Who are the target groups?

The following chapter focuses on the presence of women in different grades of academic careers - in particular at the higher levels of the academic path and in decision-making positions.

The overall objective is to get a change of attitudes towards gender equality in RPOs, RFOs and HEIs to inspire them to be more gender-aware and focussed on gender equality. On the other hand, it is important to encourage more women to choose scientific careers and to support them through to high level research. According to the commitments of “For Women in Science Manifesto”[1)] it is the concern to

- encourage girls to explore scientific career paths
- break down the barriers that prevent women in science from pursuing long term careers in research
- prioritise women's access to senior positions and leadership positions in science
- celebrate with the general public the contribution that women scientists make to scientific progress and to society
- ensure gender equality through participation and leadership in symposia and scientific commissions such as conferences, committees and board meetings
- promote mentoring and networking for young scientists to enable them to plan and develop careers that meet their expectations.

In order to do this, GENERA Toolbox addresses the situation of following target groups:

- Pupils
- Students (undergraduate and graduate)
- PhD students, PhD candidates and research assistants
- Postdocs and mid-career scientific personnel
- Professors
- Management and leadership

Pupils

The target group “pupils” includes school students attending an educational institution (all grades of secondary education). In this target group all school grades (classes) are included: Elementary school (ages 6-12), middle school (ages 12-14), and high school (ages 14-18).

From early childhood on, pupils can get informed about different scientific fields, interesting research areas and experiments. The natural science is represented in a great number of research fields. The children can be involved in the world of science from their early years on. At the first stage of elementary school it can be presented in a playful form, interactive games and activities. This way children can explore interesting natural phenomena and take the first steps to studying natural sciences. In this way pupils will be excited with interesting experiments and practical experience; it helps to develop their interest for STEM fields and to motivate them to study it at school.

The additional measures and activities support students at studying natural sciences and overcoming the difficulties. Different labs and scientific clubs at school or other educational establishments for pupils enable them to learn more about various scientific fields. Children can experience themselves

in the role of researchers and develop their practical skills. Furthermore, the students at secondary and high school can be informed about the possibilities of further education and career opportunities in STEM fields. After the graduating from school, pupils have to decide about their further study. Activities at school (especially for girls) can encourage them to choose their career path in scientific areas and avoid gender prejudice about female researchers.

Students (undergraduate and graduate)

The target group of “undergraduate students” includes persons who are enrolled in a HEI and are studying for a bachelor degree. “Graduate students” are persons who already possess a bachelor's degree and continue their studies after graduation.

The goal within this target group is, to increase positive perceptions of science and to attract female students to STEM studies, particularly in physics.

Most of the students only have a vague understanding and unclear expectations of these science fields - especially of the field of physics. That is why it is so important, to recruit young people - especially women for science and physics at an early stage. As a reference point, higher education and experience in school are deemed as an important factor in favour of, or against making a career in physics. Vague information and false expectation of technologies and science require all teachers to better educate this target group from an early stage.

PhD students, PhD candidates and research assistants

“While the proportion of women at the first two levels of tertiary education is higher than that of men, the proportion of women at PhD level is lower.” [2)]

PhD students and candidates are educated to degree level and employed - often on a temporary contract - by universities or research institutions. Usually they are enrolled in a PhD programme and simultaneously active in teaching. All of them are assigned to a supervisor.

Research assistants are like PhDs employed by universities or research institutions, for the purpose of assisting in academia research.

“Between 2002 and 2012 the number of women graduates in the sub-fields of science and engineering generally grew at a faster rate than the number of men. However, the fields in which women's presence grew most quickly between 2002 and 2012 (computing; engineering and engineering trades) were also those where women started from the lowest base.” [3)]

For this target group, but also partially for other target groups, the following aspects [4)] are relevant:

- clarity about career models and pathways
- ways of balancing career aspirations and family responsibilities
- childcare issues and costs
- mobility, both across borders and sectors
- possibilities for dual career
- returning after career breaks.

Postdocs and mid-career scientific personnel

Postdocs are researchers after finishing their doctorate. They are (often temporarily) employed at a university or research organisation and do work relating to advanced academic or professional work. With their conscious decision to stay in science they are aiming for a professorship. The way of transition to a mid-career scientist is not clearly defined and the specific time period in which they enter and exit mid-career varies significantly. It is estimated that this period can last in-between ten and 25 years [5)].

Professors

This target group can be divided into groups of

- full professors - teachers at a college or university with the highest academic rank, usually the most senior in a particular field or department,
- associate professor - a teacher lower in rank than a full professor but higher than an assistant professor, and
- assistant professors - teachers of lower academic rank than an associate professor.

In most countries a person begins as an assistant professor, goes on to become an associate professor, before moving on to a full professorship.

"As in politics and business, academia is characterised by a strong gender imbalance at the highest levels. On overage in the EU, only 15.5% of institutions in the higher education sector are headed by women and 10% of universities have a female rector. Moreover, on average, 36% of members of scientific and management boards are women. Also the highest career level for research, that is, the full professor position, the situation is characterized by a strong imbalance: the gender ratio is 80:20 male to female." [6)]

Management and leadership

"Management is the process of setting and achieving organisational goals through its functions: forecasting, organisation, coordination, training and monitoring-evaluation. Management focuses primarily on the administrative aspects of a business. Leadership is a process of influence between leader and team members, aiming at achieving common goals." Leadership is "the ability to influence some persons and groups, directing their efforts in completing organisational objectives".[7)]

According this citation, for all managers and leaders in every organisation it is necessary to know what gender equality means and that there are lots of measures to raise it and to build gender awareness at any hierarchical level within the organisation.

1)
L'Oréal-UNESCO (2015) *For Women in Science.*
2), 3)
European Commission (2016): SHE FIGURES 2015, Gender in Research and Innovation, Luxembourg, p. 20
4), 5)

Pollitzer, E. (2012): From Ideas to Markets: the Gender Factor. Introducing how genderdimension can transform and enhance research ideas and open up for new markets for science knowledge, London: Portia Ltd.

6)

EMBO (2015), p. 7: Exploring Quotas in Academia, Heidelberg: Robert Bosch Stiftung.

7)

Popovici, V. (2012), p. 126: Similarities and Differences between Management and Leadership.

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