study STEM gender indicators in 2006. It follows an innovative methodology. In 2007, the UNESCO Institute for Statistics (UIS), together with UNESCO Natural Sciences Sector, published the first international report on science, technology and gender. Through its biennial survey and partnerships with other statistical organisations, the UIS collects [cross-nationally comparable, gender-disaggregated statistics on research and experimental development](#) – by sector, area of research and level of education – for more than 200 countries and territories. This data is used to support

⁽⁶⁶⁾ <https://data.europa.eu/doi/10.2777/06090>

⁽⁶⁷⁾ <https://op.europa.eu/en/publication-detail/-/publication/058103b5-4da0-11ec-91ac-01aa75ed71a1>

⁽⁶⁸⁾ NACE is the acronym for 'Nomenclature statistique des activités économiques dans la Communauté européenne' (Statistical classification of economic activities in the European Community). NACE Rev. 2, which is the new revised version of the NACE Rev. 1 and of its minor update NACE Rev. 1.1, is the outcome of a major revision of the international integrated system of economic classifications which took place between 2000 and 2007. NACE Rev. 2 reflects the technological developments and structural changes of the economy, enabling the modernisation of the Community statistics and contributing, through more comparable and relevant data, to better economic governance at both Community and national levels. Eurostat, NACE rev.2 Statistical classification of economic activities in the European Community, Office for Official Publications of the European Communities, Luxembourg, 2008.

⁽⁶⁹⁾ The NUTS classification (Nomenclature of territorial units for statistics) is a hierarchical system for dividing up the economic territory of the EU and the UK for the purpose of: (a) the collection, development and harmonisation of European regional statistics, (b) socioeconomic analyses of the regions: NUTS 1: major socio-economic regions; NUTS 2: basic regions for the application of regional policies; NUTS 3: small regions for specific diagnoses, Eurostat, Statistical regions in the European Union and partner countries – NUTS and statistical regions 2021 (<https://ec.europa.eu/eurostat/web/products-manuals-and-guidelines/-/ks-gq-20-092>).

national and international policymaking to promote gender equality in science and technology and to expand the role of women in all fields of scientific research.

The **MORE4 study** (funded by the European Commission's Directorate-General for Research and Innovation) has improved the set of indicators defined in the previous studies MORE1–3. The European Commission was able to identify what is important to researchers in their career and mobility, to what extent they still encounter obstacles to mobility or career, but also what impact policies have (had) on these aspects. As in MORE3, the current study also focuses on policies for young researchers. Within this framework, a set of internationally comparable indicators on stocks, flows, working conditions and career paths of European researchers as well as a database were implemented. It also offers an online indicator tool to view and download key indicators from the EU Higher Education Surveys in the consecutive studies MORE2, MORE3 and MORE4 by country, gender, field of science, career stage and year (2012, 2016 and 2019; <https://www.more-4.eu/indicator-tool>).

The **European Tertiary Education Register (ETER)** is a database holding information on higher education institutions in Europe including the number of students, graduates, international doctorates, personnel, fields of education, income and expenditure, along with descriptive information on the characteristics of the institutions. Providing data at the level of individual institutions, ETER currently covers the academic years 2011/2012 to 2016/2017. Sex-disaggregated data is available for the number of students and graduates by ISCED ⁽⁷⁰⁾ class as well as for personnel by different categories. One specificity of ETER is that data can be connected with other institutional-level datasets (e.g. publications, patents, EU projects) as well as databases such as the European Quality Assurance Register for Higher Education and the European University Association. This has a huge impact on higher education research in Europe. Currently, data is being collected for the academic

years 2017/2018 up to 2019/2020 and will be published in spring 2022.

The 2020 gender report published by Elsevier (**The researcher journey through a gender lens: An examination of research participation, career progression and perceptions across the globe**) analyses the gender gap in research participation and research productivity, and in careers and mobility, mainly based on data from Scopus. It provides important insights into gender disparities in R & I based on robust data.

4.2. Examples of studies, research and reports

Gender Equality: Achievements in Horizon 2020 and recommendations on the way forward

This **report** aims to present the results of the gender equality projects funded in the context of the Science with and for Society part of Horizon 2020. It served as input for the preparation of the implementation of the Horizon Europe programme.

Analytical Review: Structural change for gender equality in research and innovation

This **report** tracks the evolution of the concept of structural change in relation to gender equality in R & I and critically addresses lessons learned and new challenges. The report examines what has worked in EU-funded structural change projects promoting gender equality in R & I so far.

Report on Monitoring of ERA Priority 4 Implementation

The report of the **GENDERACTION project** provides results from an analysis of national action

⁽⁷⁰⁾ ISCED (International Standard Classification of Education) is the reference international classification for organising education programmes and related qualifications by levels and fields. ISCED 2011 (levels of education) has been implemented in all EU data collections since 2014. ISCED-F 2013 (fields of education and training) has been implemented since 2016 ([https://ec.europa.eu/eurostat/statistics-explained/index.php?title=International_Standard_Classification_of_Education_\(ISCED\)](https://ec.europa.eu/eurostat/statistics-explained/index.php?title=International_Standard_Classification_of_Education_(ISCED))).

plans (NAPs), an online survey conducted in 2017, an update of the survey in early 2019 and interviews with members of the Standing Working Group on Gender in R & I. It offers a set of indicators for monitoring NAP implementation, presents good practice policies and formulates recommendations for the next period of ERA implementation. The report clusters the Member States in relation to the implementation of their NAPs and correlates gender equality with research excellence and innovation performance of countries.

Meta-analysis of Gender and Science Research

This [report](#) sets out the first comprehensive view of experiences and practices in Europe and abroad relating to women and science/research. Its aim is to collect and analyse research on horizontal and vertical gender segregation in research careers, along with the underlying causes and effects of these two processes. The objectives of the study were to provide an exhaustive overview and analysis of research on gender and science carried out at the European, national and regional levels, to make the study results accessible to researchers and policymakers via an informed bibliography (online database) and a set of reports, and finally, to steer policymaking on gender and science and define future research priorities within the framework programme, in particular through examples of good practice and gap analysis in the various research topics.

Gender equality plans as a catalyst for change

This [report](#), published by the Standing Working Group on Gender Research and Innovation Task Force on Gender Equality Plans, discusses the policy instrument of GEPs and presents the main findings of a survey carried out by the Standing Working Group on Gender Research and Innovation to evaluate the adoption of GEPs by Member States and associated countries and to identify the needs and challenges related to the implementation of GEPs at the national level.

One of the first steps to take when defining your policy/project/programme is to gather information and analyse the situation of women and men in the respective policy area. The information and data you collect will give you an understanding of the reality of the situation and assist you in designing your policy, programme or project. Specific methods that can be used in this phase are gender analysis and gender impact assessment.

4.3. Examples of gender analysis

Gendered Innovations: How gender analysis contributes to research

This [publication](#) uses case studies as concrete illustrations of how gender analysis leads to new ideas and excellence in research in several fields, such as health and medicine, environment and climate change, food and nutrition, transport and technological development.

Gendered Innovations 2: How inclusive analysis contributes to research and innovation

This is an [update](#) of the publication from 2013 and it presents the results of the expert group. The focus is more on an inclusive and intersectional analysis. The report provides interdisciplinary case studies displaying how to integrate the gender dimension into various fields of R & I, along with concrete policy recommendations and guidance for the Horizon Europe framework programme.

IGAR TOOL: Recommendations for Integrating Gender Analysis into Research

This [website](#) offers manuals/tools to support organisations that fund or perform research, researchers and peer reviewers/evaluators by integrating sex and gender considerations into policies, programmes and projects and by raising awareness about the importance of sex and gender in R & I.

Toolkit for integrating gender-sensitive approach into research and teaching

This [toolkit](#) helps researchers to integrate the gender dimension into their research and teaching and to apply it when conceiving new projects and student curricula. It also aims to help research and teaching staff consider in what way gender is relevant for their research and curricula.

4.4. An example of gender impact assessment

Interim Evaluation: Gender equality as a crosscutting issue in Horizon 2020

This [report](#) evaluates the implementation of gender equality as a crosscutting issue in Horizon 2020 and presents possible improvements at the various stages of the implementation of Horizon 2020 from the work programme definition to the funded projects. It aims to provide a solid evidence base for designing future activities and initiatives, in particular the preparation of the *ex ante* impact assessment of the next framework programme for R & I.

4.5. Examples of stakeholders that can be consulted

European Platform of Women Scientists

The [European Platform of Women Scientists](#) is an umbrella organisation bringing together networks of women scientists and organisations committed to gender equality in research in all disciplines in Europe and the countries associated with the EU's framework programmes for research and technological development. The platform welcomes researchers working in any discipline and working in science in its widest sense, ranging from the natural to the social sciences, and including, but not restricted to, science, engineering and

technology. The European Platform of Women Scientists currently includes more than 100 member organisations and represents more than 12 000 women researchers all over Europe who are active in academia and industrial research.

UNESCO Chair on Gender Equality Policies in Science, Technology and Innovation

The [UNESCO Chair](#) aims to improve the participation of women in STI on all levels. It also promotes the integration of a sex and gender perspective into research, technology and innovation. To this end, it cooperates with universities, research organisations, private companies, etc.

GenPORT

[GenPORT](#) is a developing online community of practitioners, served by an internet portal and made up of organisations and individuals working across the globe for gender equality and excellence in science, technology or innovation.

Standing Working Group on Gender in Research and Innovation

The [Standing Working Group on Gender in Research and Innovation \(SWG GRI\)](#) under the European Research Area and Innovation Committee (ERAC) is a policy advisory committee that advises the Council of the European Union, the European Commission and Member States on policies and initiatives related to gender equality in R & I (Priority 4 of the European research area), for the benefit of scientists, research institutions, universities, businesses and society at large. SWG GRI is a successor to the [Helsinki Group on Gender in Research and Innovation](#) (1999–2017). SWG GRI provides, for example, work programmes and annual reports to the European Council and the European Commission monitoring the implementation of the gender equality priority in the ERA. The SWG GRI was disbanded at the end of 2021.

ACT CoPs ⁽⁷¹⁾

The EU-funded project [ACT](#) initiated eight Communities of Practice (CoPs) as agents to develop gender equality actions at universities, research bodies and research funding organisations in the ERA. The ACT CoPs are groups of representatives of universities, R & I institutions and research funding organisations across Europe that share an interest in advancing the implementation of the ERA gender goals.

Centre of excellence on inclusive gender equality in R & I (INSPIRE)

Within the framework of Horizon Europe, the European Commission is funding a centre of excellence that will advance the empirical research and evidence on gender equality policies in R & I organisations in Europe by building on an intersectional, intersectoral and geographic inclusive approach. It will contribute to reducing the gender equality implementation gap between Member States and consequently strengthening the ERA (no website available yet).

GENDERACTION plus

The [GENDERACTION project \(2017–2021\)](#) has developed a policy community to foster an effective and coordinated implementation of the gender equality priority in the ERA through engaging representatives appointed by national authorities in Member States and associated countries. The follow-up project starts in 2022 and will continue to support policymakers promoting gender equality in R & I. Specific attention will be paid to gender equality in research funding.

European University Association

The [European University Association \(EUA\)](#) represents more than 800 universities located in 48 European countries and is a key stakeholder influencing EU policies on higher education and R & I.

It promotes the development of a coherent system of education and research at the EU level. The EUA is committed to promoting gender equality in the framework of diversity and inclusion and facilitates the sharing of experiences and peer-learning on approaches and strategies for promoting gender equality.

League of European Research Universities

The [League of European Research Universities \(LERU\)](#) network is comprised of 23 leading European research universities and aims to promote the understanding of the importance of research-intensive universities for innovation and the progress of society at large among key decision-makers and policymakers in Europe. In this effort, LERU also emphasises the relevance of gender equality and diversity for research quality and innovation. The LERU equality, diversity and inclusion (EDI) policy group discuss (EDI policies, practices and actions to advance organisational strategies and EU policies. The EDI policy group published several LERU policy papers on EDI issues.

CESAER

[CESAER](#) is an association of leading specialised and comprehensive universities of science and technology in Europe and beyond and is an acknowledged stakeholder organisation for the ERA. It published a declaration on 'EDI at the universities of science and technology' in 2019, in which it commits itself to accelerating the momentum to foster EDI. The CESAER Task Force Human Resources will be monitoring the EDI pledges of the declaration by 2024 (<https://www.cesaer.org/>).

Science Europe

[Science Europe](#) is an association that represents major public organisations that fund or perform research in Europe. Among its 38 members are many research funding organisations. One of its

⁽⁷¹⁾ ACT is a [Horizon 2020](#) project that seeks to advance gender equality at universities, research centres and research funding organisations by facilitating collaboration between experienced institutions and less experienced ones in the implementation of GEPs.

priorities is to ensure the quality of research assessments so as to guarantee robust and fair outcomes either in research funding or hiring and promotion decisions. Another Science Europe priority is opening up the discussion on a research culture where all researchers are able to thrive, which is closely related to gender equality and inclusion.

Plan

DEFINE PLAN ACT CHECK

In this phase, it is useful to analyse budgets from a gender perspective. Gender budgeting is used to identify how budget allocations contribute to promoting gender equality. Gender budgeting brings visibility to how much public money is spent on women and men, respectively. Gender budgeting ensures that public funds are fairly distributed between women and men. It also contributes to accountability and transparency about how public funds are being spent.

4.6. Examples of gender budgeting in research

Gender Budgeting in Academia

This [working paper](#), published by the GARCIA project, discusses the collected data about gender budgeting in six academic institutions. The overall objective was to gain insight into the managerial and financial frameworks of different European academic institutions and to analyse the budgetary process in the fields of STEM and social sciences and humanities.

ACT GenBUDGET

The [ACT Community of Practice GenBUDGET](#) aims to share knowledge and experiences on the approach of gender budgeting. The site provides various types of resources concerning gender budgeting.

4.7. Examples of indicators for monitoring gender and research

She Figures Handbook (2021)

The [She Figures Handbook](#) provides input on the indicators used for *She Figures 2021*. The current version of the handbook aims to strengthen the ability of other stakeholders to generate meaningful, systematic data on gender dimensions in R & I.

ERA Progress Report 2018

In this [report](#), the ERA monitors and assesses the recent progress in the ERA implementation process made towards achieving six ERA priorities. Priority 4 focuses on gender equality and gender mainstreaming in research. The headline indicator identified by ERAC ⁽⁷²⁾ for Priority 4 is the share of women in Grade A research positions in the HES, as a percentage of all such research positions. Further, the two indicators 'gender dimension in research content' and 'share of female PhD graduates' also assess the progress.

The indicator 'share of women researchers (by sectors of performance)' is calculated as the percentage of women researchers out of the total number of researchers. It can be calculated as a percentage of the total researchers in all sectors or disaggregated by sector: BES; GOV; HES; PNP. This indicator provides a means of measuring gender imbalances in research. The indicator is available in HC, (i.e. people employed), and in FTEs. The latest figures are from 2021, when 32.8 % of researchers in all sectors were women. The indicator is available from Eurostat's statistics on research and development – R & D personnel at the national and regional levels (online data code: rd_p_femres; http://ec.europa.eu/eurostat/data/database?node_code=rd_p_femres).

The indicator 'proportion of women researchers in the sectors of performance (by fields of science)' is calculated as the percentage of women researchers out of the total researchers in each sector of

(72) ERAC is the EU's strategic policy advisory committee on topics related to R & I within the ERA.

performance (BES, GOV, HES, PNP) and in different field of sciences (natural sciences, engineering and technology, medical and health sciences, agricultural sciences, social sciences and humanities). The indicators provide a means of measuring gender imbalances in the field of research and can be calculated using the number of women and total HC, derived from Eurostat statistics on research and development – R & D personnel at the national and regional levels (online data code: rd_p_perssci; http://ec.europa.eu/eurostat/data/database?node_code=rd_p_perssci).

The indicator ‘proportion of women in Grade A academic position’ is calculated as a percentage of women in a Grade A academic position out of the total members of academic staff at Grade A. Grade A is the single highest grade/post at which a researcher is normally employed. The statistics on the seniority of academic staff are collected at the national level through higher education and R & D surveys or directly from higher education institutions as part of their own monitoring systems and administrative records. This indicator is included in the set of indicators for monitoring Area B of the Beijing Platform for Action – education and training of women⁽⁷³⁾. Data are available from the WiS database, which was implemented for the realisation of the *She Figures* reports by the Directorate-General for Research and Innovation and is updated triennially with every new edition of *She Figures*. The latest available data are from 2018 and show that women represent only 26.2 % of academic staff at Grade A.

4.8. Examples of gender and research funding

The Gender Dimension in Research and Innovation: Results from a global survey on research funding organisations

This report provides information on how research funding organisations deal with gender in the research they fund. The study was able to examine patterns in how research funding organisations work and which challenges occur.

Practical guide to improving gender equality in research organisations

This guide presents good practice examples and explains how to further develop context-specific approaches, including how to handle and prevent unconscious bias in peer review processes, how to monitor gender equality and how to improve grant management practises.

Promoting Gender Equality in the Evaluation Process: Guideline for jury members, reviewers and research funding organizations’ employees

This guideline, published by Gender Equality in Engineering through Communication and Commitment, is for research funding organisation employees and evaluators of research proposals (peer reviewers and members of evaluation committees and panels) to support them by promoting gender equality in the evaluation process. Practical recommendations for the evaluation of proposals are given, along with recommendations on how to increase diversity awareness.

The Gender Challenge in Research Funding: Assessing the European national scenes

This report focuses on research funding across Europe, mainly, but not exclusively, from a gender perspective. It is the result of the work of an EU expert group set up by the European Commission to provide recommendations on the improvement of transparency and accountability of procedures used in selection committees for grants and fellowship awards and access to research funding in general. The report analyses the gender dynamics among applicants, recipients and gatekeepers of research funding, in funding processes, instruments and criteria, and the role of key funding organisations in promoting gender equality in research. An overview of the national situations in terms of research landscape and gender settings is annexed to the report.

⁽⁷³⁾ <http://eige.europa.eu/gender-statistics/women-and-men-in-the-eu-facts-and-figures/area/22/indicator/64>

4.9. Examples of diversity/intersectionality

Equality, Diversity and Inclusion at Universities: The power of a systemic approach

In this [paper](#), the LERU universities give an overview of the principles of EDI, along with relevant research evidence on that topic. It also presents some inspiring and practical examples of actions.

Diversity, equity and inclusion in European higher education institutions

This [report](#) contains evidence on how universities can promote diversity, equality and inclusion. On the basis of a survey and in-depth conversations with EUA members about their practices and challenges, it paints a quantitative picture of how universities are tackling the issue.

Equality, Diversity and Inclusion in Research and Innovation: International review

Advance HE examined [the challenges of EDI in R & I](#) on behalf of the United Kingdom Research and Innovation funding agency. In order to understand what works in a range of R & I contexts (e.g. research funding, policy, employment and doctoral studies), an evaluation framework was applied to a total of 109 sources covering 130 interventions. An evaluation framework was developed that focuses primarily on 'mapping' the range of activities related to different contexts and identities, and using evaluation methods to understand the impact or outcomes of these activities.

Act

DEFINE PLAN ACT CHECK

In the implementation phase of a policy or programme, ensure that all those involved are sufficiently aware about the relevant gender objectives and plans. If not, set up briefings and capacity-building initiatives according to staff needs. Think

about researchers, proposal evaluators, monitoring and evaluation experts, scientific officers, programme committee members, etc.

4.10. Examples of capacity-building initiatives on gender and research

[GE Academy](#) offers seven freely accessible online courses related to the topics recommended by the European Commission to build a GEP, along with an additional course on gendered innovations in sustainable housing design. The individual courses are dedicated to introductory concepts, gender in research and teaching content, gender-based violence, gender equality in recruitment and career progression, gender balance in leadership and decision-making, work-life balance and organisational culture and designing and implementing GEPs.

[The GENDERACTION project](#), funded by Horizon Europe, provided training events to build consistent and professional capacity in gender equality in R & I among responsible national representatives and Horizon 2020 national contact points, along with mutual learning workshops, which can be accessed online.

[ACT](#) is a Horizon 2020 project, which created and supported collaboration between experienced institutions in the implementation of GEPs with less experienced ones. International networks of CoPs were established in order to develop gender equality actions at research-performing and research-funding organisations in the ERA. The CoPs targeted three typical problems: gender bias in human resource management, gender imbalances in decision-making processes and integrating the gender dimension more into R & I content and higher education curricula (<https://act-on-gender.eu/communities-practice>).

[Gender in EU-funded research](#) is a training programme that was financed under FP7 by the European Commission, delivering 73 one-day training sessions across the EU on gender in EU-funded research. A toolkit and training activities are available on the website.

4.11. Examples of gender language in research

The use of language and concepts can determine the direction of scientific practice, the questions asked, the results obtained and the interpretations of those results.

Toolkit on Gender-sensitive Communication

EIGE provides a [toolkit for gender-sensitive communication](#). Besides general information on a gender-sensitive approach and how to overcome known challenges, there is the possibility to test your knowledge and draw on various tools.

Tailor-made guides for gender-sensitive communication in research and academia

The 'Supporting the promotion of equality in research and academia' project created guidelines for a gender-sensitive communication in research and academia culture. It aims to increase awareness of gender-sensitive approaches and language use. The guidelines offer support with the adoption of gender-sensitive communication in research organisations.

4.12. Examples of measures against gender-based violence and sexual harassment

Mobilising to eradicate gender-based violence and sexual harassment: A new impetus for gender equality in the European research area

This [paper](#), published by the European Research Area and Innovation Committee, aims to unite all involved stakeholders to fight gender-based violence and sexual harassment. It also offers various recommendations for different types of stakeholders.

UniSAFE

UniSAFE is a Horizon 2020 funded project and addresses gender-based violence and sexual harassment within universities and research organisations. It will provide reliable quantitative and qualitative data in order to improve knowledge about the problem and develop and improve policies to eradicate gender-based violence in research and academia.

4.13. Examples of dealing with COVID-19

Position paper on the current COVID-19 outbreak and gendered impacts on researchers and teachers

The SWG GRI published a [paper](#) regarding the impacts of COVID-19 on gender relations in research and academia. It also presents inspiring practices that arose due to the COVID-19 pandemic and formulates recommendations.

Check

DEFINE PLAN ACT CHECK

A policy cycle or programme should be checked both by monitoring and – at the end – evaluating its implementation. Monitoring ongoing work allows those involved to follow up progress and remedy unforeseen difficulties. This process should take into account the indicators set out in the planning phase and data collection based on those indicators. At the end of a policy cycle or programme, a gender-sensitive evaluation should take place. Make your evaluation publicly accessible and strategically disseminate its results to promote its learning potential.

4.14. Examples of monitoring and evaluating gender in research

Interim Evaluation: Gender equality as a crosscutting issue in Horizon 2020

This [report](#) aims to identify possible improvements in the implementation of gender equality as a crosscutting issue in Horizon 2020.

EFFORTI Toolbox V 2.0

The [‘Evaluation framework for promoting gender equality in R & I’ \(EFFORTI\) project](#) evaluates gender equality policies and determines the links between approaches aiming to foster gender equality. The toolbox provides, for example, information on impact models, a tool to design a programme theory and a collection of reports about the evaluation.

A conceptual evaluation framework for promoting gender equality in research and innovation

This [report](#) provides the analytical background for EFFORTI, including the methodological approach, smart practice examples and the theories of change that form the basis of the analytical framework. Especially useful is the comprehensive list of collected promising indicators to measure gender equality (pp. 57–64).

Indicators for promoting and monitoring responsible research and innovation

Early in 2014, the European Commission appointed an expert group to identify and propose indicators and other effective means to monitor and assess the impacts of responsible research and innovation (RRI) initiatives and evaluate their performance in relation to general and specific RRI objectives. This [report](#) presents the results of the work of the expert group. It

contains three parts: a conceptual introduction of RRI, a detailed review of possible indicators in eight key areas for RRI policy and a number of concrete proposals for indicator design and implementation. One of the eight key areas is gender equality.

Monitoring the evolution and benefits of responsible research and innovation

[‘Monitoring the evolution and benefits of responsible research and innovation’](#) was a project that implemented a monitoring system for RRI across five different dimensions, including gender equality. This monitoring report provides the results of monitoring the evaluation of RRI, along with a rich set of RRI indicators. For each indicator, explanations and an assessment are presented in the annex.

4.15. Examples of national legal and policy frameworks for gender mainstreaming in research

The following section describes legal and policy frameworks promoting gender equality in R & I in selected EU Member States and Switzerland. These countries represent strong legal and policy frameworks and therefore show a high commitment towards promoting gender equality in R & I but have slightly different approaches. Other Member States, like France, Austria, Sweden and Finland have strong legal and policy frameworks in place but have not been included in this chapter. The EIGE [GEAR tool](#) provides detailed descriptions of national legal and policy frameworks on gender equality in R & I for each Member State.

Denmark

In the GENDERACTION report, Denmark scored high in the EIGE gender equality index, and in

innovation performance and research excellence indicators⁽⁷⁴⁾, providing evidence that higher levels of gender equality positively correlate with innovation performance and research excellence. The Gender Equality Act, in place since 2000, stipulates that all public authorities (including universities and other research organisations) shall seek to promote gender equality in all planning and administration. All public institutions are required to report on the status of gender equality work to the Department of Gender Equality: (1) the gender composition in the highest management body (the board) and all employee categories, (2) whether the institution set specific targets for the under-represented sex on their boards and other collective management bodies and if so, the nature of these and a time period in which the university expects to achieve these targets, and (3) other conditions that may affect the institution's gender equality initiatives. Gender equality is defined in the legislation as no less than a 60/40 % divide between men and women. The Innovation Fund Denmark started four initiatives to achieve gender balance among its applicants: (1) appointing role models to inspire other women to apply, (2) adjusting application requirements to include gender perspectives, (3) focusing on gender diversity among candidates for panels and awards and (4) including gender diversity in the overall strategy of the Innovation Fund Denmark.

Germany

Germany has a thorough and tightly knit legal and policy framework promoting gender equality in R & I that connects different stakeholders and policy levels (regional and national). The [Joint Science Conference](#) provides a framework for federal and state governments to support gender equality in jointly funded research organisations and initiatives and monitors the progress towards gender equality in public research in Germany. The Pact for Research and Innovation aims to increase the competitiveness of public research organisations in Germany and established concrete targets for advancing gender equality in

these organisations. Furthermore, the federal programme for women professors follows a two-fold approach. Organisations which implement comprehensive gender equality strategies receive funds for up to three professorships for women for 5 years. Additionally, the Federal Ministry of Education and Research operates the National Pact for Women in STEM Careers that aims to promote the participation of women in STEM professions by intervening at different levels and career stages. The [German Research Foundation \(DFG\)](#) established research-oriented standards on gender equality and DFG member organisations set up gender equality concepts to comply with these standards. Following the example of Horizon 2020 and Horizon Europe, the DFG also requires applicants to state how they will implement a sex and gender dimension into their research proposals.

Ireland

In 2016, the Irish Higher Education Authority published the results of the *National review of gender equality in Irish higher education institutions*, which stipulated the slow progress towards gender equality in Irish higher education institutions (HEIs). Since then, a comprehensive policy framework has been developed to promote gender equality. At its heart is the [National Gender Action Plan 2018–2020](#), which required all HEIs to apply for an Athena Swan Institutional Bronze Award by 2019. This was backed by the three main research funding bodies in Ireland that announced that Irish HEIs need to have an Athena Swan Bronze Award until 2019 and a Silver Award until the end of 2023 to be eligible for funding. Furthermore, HEIs were supported in their efforts to develop GEPs and strategies by a newly established Centre of Excellence for Gender Equality. To support the HES to engage in intersectionality work, the national [Athena SWAN Ireland Intersectionality Working Group](#) was founded in 2019 to develop an approach to collect data on staff and student ethnicity, which resulted in a guidance document on the rationale for collecting data on ethnicity and on how to deal with the complexities of data categorisation.

(74) Wroblewski, A. (2020), *Report on Monitoring of ERA Priority 4 Implementation* (https://genderaction.eu/wp-content/uploads/2020/06/D3.2_MonitoringERApriority4implementation.pdf).

Netherlands

The Dutch Ministry of Education, Culture and Science released a NAP for greater diversity and inclusion in higher education and research in 2020. This plan was signed by the main stakeholders of the Dutch R & I system and formulated five concrete goals until 2025. A National Advisory Committee will advise the ministry on how to ensure goal attainment and monitor progress. In 2017, the Ministry of Education, Culture and Science started the Westerdijk Talent Impuls initiative, which aimed at increasing the share of women professors by providing additional funds for the appointment of 100 women professors under the condition that these positions should become permanent positions. In 2018, the 100 new women professors were appointed. This increased the annual average growth rate of the number of women at Dutch universities, but since 2018, the growth rate has decreased again, which indicates that specific additional actions are needed to increase the share of women professors at a higher pace. A similar approach was applied by the Eindhoven University of Technology, which started a special recruitment programme aiming at exclusively hiring women for a predefined period. The Dutch Research Council is also promoting gender equality within its portfolio and aims to establish fair and transparent evaluation procedures.

Spain

Spain has developed a thorough legal and policy framework for gender equality in higher education, science and research, which, for instance,

requires public organisations and companies with more than 50 employees, including universities and public research organisations, to adopt GEPs and to establish organisational units for their implementation. In addition, quotas for gender-balanced panels, advisory boards and committees in R & I were introduced, and R & I organisations were asked to revise their selection and evaluation procedures for recruitment, promotion and research funding decisions and to promote the integration of the sex and gender dimension into research projects and programmes. The Women, Science and Innovation Observatory is supporting and monitoring the implementation of these policy objectives.

Switzerland

Switzerland is among the countries with the most extensive requirements for GEPs. Since 2000, the Swiss federal government strives to raise the share of women full and associate professors to 25 % and those of women assistant professors to 40 % with a programme called Equal Opportunity at Swiss Universities. The progress towards these goals and the implementation of the programme activities are monitored on a yearly basis. Additionally, the [Swiss National Science Foundation](#) is highly committed to promoting gender equality in research funding through different measures and specific research funds. These measures aim at facilitating equal opportunities for women and men, for instance through specific funding schemes supporting the careers of women researchers or grants covering costs for mentoring programmes for young women researchers.

5. Want to know more?

FP5: Gender watch system. Aimed at achieving a 40 % representation of women on panels and in advisory groups, collecting sex-disaggregated data, encouraging gender research within the framework programmes and conducting gender impact assessment studies on FP5.

European Commission communication on 'Women and science: Mobilising women to enrich European research'. Formalisation of the Commission's commitment to advance gender equality in research.

Creation of Helsinki Group on Gender in Research and Innovation. The group was established to promote equality between women and men in R & I and to embed the gender dimension in science, R & I content and programmes. The group is co-chaired by the European Commission and the Member State holding the EU presidency. The Helsinki Group on Gender in R & I works closely with the European Research Area and Innovation Committee, the committee responsible for monitoring the development of the ERA.

Lisbon strategy objective. Aims to make Europe the most competitive and knowledge-based economy in the world, capable of sustainable economic growth with more and better jobs and greater social cohesion. To this end, women should represent at least 25 % of positions in the public research sector by 2015, so as to ensure a better representation of women in decision-making bodies.

Delivery of the ETAN report. Described the current situation of women scientists in universities, research institutes and academies and pointed to the scarce information available for women in the industry.

FP6. Gender mainstreaming was formally integrated into the framework programme. Gender monitoring studies were planned and implemented so that the results could feed into the next framework programme. Gender action plans were made mandatory for networks of excellence and integrated projects.

1998

1999

1999

2000

2000

2002

2013

2010

2008

2008

2005

2005

Launch of Horizon 2020. EU framework programme for R & I for 2014–2020 – the most comprehensive EU R & I programme ever, with nearly EUR 80 billion of funding made available over 7 years. In accordance with the ERA, the programme presented three key objectives on gender equality: gender equality in scientific careers at all levels, gender balance in decision-making and in research teams at all levels, and the inclusion of the gender dimension in research and in innovation content.

Europa 2020 presents its flagship initiatives for the improvement of framework conditions and access to finance for R & I, in order to secure Europe's global competitiveness.

Council conclusions on family friendly scientific careers. Invited the Commission and Member States to develop an integrated model of scientific careers based on an appropriate policy mix, ensuring a family-friendly environment for researchers.

European Parliament resolution on women and science.

FP7: gender mainstreaming was formally integrated into the framework programme. FP7 aimed to increase women's representation in science and promote gender research. Funding was also made available for structural change projects in favour of gender equality in institutions.

Council conclusions on reinforcing human resources in science and technology in the ERA. Invited Member States to formulate targets for the participation of women, in particular by significantly increasing the number of women in leading positions, with the initial aim of reaching the goal of 25 % in the public sector and boosting women's participation in industrial research and technology.

High-level international conference 'Structural Change Promoting Gender Equality in Research Organisations'. Organised under the auspices of the Lithuanian Presidency of the EU, with the financial support of the European Commission (21 and 22 November 2013).

Council conclusions on advancing gender equality in the European research area.

European Parliament resolution on progress on equality between women and men in the EU in 2013.

The Parliament called on the Commission and the Member States to implement proactive policies to encourage women to embrace careers in science and to promote, through information and awareness-raising campaigns in particular, entry by women into sectors traditionally viewed as 'male', notably the sciences and new technologies, with a view to benefitting fully from the human capital represented by European women.

The European Parliament resolution on women's careers in science and universities, and glass ceilings encountered.

The GEAR Tool is initiated by EIGE and the Directorate-General for Research and Innovation.

ERC specifically introduces a set of measures against gender bias. These measures include training about gender bias for all programme officers, management and the ERC Scientific Council.

The **Standing Working Group on Gender in Research and Innovation (ERAC SWG GRI)** starts advising the Council and the European Commission on policies and initiatives on gender equality in R & I.

GENDER-NET Plus ERA-NET Cofund. Transnational consortium to support gender equality.

She Figures.



6. Current policy priorities at the EU level

The overarching policy priorities of the EU policy for research are clearly identified in the European Commission's 2020 policy communication on the new ERA for research and innovation⁽⁷⁵⁾, which responds to new circumstances and challenges for European research. To this end, these new priorities were set:

- prioritising investments and reforms in R & I;
- boosting market uptake;
- strengthening mobility of researchers and free flow of knowledge and technology;
- improving access to excellence.
- strategy to counteract gender-based violence including sexual harassment in the European R & I system and assuring gender-equal and inclusive working environments through institutional change in any research funding or performing organisation;
- a policy approach to inclusive gender equality that addresses gender mainstreaming and opening to intersectionality with other diversity dimensions to advance the new ERA;
- development of principles for the integration and evaluation of the gender dimension in R & I content in cooperation with national research funding organisations.

On 16 July 2021, the European Commission adopted a proposal for a Council recommendation on 'A Pact for Research and Innovation in Europe'. The pact proposal defines priority areas for joint action in support of the ERA, sets targets for investment and reform, and aims to simplify the policy coordination and monitoring process at the EU and Member State level with an ERA platform. To ensure impact and sustainability, the engagement of R & I stakeholders is intended by the pact.

The European Commission detailed the concrete but voluntary ERA actions for 2022–2024, promoting the priority areas in the *European Research Area Policy Agenda*⁽⁷⁶⁾. Action 5, under the priority area 'Deepening a truly functioning internal market for knowledge', aims at promoting gender equality and fostering inclusiveness, taking note of the Ljubljana declaration. The following outcomes are expected:

- development of a policy coordination mechanism to support all aspects of gender equality through inclusive GEPs and policies, and a dedicated EU network on their implementation;

Horizon Europe follows after Horizon 2020 as the biggest EU R & I programme ever. It promises more breakthroughs, discoveries and world firsts by taking great ideas from the lab to the market, in order to boost economic growth and create jobs. The framework programme (2021–2027) lays out three priorities:

- fuel the EU's scientific and technological excellence and strengthen the ERA;
- tackle policy priorities, including green and digital transitions and SDGs;
- boost Europe's innovation uptake, competitiveness and jobs.

By coupling R & I, Horizon Europe is helping to achieve economic growth and job creation through these three priorities. The goal is to ensure that Europe produces world-class science, removes barriers to innovation and makes it easier for the public and private sectors to work together in delivering innovation.

⁽⁷⁵⁾ European Commission (2020), Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions – 'A new ERA for research and innovation', SWD(2020) 214 final (<https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52020DC0628>).

⁽⁷⁶⁾ European Commission (2021), *European Research Area Policy Agenda: Overview of actions for the period 2022–2024*, (https://ec.europa.eu/info/sites/default/files/research_and_innovation/strategy_on_research_and_innovation/documents/ec_rtd_era-policy-agenda-2021.pdf).

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Other resources

European Commission (2011), *Structural change in research institutions: Enhancing excellence, gender equality and efficiency in research and innovation*. This report from the Expert Group on Structural Change set up by the Commission contains key recommendations for actions by the European Commission, Europe-wide organisations, Member States, R & I funding bodies, journal editorial boards, universities and scientific institutions (<https://op.europa.eu/en/publication-detail/-/publication/dff78961-40a9-41cd-940a-a4a5afa8ed5f>).

European Commission (2007), *Remuneration of Researchers in the Public and Private Sectors*. The study collected information on the gross and net remunerations of researchers in the public and

private commercial sectors. It was the first attempt to gain insight into the profession of researchers. The study also discusses researchers' career recognition (<https://op.europa.eu/en/publication-detail/-/publication/65f05d57-f5dd-41fc-bd80-4b895667783d>).

European Commission (2005), *The European charter for researchers – The code of conduct for the recruitment of researchers* (<https://op.europa.eu/en/publication-detail/-/publication/c83acbb9-962a-11e9-9369-01aa75ed71a1>).

European Commission (2021), 'Factsheet on GEPs in Horizon Europe'

This factsheet answers frequently asked questions about the implementation of GEPs (https://ec.europa.eu/info/sites/default/files/research_and_innovation/strategy_on_research_and_innovation/documents/ec_rtd_gep-faqs.pdf).

Gender in Research Toolkit

Lessons learned from the monitoring studies conducted during FP6 showed that the integration of gender aspects into research content was hampered in two ways: the concept was not well understood and this lack of clarity meant it was sometimes difficult to identify practical ways to address the gender dimension in research. To address this problem, a Gender in Research Toolkit was developed under FP7 to build gender capacity within the scientific research community. The toolkit comprises a module introducing the subject, along with nine separate modules dedicated to specific scientific fields and a checklist (<http://www.yellowwindow.be/en/home>).

Gendered Innovations website

This website suggests practical methods of sex and gender analysis for scientists and engineers and provides case studies as concrete illustrations of how sex and gender analysis leads to innovation (<https://genderedinnovations.stanford.edu/>).

Guidelines for gender equality programmes in science

These guidelines are the result of the 21-month 'Practising gender equality in science' project, which aimed to address the under-representation of women in high-profile positions in scientific and technological research. The 200+ page publication provides a range of information, including strategies and recommendations for change (http://www.genderportal.eu/sites/default/files/resource_pool/prages-guidelines_en.pdf).

Gender Balance in Research – Norway

An online information source for people working to improve gender balance in the research sector and for anyone interested in the issue of gender equality in science (<http://genderedinnovations.stanford.edu/Norway2014Policy.pdf>).

The Gender Challenge in Research Funding

The Gender and Excellence Expert Group (comprising 16 specialists) was established by the European Commission to provide recommendations on ways to improve transparency in the procedures used in research funding, particularly regarding the gender challenge in funding across Europe. The report details the group's analysis of the gender dynamics among applicants, recipients and gatekeepers involved in research funding, processes, instruments and criteria in 33 countries, including 27 EU Member States and six associated countries (<https://op.europa.eu/en/publication-detail/-/publication/7563801d-0f8d-4d9a-baec-73e9ff0cf921>).

GenPORT

An online portal on gender (in) research and for gender in the science community. It aims to become the single point from which to browse, search and access the highest-quality resources on gender and science issues and to offer support for users who seek advice and want to advance their understanding of gender issues in science (<http://www.genderportal.eu/>).

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