Gender mentoring inside INFN: a transformative path towards inclusion and equity in the research

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Our concern…

How can we achieve gender equality in academia and research?

How we could raise awareness about the persisting gendered dimension inside academia and research?

What gender equity practices might counter the many gender inequalities?

An international overview

«Globally, the average **distance completed to parity is at 68%**, a step back compared to 2020 (-0.6 percentage points). These figures are mainly driven by a decline in the performance of large countries. On this current trajectory, **it will now take 135.6 years** to close the gender gap worldwide»

Italy ranks 63rd out of 156 countries!

Gender gap in R&I

- At EU* level, women accounted on average for more than 40% of academic staff in 2018.
- Moving up the ladder, the proportion of women in top academic positions was only a quarter (26.2%) of grade A positions.
- Women represent less than 25% of the heads higher education sectors.
- In 2019, just over 3 of 10 council components (31.1 %) and less than a quarter of the councils' heads (24.5%) were women.

*European Commission, Directorate-General for Research and Innovation, She figures 2021: tracking progress on the path towards gender equality in research and innovation, Publications Office, 2021, https://data.europa.eu/doi/10.2777/602295

Gender gap in STEM

- European research still shows marked under-representation of women, 32.8% of the total researchers, particularly in STEM* disciplines and leadership positions.
- The annual increase in woman researchers is less than a half of the annual number of women PhD students:
  - less than a half of women completing a PhD will become professional researchers!
- Gender differences also exist in access to EU funding for research:
  - men had 3.9% more chances in accessing research funding than women.

*Science, Technology, Engineering and Mathematics

Italy report in a nutshell

«Italy performed above the European average in terms of the proportion of women among doctoral graduates, the proportion of self-employed women among Science and Engineering and ICT Professionals, and the proportion of women among authors on publications in all fields of R&D. However, Italy has a relatively low share of women on boards as members and leaders, and was below the European average (26.2%) regarding the proportion of women in grade A positions (23.7%). This indicates that further improvements are needed in decision-making and leadership positions to progress towards gender equality in research and innovation»

She figures Italy

Table 3: Proportion of RPOs that have taken measures and actions to promote Gender Equality, by type of organisation, 2020

	Proportion of websites with info on actions/ measures towards Gender Equality		
Country	HEIs	PROs	Total
IT	56.48	63.16	58.52

Source: information scraped from the websites of higher education institutions listed in the European Tertiary Education Register (ETER), and of public bodies and research organisations that participated in projects under FP7 and H2020 and/or that were indicated by the Statistical Correspondents.

INFN got GEP!

One way to improve working conditions for women and men researchers and promote gender equality in research careers is through institutional reform.

Italy does not impose any requirements for Gender Equality Plans (GEPs) in public Higher Education Institutions (HEIs) and/or Research Performing Organisations (RPOs) at national level (ERAC SWG GRI, 2021).

Data from “She Figures” shows that in 2020 56.5% of Higher Education Institutions (HEIs) and 63.2% of Public Research Organisations (PROs) in Italy mentioned measures and actions to strengthen gender equality on their websites.

She figures Italy

Table 8: Average proportion of women among authors on publications in all fields of R&D, 2015-2019

Country	Average proportion of women among authors on publications	Margin of error
IT	0.34	0.11

Notes: Values represent the proportion for publications during the period 2015-2019. A value of 0.5 indicates gender parity. The lower limit of the margin of error corresponds to the value of the proportion if all authors whose gender could not be inferred were men, while the upper limit corresponds to the value of the proportion if all authors whose gender could not be inferred were women. The average proportion of authors to which a gender could be assigned varies. For EU-27, the average proportion of authors for whom gender could be inferred was 0.75, with the lowest value among EU-27 Member States being 0.61 for Croatia and Slovakia and the lowest value among all regions being 0.29 for China.
Source: Computed by Elsevier using Scopus data.

Differences in funding success rates for women and men can further exacerbate the gender gap in research and innovation output, as it may lead to a vicious cycle where lower funding could lead to lower publication and innovation output, which in turn could lead to reduced chances of being funded.

Data at the European and world level showed that men were more highly represented on publication teams than women between 2015-2019 (average proportion of 0.30 and 0.25 respectively). In Italy, the average proportion of women among authors on publications was slightly higher at 0.34. Evidently, this is still below the proportion representing gender parity (0.5) on publication teams.

Table 9: Women to men ratio of inventorships, 2013-2016 and 2015-2018

Country	2013-2016	2015-2018
IT	0.15	0.10

Notes: (2013-2016 data): see She Figures 2018 (Figure 7.11).
Source: Computed by using European patent applications (kind codes A1 and A2) in PATSTAT

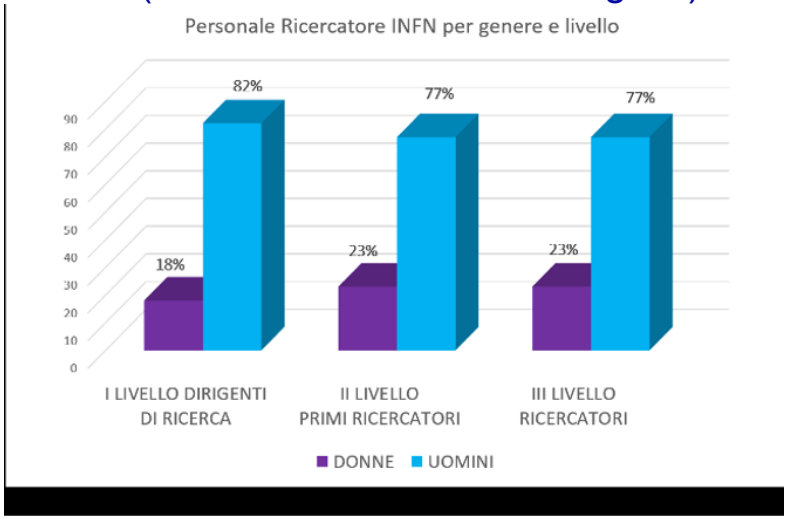
Similarly, women were under-represented among inventors (on patent applications). Between 2015-2018, the ratio at the European level was 0.12, which indicates that for every 100 patent applications held by men, only 12 were held by women.

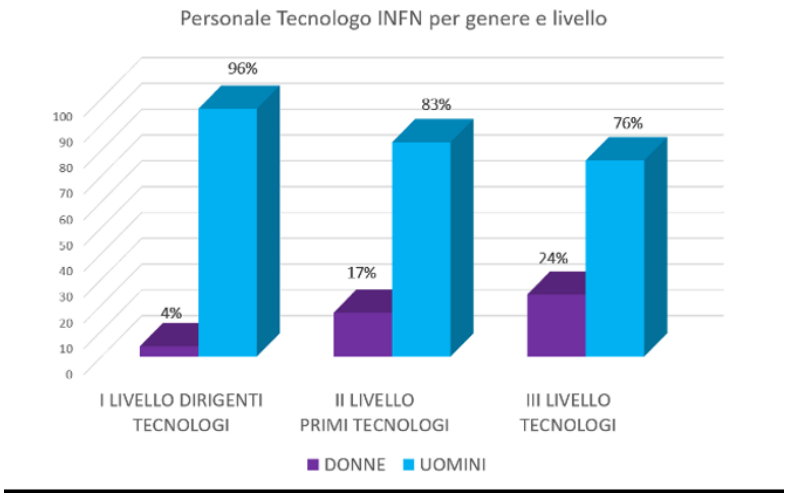
Data from 2013-2016 indicate that the women to men ratio of inventorships in Italy was marginally higher than the European average, however over the period 2015-2018 the ratio declined to 0.10.

INFN statistics

Ratio of men and women according to level and position*

(researchers and technologists)





* Infn CUG report 2021

INFN has a problem too!

Researchers

M1/5 vs F 1/7 become manager

Technologists

M1/6 vs F 1/33 become manager

What we figured out

- Society doesn't evolve spontaneously towards increasing forms of equality
- There are cultural and social stereotypes that perpetuate bias and unconscious discrimination*
- Prejudices and stereotypes, which are related to our ways of thinking and our reference cultures are consolidated since childhood
- Gender creates role expectations not only in our society but also in any organisation structure: this «traditionally assigned» role creates discrimination and disparity of treatment

*Implicit social cognition: Attitudes, self-esteem, and stereotypes. (Greenwald et al.)

The bias in R&I

- There is an inclination to deny the relevance of gender in social, cultural, economic and political contexts (gender blindness), believing that science is neutral and so is merit.

- Underestimation of the effects for female researchers of working in male-dominated environments

- Is the concept of a career really neutral? Male role models, solitary heroes, sacrificing everything...
- CV evaluation often ignores career path (give space for stories, taking into account parental leaves break…)

The Glass ceiling effect

We need to rethink evaluation mechanisms within institutions, including measures to counter segregation, both horizontal and vertical.

Glass ceiling effect:
«invisible» barriers that prevent women from reaching top positions

Glass Labyrinths*

A new metaphor!

Ilenia Picardi shifts the focus of analysis and problematization of gender inequality from the simple "glass ceiling" to the crystal door and labyrinths: identifying the multiple mechanisms that regulate and hinder women's entry, retention and exit from the scientific and academic path.

*Ilenia Picardi Labirinti di cristallo Strutture di genere nell'accademia e nella ricerca - 2020

Promote gender equality in research

Fixing the numbers	Fixing the institutions	Fixing the Knowledge
Increase participation of women and under-represented groups	Promote equality in careers through structural change in research organizations	Foster excellence in science and technology by integrating sex, gender and intersectional analysis into research
	Transformative processes: gender organisation, gendering processes (Joan Acker)	**Gendered innovation**

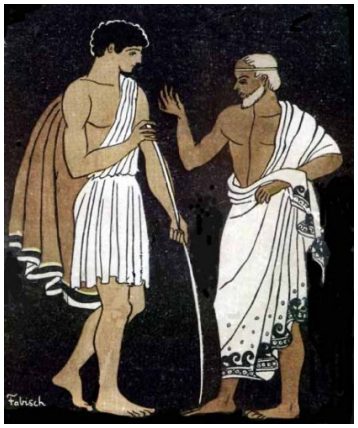
3 main approaches

Mentoring programme

Internationally, mentoring programs are quite wide-spread and recognized as useful tools for women to overcome obstacles towards their career progression.

These actions can support and trigger transformative processes!

Mentoring: the origins



In Homer's Odyssey, Mentor was the character to whom Odysseus entrusted his home and son Telemachus before leaving for the Trojan War.
His role was that of a trusted advisor, in charge of protecting the Homeric hero's family during his absence

The literature has gradually shifted toward a differentiation of approaches to mentoring

The mentoring continuum

The limit of "instrumental mentoring" is supporting individual careers but perpetuating male models of success. Therefore not changing the way as the power reproduces inequity by maintaining a de facto status quo.

Counting and acting to improve the presence of women reveals the existence of prejudices, but won't help us to understand the causes of those biases or how to remove them

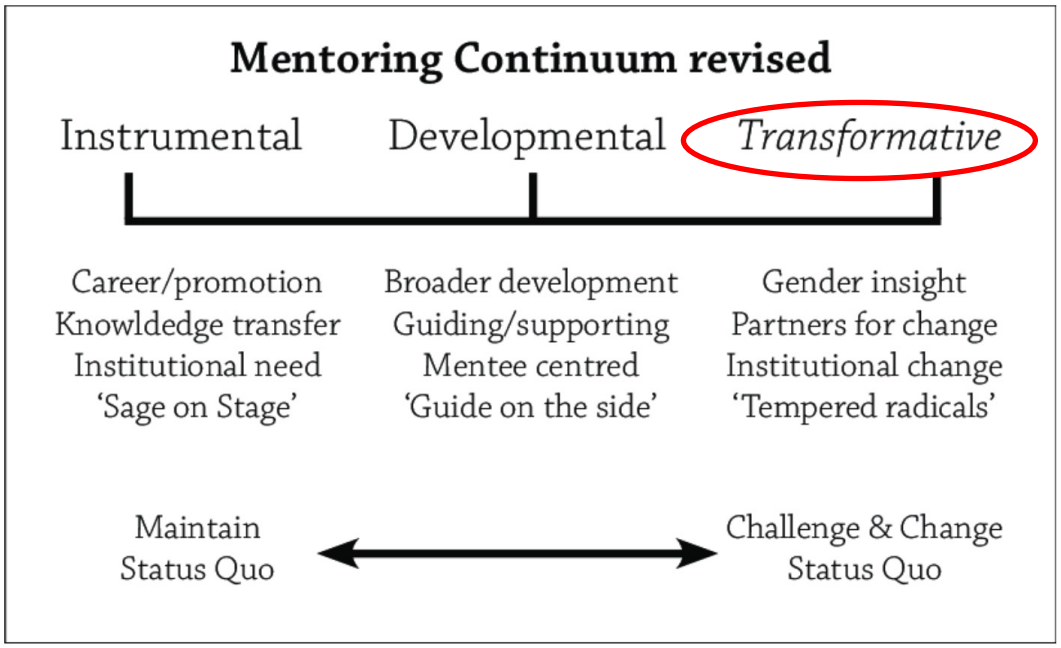
Programs more centred on mentees and their not only professional needs

Reciprocity of the relationship

Critical reflection

Transformative mentoring

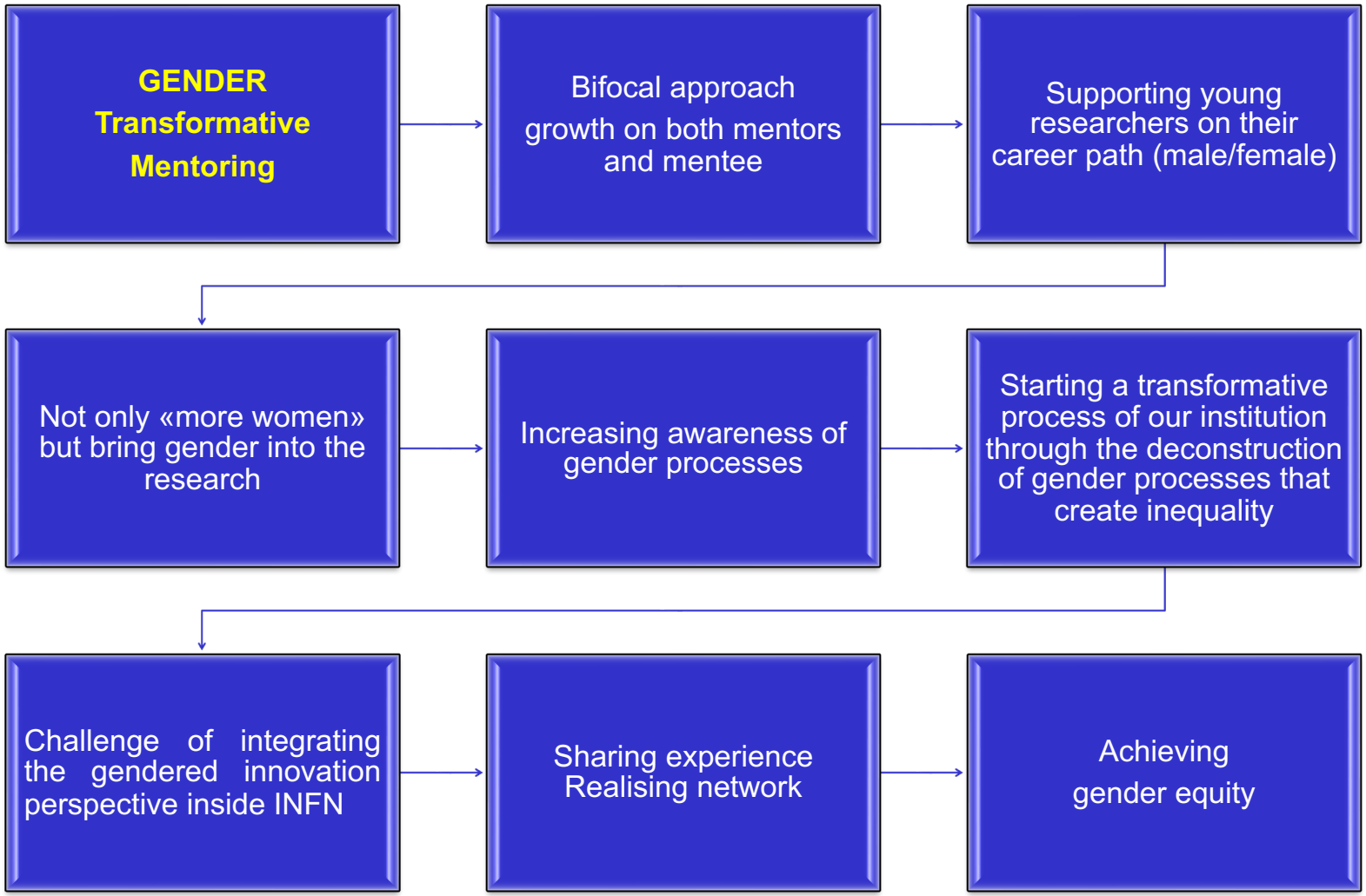
In 2010 Jennifer De Vries proposed a new mentoring model: 'the bifocal approach', to emphasise the need for programmes to focus on both women and the organisation.



- **Enhancing the gender perspective**
- **Short-term changes: supporting women's careers**
- **Long-term changes: transformation of institutions**

- **Removing institutional obstacles that create inequality**
- **Focus on both mentors and mentees**

INFN Gender Mentoring Programme



The first programme in an Italian Research Institute!

INFN mentoring programme
Ist edition

Coordination group

INFN: Maria Rosaria Masullo (Naples) Sabina Pellizzoni (Rome)
UniNa: Ilenia Picardi, Emanuele Madonia
Teachers: Ilenia Picardi Emanuele Madonia (Univ. of Naples Federico II)

Profiles

Mentees
young INFN researchers and technologists who are not staff (including postdoctoral fellows) or recently recruited distributed within the different National Scientific Commissions (CSN) and service technologists

17couples

Mentors
woman physicists or technologists, senior or at the top INFN career or university associates INFN (grade A)

Pilot project promoted within the INFN National Training Plan 2018-2019

INFN mentoring programme Ist edition

Objectives

Mentees

- Improve the ability to identify, face, and overcome obstacles found in the early stages of the career path through discussion with mentors and other mentees
- Provide a tool for identifying career goals through critical reflection of one's choices and be aware of the gender processes/practices in research

Mentors

- Be a «mirror» for mentees
- Reflect on: gender dimensions, practices and processes in research to trigger the change
- Promote transformative processes in mentors to produce changes in research structures, toward greater gender inclusion and equality

INFN mentoring programme Ist edition

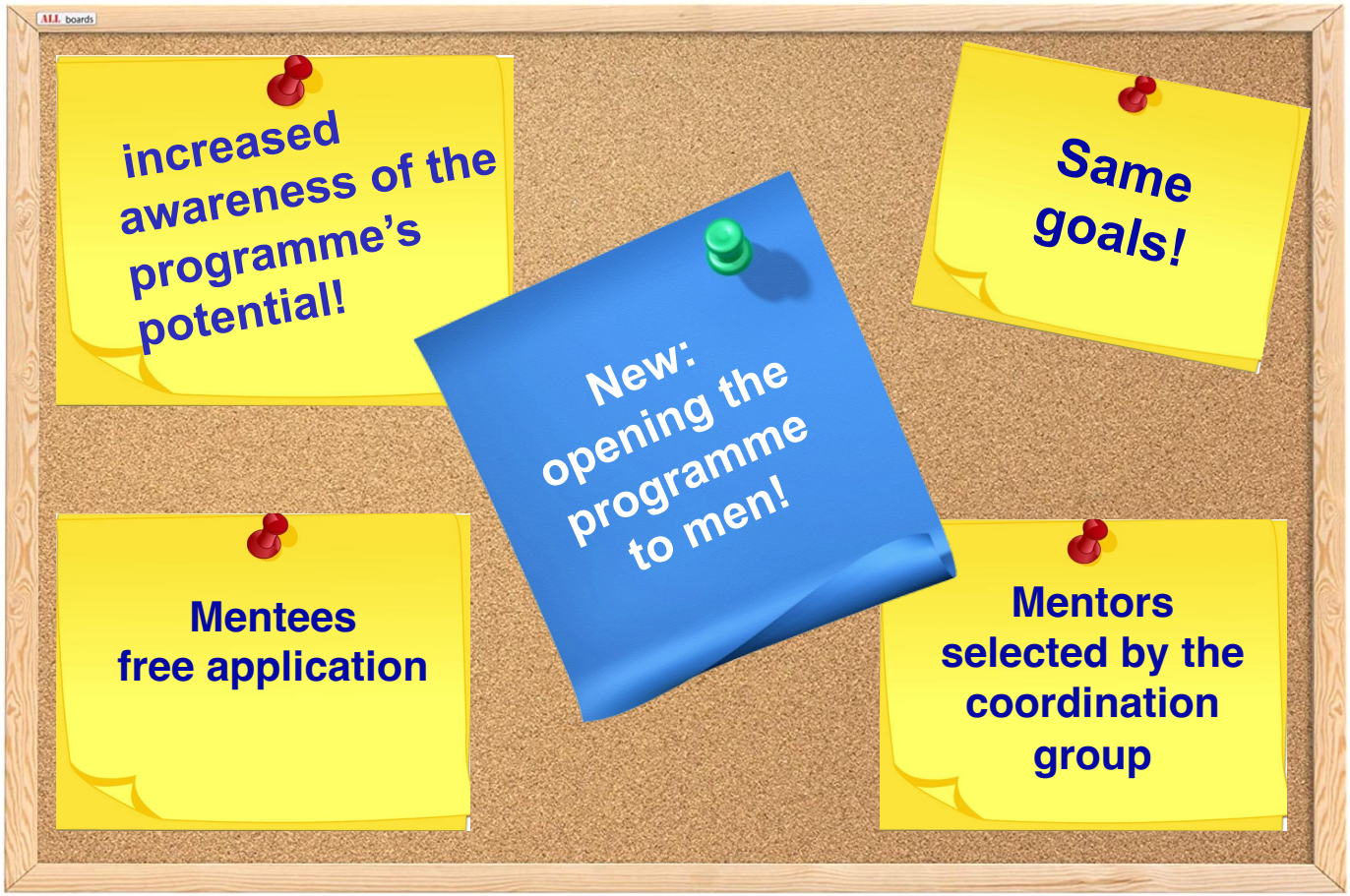
	Programme scheme
Tipology	➢ **women only** ➢ **one-to-one mentoring** ➢ **one-to-many openness**: possibility of exchanges with other mentors according to their expertise (online portal with thematic forums and "couples lounges"
Matching	➢ carried out by the coordinating group from the entrance survey results ➢ crossing different physical disciplines and work types (transdisciplinary mentoring) ➢ attention to avoid bias and possible interferences
Duration	**1 year**
Meetings	**6 meetings** mentee/mentor possibly in-person (bimonthly frequency)
3 focus group	**One-day meetings with separate sessions (mentors and mentees) and a joint one** 1. **Kick-off meeting** about the programme and operational tools, seminar session on mentoring, "gender processes" and expected goals 2. **Mid-term monitoring** of the programme, sharing and reflections of mentors and mentees on the pathway and their relationship, verification of the network construction of both cohorts 3. **Overall programme evaluation** session: achievement of objectives, reflection on changes needed in the institution
Seminars	On gender issues (within the INFN National Training Plan)

INFN mentoring programme Ist edition

	Toolbox
Interviews	Initial, mid-term, final
Handbook	On both mentees and mentors
Logbook	For mentees to annotate their reflections and insights from one-to-one meetings
Reports	Mentors' Reports
On-line portal	Open thematic forums dedicated "lounges" for couples The corner: «the mentor answers»

The first meeting Rome 2018

INFN mentoring programme IInd edition



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INFN mentoring programme IInd edition

2022 March last meeting in Naples finally in presence!

Reflection about the capacity of generating changes in the organisation, starting from the identification of behaviours and practices that hinder them.

Focus on:

- **Gender integration in research and teaching programmes**
- **Gender Balance in: Senior Positions, Recruitment & Career Progressions**
- **Work/life balance and the organisation's culture**

Output
A participative document with concrete ideas and solutions to be presented to management

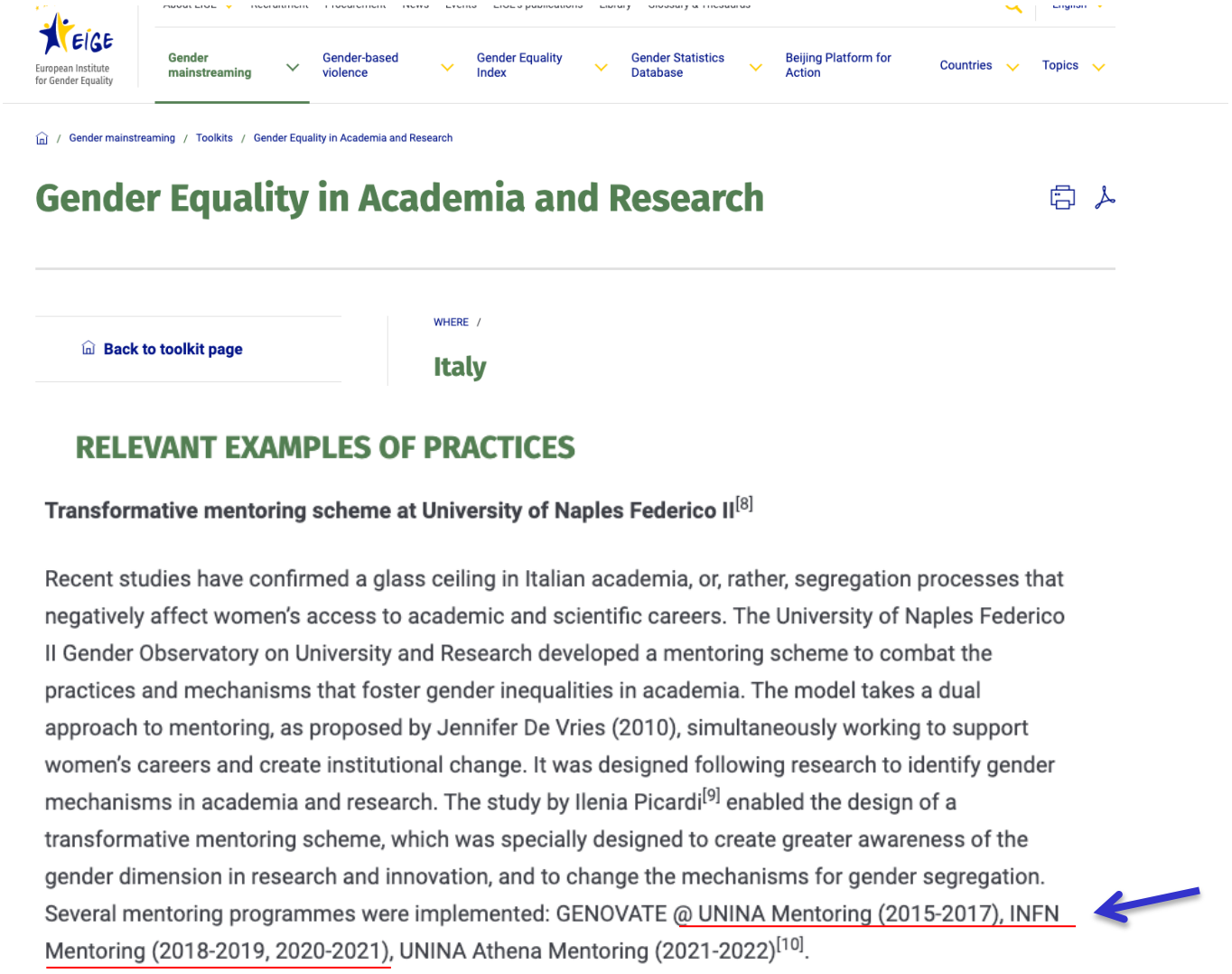
First achievement

Evaluating the results of a mentoring programme needs long time to be measured, however:

- **some mentors have become directors of INFN Structures, bringing with them the importance of listening, a new focus on "diversity" and taking care to create more inclusive environments.**
- **Many mentees have also achieved significant career advancements in recent years (permanent positions, grants, roles of responsibility)**
- **For all, awareness of gender issues, the importance of networks and proper time management increased.**

The evaluation of the IInd edition is ongoing...

First awards



https://eige.europa.eu/gender-mainstreaming/toolkits/gear/legislative-policy-backgrounds/italy

Our goal

Individual, cultural and institutional change

Equality

The assumption is that **everyone benefits from the same supports**. This is equal treatment.

Equity

Everyone gets the supports they need (this is the concept of "affirmative action"), thus producing equity.

Inclusion

All 3 can see the game without supports or accommodations because **the cause(s) of the inequity was addressed**. The systemic barrier has been removed.

Thanks!

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