



Developing a Gender Diversity Index for research teams in science and technology

What is Gender Diversity?

Gender is a social construct, meaning it comes into effect through social practices which establish – presumably natural – differences between two sexes¹. Gender diversity examines the entanglement of gender with different social markers. We distinguish three layers of gender diversity: demographic, functional, and cognitive²⁻⁵.



Why do we measure gender diversity?

Research is a social process. Researchers collaborate with colleagues and enter the scientific discourse through referring to other researchers' work and expanding on new ideas and insights. Up to now, the empirical evidence is inconclusive on whether or not a diverse working team improves research output^{6,7}. To shed further light on this issue, the GEDII project examines the relationship between gender diversity and research performance in teams, using a specially designed composite measure⁸ that summarises gendered processes within teams: the Gender Diversity Index⁹.

How to measure gender diversity?

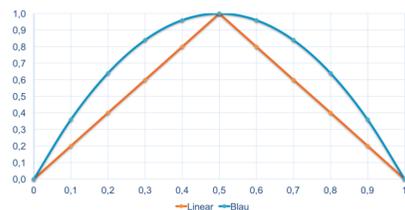
Gender diversity is a multifaceted phenomenon. In order to put its complexity into one composite indicator we look at representation and attrition.



Representation

We consider any kind of gender gap as detrimental, regardless of whether it is women or men that are disadvantaged. To measure representation, we use a metric that is bound between 0 and 1, where 1 is obtained when there is parity (exactly 50% of women and 50% of men).

$$\alpha_{ijt} = 2 \times \left(1 - \sum_{s=1}^n P_{sijt}^2 \right)$$



The main advantage of this measure is that it is not linear. The graph shows that where representation is close to parity, results will be close to 1. This recognises that teams which meet the threshold of 40% of the under-represented sex as near gender equality.

Attrition

The attrition measure can compare, for instance, the situation at senior level with the one at the levels below.

$$\delta_{ijt} = \begin{cases} \frac{x_{2ijt}^w}{x_{1ijt}^w} & \text{if } x_{2ijt}^w < x_{2ijt}^m \text{ and } x_{2ijt}^w < x_{1ijt}^w \\ \frac{x_{2ijt}^m}{x_{1ijt}^m} & \text{if } x_{2ijt}^m < x_{2ijt}^w \text{ and } x_{2ijt}^m < x_{1ijt}^m \\ 1 & \text{otherwise} \end{cases}$$

This metric is designed to ensure that scores are also bound between 0 and 1. It provides information on attrition regardless of whether inequalities are on the side of women or men.



What to use the Gender Diversity Index for?

Through this measure, we aim to examine, empirically, whether greater gender diversity in teams relate to better performance and innovation. The Gender Diversity Index can also be used to create a self-assessment tool. This tool will allow research teams to obtain a score which can then be used to monitor progress over time and benchmark themselves against other teams.

More Information: <https://www.gedii.eu/>

Selected References:
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 Improving research and innovation
 through gender diversity



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