

MANAGEMENT AND PRODUCTION ENGINEERING

AMMIN - Measuring Diversity in STEM: Gender Impact Assessment of Equality Policies in STEM Universities

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Context of the research activity

This PhD project investigates how gender equality and diversity policies can be assessed within STEM higher education and research environments, with particular attention to universities characterised by strong scientific and technological specialisation. Over the last decade, the growing availability of sex-disaggregated and gender-sensitive data in academia has made it possible to move beyond descriptive monitoring and towards the ex ante and ex post evaluation of policies and programmes. In this perspective, Gender Impact Assessment (GIA) provides a structured framework to analyse whether institutional actions reduce, reproduce, or unintentionally exacerbate inequalities between women and men. However, while GIA has become increasingly relevant in public policy and higher education governance, its application to STEM settings remains comparatively underdeveloped, especially when combined with an intersectional approach able to account for multiple dimensions of diversity.

This research starts from the observation that STEM disciplines display persistent forms of horizontal and vertical segregation: women and gender minorities remain unevenly represented across fields, career stages, leadership roles, and decision-making bodies; these gaps are often compounded by other axes of inequality, such as socio-economic background, nationality, disability, migration background, and first-generation status, where data are available and ethically usable. Universities with a strong STEM orientation are therefore strategic environments in which to examine how equality policies are designed, implemented, monitored, and evaluated. The project will focus in particular on affirmative actions and institutional measures adopted to foster equal opportunities in recruitment, career progression, work-life balance, inclusive organisational culture, and students' access to and persistence in STEM pathways.

In a first phase, the project will carry out a comparative analysis of gender equality reports, gender equality plans, and related institutional documentation produced by Italian and European public universities with significant STEM profiles. The objective is to identify which indicators are used, what kinds of actions are prioritised, and to what extent current assessment practices capture discipline-specific inequalities. In a second

phase, the research will develop a more refined evaluation framework tailored to STEM universities, with Politecnico di Torino adopted as a case study. The project will combine quantitative and qualitative methods: econometric and statistical analysis of administrative and institutional data will be integrated with case study research, document analysis, and selected qualitative tools such as interviews, action research, or ethnographic observation where relevant. The overall ambition is to generate robust, policy-relevant tools for measuring the impact of gender equality interventions in STEM academia and to contribute to a broader evidence base for diversity-sensitive institutional change.

Objectives

The general objective of the project is to design and test an analytical framework for evaluating the impact of gender equality and diversity policies in STEM-oriented universities. More specifically, the research aims to assess whether institutional interventions contribute to reducing, maintaining, or increasing gender inequalities and related intersectional disparities in academic careers, organisational processes, and educational pathways. The project is grounded in the idea that the effectiveness of equality measures cannot be inferred from their formal adoption alone: it must be examined through systematic evidence on implementation, target groups, outcomes, and unintended effects.

A first objective is to map and compare existing practices of gender and diversity reporting in universities with a strong STEM component, identifying the main indicators currently used to measure inequalities in areas such as student enrolment and retention, academic recruitment, promotion, governance, research performance, access to resources, and work-life balance. A second objective is to analyse the most relevant affirmative actions and policy tools described in gender equality plans and related documents, examining their underlying assumptions, target mechanisms, and potential distributive effects. This comparative phase will make it possible to identify both methodological gaps and promising practices in current GIA applications to STEM contexts.

A third objective is to construct a set of GIA tools specifically suited to STEM universities, capable of integrating disciplinary segregation, organisational hierarchies, and intersectional diversity dimensions into the evaluation process. Particular attention will be paid to the operationalisation of indicators, the selection of counterfactual or benchmark strategies where feasible, and the distinction between short-term outputs and longer-term structural outcomes. A fourth objective is to apply and validate this framework through the case study of Politecnico di Torino, in order to test its empirical feasibility and institutional usefulness. Through this case study, the project will produce an evidence-based assessment model that may support decision makers in the design, monitoring, and revision of equality policies. More broadly, the expected outcome is a transferable methodological toolkit that can strengthen gender impact assessment practices in STEM academia and inform future institutional and public policies on inclusion, diversity, and equal opportunities.

The ideal candidate should have a strong academic background in one or more of the following areas: economics, management, sociology, social statistics, public policy, gender studies, science and technology studies, evaluation studies, data science, or related fields relevant to the analysis of higher education and research institutions. A solid interest in gender equality, diversity, inclusion, and the transformation of academic organisations is essential.

Skills and competencies for the development of the activity

The candidate should preferably possess: (i) knowledge of quantitative research methods, including statistical analysis and, ideally, econometric techniques; (ii) the ability to work with administrative, institutional, or survey data and to critically interpret indicators; (iii) familiarity with qualitative research methods, such as case study design, interviews, document analysis, or ethnographic observation; (iv) interest in mixed-methods and interdisciplinary research designs; and (v) good analytical and writing skills in English. Experience with software for data analysis (such as R, Stata, Python, or similar) will be considered an asset, as will prior exposure to research on higher education, labour markets, organisational inequality, or STEM studies. The project also requires the ability to engage with institutional stakeholders, compare policy documents, and translate research findings into policy-relevant recommendations. Autonomy, precision, and a collaborative attitude in multidisciplinary research environments are therefore highly desirable.