



## POLICY BRIEF 3

### Evidence and recommendations for Physics institutions to implement and monitor Gender Equality Plans

This policy brief is intended to inform and improve the development, implementation, and evaluation of downstream gender equality interventions and especially gender equality plans (GEPs) in physics institutions (including research producing and funding organizations). Relevant intended actors are implementation managers, gender equality officers (elected or appointed), diversity taskforces or councils, and HR / diversity officers. As important instigator and funder of GEP implementation, the European Commission (through its Framework Programmes), national physics organizations and/or broader science organizations are also the intended audience for this policy brief.

#### Key messages

- Working within the context of Physics, the GENERA project has circumvented problems that are common to GEP implementation by institutions when conducted in isolation from others, through processes that differ widely in terms of their scope and effectiveness, and often without a proper assessment of gender equality needs and priorities, or the necessary monitoring and evaluation. GENERA's disciplinary focus brought not only recognition and comparability, but also a shared belief in data, measurement, and an experimental approach.
- On the basis of this shared conviction, one of the main strengths of the GENERA project was the development (through an intensive iterative process) of the specifications of a so-called "minimal dataset" (MDS) that physics institutions can use to track gender representation and progress on several comparable indicators across local and national settings. These data currently cannot be found in the She Figures (Europe's go-to statistical source) because information there is: a) not provided on a disciplinary level, and b) is restricted to indicators that can apply to the majority (if not all) of EU countries.
- The role of the evaluation partner in GENERA was transformed into a 'critical friend', realized operationally through ex-ante and ex-post interviews with managers and leaders in the partner institutions. Reflections from the interviews were combined with the data collected elsewhere throughout the project by the evaluation partner to produce a monitoring tool (not anticipated in the deliverables), the Monitoring Tree, which organizations can use to monitor progress made in implementing gender equality policy measures.
- GENERA's aim was to create GEPs that can be adapted to the needs of different organizations but at the same time could promote systematic and systemic improvements. Key to identifying what was needed were the interviews with 83 physics researchers (women and men) from the partner organizations as well as senior leadership and HR staff. This led to a growing understanding and reconciliation of top and bottom expectations of GEP design and implementation in physics organizations.
- The work done in GENERA will be shared, expanded and improved through the GENERA Network, one of the project outputs. The purpose of the Network is to act as a channel for sharing knowledge and experience as well as best practices in implementing GEPs. The practical opportunity to do this is the Horizon 2020 funded project ACT in which three of the GENERA partners are also involved. The purpose of ACT is to develop Communities of Practice for gender equality in research and innovation and the GENERA Network is included as one target for transformation into such a community.



## The GENERA protocol “Physics best for all”

Based on several brainstorming and argumentation mapping sessions, the GENERA partners jointly developed “Physics best for all” protocol of predefined procedural method for improving gender equality in physics organizations (in the same vein as the protocols for conducting scientific experiments). This protocol, aimed at institute directors and senior HR, serves as an umbrella under which to develop local, customized GEPs and actions.

### GENERA Protocol for improving gender equality in Physics:

- Gender Equality Plan (GEP)-driven
- Systemic change using a transformative approach
- Data-driven, evidence based
- Addressing notions of excellence
- Promoting inclusion and belonging

## Recommendations

Based on GENERA experience in designing and implementing GEPs in eleven physics organizations, reflecting on the experiences of the implementation managers (IMs), observers, evaluators, and experts, and taking into account the very different nature of the physics institutions in which many operate, the project offers the following recommendations for improving the GEP approach to promoting gender equality. These recommendations (based on the identified gaps in GEPS) are particularly relevant for physics organizations, but more generally could be adapted to institutions in other STEM fields in which women are severely underrepresented at all career levels.

- **IMs** should be skilled in forging **organizational change**, dealing with resistance, and building support networks to ease their burden. If hiring IMs specifically for this role, project funding should be earmarked and capacity building should be incorporated for skill development.
- As a particular point of attention, IM should be trained in **gender issues** as fitting with the European Commission prioritization of gender in research careers, in decision making bodies and in the content of research and teaching.
- Provisions should be built into calls for proposals for the position of **IMs beyond the direct scope of the project**. If IM positions and contracts are directly tied to project income, this puts them in a precarious position within the institution, and generates issues of continuity and sustainability beyond the project lifetime in terms of gender equality policies and progress tracking.
- **Experts** have relevant knowledge and experiences in promoting gender equality in research organizations above and beyond projects. For future calls for proposals, infrastructure and/or financial support should be built-in to effectively **broker** this expertise among project partners.
- **Instructions for internal evaluators** should be clearer on the task of measuring progress in terms of gender equality, and/or gender equality plans, and/or project management.



- **Symbolic change** is important, next to meeting project deadlines and tracking representation. A well-visited gender in physics day, an exciting video from a school competition, or the signing of a GEP by institute directors need to be celebrated.
- Call for proposals should clarify the unique role of **observers** and should allow the reservation of funds for travel etc. for observers to participate in project events. If observers cannot take on a full partner role because of legal or budget constraints, or if observers want to join the project while it is already running, this lack of funding and clarity limits the potential seeding and community building inherent in the collaborative, cross-national approach of GEPs.
- Most GEP projects develop ways to track and quantify **career progress** of women (and other minorities) in their institutions and/or disciplines, from entry-level students to senior levels. These efforts have rarely been held against guidelines developed for measuring progress in research careers and often do not go beyond representation (in %) at different career stages. We therefore recommend the utilization and further development of the **GENERA Minimal Dataset (MDS)** and a **career progress indicator** to longitudinally collect and compare career data within and across institutional, disciplinary, and national borders.
- **Mobility** is a career expectation and even signal for excellence, but also problematic for physicists (women and men) because of care responsibilities and dual career concerns. While single institutions can do more to support mobility of their (future, former, and current) graduates and employees, an international network of physics organizations can **support intra-organizational mobility** in a more efficient and more visible way.
- GENERA prioritized unconscious or implicit “**bias training**” as its number one gender equality measure in terms of quality, feasibility, and fit in physics institutions during its first stakeholder workshop<sup>1</sup>. Mitigating gender bias in performance evaluation is a diversity intervention that aims to fix the system, uncover meritocracy discourses and bend stereotypically masculine norms dominant in research organizations. At the same time, research shows that only raising bias awareness may result in resistance, denial, and anger. It is therefore crucial to take into account **evidence-based design specifications** for effective bias interventions.<sup>2</sup>

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<sup>1</sup> See GENERA D6.2 stakeholder workshops report ,on prioritizing gender equality measures

<sup>2</sup> EHRC 2018, Unconscious bias training: an assessment of the evidence for effectiveness;

<https://www.equalityhumanrights.com/en/publication-download/unconscious-bias-training-assessment-evidence-effectiveness>

LERU 2018, Implicit bias in academia; <https://www.leru.org/files/implicit-bias-in-academia-full-paper.pdf>

Devine, P. G., Forscher, P. S., Cox, W. T. L., Kaatz, A., Sheridan, J., & Carnes, M. (2017). A gender bias habit-breaking intervention led to increased hiring of female faculty in STEMM departments. *Journal of Experimental Social Psychology*, *73*, 211-215.

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## NOTES<sup>3</sup>

*According to Nielsen (2018), few studies have systematically evaluated the effectiveness of different types of gender equality policies and measures in promoting gender equality in research organizations. Furthermore, the field is fragmented in terms of theoretical frameworks and evaluation standards (Müller, 2011). Examples of such evaluation studies are Nielsen, 2018 on Scandinavian countries, Timmers, 2010 on the Netherlands, and Zippel, 2015 on Germany. Taken together, these studies suggest several important conditions to be met for GEPs to be effective, from support from senior leadership; adaptability to institutional, disciplinary and national gender equality and equal opportunity structures; monitoring of progress on multiple indicators beyond representation; to building a community of practice to share and build knowledge and expertise beyond the lifetime of the funding of GEP projects.*

This policy brief is the output from GENERA - Gender Equality Network in the European Research Area - a project funded by the European Commission under GERI-4-2014 01 September 2015 - 31 August 2018 grant agreement 665637. GENERA's main goal has been to implement gender equality plans in physics.

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<sup>3</sup> Müller, J., Castaño, C., González, A., & Palmen, R. (2011). Policy towards gender equality in science and research. *Brussels economic review*, 54(2/3), 295-316.

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