

Gender in Science Technology and Innovation: new frontiers in the application of a gender lens

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GenderSTI

The discussion on the presence of women in science, technology and innovation is not a new one. For the last three decades, the need to include women in the scientific arena was the subject of a large body of research and analysis, both in academia and in the international organizations. But the way we look at gender equity and gender equality in science has changed radically; from viewing women as the main problem and suggesting initiatives that would enable individual women to attain the necessary qualifications to succeed in a scientific career to an understanding that diversity is central to scientific excellence and that institutional structural change is the only way of reaching gender equity in science.



Science today: the need of a gendered knowledge

- ❑ Scientific research increasingly global
- ❑ New players – developing countries as actors
- ❑ Complex scientific challenges
- ❑ New knowledge and interdisciplinary perspectives – greater complexity
- ❑ Collaboration essential
- ❑ Exponential increase of infrastructure and research costs
 - ❑ Excellence at the center of scientific culture
 - ❑ Based on meritocracy, based on hierarchies of individual performance in the construction of scientific knowledge (Merton)
- ❑ Scientific community autonomy



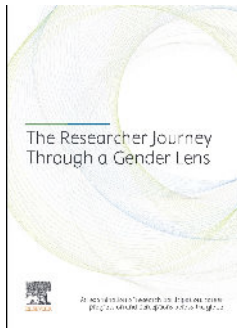
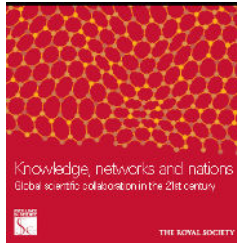
Requirements for a gendered knowledge

- ☐ Agenda definition
- ☐ Evaluation and monitoring
- ☐ Equitable funding
- ☐ Transparency and responsibility in the selection and promoting mechanisms
- ☐ Visibility and success models
- ☐ Trustworthy indicators and statistics

UNDER A GENDER LENS



International Scientific Collaboration: challenges and advancements



- ❑ Royal Society 2011: Knowledge, Networks and Nations. Global scientific collaboration in the 21st century.
- ❑ Elsevier 2017 and 2022 : Gender in the Global Research Landscape and The Researcher Journey Through a Gender Lens
- ❑ American Academy of Arts and Sciences 2022: Global Connections: Emerging Science Partners





International Scientific Collaboration: challenges and advancements from a gender lens

Gender STI 2023

- ☐ Gender equality in scientific careers
- ☐ Gender balance in decision making
- ☐ The integration of the gender dimension in R&I content

Integrated gender perspective, innovative methodology,
comparative international approach



Complex Scientific Ecosystem: Pathways of Influence and Support



Gender Equality in Scientific Careers: Diversity and intersectionality

A gender lens is essential to understand the complex social processes that lead men and women to occupy different spaces in the world of science. The processes of qualification and training, recruitment, retention and advancement all occur within schools, universities, and workplaces, the institutional sites that shape large-scale segregation outcomes.

- ☐ professional networks
- ☐ access to infrastructure
- ☐ research funding
- ☐ evaluating excellence



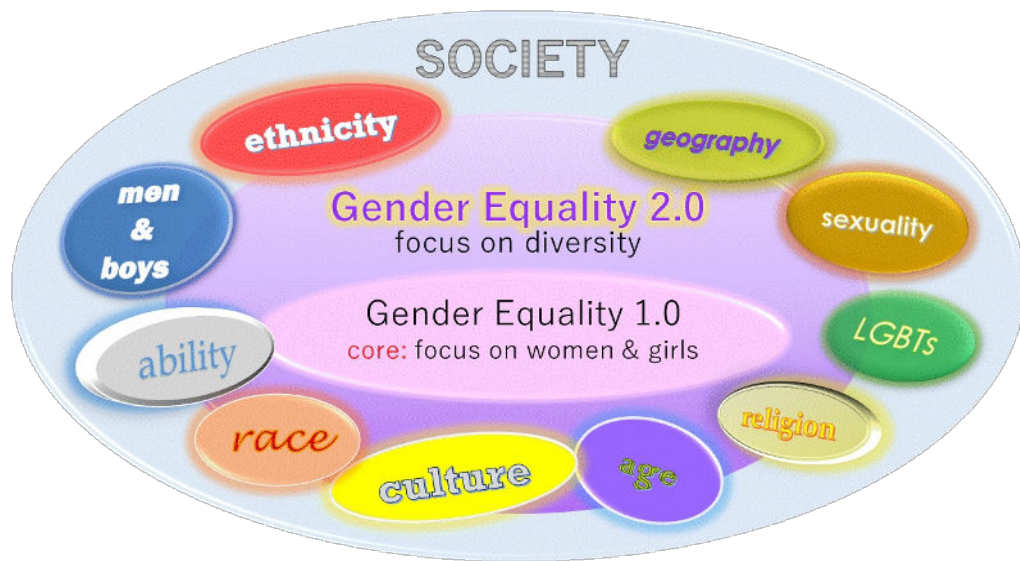
Gender Equality in Scientific Careers: fixing institutions

“We have concluded that only a systemic approach will move us forward. We know of many things that work, but not at scale. We know of many things that work, but not for all groups. We know that institutions have barriers baked into their structures, but the nature of each institution’s challenges is different. We know that institutions have to want to change, and that they can be incentivized through deployment of carrots and sticks. We know that funding agencies can play a major role in incentivizing change, and so too can the STEM and higher education communities themselves.”

Written Testimony of Dr. Shirley Malcom, AAAS, before the Committee on Science, Space and Technology U.S. House of Representatives. May 9, 2019



Gender Equality in Scientific Careers: Diversity and intersectionality



BRIDGE, Better Research and Innovation through Diversity and Gender Equality (Watanabe, 2017, p.3):

Essential to recognize human diversity and how it is defined by society. Today one is aware that gender equality also involves other types of inequality in society, such as age, sexuality, LGBTQI+ skills, ethnicity, religion, race, geography. “Systematic mainstreaming of gender perspective in the implementation of the Agenda 2030 is crucial”.

EDI Equality Diversity and Inclusion-

Systems of inequality based on gender, race, ethnicity, sexual orientation, gender identity, disability, class and other forms of discrimination “intersect” to create unique dynamics and effects.

- ☐ Power relations
- ☐ Social inequality
- ☐ Social context
- ☐ Relationality
- ☐ Social justice
- ☐ Complexity

Collins, P.H., Bilge, S., 2020. Intersectionality. John Wiley & Sons.



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Recent advancements:

- ❑ Women leaders
- ❑ Gender Equality Plan
- ❑ Certification and Awards Schemes

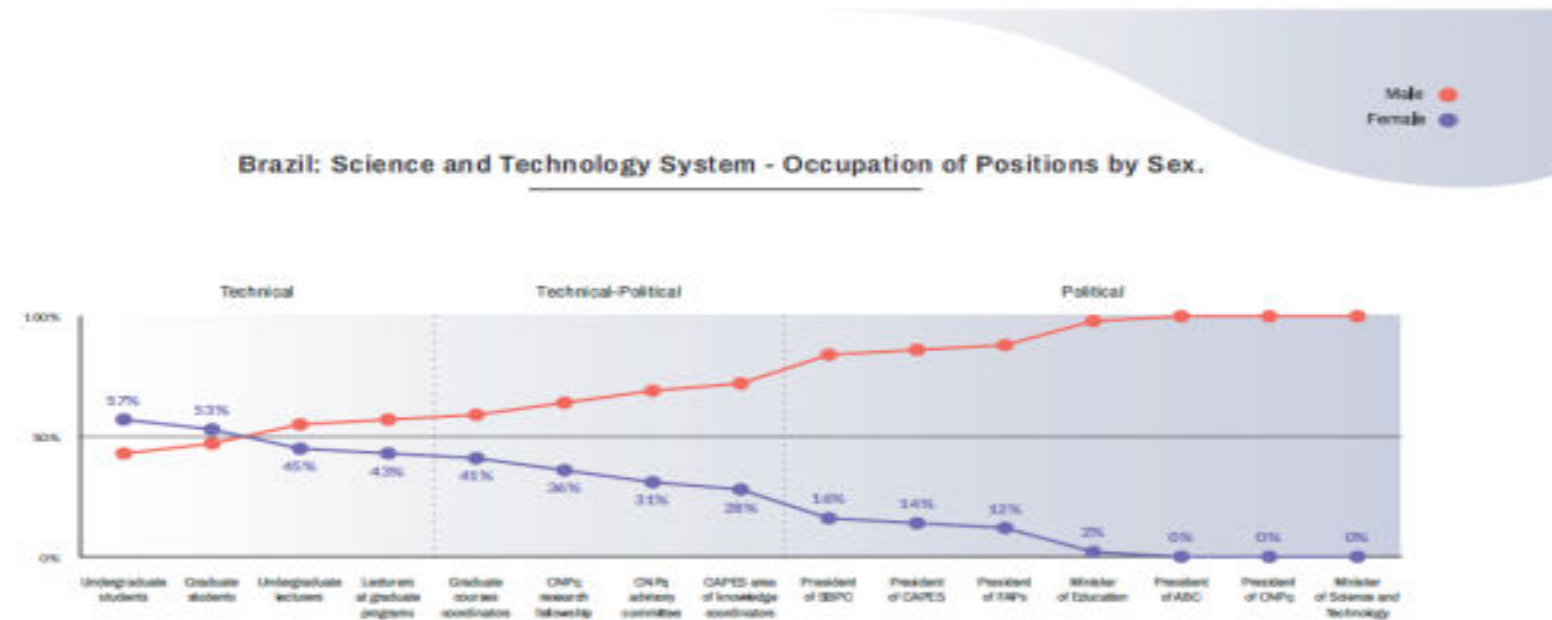


Figure 1. Brazil. Science and Technology System. Occupation of positions by sex. Detailed on the Materials and Methods section.

Areas et al (2020) Gender and the Scissors Graph of Brazilian Science



Gender Balance in Decision Making

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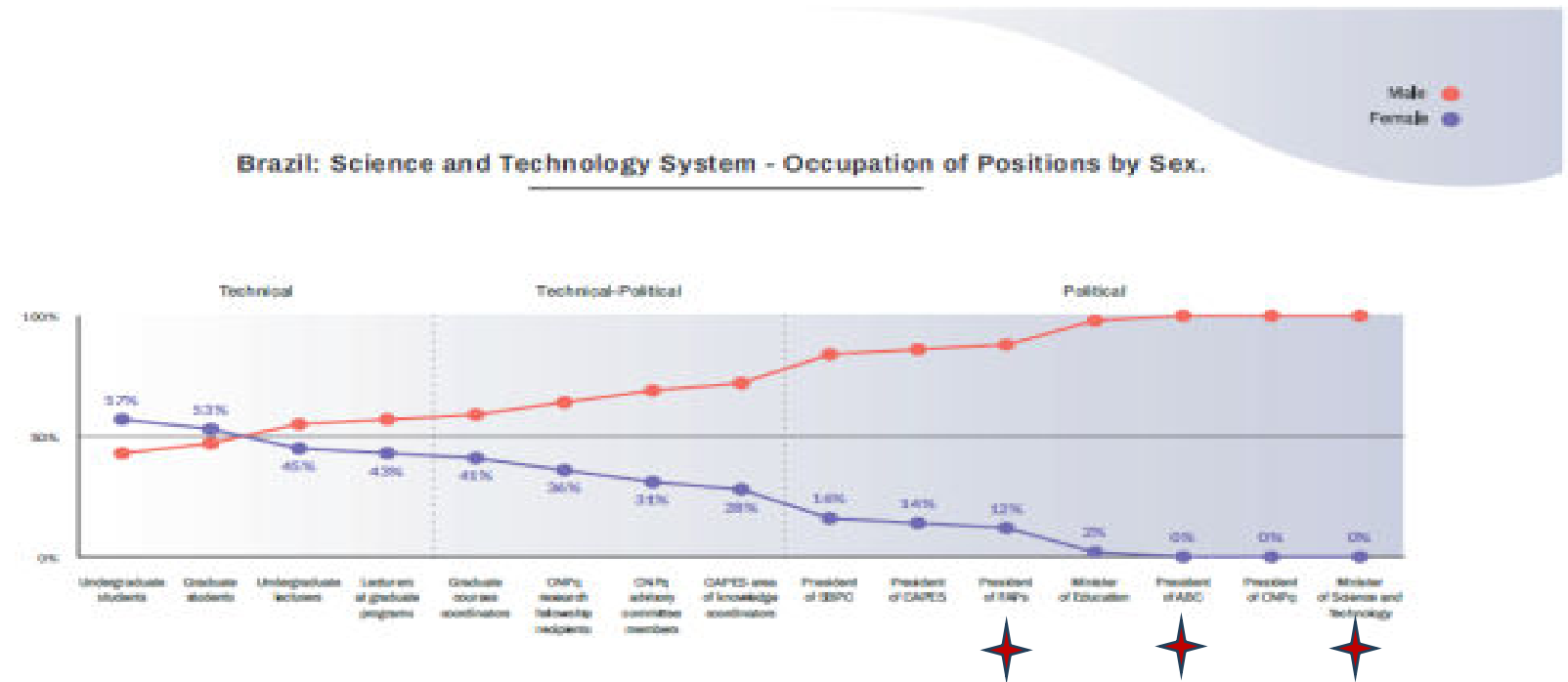


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The integration of the gender dimension in R&I: the last frontier

[...] The lack of an appropriate gender dimension in research design, implementation and organization can result in serious flaws and potentially harmful effects, thus limiting scientific excellence, creativity and benefits to society. (LERU 2015 Gendered Research and Innovation. Integrating Sex and Gender analysis into the research process.)

[...] To make real progress in the next decade, researchers, funding agencies, peer-reviewed journals and universities need to coordinate efforts to develop and standardize methods of sex and gender analysis. (Tannenbaum *et al.* "Sex and gender analysis improves science and engineering". Nature, Vol 575, 7 November 2019. p 144)



Thank you.

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