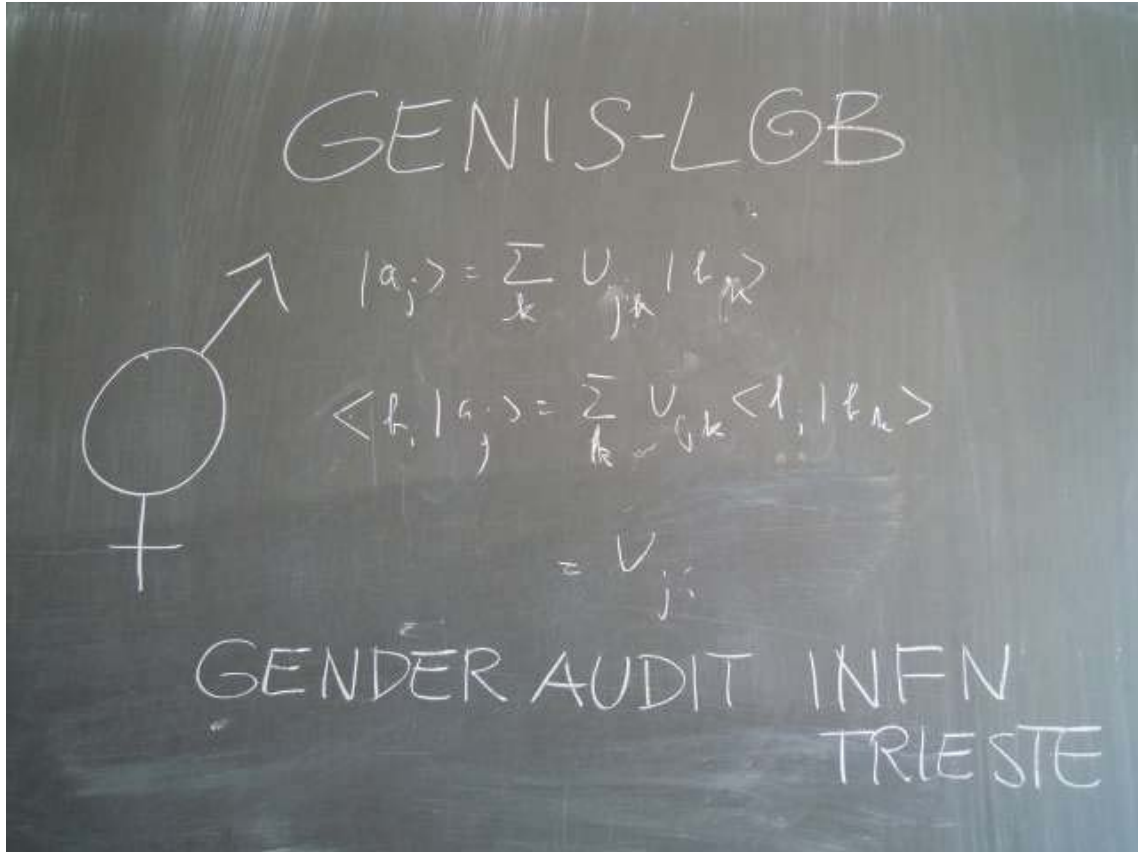


**GENIS LAB /INFN Trieste**  
**REPORT**  
**GENDER-BASED ORGANISATIONAL ASSESSMENT**





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## A. INTRODUCTION

### A.1. Scope and method of the audit

This assessment is part of GENIS-LAB, a project funded by the European Commission, 7FP. The project aims to implement structural changes to overcome factors that limit the participation of women in research (more info at [www.genislab-fp7.eu](http://www.genislab-fp7.eu)) in 6 scientific organisations in the EU:

CSIC - (Spanish Higher Council for Scientific Research) Institute for Polymer Science and Technology, Spain;

IPF - Leibniz Institute of Polymer Research Dresden, Germany;

FTM UB - Faculty of Technology and Metallurgy, University of Belgrade, Serbia;

NIC - National Institute of Chemistry, Slovenia;

INFN - National Institute for Nuclear Physics, Italy;

BTH - Blekinge Institute of Technology, Sweden.

Three additional technical partners provide support to the scientific organizations: Fondazione Giacomo Brodolini, project coordinator, Associazione Donna e Scienza, and the International Training Centre of the ILO. These “gender-based organisational assessments” constitute the first phase of the project, and is meant to provide

- an initial basis for further, tailor-made action over the four-years of the project.
- useful information to be shared and discussed with other partners at trans-national level

The International Training Centre of the ILO is the project partner with technical leadership for this first phase. The assessments are made through “participatory gender audit” (PGA), i.e. a well-tested ILO methodology based on qualitative self-assessment. The methodology is based on the voluntary participation of the audited work unit in the process, and on the commitment of the audited institutions’ top management to support to the initiative and its follow-up. PGA was specifically adapted to the needs of the six research organisations, in collaboration with Fondazione Giacomo Brodolini and Associazione Donne e Scienza.

The “PGA” of INFN was facilitated by ITC/ILO experts, in collaboration with experts of FGB. INFN provided insider expertise and facilitated the collection of documents, helped adapting the methodology to INFN context, and supported the organisation of audit visits in Frascati (administrative headquarters) and Trieste Section.

Given the size and set up of INFN (2000 employees disseminated in 20+ locations in Italy), it was decided to focus the participatory activities on a sample Section, and analyse it against the general “gender background” of the institution at national level.

Trieste was selected as it was deemed to be representative of all categories of staff and because the Director of the Section expressed full support to the initiative.

This report examines the situation of the Trieste Section against the general background of the INFN at national level.

Findings were collected through:

- A preparatory phase, where ITC/ILO and FGB visited the INFN Frascati Headquarters to collect data and discuss modalities of implementation. (21 March 2011)
- A desk review of selected documents and statistical data (see list in Annex)

- an on-line survey disseminated among Trieste staff , which included responses from 44 INFN staff and 22 University associates (16 women and 45 men + one non declared).
- A field visit to Trieste from 28 to 31 March, 2011 where INFN staff were engaged in 24 confidential individual interviews and 2 participatory workshops

## A.2. The background of GENIS-LAB: Women and science in Europe

The EU Treaty sets gender equality as a principle and a goal for all Member States. Consequently a broad range of policies exists to give effect to this commitment, including in the field of scientific research. Over the last 15 years, specific EC resources have been dedicated to collect data, analyse and address the problem of women under-representation in the research field, particularly in the framework of the 5<sup>th</sup>, 6<sup>th</sup> and 7<sup>th</sup> FP.

Statistics at EU level show that despite relative progress, women’s academic careers are markedly characterised by vertical segregation in all disciplines: the proportion of female students (55%) and graduates (59%) exceeds that of male students, but men outnumber women among PhD students and graduates (the proportion of female students drops back to 48% and that of PhD graduates to 45%). Furthermore, women represent only 44% of grade C academic staff, 36% of grade B academic staff and 18% of grade A academic staff.

These gaps between male and female access to higher academic or research positions are even broader in scientific fields and more prominently in scientific research.

More commonly recognized reasons for the phenomenon are:

1. The “historical” or “generational” reason: relatively late entry of women in a number of scientific fields – including Physics. The consequence would be that percentages are due to increase naturally as more women complete higher studies in scientific fields.
2. The “biological clock” factor: women drop out in reproductive age or have longer career breaks due to child-bearing, with an immediate impact on their scientific productivity

These explanations assume that *per se* the scientific field is open to tap on all talents, irrespective of sex. Gender disparities are thought to depend on external or cultural factors that make women - for different reasons (educational, cultural and biological) – less able to cope with a competitive environment. Measures to address the problem would need to focus on factors that are external to research institutions: ensuring women’s access to scientific education and establishing measures to counterbalance the loss of productivity during maternity leave.

In fact, there is more to this. A large number of studies<sup>1</sup> indicate that this approach is not sufficient:

1. in spite of constant growing female educational attainments over the last 30 years, women continue to be under-represented at higher levels of research and academic careers
2. women researchers demonstrate equally competent, committed and ready to “take risks” as their male colleagues, but tend to have lower probabilities to achieve more senior positions

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<sup>1</sup> For an extensive and up-to-date bibliography, see PRAGES: *Guidelines for Gender Equality Programmes in Science*, (2009). The guidelines are the product of a FP7 Project involving Aarhus University, ASDO, European University Institute, Simmons, TETALAP, University of Cambridge, University of Manchester, University of Milano, University of Milano Bicocca, University of Queensland.  
Available at <http://www.retepariopportunita.it/defaultDesktop.aspx?page=3464>

3. women researchers have dramatically low fertility rates and tend to have “slower” careers progression even when they do not take longer career breaks than their male peers

The problem is multi-dimensional and depends also on factors that are internal to the scientific world: Science is generally considered a “neutral”, “objective” and “meritocratic” environment. Scientific research is also considered a very competitive (and often hierarchical) environment, in which full time commitment and risk-taking are necessary (e.g. going abroad, sacrificing family or working under precarious working arrangements). These generally perceived ideas tend to hide the fact that science may not be a “perfectly neutral” environment. Merit and excellence evaluation bear subjective and less measurable dimensions, which have nonetheless an impact on individual careers. Case studies have revealed that the interplay between gender and science stereotypes can have a direct influence on evaluation of scientific excellence and on women’s equal access to resources or career.<sup>2</sup>

Like in the majority of working environments, informal working practices and networks, unspoken assumptions and internal cultural biases can make scientific research “unfriendly” to women, as they tend to replicate the existing power relations in an historically male dominated environment.

Women and men scientists themselves often find it hard to recognize this more subtle form of discrimination, which on the contrary seems to be supported by statistics and a broad corpus of social research. The fact that “to be scientists means to sacrifice private life” is often accepted as an “as it is”, part of the natural selection process to achieve scientific excellence. The tacit assumption is that women who want to make it must be ready to compromise their reproductive role or be lucky enough to find “supportive partners”. Those men who want to make it can count on the support of their families/wives. The idea of science as a “Competitive environment” reinforces traditional gender roles, while on the contrary new generations of young men are more and more ready and willing to fully take and enjoy their share of family responsibilities.

This “competitive environment” is not only detrimental for women, but risks to waste talent and investment in human capital. EU research policy today is encouraging the scientific community to engage in a debate on the problems of defining and measuring scientific excellence, considering in particular whether the achievement of women and men scientists are assessed on the same basis, and think in a more systematic way about promoting a research environment free from gender bias.<sup>3</sup>

The “gender based organisational assessments” in GENIS-LAB are aimed at assessing the extent to which the organisational culture and practice of the audited institutions can be conducive, or on the contrary can slow down progress towards both gender equality and scientific excellence.

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<sup>2</sup> Wennerås & Wold, “Nature 347, 341-343 (1997): this study on recruitment practices in the Swedish Medical Research Council revealed the strong influence of gender stereotypes in apparently “neutral” peer reviews.

<sup>3</sup> See EC, DG for Research *Gender and excellence in the making* (2004)

## B. FINDINGS

### B.1. INFN at national level

#### B.1.1. Structure and staffing: a gender perspective

The INFN - the National Institute of Nuclear Physics - is an organization dedicated to the study of the fundamental constituents of matter, and conducts theoretical and experimental research in the fields of sub-nuclear, nuclear, and astro-particle physics. Fundamental research in these areas requires the use of cutting-edge technologies and instrumentation, which the INFN develops both in its own laboratories and in collaboration with the world of industry. These activities are conducted in close collaboration with the international scientific community.

The Institute is organised in 4 Laboratories hosting large infrastructure and equipment and 20 Divisions ("Sezioni"). These are located in the Department of Physics of Universities dispersed across a number of Italian Regions.

Governance of the INFN strikes a balance between centralized and decentralized management. The main decision-making body is the Council of Directors (Consiglio Direttivo), comprised of the President, the Executive Board; the Directors of the four National Laboratories and 20 Divisions; and representatives from other institutions.

INFN staff comprises some 2100 **employees**. Statistics analysed by the Advisory Panel on Equal Opportunities (CPO – Comitato Pari Opportunità) report that women represent about 24% of all INFN staff holding permanent contracts. The percentage lowers to 15% in scientific, technological and technical positions. The broad differences among the various decentralised sections have little statistical meaning due to low numbers.

**Table 1: INFN Staff, by category: % of women**

<b>INFN Staff: permanent*</b>	<b>No</b>	<b>%women</b>
Researchers	584	21.23%
Technologists	232	13.79%
Technicians	705	5.39%
Administrative staff (including Administrative Director)	306	82.68% (0%)
<b>Total permanent staff</b>	<b>1827</b>	<b>24.47%</b>
<b>INFN staff: non-permanent **</b>	<b>No</b>	<b>% women</b>
Researchers/ technologists (Liv I – III art. 23)	167	23%
Admin/technicians (art. 15)	79	39%
<b>Total non permanent staff</b>	<b>246</b>	<b>31%</b>

\* Data from INFN Piano Triennale 2011-2013,

\*\* Data as at 31 December 2010. Provided by INFN Central Administration.

INFN also largely counts on the collaboration of more than 3500 among **university staff** (“University associates”) and students, PhD. fellows and research fellows. Gender disaggregated data related to University staff are not immediately available, but will be provided at later stage. Information provided by the INFN Advisory Panel on Equal Opportunities indicates that 30% of PhD. Fellows are women.

The presence of women in **governing bodies and other decision making positions** is quite low: no women are represented at the level of Executive Board and the Council of Directors counts only 3 women among its 31 members (10%). These include two Directors of Section and one Director of Laboratory (out of 20 Sections and 4 National Laboratories): Rome La Sapienza Section (the largest in Italy), Trieste Section , and the Gran Sasso National Laboratory (one of the most important labs for underground physics research globally).

**Table 2: INFN governing bodies: by gender**

ORGAN	N. MEN	N. WOMEN	% F
<b>PRESIDENT</b>	<b>1</b>		0.0%
<b>COUNCIL OF DIRECTORS (excluding President and Executive Board Members)</b>	<b>25</b>	<b>3</b>	10.7%
<b>EXECUTIVE BOARD</b>	<b>5</b>		0.0%
<b>AUDITORS</b>	<b>2</b>	<b>1</b>	33.3%
<b>NATIONAL SCIENTIFIC COMMITTEES *</b>	<b>114</b>	<b>21</b>	15.6%
CSN1 (Sub-nuclear Physics)	20	4	16.7%
CSN 2 (Astro-particles Physics)	23	5	17.9%
CSN 3 (Nuclear Physics)	15	9	37.5%
CSN 4 (Theoretical Physics)	31	2	6.1%
CSN 5 (Technological/Interdisciplinary research)	25	1	3.8%
<b>TOTAL</b>	<b>147</b>	<b>25</b>	<b>15%</b>

### Researchers

Recent analysis<sup>4</sup> undertaken by the CPO working group on gender statistics compare the dissimilarity index (no. of men/no. of women) among researchers over the period 2003 – 2010 and draw conclusions that call for further attention. According to the CPO, over the last 20 years women have represented constantly 30% or more of those completing a PhD in Physics in Italy.<sup>5</sup>

However, a review of recruitment and career trends over the years 2003 - 2010 has found:

- A decrease in recruitment of women researchers in indeterminate positions, against a 30% presence of women among post-doctoral fellows, which has remained constant over the last 20 years. This must be considered against the background of the dramatic decrease in new recruitments, with more prominence among women researchers, as the curve has been less dramatic among male researchers. This trend witnessed a relative improvement in 2010, when 37 new positions were opened at national level through public competitive process: 10

<sup>4</sup> For specific data and methodology see Annex I CPO Statistics I and Annex II CPO Statistics II.

<sup>5</sup> For instance, in Italy, the proportion of female PhD in 2003 was 45.2% for Physics and 25% for Computing and 13.5% for Engineering (source: Eurostat Education Statistics, 2009)



out of the 37 new recruits were women (27%), with women representing 26% of eligible applicants.

- An improvement in the “disparity index” (no. of men/no. of women) among Heads of Research (from 13 to 8 males for each female HoR), even if women’s representation is still extremely low in this group (only 14 Heads of Research out of 116 are women, at national level).
- A constant disparity index both among Senior Researchers and Researchers, (ranging between 3.5 and 4).
- That gender disparity is broader among younger age groups, among permanent staff: women are only 21.8% of researchers in the age range 35-39, 19% of those between 40-44 and 24.8% of those between 45-50.
- That young researchers, both women and men, remain concentrated in non-permanent positions, and women make up for 29% of researchers holding non-permanent positions,
- That women have lower probabilities for career advancement and require longer time frames. For instance a 45-year old woman has half the chances of being promoted to Head of Research than a male colleague of her same age.

Data would not support the idea that women’s low representation is only due to their recent entry in this specific research area. The CPO analysis concludes that the progressive reduction in new recruitments and the consequent **ageing of INFN permanent staff has a strong negative effect on younger generations of researchers, and within this group, the impact is likely to be particularly negative on young women.**

### Technologists

“Technologists” (engineers, IT specialists and other professionals not directly engaged in scientific research activities such as lawyers) in INFN are predominantly men, with only 4 women out of 33 at the top level of this career. There is not sign of inversion of the trend as the disparity index over the years 2003 – 2010 has remained constant. There is an obvious historical reason, but the issue may need further scrutiny in view of the recent rise of female participation in computing and engineering studies.

A tendency to entrust “technologists” with more and more administrative and managerial tasks has been recorded in recent years (e.g. the Head of Personnel is a technologist) , which results in narrowing of career opportunities for staff in administrative category who may hold the necessary educational qualifications (e.g. holding a university degree) .

### Technicians

Women make a bare 5.4% of this category, with a decreasing trend. The reasons seem to be mostly connected with strong gender segregation patterns in the vocational education system in Italy.

Recruitment of this staff in permanent position has been frozen for a number of years: this occupational group is ageing and the trend is more apparent among the few women technicians. CPO reports a general numerical decrease among younger technical staff (<40), (- 40% men and -80% women) over the period 2003- 2008

### Administration and general management

Women represent the large majority of support/administrative staff. However they are not present in the highest administrative decision making positions.

The “evaporation” of women at top decision-making levels in administrative positions is an aspect worth of attention.

**Other staff – University and non-permanent**

The PGA team was not in a position to adequately analyse the gender composition of non-permanent staff, University associates, under-graduate, post-graduate and research fellows at national level. These data are available in INFN “Triennial Plan 2011-2013” but are not sex-disaggregated.

A comforting finding is that out of the 7 Prizes for Best Doctoral Thesis awarded by INFN in 2010, 4 were awarded to female PhD. researchers.

**B.1.2. Human resource management: a gender perspective.**

Italy enshrines the principle of equality of opportunity between women and men at Constitutional level. In addition, Italian law complies with EU equal opportunity law. As a public research institution, recruitment and career progression at INFN are regulated by

- Italian public administration law,
- Legislative provisions related to maternity leave,
- The national collective agreement related to the research sector, which regulates occupational career and salary scales.
- Italian equal opportunities law, which enshrines the EU legislative corpus related to equal opportunity in employment and occupation, work-life balance, parental leave et cetera. Italian law also requires public institutions to establish an Equal Opportunity Committee and adopt Affirmative Action Plans.

***Recruitment***

Vacancies for indeterminate and fixed-term positions are filled through national level competitions. Positions are open and advertised publicly according to Italian administrative law. Selection is made by means of selection panels comprising internal and external members and in varying numbers according to the professional category and level (from a minimum of three to a maximum of six). Criteria for selection (for both indeterminate and determinate positions) are established through INFN internal regulations.

The evaluation process normally three elements:

- Scientific (or educational ) curriculum (education, publications, participation in research projects at national and international level, international experience)
- Written test
- Oral interview

Directors of Sections and Laboratories are directly appointed by the INFN Executive Board upon election by the Section’s staff. They can be selected among Heads of Research or Full Professors (Grade A in the EU framework).

Project-based contracts and research grants are awarded through local level selection processes according to regulations set at national level. It would appear that these selection processes leave larger room for local level decisions. These two forms of precarious employment have very limited social security coverage.

INFN adopted the European Charter of Researchers (2005), in 2005. The Charter aims to achieve excellence through transparent selection procedures. The Charter sets an improved female participation and a better gender balance as a key element for achieving excellence in EU research. It also highlights the need to take active measure to improve work-life balance for all researchers. The Charter also emphasises the importance to adopt innovative and broader criteria in the evaluation of

scientific excellence, beyond quantitative bibliometric indexes, such as experience in management of large international projects.<sup>6</sup>

A preliminary review of internal recruitment procedures shows that formally INFN adopts the principles advocated by the Charter. Competitions procedures meet transparency requirements: selection criteria and related rating systems are clearly set and do not appear to bear explicit gender bias. However, transposing the letter of the Charter into practice would require an internal in-depth discussion as to whether and how these principles can be practically applied in recruitment procedures, performance appraisal or career development. The “Minerva” code for recruitment of young researchers approved by the EC-led Helsinki Group on Women and Science would offer a possible tool to give full effect to the European Charter for Researchers.

### ***Career progression, performance management and training***

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Currently career progression is possible through internal/external selection procedures, when new positions are opened for higher-grade positions. Eligibility criteria are clearly stated and advertised and include appraisal of performance by the relevant Section Director, who has therefore a large say in the process. Given the current financial restrictions, opportunities for career progression are very scarce.

Performance management and workplace relations are the responsibility of Directors of Sections or laboratories. Heads of Research and project coordinators are also often entrusted with management of day-to-day team work, including of large, decentralised and international teams. No specific evidence of standardised performance management systems and feedback procedures has been found. During interviews, peer review and bibliometric indexes were mentioned as the method through which they are able to assess their own performance.

INFN has traditionally been organising a substantive programme of internal and external staff training covering both work-related and broader organisational issues (including gender sensitization activities in the past and a substantive gender equality training offer for 2011). Training is offered both at the level of Sections, grouping different Sections and at central level. The establishment of a network of “Training focal points” allows to draw context-specific plans. Training is offered on very specific technical issues as well as more “soft skills”. Information on training programmes is easily available on INFN website. All professional categories in principle have equal access to job-related training. However it would appear that these programmes do not include activities to reinforce managerial skills. There are concerns as the recent budgetary cuts have substantially reduced the training budget.

### ***Working conditions and work-life balance***

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These are set by the national collective agreement of the research sector.

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<sup>6</sup> **Judging merit** *“The selection process should take into consideration the whole range of experience 15 of the candidates. While focusing on their overall potential as researchers, their creativity and level of independence should also be considered. Consequently, the importance of bibliometric indices should be properly balanced within a wider range of evaluation criteria, such as teaching, supervision, teamwork, knowledge transfer, management of research and innovation and public awareness activities.”* (Commission Recommendation of 11 March 2005 on the European Charter for Researchers and on a Code of Conduct for the Recruitment, p. 25)

In relation to **pay**, CPO remarks an apparent discrepancy in salary scales between technicians and administrative staff: educational qualification levels are differently valued and remunerated in the two professional categories. These provisions are established by the national collective agreement of the Research Sector, which gives more value to technical and scientific professions than to those in administration. However, the collective agreement itself may hold gender biases in job evaluation criteria.

The national collective agreement sets the full-time **working schedule to 36 hours** per week. It allows for flexi-hours and allows for the adoption of tele-working arrangements, to be individually adapted to the specific needs of institutions. Provisions for part-time and temporary contracts comply with Italian administrative law. Part-time workers are subject to limitations in relation to specific decision-making positions and compensation for overtime.

**INFN family-related leave provisions are in accordance with Italian law on parental leave** covering compulsory maternity leave (paternity being allowed if the mother is ill or not able to attend to the child) and optional parental leave up to 6 months (for both parents , up to a total of 10 months).

**Work life balance.** In collaboration with the CPO, the INFN administration has undertaken a broad survey to identify work-life balance needs among its staff. As a consequence, some measures have been taken to provide child-care facilities for staff, such as agreements with local chères. .

#### ***Mechanisms and Plans for Equal Opportunities***

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As with all Italian public bodies, since 2000 INFN counts on a statutory Advisory Panel on Equal Opportunities (“Comitato per le Pari Opportunità”, CPO) comprising bipartite representation (appointed by the INFN administration and trade union representatives). As required by Italian law, CPO is a joint staff- management and works along the lines of Affirmative Action Plans adopted by INFN Board of Directors. Following the entry into force of Law no. 183/2010, this advisory panel is soon due to be replaced by a “*Central Committee for the enforcement of equal opportunities, workers’ welfare and non-discrimination.*”, which shall have a broader mandate, covering all forms of discrimination, and mobbing.

The INFN CPO and related proposals for Affirmative Action Plans are particularly commendable in that they adopt a “gender mainstreaming approach” rather than just focusing on specific actions targeted at female employees. Data collection and analysis have been feeding into a work programme that aims to improve working conditions for all as well as the quality of research performed by INFN.

The CPO has produced a wealth of statistical data, analytical studies and training materials which are easily available on INFN website (<http://www.infn.it/cpo/>).

The CPO has also been active in advocating for measures to improve work-life balance for all, women and men, under all types of contractual arrangements – drawing specific attention to specific disadvantages faced in this respect by young researchers under precarious working conditions.

Another really remarkable achievement of INFN is the adoption of a Code of Conduct to prevent and address workplace harassment and, consequently, the hiring of an external Advisor to which INFN staff may turn for conciliation and mediation.

However, past AAPs have not been matched by operational work-plans stating targets to be achieved and lines of responsibility. This has left their implementation very much in the hands of the CPO itself and to a certain extent contradicts the principle of “mainstreaming”, which requires actions to be directly taken by the INFN management or staff themselves - *the promotion of equality is “everyone’s matter”*.

CPO has called the attention of INFN management to the need to concretely adopt EU “Minerva” code for recruitment of young researchers approved by the EC-led Helsinki Group on Women and Science to give full effect to the European Charter for Researchers and the Code of Conduct for their recruitment (2005), both in past and in the proposed AAP. CPO has also been advocating for an extension to all internal panels of the national law requirement a 30% women’s quota in selection panels.

The upcoming Affirmative Action Plan (2011-2013) is in course of approval. The Proposal recalls the need to take action towards the effective implementation of the European Charter for Researchers, including reassessing a Human Resource Strategy based on investment in human capital, transparency, actions to create an inclusive work culture and overcome gender (and other) inequalities in employment and career progression. The proposal takes stock of the drawbacks of previous plans and includes a specific work-plan, targets, timelines and actors involved.

Four main lines of action are proposed:

- Establishment of an “observatory” to monitor the implementation of the Plan
- Human resource development from a gender perspective
- Gender and generational statistics, with particular emphasis on the gender pay gap
- Promotion of a gender –sensitive organisational culture

The successful implementation of the Plan will require the active engagement of INFN management and staff at various levels. The on-going reform of public administration and the foreseen transformation of the CPO into a more comprehensive organ (CUG - Comitato Unico di Garanzia) may be an opportunity to re-discuss internal accountability towards AAPs. The risk that matters relating to equal opportunities be diluted or de-prioritized as the mandate of the Committee becomes broader should be carefully assessed.

## **B.2. INFN Trieste**

### **B.2.1. Staffing: a gender perspective**

**Trieste Section** counts on 49 permanent and 5 non-permanent staff. It also relies on some 215 associated staff from Trieste University Department of Physics , SISSA and other research institution ICTP, INAF, Sincrotrone Trieste). The recent appointment of a female Director of the Trieste Section is a noteworthy achievement. Conversely, Trieste scores lower than the national INFN average as regards other scientific and technical positions. The situation improves if “University associates” are considered:

**Table 3: INFN Trieste: % of women<sup>7</sup>**

INFN Employees by Category	Total	Women	% W
Researchers	22	2	9%
Technologists	4	1	25%
Technicians	22	0	0%
Administrative staff	7	5	71.4%
<b>Total</b>	<b>55</b>	<b>6</b>	<b>10.9%</b>
University associates, by Category	Total	Women	% W
Researchers	95	10	10,5%
PhD fellows or other fellowships	108	24	28,2%
Undergraduate students	5	2	40.0%
Technologists	2	0	0,0%
Technicians	5	1	25.0%
<b>Total</b>	<b>215</b>	<b>36</b>	<b>17.2%</b>

### Researchers

A little less than 10% of researchers working for INFN Trieste are women. The percentage of female graduates in Physics from Trieste University is in the Italian average (some 26 out of 106 from 2005 to 2010), but anecdotal findings indicate that many of them have chosen careers in the field of secondary education or the private sector. The synchrotron in Trieste also seems to attract highly qualified university graduates. It would also appear that those who have chosen to stay on in research have decided or been obliged– like many of their male colleagues – to go abroad.

### Technologists

The only INFN female technologist works under a fixed-term contract.

### Technicians

The only two female technicians working for the Section are University associates. The extremely low representation of women in this category is mainly due to the fact that the local Technical Institute is almost exclusively male-dominated. .

### Administrative staff

Women represent the vast majority of those working in administrative positions (71.4%).

## B.2.2.Human resource management: a gender perspective

Recruitment and career progression are managed according to national rules. The Director has an important role in that she can lobby for new positions to be opened when opportunities are discussed at national level. She has decision-making power in local-level recruitment of non-permanent staff/researchers.

<sup>7</sup> \*includes 5 employees holding fixed-term employment contracts

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*Recruitment*<sup>8</sup>


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Due to progressive budgetary cuts and the fact that today in Italy research is not prioritized, hiring of new indeterminate staff has been reduced to a minimum. However, the one recent recruit is a young female physicist (the contractual situation was not clarified);

Scarcity of resources obliges research teams to rely on use of precarious forms of employment such as research grants or project-based contracts to retain competent researchers;

Research students/fellows work under precarious conditions and extremely low salaries compared to their international peers; some of these forms of contract exclude researchers from key social security benefits such as maternity or parental leave; the complementary insurance fund for INFN staff is also extended – with some limitations – to INFN fellows (e.g. only those paid directly through INFN funds, while those associated from other entities are excluded)..

The few permanent vacancies opened in 2010 served the purpose to redress precarious situations and stabilize the position of long-serving fixed-term staff. The formal eligibility criteria excluded young researchers who had been working under the most precarious forms of employment.

Many among the most promising researchers - women and men – have moved abroad and stay, because of better salary levels and career prospects. Those who are able to stay can afford to do it because of support from the local family network;

Interviews and workshops highlighted a general perception that the financial restrictions on research result in involuntary discriminatory practices against young researchers. In the opinion of the PGA facilitators these concerns have also important gender dimensions.

Some added that making independent research choices in a scarcely resourced environment can be detrimental to individual career, since one has to “follow the right group” in order to maintain one’s job.

The potential negative impact of these trends – which are the natural result of long-term national level policies and practices –on the Institute’s capacity to continue to perform at high levels of excellence were highlighted:

- There are very narrow possibilities for mobility from/to other regions or countries (and to re-integrate those who have left Italy to be engaged in international experiments);
- The “fight” for a position does not help scientific collaboration, knowledge-sharing and mentoring of younger researchers, as they are seen as potential competitors by others who have been in precarious contracts for longer periods;

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<sup>8</sup> Due to the small figures, data collected through the on-line survey in relation to recruitment are not statistically meaningful. The information acquired through the on-line survey is here mostly used to analyse or reinforce qualitative information collected during the visit in Trieste.

- There are discrepancies between the life-cycle of experiments (due to their nature, they tend to have long lives – 5 to 10 years) and the impossibility to appropriately plan for the necessary human resources
- International exchange programmes do exist, but they do not seem to be able to feed into INFN recruitment processes.

The interviews and the workshops offered staff the opportunity to reflect on **the gender dimensions** of this situation. The questions were met with openness and genuine interest. Some common opinions among respondents can be identified:

- Most respondents did not believe that the current situation depends on the conscious or unconscious intention to discriminate against female researchers;
- No doubts were expressed, at any level, on the scientific potential and capacities of women researchers or technicians (this was confirmed by both the interviews and the on-line anonymous survey);
- The Institute and the University have actually put in place systems to attract students to scientific studies and particularly young female students (see under “Good practices”);
- Many female graduates in Physics would in fact appear to have preferred careers in secondary education (part-time, secondary income earners) or in private sector;
- The local vocational training system does not encourage girls to choose technical professions;
- Research is (or is perceived as) full time work which requires life-time dedication and does not allow for easy conciliation of work-life balance;
- Pursuing a research career involves postponing childbearing, which is perceived as a more acceptable sacrifice for men but more difficult for women, because of biological reasons.

#### *Career progression and evaluation of scientific excellence*

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During interviews, the most frequent career progression criteria mentioned were:

- Education
- Number of publications (and related impact-factor)
- Management of research projects
- Capacity to attract funds
- International experience

Most, if not all, interviewed staff agreed that today the achievement of scientific excellence requires a much broader set of competences than pure “research capacity” and top-level scientific knowledge.

These include: leadership, organizational skills, conflict resolution, planning, team management, resource mobilization, lobbying, networking, communication and collaboration skills are some of the key competences required. Nobody hinted at possible gender differences in this relation, or in other words, nobody had doubts as to women being as competent as men in any of them.

Being in charge of an important experiment or team is an important factor for making a career and it is considered a real challenge for women with children, because of the demanding work



schedules and recurrent, long-term missions. Some role models of women who are able to lead large projects and have children were mentioned, with admiration.

However, some doubts were expressed in relation to the gap between the “ideal” competences in a truly meritocratic system, and actual practice:

- Career progression mechanisms (e.g. pay increase procedures) were referred to as loosely related to performance appraisal and management, as they put those in charge of decisions in the situation of evaluating colleagues with whom they work on a daily basis.
- Some also noted that academic excellence may not necessarily be the first requirement for actually making a career. Capacity to choose “the right research group”, in line with the Management’s priorities may be sometimes more rewarding than innovative thinking.

The existing mechanisms of evaluation of excellence are not considered to contain inherent gender bias, but in practice they are not deemed sufficiently transparent enough to guarantee the continuous development of research excellence in the institution.

Some indicated that there are “grey areas” in relation to division of roles and responsibilities between the different professional categories, and this impression is being reinforced as the Italian reform of public administration provides for new procedures related to purchase and management of equipment.

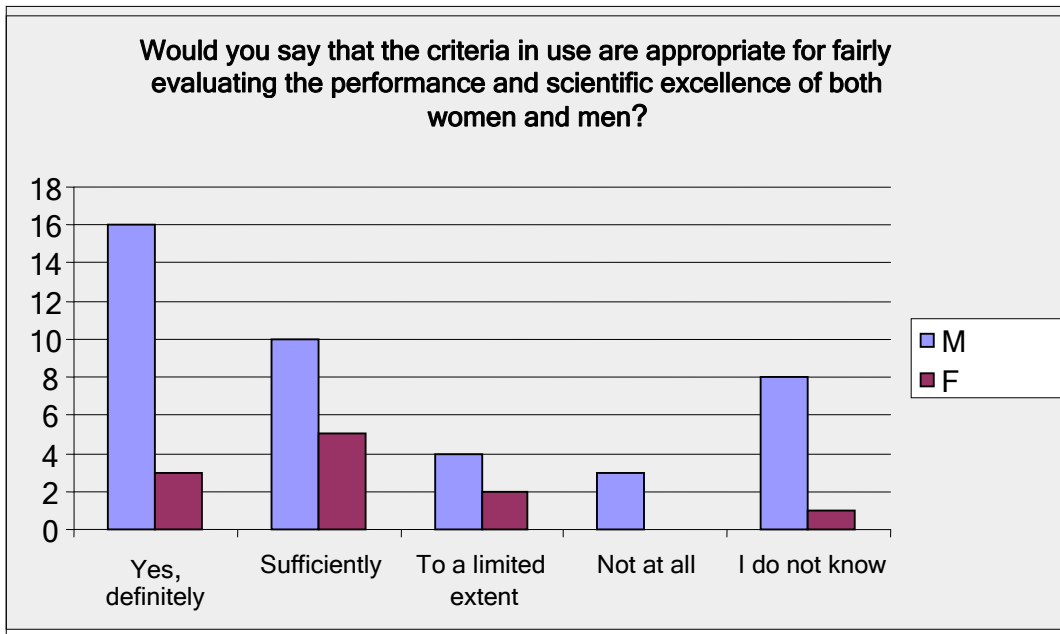
Researchers and technologists who have supervisory responsibilities are required to deploy a broad set of managerial skills (team management, coaching, performance management, conflict management) but the Institute does not provide for any direct guidance or orientation in this respect. No direct guidance is given in relation to issues concerning non-discrimination in recruitment and HR management.

The on-line survey posed a number of questions on potential gender biases in current performance evaluation criteria, systems for resource allocation and allocation of research funds. While in general it can be said that neither men nor women respondents think that current criteria put women at a disadvantage, the following Graph shows some differences of opinion.<sup>9</sup> Similar responses were given to questions related to allocation of resources and of research funds.

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<sup>9</sup> Given the very small statistical sample, these differences must be taken with caution and cannot be considered as a definite finding.

**Chart 1: Are evaluation criteria gender biased?**



It is also interesting to analyse the replies to “Why are women less represented at the top of research?”, as summarized in Chart 3 below. Many would seem to believe that “Men have more time”, “Women have more family responsibilities” and - to a more limited extent, “Current criteria favour men”.

Open-ended replies and interviews allowed to clarify that some respondents believe that men are favoured because of the natural tendency for people in decision-making positions (currently men) to choose and coach those whom they feel closer in terms of expected career ambitions and expected behaviours (i.e. men). This phenomenon is recognized as “homosociability” and depending on some form of “hidden bias”, which is believed to be a consequence of a number of disparities in the world of work (not only in terms of gender but also in relation to ethnicity, age etc.)<sup>10</sup>

An analysis of the dimensions of projects currently managed in the Section seems to point out that women manage smaller size internal teams. However, these data cannot be considered as conclusive as most research projects involve multi-institutional international collaboration.

**Table 4: Projects managed in INFN Trieste Section – by gender**

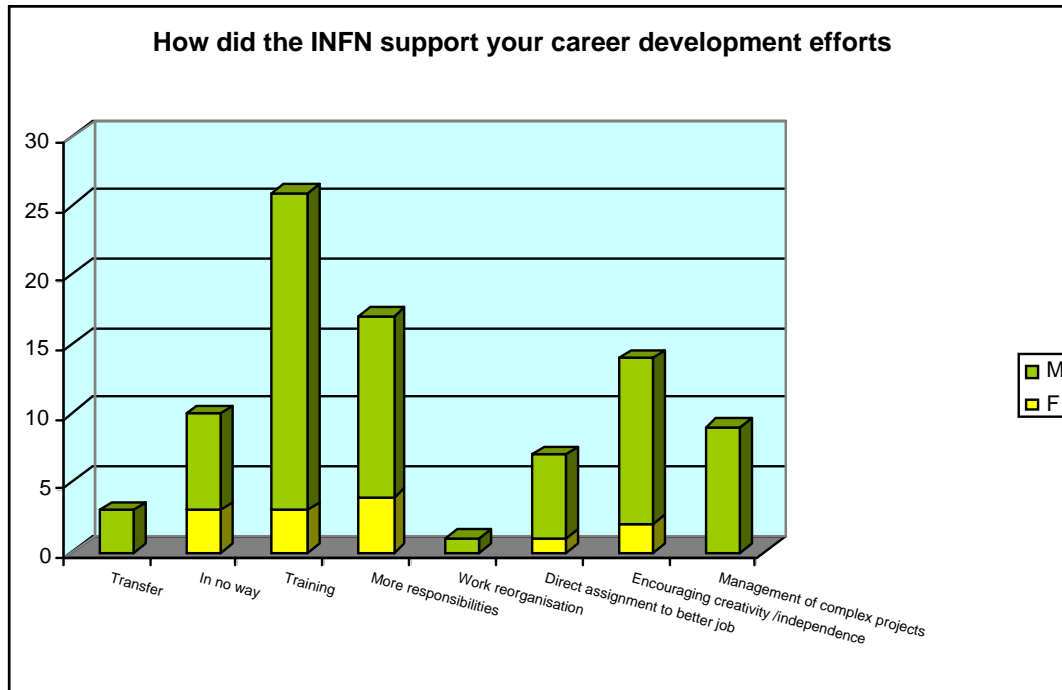
	No. of projects	Total personnel	Average personnel p.a.
<b>Female-led projects</b>	3	9.7	3.2
<b>Male-led projects</b>	40	166.1	4.2

<sup>10</sup> Research conducted by a network of academic institutions (including MIT) on some 5,000,000 on-line tests has proven the existence of these hidden biases among even the most “gender or ethnicity sensitive” people. For more information see [www.projectimplicit.org](http://www.projectimplicit.org)

### *Career development and status*

The on-line survey showed that training and direct assignment to more complex jobs are the most commonly adopted methods to support the staff professional development ambitions. There would not seem to be substantive differences in which male and female employees in all professional categories access training and self-development activities.

**Chart 2: INFN and career development**



Similar remarks can be made in relation to the possibility to present research results through publications or in international conferences. Interviewed staff reported that normally “those who have done the job present the job” irrespective of who is the formal project leader. At first sight, no differences in numbers of publications and/or presentations at international conferences can be detected. However, the small number of female respondents and some discrepancies in the replies related to the number of publications among women do not allow to make a more detailed analysis of this aspect. Co-authoring of research results is also to be taken in consideration.

Many respondents to the on-line survey reported having to perform tasks that are below their assigned job descriptions, but the majority of them admit that this is because “everyone has to do it in the work group” , rather than because of someone’s unfair behaviour.

### *Working conditions*

The on-line survey revealed that working overtime is frequent, with differences among professional categories:

- Among researchers/technologists 37% always and 42% frequently work overtime, both women and men).
- Among technicians 12.5% always and 31.1% frequently work overtime
- Among admin. Staff 75% sometimes and 25% only rarely work overtime

The vast majority of researcher are frequently abroad, with 62.5% of women and 44% of men being away between 15 and 40 days per year, and 38% of women and 50% of men being away for more than 40 days per year.

Flexibility and the possibility to work outside the office (and outside office hours) are considered a plus by most staff engaged in research work. However this is also related to the demands of research work, that go well beyond normal working hours.

Administrative and technical staff have lower mission/overtime demands but relatively narrower opportunities to flexibly organize their work schedule. This is mostly related to the nature of their job and to occupational safety concerns. Some argued that they wished possibilities to make work organization more flexible were further explored, with a view to better support work-life balance.

Most respondents to the survey agreed that the current working conditions and modalities of research are extremely demanding and difficult to allow a good balance with family or private life (see results of survey in annex, Q 36 and Q37). Face-to-face discussions clarified that most also believe that this is part of the very nature of the job, an unavoidable obstacle that anyone choosing this path must be prepared to overcome. (*“doing research is not like a working in a post office!”*). Most therefore consider the use of part-time as not appropriate for this specific type of work and believe it can hamper career possibilities.

Many interviewed staff agreed that work-life balance is a critical element that can greatly influence the possibilities for women’s careers. Many also think that women who succeed have exceptional scientific and organizational capacities, and cite them as role models.

Many recognized that the critical situation that affects all precarious research workers puts young women in reproductive age at particular disadvantage, obliging them to choose between family and career. Some reported that male researchers who have actually been able to make (or attempt) a career in research **because of** the support they have received by their female partners in managing the family, particularly as work abroad is a necessary step for career advancement. Cases were reported of highly qualified women in dual career couples, who where somewhat oriented (or expected to) to choose less demanding jobs in order to meet “their” child care responsibilities.

The majority of staff concluded that measures to promote women’s permanence in this field of research should be focussing on better mechanisms to support work-life balance (affordable and flexible childcare, flexibility in working times and places).

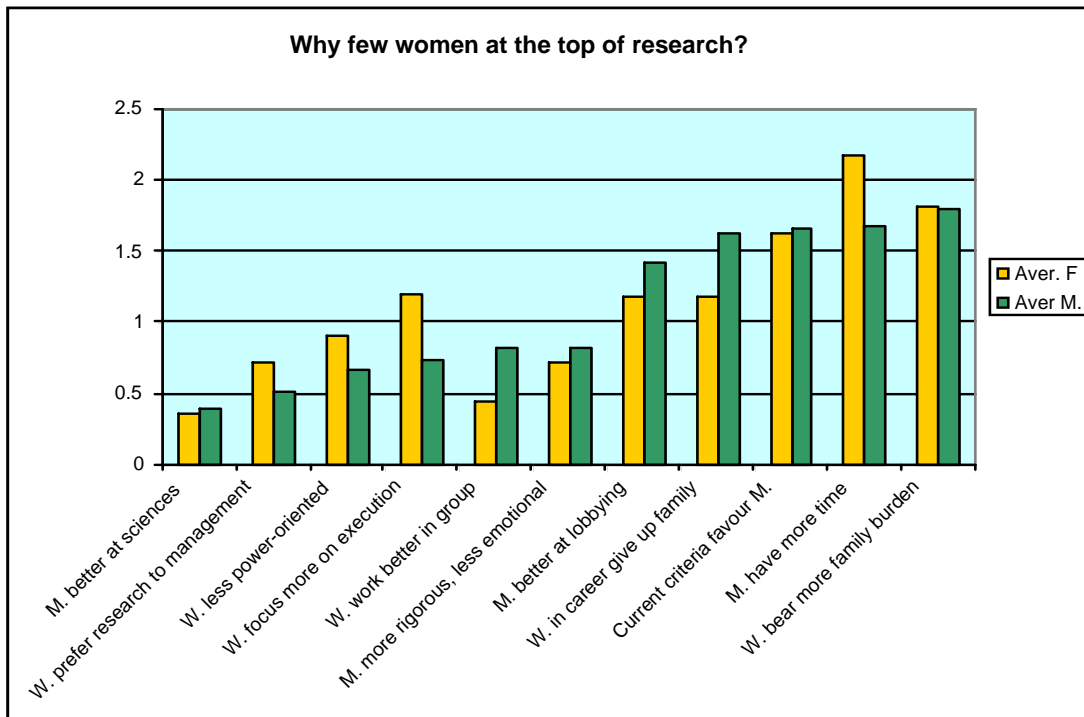
The “Officina” (Workshop) appears to be more than just a workshop but a real open space that allows for building or reinforcing friendly and healthy working relationship, also between genders.

### **B.2.3. Stereotypes: perceptions**

The on-line survey highlighted a good degree of awareness of the difference between stereotypes (i.e. generalisation on expected qualities or behaviours of women and men) and actual constraints that impact differently on women’s and men’s social behaviours. The graph below shows how respondents tended to disagree on stereotypical ideas related to women and men’s abilities, whilst they tended to agree that there are social constraints that influence their different career paths (e.g. the two last stack at the right-end of the Graph below).

Chart 3: Why few women at the top of research?

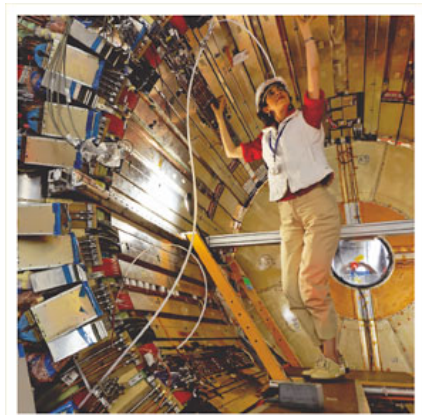
(disagree: 0 agree: 3)



*Gender stereotypes: skills and attitudes*

“Spostite che fasso mi, che son pì pratica!”  
 (“Move away and let me put my hands at it, I know better how to make it work!”)

The sentence was reported with amusement by a technician during one of the workshops in Trieste dialect: that’s the way he was addressed by a young female PhD as he was struggling to tighten a huge bolt in a machine needed for an experiment. All agreed that over last 20 years<sup>11</sup> women have proved themselves to be able to take on all tasks related not only to the theory but also to the “everyday practice” of nuclear physics.



**Photo 1: Prof. Fabiola Gianotti, CERN, at work**

Among INFN Staff in Trieste no one expressed or hinted at doubts on women’s scientific potential. All staff agreed that they have never perceived or observed prejudice in the Section in this regard. Some reported a difference in attitude between “old generation” professors and younger generations of scientists.

<sup>11</sup> The Nobel Prize to Prof. Rubbia in 1984 played an important role in attracting more students, including girls, to Physics, particularly in Trieste (Prof Rubbia was born in the nearby city of Gorizia).

Women achieving leading positions are frequently perceived as “heroines” because they “have to have really strong elbows”

Some researchers (both male and female) admitted that in some cases female researchers are or are expected to be “more collaborative” and less “proactive” and this may not necessarily help them make a career in a very competitive environment.

*Stereotypes about gender roles (women as main care providers, men as primary breadwinners)*

Some reported that pressures on women researchers (e.g. in relation to their social roles as mothers) tend to come more from family and broader society, rather than from colleagues or scientific collaborators (“*In social occasions, I can see surprise in people’s eyes when they find out that my position in INFN is not administrative but I actually work at a complex experiment*”).

Others (males, fathers) reported that they have perceived social and organisational (though unintentional) pressure to maintain their traditional gender role (“*you are expected to have a partner who will take care of the family, but what if your partner also wants a scientific career?*”).

In some cases, women would seem to be more reluctant to re-discuss their gender identity than men, though acknowledging that these put them at a relative disadvantage. Genuine willingness to “collaborate” or take a fair share in family care was often recorded among male staff (in all professional categories).

Good practices of researchers who have been able to pursue their career as they were also raising children were frequently mentioned. There was very rare reference to the option that childrearing may also be a primary responsibility for men.

*Gender, leadership and managerial capacity*

No explicit doubts about women’s leadership and managerial capacities were expressed. However some comments reveal how the scarcity of role models in high-level decision making positions has an influence on how women in leading positions are expected to behave or assessed: “*Research in our field is such a **competitive** environment..... those women who want to make it need to be more men than men themselves*” “*to make their way here, women here need to be real tough*”.

Some (women) admitted that they find themselves in the need to show – particularly at the workplace - that female scientists “can be as women as any other woman” e.g. do not necessarily have to adopt a masculine/sporty dress code or aggressive behaviours.

Two women (researchers) are represented in the “Council of the Section”, the elective organ which gathers representatives from all staff categories and management. It would appear that women from administrative position are not interested in standing for it.

Some comments were made such as “women in leading positions are more caring” or “women in leading position tend not to be able to delegate” or “women are not very good at helping each other when it comes to career progression.”

*Nuclear physics: Super Research for Super Humans?*

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“Al CERN non si mangia... ci si nutre!”  
“At CERN you don’t eat.....you ‘meet nutrition needs’ ”

The benevolent joke collected during a workshop expresses the idea that being on an important experiment requires being able to overcome even the most fundamental physiological needs.

There is a strong and shared belief that research in Physics requires unfailing commitment and dedication. This is perceived at the same as the “beauty and damnation” of science. Facilitators had long conversations with all staff on this specific topic. Some factual work-related needs were identified, such as the necessity to be on an experiment “full time and for the whole duration”, which implies frequent overtime and travel abroad. However, in some cases it was admitted that some of this “extra work” may be self-inflicted out of passion for the job (“you want to know how it is going on, and it may be in the late evening”...) or because you are reluctant to share/delegate your knowledge, for fear of losing future opportunities. Others admitted there may be “other” and less demanding ways of organising one’s life, but were not sure as to how.

There were however more nuanced opinions as to whether maternity breaks or time dedicated to family could be reconciled with these needs, through – for instance – different work and team organisation modalities. Some researchers, both female and male, seem to be more open to considering that scientific excellence and creative intuition may be also the result of a different approach, where private and working life can positively impact and contribute to each other, rather than conflict.

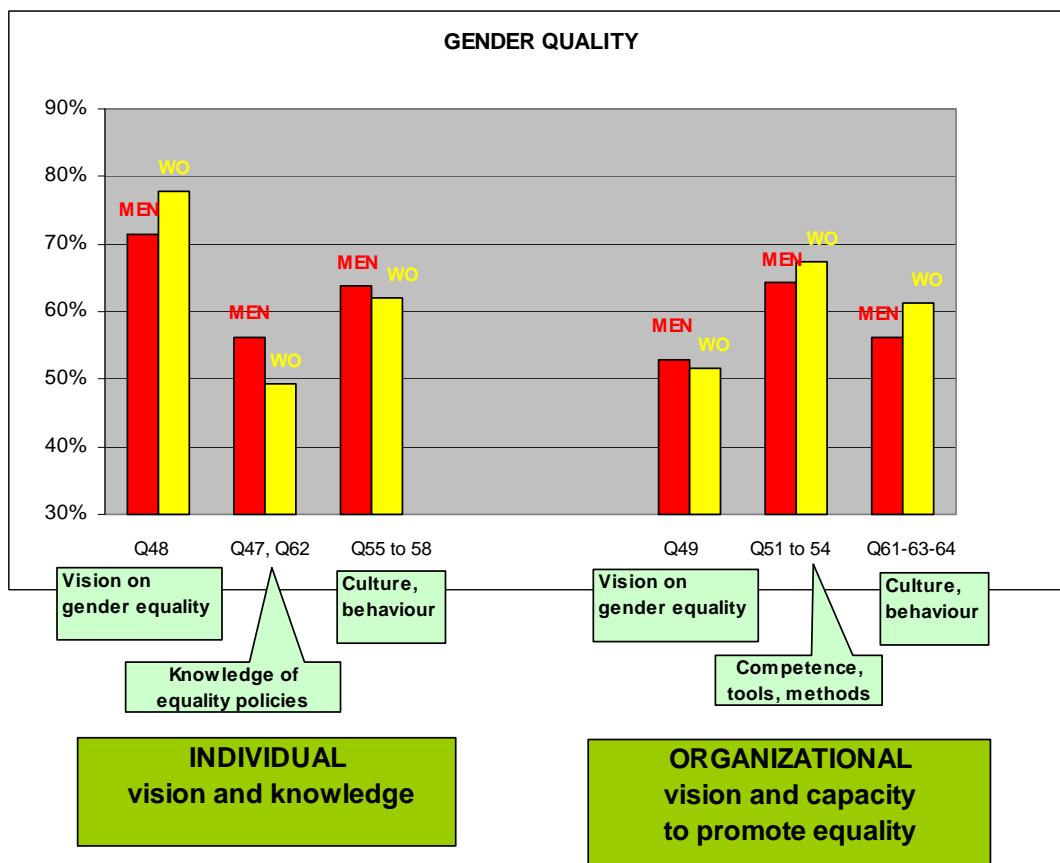
The apparent (or desired) “neutrality” of science was also a leitmotif throughout the audit. Scientific research in this particular field is often described as the “domain of objectivity” where – in theory – only meritocracy counts. However discussions would often lead respondents to conclude or remark that the “theory” does not always translate in actual practice: the apparent neutrality of science becomes socially “conditioned” by human factors, like in any other working environment. This is where gender bias could – inadvertently – occur.

### B.2.4. Culture and commitment to equality values

The following Graph aggregates the results of the on-line survey in relation to

- **Individual** self-assessment about gender equality in terms of individual commitment, knowledge of institutional policies and interpersonal behaviours
- Assessment of the **organizational** commitment to equality, existing policies, resources to promote it and effectiveness in practice.

Chart 4: Gender equality culture



*At individual level:* In general it can be said that commitment to gender equality is highly perceived as an individual value (Q48) which resonates in a relatively high self-assessment of personal efforts to ensure healthy working relationships (Q55 to 58). Yet, there appears to be an insufficient individual knowledge of the existing policies and tools on equality and sexual harassment (Q47 and Q63).

*At organizational level:* INFN does not seem to take a sufficient stand on the importance of equality for the achievement of its organizational mission (Q49). On the contrary, existing organizational procedures and rules are rated as sufficiently transparent and free from



gender bias (Q51 to 54), However, their actual capacity to translate the principle of equality into practice is rated as barely sufficient (Q49).

#### *Individual vision and organizational culture*

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All INFN Trieste section staff who have taken part in the PGA – i.e. the large majority of employees and a selected group of volunteering University Associates - have welcomed the initiative with interest and an open mindset. This is proved by the high percentage of respondents to the on-line survey, the active participation in the two workshops, and the full availability to dedicate time to the interviews.

The various PGA activities shed light on the existence of a **homogeneous group culture, with shared, cohesive and positive values and understanding of common working practices**. Equality and equal opportunities on the basis of talent and merit were often mentioned as fundamental values for the Institute, in spite of the difficulty to implement these principles in a context characterized by competition for decreasing resources.

Direct observation of interpersonal relation and the atmosphere of mutual trust among colleagues of different professional categories seem to indicate that this commitment to equality and fairness is not limited to tokenism a value informing the Institute's everyday life. This general remark applies to the totality of the interviewed staff, in a diversity of degrees and modalities of individual conceptualization

#### *Knowledge of equality policies and their organizational relevance*

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The Section does not appear to have ventured into a reflection on the issue of women's under-representation in Nuclear Physics research, yet. There are very varying degrees of structured knowledge of issues related to equality of opportunities and of their potential impact on working life as well as on INFN excellence.

This situation appears - in the eyes of facilitators – to be linked to factors of very diverse and possibly opposite nature:

- A set of **negative** factors related to the current financial and political challenges met by scientific research in Italy. Precariousness and budgetary cuts take priority over other equality issues, as they are perceived to threaten INFN excellence itself.  
*“We know this is a really important topic..... but given the current situation, worrying about equality is a bit like worrying about the wine when you do not even have bread on the table”* However, in some cases a clear vision of the gender dimensions of precarious contracts was recorded, and how this further reinforces the brain drain and future skills scarcity in the country.
- A set of **positive** factors: pride to belong to an institution that continues to stand out at global level in the world of Nuclear Physics with high impact and high visibility projects; respect for each other's talent and competence; team spirit, commitment to the Institute research mission; a “traditional” but traditionally inclusive local environment (Trieste being a border town). All these elements contribute to creating

an healthy working environment, fundamentally based on **respect and collaboration** between all women and men staff.

Equality is generally perceived and adhered to as a “universal human value”, but gender diversity (in all its nuances) was rarely explicitly mentioned as a factor that may influence a person’s degree of success and professional accomplishment.

With some exceptions, differences in gender roles were frequently expressed as a matter of fact, not to be challenged or discussed. The “neutrality” of research was supposed to be sufficient to neutralize social constraints.

There are also different levels of awareness about the existence of the Code of Conduct on harassment, the specific role played by the External Advisor (Consigliera di fiducia). No one however expressed concerns in this relation: *“we do not know it because we do not need it!”*

Physiological tensions between “scientists” (those holding a degree or PhD in Physics) and “support staff” (technologists, technicians and administrative staff), and some perceptions related to the need to have clearer division of responsibilities seemed to be counterbalanced by a general positive approach to working relations. “There is not need to take everything *too* seriously” “Breath, listen, breath again”.

The relatively recent appointment of a Trieste member to the Equal Opportunities Advisory Committee has partly contributed to spreading more awareness on the EOAC work plan and actions. Knowledge of initiatives related to childcare was recorded. However, INFN staff could benefit from analyzing with more attention the contents of the Positive Action Plans, the wealth of informative, analytical and programming resources developed by the EOA over the last ten years.

### **B.2.5. Good practices**

- A number of successful women researchers were identified as role models who have been able to deploy their scientific potential without renouncing to their family. In those cases it was apparent that reconciliation of work and family responsibilities had been possible not only because of the availability child-care facilities (e.g. the crèche in CERN) but also because their partners accepted and supported their role and career expectations.
- A female Principal investigator who coordinates high-visibility projects in the field of spatial physics is responsible for student orientation at the Faculty of Physics. She is aware of the potential additional challenges that girls may meet and makes a conscious effort to break the traditional stereotype of women scientists as women who give up their “feminine half”; she poses particular attention to creating rapport with female students and reinforcing their self- esteem in relation to scientific skills. She provides prospective students with a role model of a “real” woman who is engaged in highly specialized research in a typically “hard” subject.

- In the context of a broader programme aiming to attract young people to scientific careers (Progetto Lauree Scientifiche) the allocation of fellowships for girls wishing to enter scientific careers. This project also involved seminars and conferences held by highly performing women physicists (<http://scienzafemminile.imem.cnr.it/seminari.htm>).



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The existence of a nursery within the compound of the AREA research complex is considered a good practice, though not much used by INFN staff because most of them are men and childcare is culturally still perceived as “female responsibility”. Wives/partners would appear to be employed in less time-demanding occupations, or relying on extended family networks for support (grandparents).

- Flexible working times and (informal) possibility of tele-working for researchers. However, it would appear that administrative and technical staff do not have possibility of tele-work due to the nature of their tasks. It may be worth it to explore whether this good practice could also be extended to other professional categories, keeping in due consideration work-related needs and occupational safety requirements.
- The mechanical workshop as the place to turn to for reciprocal help (women and men).
- Respecting the principle of having at least 30% of women among member of committees responsible for recruitment and career progression.

## C. CONCLUSIONS

### C.1 Gender and HRM

It was not possible to analyse the historical trends that concurred to the present under-representation of women researchers in the Trieste Section.

The female researchers who were interviewed generally did not report perception of direct or indirect discrimination within their scientific environment, but mostly related the difficulties met by women in research to contextual cultural biases. The interviews and workshops allowed to explore together with INFN staff some of factors influencing the current situation:

- Most respondents did not believe that the current situation depends on the conscious or unconscious intention to discriminate against female researchers;
- No doubts were expressed, at any level, on the scientific potential and capacities of women researchers or technicians (this was confirmed by both the interviews and the on-line anonymous survey);

- Many female graduates in Physics would in fact appear to have preferred careers in secondary education (part-time, secondary income earners) or in private sector;
- The local vocational training system does not attract girls to technical professions;
- Research is (or is perceived as) full time work which requires life-time dedication and does not allow for easy conciliation of work-life balance;
- Pursuing a research career involves postponing childbearing, which is perceived as a more acceptable sacrifice for men but more difficult for women, because of biological reasons.

The Institute and the University have put in place systems to attract students to scientific studies and particularly young female students. More over, the presence of a female Director, who was appointed upon elective recommendation from the Section's staff, can provide a good role model for future generations.

However, the current economic and political context are not promising: career opportunities are very scarce, competition is very high and women seem to be opting out, looking for "safer" and less precarious situations.

Working conditions, the work culture in INFN, and times/location of local childcare infrastructure makes it difficult for researchers to reconcile research with family life. Women are the ones who are more traditionally thought of *having* to deal with this and most frequently to *have to make a choice between family and career*.

Recent managerial choices – based on merit – are positive signs, but to become sustainable they will need to be complemented by a set of measures aiming at enabling young female researchers to stay on and play on a level ground.

Those in managerial positions need to deploy a large set of soft skills – including management of gender and other types of diversity – but do not currently benefit of organisational support in this respect. This should of course be part of a broader policy on how to attract and retain young talents – both women and men.

Currently, members of committees responsible for staff recruitment and evaluation do not receive specific assistance in methodologies for fair recruitment or performance assessment. Efforts are being made in order to ensure that career progression is possible for everyone, based on objective, transparent criteria. This includes the implementation of the national provision for quotas for women representation in selection panels.

Discussions held during interviews, focus groups and the results of the on-line survey would indicate that INFN staff has not yet engaged into a discussion on the potential biases in evaluation of excellence/performance and on the obstacles to gender equality hidden in the accepted social representation of science. However, many among researchers and other staff did point out that traditional gender roles and cultural biases seem to have a strong influence on women's careers. Some have expressed some openness in engaging in further reflection on the gap between real and perceived needs of work organisation in research.

## C.2. Stereotypes

There exists a high degree of awareness of the difference between gender stereotypes (i.e. generalisation on expected qualities or behaviours of women and men) and the actual constraints that impact differently on women's and men's social behaviours. In particular, no prejudices about women's technical abilities were recorded.

Opinions are more nuanced on what is expected from women and men when they achieve leading positions. Leadership is often – unconsciously – related to male behaviours and symbols. Women as leaders tend to be judged as “women AND leaders” as if this had an inherent dichotomy. This does not happen with men.

The world of science is often described as a very **competitive** environment. There are possible contradictions between the growing need of collaborative behaviours and methods (particularly in large international research project), and the need to compete in order to make a career in this field.

The apparent (or desired) “**neutrality**” of science was also a leitmotif throughout the audit. Scientific research was often described as the “domain of meritocracy”. However discussions would often lead respondents to conclude or remark that the “theory” does not always translate in actual practice: the apparent neutrality of science becomes socially “conditioned” by human factors, like in any other working environment. This is where gender bias could – inadvertently – occur.

There is a consistent use of the masculine gender throughout all INFN documents at both National and Section level, as this is intended to express neutrality.

There is a strong and shared belief that research in Nuclear Physics requires unfailing dedication. Some factual work-related needs were identified, such as the necessity to be on an experiment “full time and for the whole duration”, which implies frequent overtime and travel abroad. However, in some cases it was admitted that some of this “extra work” may be self-inflicted out of passion for the job or because you are reluctant to share/delegate your knowledge, for fear of losing future opportunities. Others admitted there may be “other” and less demanding ways of organising one's life, but were not sure as to how.

There is great openness to re-discuss gender roles within the family, also on the side of men, who are more open to take their share of responsibility. However these are perceived as being matters of “personal choice” rather than organisational issues. There are – in many cases – silent assumptions about the fact that “women must make a choice” whilst this is not an option for men.

## C.3. Organisational culture and knowledge of gender equality issues

The various PGA activities shed light on the existence of a **homogeneous group culture, with shared, cohesive and positive values and understanding of common working practices**. Equality and equal opportunities on the basis of talent and merit were often mentioned as fundamental values for the Institute, in spite of the difficulty to implement these principles in a context characterized by competition for decreasing resources.



The “onion” of values, rituals, champions and symbols emerged in a PGA workshop

There are varying degrees of structured knowledge of issues related to equality of opportunities and of their potential impact on working life as well as on INFN excellence . INFN staff could benefit from analyzing with more attention the contents of the Positive Action Plans, the wealth of informative, analytical and programming resources developed by the EOA over the last ten years.

## D. RECOMMENDATIONS

All partners in GENIS-LAB project have committed themselves to:

- Engaging in a series of “laboratories” on issues identified during the audits.
- Defining, within each partner institution, a “self-tailored action plan” aiming to promote and realize structural change to improve women’s representation in scientific careers.

Given the participatory nature of the whole PGA exercise, these recommendations are not meant as “quick fix “ solutions to identified gaps that may have been identified. They rather offer INFN management and all the staff involved with ideas on how to capitalize on the richness of already existing resources and experiences, and contribute to the practical implementation of its existing gender equality policies and strategies.

Each interviewed person was asked to propose “an idea for improvement”. We tried to include everyone’s opinion, by adding more, which seemed relevant from the perspective of an external observer.

Their feasibility, timing and methods of implementation are totally left in the hands of INFN management and staff.

### **D.1. At Section level**

The Section could benefit from:

- Encouraging the “Consiglio di Sezione” to enter into a structured discussion on the resources offered by Equal Opportunity action plans, and their relevance/feasibility at local level. This would include a closer analysis of the implications of the effective implementation of the European Charter for Researchers (See also below under “At Central Administration level”)
- Establishing a focal person on gender within the section, who would have the role to support the current staff who is member of the Advisory Committee on Equal Opportunity. This focal point could a) assist the Advisory Committee in its efforts for data collection and monitor trends in male/female employment, also in relation to the number of female graduates from Trieste Department of Physics, PhD fellows and other non-permanent staff. B) assist the Advisory Committee in disseminating information on existing policies, resources, tools (see for instance below).
- In collaboration with the Advisory Committee, disseminate synthetic and relevant briefs on key equal opportunity issues, which have an impact on both women and men (work-life balance, transparency in human resource management criteria, evaluation of scientific excellence).
- Opening a discussion on how the Section could take a more proactive approach towards achieving gender equality in this field of research. This could, for instance, mean taking a stand in a more gender-sensitive use of Italian language in written documents, as per the guidelines suggested by the EU Parliament or by the Ministry of Public Administration.<sup>12</sup>
- Consider possible practical ways to retain talented female researchers after their PhD. by putting in place pro-active measures to ensure that they develop the assertiveness they may need to “fight” in this specific environment (coaching, mentoring, role-modeling)

<sup>12</sup> <http://ec.europa.eu/dgs/translation/rei/documenti/rete/neutralitagenero.pdf> ; [http://www.innovazionepa.gov.it/media/277361/linguaggio\\_non\\_sessista.pdf](http://www.innovazionepa.gov.it/media/277361/linguaggio_non_sessista.pdf)

- Consider the possibility to reinforce links with the private sector, in order to facilitate the entry in the private labour market for those graduates in Physics – female and male - who have gained experience in INFN but are not in a position to stay on in research.
- Organize internal discussions and/or training on bias-free evaluation and performance management processes, on stereotypes and their impact on the organization (also to cover other diversity issues, such as age, sexual orientation or nationality/ethnicity/multiculturalism)
- Have a closer analysis of work organization processes in scientific projects as well as in support work (technical/admin), to assess the possibility of organizing working time in more gender friendly ways.
- INFN as an institution for excellence is well placed to communicate to the local community a strong message on gender equality in science. For instance, visibility events should make an effort to present women role models (e.g. local schools, including the technical schools).

## D.2. At Central Administration level

### *Policy dialogue and reinforcing accountability frameworks*

- The current reform of PA and the establishment of “Comitati Unici di Garanzia” (CUG) could be a good opportunity for top management to discuss and take direct responsibility of the effective implementation of the Equal Opportunity Action Plans. The advisory and monitoring function of the CUG should be separated from actual implementation of the Plans, which require clarifying responsibilities among a much larger set of internal actors (e.g. Human Resources Services, the Directors, members of Selection Panels...).
- In order to make the new CUG work integrated and sustainable, the Executive Board (Giunta) could engage in a more substantive dialogue with the Council of Directors (Consiglio Direttivo) to inform, sensitize and guide Directors **on gender issues in scientific research as part of the Institution’s strive for excellence.**

### *Aligning human resource strategies and management tools to EU policies*

- The above should be defined as part of the institutional-level implementation of current EU and Italian policy framework on Gender and Science in the 7th and 8th FP, as well as of the “EU Charter for Researchers” (see below), as follows:
  - o The Italian Ministry of University and Scientific Research and the Department for Equal Opportunities have developed a set of policy orientation documents



to support gender equality in science.<sup>13</sup> These include actions at normative level, but also initiatives that may and should be taken directly by public institutions. INFN could take this opportunity to define a set of practical actions to be taken, including adopting and giving practical effect to the Minerva Code: Transparency for Excellence, as planned in the last AAPs.

- The Italian Ministry of University and Scientific Research and the Department for Equal Opportunities have also produced a Draft National Plan of Action to enforce the European Charters for Researchers (and the Code of Conduct for recruitment of researchers). Keeping this in concrete consideration and will be a plus as INFN is considering to strengthen its HR strategy<sup>14</sup>.
- The INFN could consider the possibility of offering financial incentives to Sections who prove particularly active in promoting equal opportunities

#### *Reinforcing monitoring systems*

- The CPO working group on gender statistics has produced a wealth of relevant information. However this is not directly integrated in the INFN monitoring systems, so it is difficult to keep it up dated and use it for day-to-day monitoring purposes. Gender-sensitive data should be kept as part of the mainstream monitoring system so that data could be extracted and monitored in a more systematic and regular basis, also in relation to resource allocation (missions, projects, budgets) and to University associates and non-permanent workers at local level.

#### *Promoting a gender transformative culture in internal information and external communication*

- INFN could produce simple, short and easy-to-read information notes on :
  - The current gender situation in INFN, possible obstacles to gender equality and good practice examples
  - linkages between scientific excellence and gender equality, in the perspective indicated by the EU Charter of Researchers
 These should be disseminated not only via the CUG but more openly on INFN home page.
- Send clear and proactive messages on the Institute's stand towards gender equality, via all its communication materials (website, magazine).

#### *Staff development: targeted action and promoting collaborative behaviours*

<sup>13</sup> Tavolo di Concertazione MIUR –DPO “Azioni per favorire l’avanzamento delle carriere scientifiche delle donne” ; MIUR – DPO “Documento di indirizzo sulla diversità di genere” ;

<sup>14</sup> MIUR-DPO “Piano d’Azione Nazionale per la realizzazione del Partneriato Europeo per i Ricercatori” .

- Offer structured, tailor made training opportunities on gender issues, and more specifically on human resource management free from gender bias, conflict management, leadership in multicultural and multi-gender skills, reconciling work and private life. In addition, - sensitization sessions and short inputs could be integrated in mainstream training programmes for INFN staff.
- Consider tailor-made coaching/training on soft skills to talented young women researchers
- Have female role models mentoring young researchers (both male and female and try to identify role modes of successful male researchers who equally share family responsibilities

#### *Work-life balance*

- Most of the interviewed staff mentioned the availability of child – care as a key element to eliminate obstacles from women’s careers. INFN may wish to continue and give appropriate follow up to the work already initiated in this field:
  - o to continue the existing system to monitor needs, ensuring that needs assessment is given adequate responses
  - o expanding its current provisions (establishing new agreements with child care facilities)
  - o promoting an organizational culture which **promotes** child-care, family and private responsibilities as a matter that concerns everyone and not only women. This includes clear messages to all staff that taking parental leave is acceptable for both women and men employees.

## **Aknowledgements**

The GENIS-LAB team of gender audit facilitators wishes to thank all INFN staff who participated in the process, both from Frascati Central Administration and from Trieste.

The success of the visit in Trieste was possible only because of everyone’s personal engagement and the constant support received by the Director and the staff of “Servizio Direzione”.

This was complemented by a large amount of important information, received by both Frascati and Trieste offices, which allowed the GENIS-LAB team to substantiate many of the findings collected through participatory methods.

We very much hope that the results of this joint effort will offer a contribution to support INFN in its important scientific mission.

## **Annex I – Programme of PGA in Trieste**

**Participatory Gender Audit INFN Trieste**  
**28 – 31 Marzo 2011**

	<b>Lunedì 28 (AREA)</b>	<b>Martedì 29 (Dip di Fisica)</b>	<b>Mercoledì 30 (AREA)</b>	<b>Giovedì 31 (Dip. Fisica)</b>	<b>10 giugno</b>
9:00-10:00	9.10 Incontro Direttore di Sezione	Interviste a personale interno INFN	Workshop no. 2 (AREA)	Interviste o focus group con personale associato (DIP)	Validazione findings con Direttore
10:30-12:30	Presentazione Progetto G-Lab e PGA al personale – <b>Present. Risultati on-line survey</b>	Idem	Idem	Idem	Restituzione findings allo staff per teleconferenza
Pranzo					
13:30-16:30	Interviste	Workshop no 1 (Dipartimento)	Interviste a personale interno /associato INFN		
A seguire	Preparazione workshop organizzazione per compilazione rapporto	Discussione findings nel team di facilitazione e compilazione rapporto	Interviste	Validazione findings con GENIS Lab focal point	

## **Annex II Activities undertaken during PGA in Trieste:**

### **Interviews**

24 interviews done out of the planned 24

15 at Dipartimento di Fisica

9 AREA di ricerca

15 men

9 women

- 13 INFN researchers (including the Director of Trieste Section and one Head Researcher, member of INFN National Board)
  - 4 researchers (associated from University : PhD researches or PostDoc contracts)
  - 6 technicians
  - 1 technologist
- 

### **Workshop at Dipartimento di Fisica (29.3.2011)**

5 participants

3 technicians

2 admin. staff

3 men

2 women

Exercises:

- Historical timeline
  - Hofstaede Onion
- 

### **Workshop at AREA (30.3.2011)**

8 participants

2 technologists

3 technicians

3 researchers

all men

Exercises:

- Historical timeline
- SWOT analys

## **Annex III List of documents reviewed**

### **A.III.1. Human Resources Procedures**

- Concorsi INFN per complessivi 37 posti per il profilo di ricercatore – dati e risultati per genere, anno 2010
- Tabelle salariali INFN
- Riepilogo generale – Personale INFN sez. Trieste a tempo indeterminato in servizio al 28-2-2011
- Vallerga – "Il Codice MINERVA: la trasparenza per l'eccellenza"
- Supplemento ordinario alla Gazzetta Ufficiale, Serie generale n.67 – Sezione II "Ricercatori e tecnologi"
- Supplemento ordinario alla Gazzetta Ufficiale, Serie generale n.67 – Capo IV "Flessibilità del rapporto di lavoro"
- Gazzetta Ufficiale, Serie generale n.254, INFN, 2001
- INFN, Consiglio Direttivo n.9967, 2006
- INFN, Consiglio Direttivo n.9259, 2005
- INFN, Consiglio Direttivo n.6112, 1998
- INFN, Consiglio Direttivo n.5619, 1997
- INFN, Consiglio Direttivo n.5745, 1997
- Riepilogo Congedo Parentale (anni 2008/2010)
- INFN, Direzione affari del Personale, Ogg: Legge 8 marzo 2000, n.53
- INFN, Direzione affari del Personale, Ogg: Circolare n.43/2000 (7 luglio 2000)
- INFN, Nuovo Statuto
- INFN, Concorso per il conferimento di n.20 Borse di studio per neolaureati
- INFN, Bando n.13205/2009, Concorso ad un posto di VI livello professionale con profilo professionale di Collaboratore Tecnico E.R, 2009
- INFN, Bando n.13709/2010, Concorso a tre posti per il profilo professionale di Ricercatore di III livello professionale
- INFN, Bando n.14206/2010, Procedura selettiva per l'attribuzione della prima, della seconda e della terza progressione economica ai sensi dell'art. 53 del CCNL 1998-2001
- INFN, Giudizi di idoneità per tecnologi: procedure scadute, [www.ac.infn.it/index.php](http://www.ac.infn.it/index.php)

### **A.III.2. INFN Committee for Equal Opportunity Activities**

- CPO, Questionario Nicolais Pollastrini, 2009
- CPO, "Riflessioni sulla fenomenologia di genere nelle assunzioni e nelle progressioni in carriera dei ricercatori INFN"
- CPO, Gruppo statistiche, "Studio delle progressioni di carriera per ricercatori", "Studio delle distribuzioni macro-regionali per ricercatori e tecnologi"

- CPO, Tempi diversi, Tempi di Vita – “Da ‘ Donne e Scienza’ a ‘Donne, Formazione, lavoro, Discriminazioni’”, M.L. Paciello, 2009
- CPO, “Esperienze di azioni positive per la destrutturazione degli stereotipi di genere nel lavoro”, M. Capponi, 2010
- CPO, Attività dei gruppi di lavoro – Conciliazione tra vita professionale e privata, [www.infn.it/cpo/attivita/conciliazione.htm](http://www.infn.it/cpo/attivita/conciliazione.htm)
- CPO2009, [www.infn.it/cpo/seminari\\_CPO/CPO2009/index.html](http://www.infn.it/cpo/seminari_CPO/CPO2009/index.html)
- INFN, Consiglio direttivo N.10873, 2008
- INFN, Consiglio direttivo N.7485, 2001
- INFN, CPO “Piano Triennale di AZIONI POSITIVE, 2002-2004”
- INFN, CPO “Piano Triennale di AZIONI POSITIVE per la realizzazione di pari opportunità di lavoro e nel lavoro tra uomini e donne, 2005-2007”
- INFN. CPO, Proposta del piano triennale di Azioni Positive 2011-2013
- Presidenza del Consiglio dei Ministri, Art 21 Legge N.183, 2010
- MIUR-DPO, Bozza di Documento del GT n.1
- MIUR-DPO, Bozza di Documento, “Predisposizione della proposta italiana per l’8°PQ in un’ottica di genere” – Rendere strategico il rapporto tra genere e scienza nella programmazione 2014-2020 (8° Programma Quadro – 8°PQ)
- MIUR-DPO, Draft per la discussione – piano d’Azione Nazionale per la realizzazione del Partenariato Europeo per i Ricercatori, 2010
- MIUR-DPO, Tavolo di concertazione MIUR-DPO – Elenco degli obiettivi di carattere generale identificati dal gruppo Tematico n.3 “Azioni per favorire l’avanzamento delle carriere scientifiche delle donne”
- MIUR-DPO, Documento di indirizzo sulla diversità di genere
- MIUR-DPO, Consultation Panel MIUR-DPO – Working group on theme n.2 – Italian pre-proposal on gender balance in FP8
- “Nota sull’inquadramento di tecnici e amministrativi”, M.L. Paciello
- Corso di Formazione Stereotipi di genere e ruoli sociali – “Il genere nella scienza: carriere e formazione”, M.L. Paciello, 2009
- Corso di Formazione Stereotipi di genere e ruoli sociali – “Leadership Femminile e Stereotipi di Genere”, O. Di Carlo, 2009
- 

### A.III.3. Other

- INFN Programme and Budget - “Piano Triennale 2010-2012”, <http://www.presid.infn.it/PT1113.pdf>
- Asimmetrie – [antimateria] – anno 3, numero 7 – 10.2008
- Map of the premises: INFN at AREA di Ricerca Trieste

## Annex IV : Bibliography

- EC, “The European Charter for Researchers” – “The Code of Conduct for the Recruitment of Researcher” , [www.europa.eu.int/eracareers/europeancharter](http://www.europa.eu.int/eracareers/europeancharter)
- EC, 7th Framework Programme, Meta –analysis of gender and sciences research – TOPIC REPORT – “Policy towards Gender Equity in Science and Research”, C. Castaño, J. Müller, A. Gonzalez, R. Palmen
- EC, SHE Figures 2009
- EC7th Framework Programme, Mapping the Maze: Getting more Women to the top of research
- EC, DG for Research Gender and excellence in the making (2004)
- Wennerås & Wold, “Nature 347, 341-343 (1997): this study on recruitment practices in the Swedish Medical Research Council revealed the strong influence of gender stereotypes in apparently “neutral” peer reviews.
- WONBIT Conference | Women in biotechnology: feminist and scientific approaches, [www.wonbit.nt/women/](http://www.wonbit.nt/women/)



## Annex V : List of consulted INFN Staff

### INFN Frascati (meeting on 21 March, 2011)

BOVO, Eleonora Head of Personnel Directorate

GIUNTI, Luigi , Head of Administration Directorate

Di CARLO, Oretta, Responsible for INFN Staff Training Office, GENIS-LAB coordinator for INFN

PACIELLO, Maria Luigia, Senior Researcher, GENIS-LAB INFN team

### INFN Trieste

DALLA TORRE SILVIA	Direttore
BELFORTE STEFANO	Ricercatore
BOEZIO MIRKO	Ricercatore
CASARSA MASSIMO	Ricercatore
CRISTAUDO PIETRO	Tecnico
D'ANTONI NADIA	incar collabor tecnica
FILIPPI ALESSANDRA	Amministrativo
FRAGIACOMO ENRICO	Ricercatore
GOMEZEL ROBERTO	Tecnologo
GREGORIO ANNA	Associato
GRION NEVIO	Ricercatore
IUGOVAZ DARIO	Tecnico
LEA RAMONA	Dottoranda
MARGAGLIOTTI GIACOMO VITO	incarico di ricerca
MOCCHIUTTI EMILIANO	Ricercatore
PIANO STEFANO	Ricercatore
RINALDI LIVIO	Tecnico
SBRIZZAI GIULIO	Assegnista
SOZZI FEDERICA	Assegnista
TENZE TIZIANA	amministrativo
TESSAROTTO FULVIO	ricercatore
VACCHI ANDREA	Ricercatore e membro di Giunta (Executive Committee)
VENIER GIORGIO	Tecnico
VITALE LORENZO	Incarico di ricerca
ZAMPA GIANLUIGI	Tecnologo
ZAMPA NICOLA	Tecnico
ZANETTI ALDO	Tecnico
ZANETTI ANNAMARIA	Ricercatore

