Achieving gender balance at the top of scientific research

Guidelines and tools for institutional change

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These Guidelines are the result of the four-year project Genis Lab. The authors of these Guidelines are namely:

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The introduction and the final remarks have been elaborated by all the above-mentioned authors.

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Introduction

In 2010, in the EU-27, women account for 46% of those who achieve the title of doctor of research, but only 32% of scientists and engineers were women, and women represented only 44% of grade C academic staff, 37% of grade B academic staff, and 20% of grade A academic staff[1]. In the past two decades, various initiatives have been developed to promote greater gender equality in research. However, the results have been extremely limited and have not overcome discriminatory structural and cultural barriers[2]. Inequalities are produced and maintained in many different, often invisible, aspects of organisations, consolidating an inequality regime in the scientific and academic workplace[3].

With the aim of challenging inequalities within organisations, the Directorate-General for Research and Innovation of the European Commission has established a specific funding line in the Seventh Framework Programme for Research and Development (FP7), which supports projects promoting structural changes in scientific organisations in order to foster gender equality.

These Guidelines, which are the result of the activity of one of the first projects to be funded under this line, present a set of tools to enforce efficient gender management to implement structural and institutional changes in research organisations, based on the experiences of the Genis Lab project.

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1.   European Commission, *Gender in Research and Innovation. Statistics and Indicators*, Publications Office of the European Union, Luxembourg, 2013, available at: http://ec.europa.eu/research/science-society/document_library/pdf_06/she-figures-2012_en.pdf

2.   European Commission, *Structural change in research institutions: Enhancing excellence, gender equality and efficiency in research and innovation*, Report of the Expert Group on Structural Change, Chairperson: Inés Sánchez de Madariaga, Rapporteur: Tiia Raudma, Publications Office of the European Union, Luxembourg, 2012, available at: http://ec.europa.eu/research/science-society/document_library/pdf_06/structural-changes-final-report_en.pdf

3.   Acker, J., 'Inequality Regimes. Gender, Class, and Race in Organisations', *Gender & Society,* Vol. 20, No 4, August 2006, pp. 441-464.

Six scientific organisations across Europe have engaged into a process of structural change; their common aim was to improve their working environment and dynamics with the objective of overcoming the institutional factors that hamper women's career in research.

Along the four years of the project process, these organisations received the support of three technical partners who helped them share their knowledge and innovative tools, in the framework of the Genis Lab approach: Participatory Gender Audit (PGA) methodology, gender budgeting (GB), gender awareness-raising training for HR managers, initiatives addressing gender stereotypes in science (as the Re-Act theatre), and institutional culture. These tools have been applied to define tailored gender action plans in each organisation, with the aim of activating a process which could involve different organisational areas (managers, researchers, and administrative staff) into discussing, identifying obstacles, and defining strategies to overcome them.

These Guidelines offer an overview of the approach, and describe the tools applied during this journey, with the wish they might be useful to start up and implement institutional change processes in similar organisations, both with the aim of promoting gender equality, and in view of fostering structural changes towards responsible research and innovation. They have been developed by the three technical partners of the project: Fondazione Giacomo Brodolini, FGB (lead partner of the project), the Association 'Donne e Scienza', ADS (association of Italian women working in scientific organisations), and the International Training Centre of the International Labour Organization, ICT-ILO – Gender Unit.

The first chapter briefly outlines the aims of the Genis Lab project, presents the partnership, and describes the methodological approach. Then, the second chapter discusses some pivotal aspects concerning stereotypes and the organisational scientific culture as a background for presenting some specific tools to improve women's awareness of specific discrimination in science. The third chapter describes the PGA, and the fourth focuses on GB. These Guidelines end with some suggested concluding remarks.

1. The Genis Lab project: institutional changes for women's participation in science

(Barbara De Micheli and Angela Genova,
Fondazione Giacomo Brodolini)

1.1. Presentation of the partnership, aims, and structure of the project

Genis Lab is a *support action* funded by the Directorate-General for Research and Innovation of the European Commission within FP7, year 2010. It aimed to implement structural changes in a group of selected scientific organisations in order to overcome factors that limit the participation of women in research.

Genis Lab was implemented by a consortium, led by FGB, with the participation of a group of scientific research bodies aiming to improve the gender dimension of research institutions, together with three technical partners involving experts that provided and shared innovative methodologies for gender mainstreaming in science.

Genis Lab's main objectives were:

- to improve women researchers' working conditions;

- to improve women researchers' career opportunities in research organisations;

- to improve the organisation's environment and workplace, acting on the organisational culture pattern;

- to fight against negative stereotypes, within the research organisations but also in a more wide and general context;

- to contribute to the creation of positive profiles of and for women.

Genis Lab's scientific partners were:

- the Spanish Superior Council for Scientific Research (CSIC) – Institute for Polymer Science and Technology (ICTP), Spain;

- the Leibniz Institute for Polymer Research Dresden (IFP), Germany;

- the National Institute for Nuclear Physics (INFN), Italy;

- the Blekinge Institute of Technology (BTH), Sweden;

- the Faculty of Technology and Metallurgy – University of Belgrade (FTM UB), Serbia;

- the National Institute of Chemistry (NIC), Slovenia.

Genis Lab's technical partners were:

- Fondazione Giacomo Brodolini (FGB), Italy;

- the International Training Centre of the International Labour Organization (ITC-ILO) – Gender Unit, UN Agency;

- Association 'Donne e Scienza' (ADS), Italy.

The Genis Lab project process, lasting in total 48 months, was structured in six work packages (WPs): three transversal WPs and three consequential WPs, the latter representing Genis Lab's core activity. The three transversal WPs, each one lasting for the whole project lifespan (48 months), were meant to ensure project management (WP1), project evaluation and self-assessment (WP5), as well as constant dissemination activities (WP6), including a specific awareness-raising campaign on gender stereotypes. A continuous interaction was ensured between these WPs and the consequential WPs, thus guaranteeing Genis Lab's process implementation: WP2 Gender – targeted and comparative organisational analysis (months 0-9); WP 3 Cooperative pooling of gender management tools (months 10-19); and WP4 Implementation and definition of self-tailored action plans (months 18-48).

Each WP contained a detailed description of tasks and partner roles, and was based on a participatory approach stimulating the active commitment of partners.

1.2. Specificities of the methodological approach used in the Genis Lab project

The most relevant element in the Genis Lab approach was the constant attempt, despite challenges deriving from organisational contexts, to maintain and promote a systemic approach supporting each organisation in the definition of comprehensive Gender Equality Plans.

In this view a significant effort was spent in the assessment phase with the aim of creating a baseline of shared gender-relevant data and a common knowledge on the state of gender equality within the organisations. An important effort was also spent in providing a set of approaches and analytical tools that remain with the organisation, and create the conditions for the sustainability of the structural change process at the end of Genis Lab (as the PGA and GB).

Since its conception, the Genis Lab approach has been focusing its attention on three levels:

- the organisational level (identification of specific management tools and definition of self-tailored action plans aimed at promoting internal structural changes);

- the social/environmental level (promotion of a communication and awareness-raising campaign aimed at fighting stereotypes, efforts made to find their embedment in work organisations, and to de-construct the stereotyped relation between women and science);

- the transnational European level (promotion of networking and mutual learning among the involved scientific organisations to support the exchange of experiences, good practices, and efficient management tools).

Moreover, the above-mentioned approach focused on the three organisational dimensions:

- human resources management (HRM): HRM policies and practices are key to fostering gender equality in an organisation, and are crucial to be addressed when promoting structural change;

- GB: financial choices reflect the dominating culture, as power is created through the concentration of resources. It is then important, when addressing gender equality, to understand and monitor how resources are distributed, as well as the gender dimensions of this distribution;

- organisational culture and stereotypes (OCS): since stereotypes have a fundamental role when dealing with gender issues, the Genis Lab consortium decided to devote further efforts in this area, considering it as a separate dimension which interacts with all the other ones. According to this assumption, we identified two main areas of intervention regarding the cultural dimension of discrimination: gender stereotypes in science and the evaluation criteria.

Each dimension was taken care of by one of the technical partners, and was characterised by the adoption of specific tools and approaches, as detailed in the following chapters:

- FGB was in charge of GB;

- ITC-ILO was in charge of HRM;

- ADS was in charge of OCS.

The three dimensions have their specificities: two of them mainly provide tools for analysis, planning, and management in defined areas of the organisation while the third dimension – OCS – has proven to be a cross-cutting issue, crucial in any process of structural change.

The PGA and GB enabled scientific partners in qualitative and quantitative self-assessment, modified their resource allocation and HRM policies and practices, and planned specific initiative/actions/indicators. The OCS dimension fed the debate around institutional change within each organisation and at a transnational level, with insights and specific contents (the Implicit Association Test – IAT – on gender stereotypes, the paper on resistance, and the paper on excellence).

For this reason, the chapter on OCS provides a description of the overall approach adopted, while the chapters on PGA and Gender-Responsive Budgeting (GRB) present the main tools used in the areas of HRM and GB.

1.3. Genis Lab's Tailored Action Plans (TAPs)

The Genis Lab approach envisaged the definition, implementation, and monitoring of Gender Equality Plans, called TAPs, specially tailored for each organisation.

The consortium defined a common four-step approach for the definition of the TAP in each scientific organisation:

- the *first phase, Assessment*, was dedicated to the carrying out of PGAs in each organisation, the collection of all main outputs emerged from the PGAs, indepth further investigations, GB and stereotype perspectives, as well as to additional information collected by FGB and ADS;

- the *second phase, Planning*, induced each scientific organisation to define its TAP tackling what emerged from the Assessment phase. Each plan was officially approved by the internal top management. TAPs contain a detailed description of activities for the period from January 2013 to December 2014. These activities are coherent with the emerging issues identified in the Assessment phase;

- the *third phase, Implementation*, started in month 19, and is still an ongoing process, with a view to sustainability after the end of the project;

- the *fourth phase, Monitoring*, started with the release of TAPs, and is still an ongoing process. It is a periodical assessment of TAPs using qualitative and quantitative indicators included in the plans.

TAPs represent a milestone in Genis Lab's implementation, and express a level of complexity which is higher than the sum of the activities in the three dimensions. They were a key output implemented in the framework of the collaboration between technical partners and scientific partners for the first two years of project activities, and represented the basis for the implementation of further steps. Furthermore, they have been crucial in order to achieve Genis Lab's objective of structural change in scientific organisations, since they contain, for each organisation:

- a synthesis of the results of the qualitative gender assessment, focusing on the three Genis Lab dimensions (PGAs reports as well as focus groups/inter-

views/mapping on GB and OCS);

- a description of challenges selected for intervention;

- a definition of an implementation strategy;

- an operational description of specific actions with related tools;

- provision of quantitative and qualitative indicators for the monitoring and evaluation of the process.

As such, the definition and implementation of TAPs required a four-step process, combining the three dimensions (HRM, GB, and OCS) and the three levels (organisational, social/environmental, and transnational and European) identified for the Genis Lab project. The three levels were integrated in a systemic approach in order to face internal and external resistance to change. A picture showing the four-step process follows:

Figure 1 – Detailed representation of the TAP four-step process

Assessment
- PGA Reports
- interviews/skype conferences focusing on Gender budgeting
- mapping of the stereotypes in the organisation
- LABs: collection of tools and practices

Planning
- identification of priorities and strategies using the assessment matrix
- definition of at least one action for each of the 3 dimensions, according to priorities and best practices from Labs and Thematic Reports
- description of the actions according to WP4 model (resources and timing)
- definition of monitoring indicators

Implementation
- integration of the actions in the framework of the awareness campaign
- implementation of the action

Monitoring
- monitoring of TAP implementation according to identified indicators
- support from external experts

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The four-step process was defined and explained in detail in the Guidelines for the definition of the action plan. Moreover, technical partners supervised two scientific partners each, throughout the Planning phase. This choice was made in order to guarantee a systemic approach during the elaboration of each TAP overtaken by scientific partners with the support of the involved technical organisation. Thus: FGB was assigned to ICTP/CSIC and BTH, ITC-ILO was assigned to INFN and IPF, ADS was assigned to FTM UB and NIC.

A final version of the TAPs was prepared and approved by the top management of each organisation within the beginning of the year 2013.

Each scientific organisation tailored the TAP on its specific needs, with the support of the technical partners; nevertheless, they all followed a similar structure in designing their TAP. TAPs include a division in the three dimensions (GB, OCS, and HRM); they also list a number of activities to be implemented and a related timetable, the sustainability of each action, the objective(s), the methods involved, expected outputs, HR involved, other resources needed, process indicators, and result indicators.

1.4. Lessons learnt

The Genis Lab process was complex, resource intensive, and challenging to implement in its will to combine a systemic approach (the TAPs) with specific actions focusing on each dimension. The application of different approaches and tools has sometimes required technical partners to make additional endeavours in order to fine-tune and find the best possible options for each organisation.

In addition, the four-year project implementation coincided with a huge European economic crisis which caused, in most of the involved countries, an increasing reduction in resources and funds allocated to research at national level.

In such a context, characterised by deepening inequalities and an increasing competition for funds and positions, particularly for young researchers – women and men – it has been hard to advocate for the role of gender equality as a critical factor of excellence and innovation in research.

Most of the organisations expressed the feeling that scientific research organisations are living in an historical moment of change, but change to improve gender equality was in some cases, and in some parts of the organisations, perceived as a 'luxury' that can be afforded only in times of resource availability. Technical partners recognised in this reaction one of the many faces that 'resistance to gender equality' can show. Francesca Molfino, ADS, analysed in depth the issue in a specific document that she wrote and shared with scientific partners[4] . Some, however, were able to see change as the opportunity to integrate innovative and more gender-friendly management structures and practices.

The most successful experiences were those in which commitment and support coming from the heads of the organisations were concrete and explicit, and where an extended group of gender equality promoters/agents was established. Both these elements have been pre-conditions for further developments in the path of institutional change.

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4. The document is available on the web site of the project: http://www.genislab-fp7.eu/

2. Guidelines on stereotypes and organisational scientific culture

(Flavia Zucco and Claudia Grasso, Association 'Donne e Scienza')

2.1. Introductory notes

Our topic is women discrimination in academic and private research. Science is, as stated a long time ago, a place of increasing power ('Knowledge is power', Francis Bacon) due to its wide impact on society. Thus, discrimination in science leaves power amongst those who have handled it since ever: men. This discrimination is practiced by a series of rules and structures that have been built by men according to their needs and behaviours. Moreover, it is also supported by subtle and invisible mechanisms which rely on the lack of awareness, strong enduring presence of stereotypes, and work conditions.

Four points of reference should be taken into account in introducing these Guidelines: the first one is the existence of a specific type of discrimination against women in the scientific world. This is demonstrated by the fact that even in EU countries where the number of women holding high institutional and government positions is significant, the presence of women at the top levels of scientific careers is scarce and equivalent to very low numbers recorded all over Europe.

The second point is that this discrimination is not easily recognised by all researchers, since they feel that science cannot be affected by this kind of bias. It is in fact considered an outstanding activity, generally accepted as neutral, practiced by highly educated people, being continuously in competition with each other at an international level.

The third point is that, concerning women and science, we should be aware of the so-called 'double absence', meaning that feminism has poorly influenced women scientists in their working life, and *vice versa* their alarming situation in science has not been envisaged in the list of the feminist claims.

The fourth point is resistance to change, which has several causes, from the general economic situation of research to personal and subjective feelings.

2.2. Stereotypes in science

Stereotypes are affecting science, its statute, and its relationship with society. Science has moved from the *Olympus* to the *Agora*, and the *Ivory Tower* is not anymore existent. Scientists have to face a strong interrelationship with markets and society, thus the scientific world representation is radically changed.

Women are also penalised by the usual stereotypes that affect them in society at large. However, women scientists are specifically troubled by various and more 'fitting' stereotypes. One is the fact of not being able to elaborate high levels of abstraction, due to the prevalence of emotional aspects (feelings) in their reasoning. The second one is that they cannot fully cope with the mission of science, which requires full-time engagement. The family burden is perceived as a hard obstacle to overcome if total devotion to research is the main assumption.

The impact of gender stereotypes, activated by sex categorisation in these social relations, is sufficient to create gender inequality in work outcomes. In addition to this aspect, biased bureaucratic practices (lack of information and transparency, selection criteria, and so on) are activated.

Gender stereotypes in science go hand in hand with 'scientific culture stereotypes'. This turns out to be ineffective to change stereotypes, unless the traditional ways of conceiving work in science change. In this sense, the pattern of such a culture in the different organisational structures has to be analysed in detail.

2.3. Analysis of the organisational culture

The analysis has to be conducted through a series of planned steps, common to all the scientific research institutions:

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a) PGAs (local interviews);

b) mutual learning activities (virtual labs and on-line forums on the project's intranet).

   The objectives of the virtual labs were to explore the 'scientific and gender culture' of the organisations, to build maps and create toolkits detecting where gender stereotypes are hidden in the everyday life of organisations, to find out global and local gender/science stereotypes, and to suggest good practices to help to overcome hindrances to women's careers and leadership;

c) maps of each scientific institution detecting the specific areas where stereotypes may be nested, as they strongly affect women's careers from the distribution of resources to the evaluation of excellence, including gender differences in external responsibilities and duties.

   If we explore the **HRM** dimension of intervention, the following stereotypes can be found:

   • women are not suitable to management and leadership;

   • women are less available due to family burden;

   • women's caring model is endorsed in the work environment too;

   • women have biased evaluations in careers and calls.

   In the **GB** dimension, stereotypes can be found, hidden in different resource areas such as:

   • time: women are not fully committed;

   • space: as women do not consider space as a symbol of power, they do not claim it, and therefore it seems they do not need it;

   • students and PhDs: men use juniors to empower their position while women perceive them as a major responsibility and do not use them *ad libitum*: again they do not need many of them;

- money: managing finances is perceived by women as a major responsibility, thus it is interpreted as poor commitment in fund/grant research;

d)   dragging out automatic stereotypes and proposing issues, which can produce displacement, provocation, distraction, and heterogeneity, because these reactions can tackle the implicit levels where stereotypes are formed. This kind of objective can be pursued by:

- pointing out the positive and negative benefits for men in order to change mentality;

- pointing out positive and negative benefits for women to change mentality;

- exploring to which extent participants want to deal with male and female confrontation and/or with gender identity challenges (i.e. family versus work);

- enquiring to which extent participants are ready to advocate conflicts with male or female colleagues in interpersonal relationships, including sex harassment;

- investigating participants' level of awareness of the traditional 'scientific culture'.

2.4. Actions: how to stimulate awareness of discrimination at a cultural level and how to help to overcome possible existing stereotypes

Through the awareness-raising campaign consisting of the dissemination of relevant existing documents on the topic, a 'daily stereotype diary' kept by each employee registering suffered gender discrimination on a daily basis, the 'white sheet paper' held by the employees in labs collecting all the invisible work in order to make it visible, and last but not least, the interactive IAT (cf. box below).

Implicit Association Test (IAT)

Here is a tool that allows each of us to discover hidden cognitive biases. Most people are aware of their own overt biases, but it is very difficult for us to become aware of our covert biases. This is a test that can be taken by each individual for their own benefit. The IAT is excellent for showing bias and how our unconscious drives our day-to-day decision-making. It helps all of us, from all backgrounds, recognise unconscious/hidden biases which may unknowingly distort our objective evaluation and treatment of others based upon race, gender, religion, culture, etc. It also opens pathways for participants, once their unconscious bias awareness is raised (in spite of most people's surprise that they still have room for growth), to take specific behavioural steps to help to interrupt some of those biases in their professional and personal performance and interactions. Psychologists understand that people may not say what's on their minds either because they are unwilling or because they are unable to do so. The unwilling-unable distinction is like the difference between purposely hiding something from others and unconsciously hiding something from yourself. The IAT makes it possible to penetrate both of these types of hiding. It measures implicit attitudes and beliefs that people are either unwilling or unable to report. [5]

Other methods and tools used to enhance awareness and empowerment towards change are strongly tied to communication skills, internal to the institution. Participative discussions held on a periodic basis (transnational meetings with other similar institutions) are crucial, discussions with target groups (female junior researchers, assistant and associate professors, and administrative staff) and workshops with target groups and corresponding male counterparts seem to be very useful for the creation of awareness in a team/group context.

Special mention goes to the theatre play with actors, which we call 'Re-Act' as *act again*, *re-do* (cf. box below). The contents of the show were based on the outcomes of local workshops held at the institution, gathering the highest possible number of employees (especially top management).

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5. https://implicit.harvard.edu/implicit/

Re-Act

Re-Act is a collective research method using theatrical tools to deconstruct gender stereotypes in science. Through gradual questions and simple actions, participants will be able to analyse and deepen their awareness of daily working life in order to introduce positive changes. Re-act derives from the Theatre of the Oppressed, which is a theoretical framework and set of techniques developed by Augusto Boal, a Brazilian director, artist, and activist. Recognising that humans have a unique ability to take action in the world while simultaneously observing themselves in action, Boal believed that the human was a self-contained theatre, actor, and spectator in one. Since we can observe ourselves in action, we can amend, adjust, and alter our actions to have different impact and to change our world. The Theatre of the Oppressed engages people in discovery, critical reflection and dialogue, and the process of liberation! Through the Theatre of the Oppressed we can better understand ourselves, our communities, and our world. There are several series of techniques, tools, and expressions of the Theatre of the Oppressed regularly used. Game playing is the core of the Theatre of the Oppressed. An extensive arsenal of well-crafted and expertly facilitated games allows participants to stretch the limits of their imaginations, de-mechanise habitual behaviours, and deconstruct and analyse societal structures of power and oppression. Plus, game playing is fun and builds community! The Forum Theatre is a performance that transforms a normal spectator (one who watches) into a spect-actor (one who watches and takes action). A short scene by Forum actors presents an issue of oppression, and represents the world as it is – the anti-model. Audience members are then encouraged to stop the play and take the stage to address the oppression, attempting to change the outcome through action. The show engages Forum actors and audience members in fun, entertaining, and enlightening community dialogue[6].

Last but not least again, through the use of gender-sensitive language in documents whenever possible (internal communication skills).

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6. www.theatreoftheoppressed.org

Use of gender-sensitive language

The purpose of looking at sexism in language is to avoid word choices which may be interpreted as biased, discriminatory, or demeaning, by implying that one sex is superior to the other, and contribute to creating gender stereotypes. Non-sexist language, on the other hand, far from being a form of censorship, is a conscious choice to address and include the whole of the audience. This is particularly important in male-dominated fields such as sciences where non-sexist language has been shown to increase female students' and researchers' self-esteem. On 19 May 2008, the European Parliament issued a booklet for the Members of Parliament, giving guidelines for gender-neutral language. Drawn up by a working group, under the auspices of the Parliament's High-Level Group on Gender Equality, these guidelines were the fruit of a long and close collaboration among the relevant linguistic services, and provided suggestions and examples for each specific working language. What works in one language may not work in another. For each of the official languages, appropriate non-sexist terminology must be sought in accordance with national customs, taking into account any national legislation on the matter, existing guidelines at national level.

Among good practices against stereotypes, the most successful have to be identified, chosen, and presented to other international or national realities in order to accomplish public empowerment and awareness in pursuing the goal (exporting communication skills to other contexts).

2.5. Fighting resistance to change

Three levels for action can be identified:

a)   **individual**: will affect the identity and behaviour. The change of each other's *status quo* alarms people, and makes them frightened of a job loss possibility, a loss of earnings, humiliations, negative assessments, unrecognised work;

Resistance to gender equality projects
by Francesca Molfino

- *Denial of the gender inequality issue*
- *Shift onto external realities. Other institutions or historical, social, or educational causes*
- *Minimising the gender inequality issue*
- *Non-awareness of stereotypes*
- *Difficulties also women have in seeing discrimination.*
- *Insufficient motivation and conflict among staff*
- *Various forms of individual experiences of dissent*
- *Lack of data, information, communication*
- *Isolation of people dealing with gender issues*
- *Stereotyping the gender inequality issue*
- *Stereotyping in relationships in order to discriminate*
- *Stigmatisation of women involved in positive actions*
- *Disadvantages and male hostility*
- *Overwhelming of the gender issues for women scientists*
- *Conflicts among women*
- *Individual diversity hides gender.*
- *Ineffective monitoring systems*
- *Tendency to delegate decisions to managers*

institutional and structural: implies a social reorganisation. Hidden traps usually obstacle changes. The most obvious trap is when you do

not start implementing tailored gender action plans correctly: in other words, when there is no link between theory and practice. When tailored actions are implemented, but the people involved are not skilled or motivated for such specific actions, results will not be effective, and may even go against the objective of the action. When action plans are too generic or vague and the objectives are not clear and achievable, and also when actions are not supported by suitable tools for their implementation, including adequate funding and other required resources, results tend to failure;

b) **symbolic and cultural**: languages, norms, values (this level is crucial: no positive action has long-lasting effects without changes at this level).

2.6. Evaluating excellence: actions

Recruitment at the beginning of careers is the very moment in which several stereotypes concerning science and women take place, such as not full devotion to the job (the possibility of starting up/having a family), scarce availability in mobility (conferences, travels abroad, etc.), not very versed on or gifted in hard sciences.

As to career advancements and leadership positions, scientific CVs are assessed according to parameters fixed by men: hard skills, such as assertiveness and single mindedness, result in *high evaluation*, while soft skills, such as flexibility, diplomacy, curiosity, motivation, and dedication, result in *low evaluation*.

As stated before, women also face the hard stereotype of their weak attitude towards leadership and management, as well as subsequent problems in handling financial resources.

The first step is to fix the concept of excellence. Scientific excellence is the ability of a scientist or an institution to impact on a field of study producing a major change, leading other scientists towards asking new questions, producing new, important, useful contributions to knowledge, and using new methodologies. The quality of excellence must be proven by a number of means such as publications, citations, funding, and students, and must be recognised by the peers and

by the bestowal of various honours, prizes, and other awards[7].

The second step is to show available data demonstrating that the previously mentioned assumptions (prejudices) are not correct.

The third step is to state the importance of soft skills that are functional to the advancement of contemporary science: covering a role with a service attitude, working towards a careful and responsible research, transferring the model role of a responsible and creative researcher to the younger generation, collaborating towards a more equal work environment.

Differences in attitude

Work: for men it overlaps with the social role; for women it is part of the wider idea of life.

Career: for men it is based on competitiveness; for women it is based on competence and scientific interests.

Hierarchy: for men it is seen as power gain; for women it is seen as acquiring responsibility.

Time: for men it is evaluated in economic terms; for women it is evaluated in terms of quality of the product.

Goals: for men they are reached by fighting; for women they are reached through the acquisition of autonomy.

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7.   Cf. European Commission, *Gender and Excellence in the Making*, Workshop 'Minimising Gender Bias in the Definition and Measurement of Scientific Excellence" co-organised by Gender Studies and Governance (RSCAS-EUI), the Women and Science Unit (European Commission), and the Joint Research Centre (European Commission), Florence, 23-24.10.2003, available at: http://ec.europa.eu/research/science-society/pdf/bias_brochure_final_en.pdf

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The evaluation procedure must be transparent and fair as follows:

• calls to be advertised at least two months in advance;

• all evaluation criteria to be published along with the job description;

• CVs of the evaluation board's members to be published;

• the board must be gender balanced;

• CVs of candidates to be published;

• list of the winners along with their CVs to be published;

• decisional powers must be re-installed in the official institutions (delegitimising the old boys' network);

• better evaluation of research in multidisciplinary fields, actually considered borderline;

• evaluation of the scientific outputs normalised against the inputs coming from resources;

• abolish gender bias (quotas for men) in favour of meritocracy, evaluated according to new criteria;

• criteria must be scientific as well as related to behavioural capacities[8].

2.7. Concluding notes

From what has been previously said, it is clear that the awareness-raising campaign must touch upon the culture of the institute, and implement changes in the knowledge and behaviours on gender issues, towards all the population of the institute.

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8. Cf. European Organization for Nuclear Reserach, *Values and Behavioural Competencies*, July 2012.

The involvement of the management level and of the main stakeholders is thus crucial for both the definition of contents and the implementation strategy, in order to enable proposed activities to be fully operative and incisive. The proposed toolkit must be submitted and discussed with each scientific partner who will have all the necessary technical support in order to plan out the most appropriate tools and related activities for the promotion of equal opportunities.

Participation of management is also fundamental for the identification, promotion, and effectiveness of the messages spread throughout the campaign, within external institutes.

Through the involvement of management, a top-down process of organisational and cultural change is pursued. Beneficiaries of the campaign will be all the people (women and men) working in the involved organisations who will take advantage from a cultural shift in management: managers, in fact, face the problem of working with very *diverse people*.

Diversity management cannot exist without it being embedded in a moral and legal pattern. Ethics and laws concerning anti-discrimination are not just a part of the organisation's environment; the organisation's self-identification has to reflect our human rights tradition.

Scientific careers depend on managerial skills meant as a capacity to deal with a team, and as the ability to attract and manage funds, to follow the bureaucratic process behind the launch and implementation of projects, and to show organisational capacities together with a fertile networking attitude.

All these activities, crucial for scientific career advancements, are not included in the professional training and evaluation of people who therefore lack a set of competences. These competences are devolved at an individual level (mainly male) and therefore considered personal qualities assessed on a subjective basis, and kept alive through an informal transmission. This enables gender bias and discrimination to deeply root.

It is therefore of major importance that managerial skills are gained not amongst the informal and often privileged relationships with someone who is ahead in the career advancement, but through training and mentoring time credited by the institution, and open to all the personnel.

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2.8. Lessons learnt

Firstly, there are striking commonalities to all of our six scientific partners: the crisis and fear of the forthcoming future, as well as the transition period which is particularly harsh for former eastern countries in relation to globalisation and work flexibility and conciliation issues pertaining to overwork at family level.

As it clearly comes up from the mapping of the six countries, history affects the specific culture especially for the former communist nations where stereotypes concerning women's scientific capacities (not present in the past) are moved to women covering management roles. In addition, the family seems to be perceived as an 'only female' issue; in the meanwhile, most of the social support provided by communism has been lost.

Generally speaking, we are witnessing a change in the internal structure of science: science, in relation to industrial companies, seeks for multi-tasking working performances, specialised technicians who have a stable contract while researchers do not. The perception of productivity of science is also changing. Men are now asking: 'How can you state that women produce more science?' They do not consider that women are more motivated in searching stable carriers, not caring too much about payments, whereas men are chasing high salaries.

This change does not match accordingly with the adaptation of innovated practices, the relations with the administration board, the handling of culturally different people, and lastly the knowledge of existing and updated national and international regulations. In this respect, the generational conflict acquired, in some cases, new strength and connotation.

A big gap has been found; Genis Lab (and probably also the sister projects) had to face the responsibility to fill it in with knowledge, constructive criticism, and positive actions.

3. Participatory Gender Audit (PGA) as a tool for organisational change towards gender equality

(Benedetta Magri, International Training Centre of the International Labour Organization, Gender Unit)

In grateful and loving memory of Petra Ulshoefer

3.1. Introduction

This section of the Genis Lab Guidelines describes how the PGA methodology was used in the six scientific organisations taking part in the Genis Lab project, with the aim of promoting organisational changes and increasing the presence of women in science[9].

The section is comprised of three parts: the first describes what the PGA is, the second discusses why it is a useful tool to promote women in science. The third illustrates how this already soundly tested methodology was adapted and applied in the Genis Lab project. Finally, it offers some conclusions and lessons learnt.

3.2. What is the PGA?

The methodology used in Genis Lab is an adaptation of a well-tested tool for organisational change, the 'ILO Participatory Gender Audit'[10], which, over the last 10

9. A special word of thanks should go to Blerina Vila and Simonetta Cavazza, ITC-ILO, who generously contributed to the adaptation of the PGA methodology and the delivery of many PGAs in partner institutions.

10. International Labour Organization, *A manual for gender audit facilitators: The ILO participatory gender audit methodology,* 2nd edition, International Labour Office, Geneva, 2012, available at:

years, has been successfully applied by ILO[11] internally and across a broad range of public sector institutions, employers' organisations, and trade union organisations.

A PGA is an action-research methodology that helps to 'map' an organisation from a gender equality perspective.

The word 'audit' should not confuse the reader, since it is a totally different concept from the traditional 'financial audit'. While a traditional audit checks the factual compliance of an organisation with a set of pre-defined rules, the PGA combines the objective observation of facts and data with a more in-depth and qualitative reflection on individual and collective rules, behaviours, and beliefs, as well as their impact on gender equality. For this reason, the PGA team is made of 'facilitators' rather than 'auditors'.

Through a process of data collection, direct observation, and intense interaction with the staff of an organisation, a Gender Audit Facilitators Team produces a collectively agreed report that describes the capacity of an organisation to promote and sustain gender equality in its daily operations, as well as the gaps that still need to be filled in.

The reasons for gender disparities in organisations are rarely explicit, but more frequently are hidden in the rules, modes of functioning, and culture of an organisation. The PGA helps to improve performance in relation to gender equality. The PGA is essentially a journey of self-reflection that the Gender Audit Team undertakes together with the organisation to assess and transform its social dimension.

3.3. Why is the PGA a useful tool for organisational change towards gender equality?

Statistics related to women's steadily growing participation rates in scientific research, and their dramatic drop at decision-making levels point to a clear correlation between low levels of women at the top of scientific careers and the way in which scientific research organisations are structured. Although this is a largely accepted principle in most workplaces[12], the world of scientific research finds it harder to acknowledge, given that science is believed to be the place of objectivity, recognition of excellence, and collegiality.

The PGA, by definition, is not simply a method to acquire baseline data in an organisation, but the initial step of a change strategy, starting from within. Although it does provide a relatively objective and measurable 'picture' of an organisation from a gender perspective, it bases its analytical strength on the knowledge created through individual and collective dialogue with its staff.

Organisations are complex realities, and for this reason change towards gender equality cannot be planned in a linear way or simply imposed through policies and top-down action plans. Social change can take big leaps forward, thanks to a new policy or law, and then live moments of deadlock, or even regression, when the law is not enforced, or top decision-makers change. This is extremely visible in organisations. The PGA explores the multiple formal and informal dimensions that constitute the life of an organisation, and invites staff – at all levels – to participate in an iterative and self-reflective process of change of mindsets, behaviours and, when necessary, rules and policies, to make their organisation a truly good workplace for women and men ('gender-friendly' or even 'gender-transformative').

The PGA as applied in the Genis Lab project is a change management approach based on the following key assumptions.

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12.   For the concept of 'systemic' and 'institutional' discrimination, cf. International Labour Organization, *Time for Equalty at Work, Global Report under the Follow-up to the ILO Declaration on Fundamental Principles and Rights at Work*, International Labour Office, Geneva, 2003, available at: http://www.ilo.org/wcmsp5/groups/public/@dgreports/@dcomm/@publ/documents/publication/wcms_publ_9221128717_en.pdf

3.3.1. Change towards gender equality cannot be done with scattered ad hoc actions, but must be structural, integrated and systematic

Gender mainstreaming is the systematic process of assessing the different implications for women and men of any planned policy action, including legislation and programmes, in all areas and levels, and re-programming[13] so that they do not replicate inequalities and favour more equitable relations between women and men. The PGA is the application of gender mainstreaming to organisations.

> *The terms mainstreaming and institutionalising are often used interchangeably in development literature. The term 'institutionalisation' does connote longer term, sustained change, which in turn recognises the conflict between regular practices of organisations, which inevitably reflect a particular set of interests, and their responsiveness to change[14].*

Gender disparities in workplaces and more specifically in scientific organisations may be dependent on external factors (for instance, scarcity of qualified female researchers) or on lack of interest on women's side ('they opt out', 'they need to strengthen their leadership potential'); there is however no doubt that gender disparities in workplaces are largely dependent on the needs and expectations of a stereotypical 'male worker/decision maker/scientist' who is available 24/24 hours and 7/7 days, and does not need to reconcile his dedication to science with other conflicting priorities, such as family. Also, hidden biases still influence career progression mechanisms, evaluation, and resource allocation processes. The PGA navigates through the detail of organisational structures and culture, untangles stereotypes and unconscious biases from behaviours and rules, and initiates a change process from within.

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13. In 1997, the United Nations Economic and Social Council (ECOSOC) issued the following definition: 'Mainstreaming a gender perspective is the process of assessing the implications for women and men of any planned action, including legislation, policies or programmes, in any area and at all levels. It is a strategy for making the concerns and experiences of women as well as of men an integral part of the design, implementation, monitoring and evaluation of policies and programmes in all political, economic and societal spheres, so that women and men benefit equally, and inequality is not perpetuated. The ultimate goal of mainstreaming is to achieve gender equality.'

14. Kanji, N., *Bringing the Gap*, Draft theme paper for the IIED/IDS Institutionalising Participation Project, IIED, 2003.

3.3.2. Sustainable change needs political will and sustained leadership support

The role of leadership is important in hierarchical and flatter organisations. Leadership can set the tone and the pace of change. Changes in leadership can have tremendous positive or negative impact in advancing gender equality policies. The PGA requires direct engagement with the organisation's top leadership, discussion on the findings and recommendations, endorsement of the collective efforts, and support to the development and implementation of the ensuing action plans.

3.3.3. Sustainable change requires participation, qualitative self-assessment, and ownership in the change process

The PGA is not an external evaluation but an opportunity for those working in an organisation to self-reflect on their own understanding of gender equality, workplace life, and well-being, to express concerns, to share them with colleagues, and to propose joint solutions.

3.3.4. 'Triple loop' organisational learning: from positive deviance to change in institutional rules and systems

The PGA aims to build on 'positive deviance'[15], facilitating the transfer of positive behaviours from the individual to the work unit, to the collective culture and practice of the institution.

> *In every community there are certain individuals or groups whose uncommon behaviors and strategies enable them to find better solutions to problems than their peers, while having access to the same resources and facing similar or worse challenges[16].*

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15.   'Positive deviance' is an approach to behavioural and organisational change originally used in public health programmes and now largely recognised as a successful change management tool. Cf. Pascale, R., Sternin, J. and Sternin, M., *The Power of Positive Deviance: How Unlikely Innovators Solve the World's Toughest Problems,* Harvard Business Review Press, London, 2010.

16.   www.positivedeviance.org

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3.3.5. Experiential learning[17]

Through focused self-reflection on individual and organisational practices, PGA workshops and interviews offer opportunities to learn about gender equality in a contextualised way. This applies both to the individual and to the organisation. 'Positive deviance' behaviours at an individual level (e.g. mentoring, work-life solutions, knowledge sharing mechanisms) can be systematised and, through management support, institutionalised.

3.3.6. Sound gender analysis and framework planning

The gender analysis framework adopted by the PGA is inspired from Kabeer's social relations gender analysis framework[18]. This framework looks at gender relations in the interaction of three interdependent systems:

*   **macro**: laws, policies, macroeconomic context. Policies and rules: are there equality policies at national/sectoral or organisational level? Are they reflected in the organisation's policies and rules?

*   **meso**: institutional policies, service delivery, rules, regulations at the workplace. Work organisation practices and structures: what do they show about gender equality? Are good policies translated into good practices? Are there existing good practices that can be better institutionalised and shared? What are the expressed common organisational values?

*   **micro**: individual behaviours. How do they 'fit' the rules? What are the non-expressed organisational values? How are they translated in working relations between women and men? Are they influenced by stereotypes?

17. Kolb, D. A., *Experiential learning: Experience as the source of learning and development*, Prentice-Hall, Englewood Cliffs (NJ), London, 1984.

18. Kabeer, N. and Subrahmanian, R. (eds.), *Institutions, relations and outcomes: A framework and case studies for gender-aware planning*, Zed, London, 2000.

3.4. How to implement PGAs in scientific organisations

In the context of Genis Lab, the ILO PGA methodology was adapted to meet the needs and specificities of the involved research institutions.

3.4.1. Areas for analysis

The original PGA methodology comprises an analysis of:

- staffing (HR issues and related equal opportunity practices: do they promote or hinder gender balance at all levels?);

- substance (the products of the organisation: are they 'gender sensitive'?);

- structure (what is the long-term vision? Programmes? Are organisational systems conducive to gender equality? Monitoring and evaluation? Resource allocation?).

The Genis Lab project did not envisage a gender impact assessment of the research policies and scientific products of the project partners, being the focus more on women's participation. The analysis was therefore mostly limited on structures and staffing, with particular focus on three dimensions listed in the table below.

Table 1 – Dimensions of the Gender Lab project analysis

Genis Lab dimension	Key questions
Organisational culture and stereotypes	
	Does the organisational culture challenge or reinforce stereotypes related to gender and science?
	How far does a stereotypical vision of science influence gender inequalities?
	To what extent do these stereotypes have an influence on scientific excellence?
	In the context of 'post-academic science', can we think of new, more equitable, and efficient criteria for scientific excellence?
HRM policies and practices	
	To what extent is the organisation able to translate its formal commitments to gender equality in its HRM policies, rules, practices, and working arrangements?
	To what extent is the organisation able to meet the different work-life conciliation needs of its staff, women and men?
	Are there structural obstacles to women's scientific careers? And if so, how can they be tackled?
Financial dimensions and GB	

	Are there gender differences in the allocation of financial resources?
	If so, are there structural/organisational causes for these differences?
	What are the impacts?
	How does access to financial resources impact access to other resources?
	Which of these have an impact on career differentials?

Table 2 illustrates how the PGA areas of organisational analysis[19] were used to collect and elaborate information according to the above-described dimensions.

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19. The original 12 areas of the ILO PGA were consolidated in a shorter list included the following publication: International Labour Organization, *A manual for gender audit facilitators: The ILO participatory gender audit methodology,* 2nd edition, International Labour Office, Geneva, 2012, available at: http://www.ilo.org/wcmsp5/groups/public/---dgreports/---gender/documents/publication/wcms_187411.pdf

Table 2 – PGA areas for assessment and sources of information

	Organisational area	Relevant for the Genis Lab dimension	Level of information gathering	Source of information
A	Current national/international gender issues and gender debate affecting the audited institution; and the relationship of the unit with national gender equality institutions and organisations of women scientists/researchers	HRM Budgeting [20] Stereotypes/Culture	Organisation and work unit	• All staff through the on-line staff questionnaire • Selected samples of staff (different categories) during workshops • Interviews with management and internal Genis Lab team
B	The organisation's strategy on gender equality as reflected in the organisation's (or the work unit's) operational objectives, programme, and budget	Budgeting HRM	Organisation (samples)	• Senior Management • Staff • On-line staff questionnaire • Workshops
C	Mainstreaming of gender equality in the implementation and budgeting of research programmes and projects (only analysis of resource allocation, no contents of research)	Budgeting	Organisation	• Scientific Boards • Work unit documents • Questionnaire

	Organisational area	Relevant for the Genis Lab dimension	Level of information gathering	Source of information
D	Existing gender expertise and strategy for building gender competence	HR Stereotypes	Organisation: HR and managerial staff	• HR department staff interviews • Questionnaire • Workshops
E	Information and knowledge management	Stereotypes	Organisation (sample) and work unit	• Equal opportunities committees • Training department • Library • HR department • Direct observation of the work unit's documents and workshops
F	Systems and instruments in use for monitoring and evaluation (of scientific products)	HRM Stereotypes Budgeting	Organisation and work unit	• Work unit interviews and workshops • Researchers • Heads of research • Directors of departments
G	Choice of partner organisations	HRM Stereotypes Budgeting	Organisation and work unit	• Research staff during workshops • Equal opportunity committees (if existing) • Management

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	Organisational area	Relevant for the Genis Lab dimension	Level of information gathering	Source of information
H	Products and public image	Stereotypes (no analysis of contents of research products)	Organisation and work unit	• Desk review • Direct observation • Communication departments • Scientific secretariats • Administrative staff • Webmasters
I	Decision-making	HR Budgeting Stereotypes	Organisation and work unit	• Questionnaire • Interviews, workshops
J	Staffing and HR	HR Stereotypes	Organisation (policy level) and work unit (implementation)	• Desk review, questionnaire • Interviews, workshops
K	Organisational culture	HR Stereotypes	Organisation (superficial) and work unit (in depth)	• Desk review, questionnaire • Interviews, workshops
L	Perception of achievement on gender equality	HR Stereotypes	Organisation and work unit (in depth)	• Interviews • Public documents • Annual reports • Questionnaire

Relevant evaluative questions were developed under each of these headings, to guide the interviews, the workshops, and the desk reviews. Specific adaptation was needed in particular to:

•   fine-tune the tools to capture the organisational culture characterising the research and academic environment;

•   create new tools and activities to capture the hidden forms that stereotypes can enact (this was specifically done with further work taken over by ADS) in the everyday life lived in 'the lab';

•   explicit adequate statistical information disaggregated by gender, particularly in relation to resource allocation.

3.4.2. Scope of the analysis

The PGA normally implies conducting several gender audits at a unit level within the same organisation. The process is very effective but also extremely labour intensive and resource-demanding. In some cases, ITC-ILO trained a group of staff on PGA techniques, internal to the audited organisation, who then rolled out the gender audits, with limited technical support (the 'GEOSA approach'[21]). Such an option was not possible as these scientific institutions naturally could not rely on internal expertise in sociological matters, and change projects. It was decided to opt for a different approach and – given the limited size of most of the involved institutions – to perform a PGA at both an organisational level and a selected work unit level, adapting the scope of the analysis to the specificities of each institution.

To fully take advantage of the transnational character of the project, ensure comparability, and possibly gain an overview of results across the six scientific partners, a set of standardised tools[22] was developed and used as relevant in

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21. Cf. International Training Centre of the International Labour Organization, *GEOSA: Gender and Equality Organisational Self-Assessment*, available at: www.itcilo.org/gender

22. Details on the process and results of each PGA are available on the project website (http://genislab-fp7.eu). The tools used were the results of re-adaptation of the tools presented in International Labour Organization, *A manual for gender audit facilitators: The ILO participatory*

each institution. For instance, the on-line questionnaire on 'gender quality' in the organisation is offering today an interesting perspective of the perceptions on gender equality of some 650 women and men working in the research environment across six EU countries. The same on-line questionnaire can easily be re-administered in the future to assess progress and change. Table 3 below illustrates the scope and tools adopted to gather the quantitative and qualitative dimensions during the audits.

Table 3 – Scope and tools for organisational assessment

Type of data	Level	Tool and info used
Quantitative (HR statistics)	Organisation	Statistics provided by HR (desegregated by work unit/department whenever possible)
Quantitative (re-sources)	Organisa-tion (selected components – cf. chapter on GRB)	Data provided by finance departments or research departments
Qualitative	Organisation	Desk review of key programmatic documents, HR policies, reports of research departments, visibility materials, websites, etc. Workshops for staff coming from different work units Workshops for staff divided into professional categories On-line questionnaire for all staff Individual interviews with a broad sample of staff from different professional categories/sex
Qualitative	Work unit	Workshops with all staff from selected work units Individual interviews with staff from one selected work unit

3.4.3. The process: actors

a. The internal project team

The project team internal to the organisation played a key role in the PGA. The team should comprise a diverse representation, and should include a top-level decision-maker who will champion the initiative throughout the project. The internal Genis Lab project team was established so as to act also as internal focal point for the PGA.

This preparatory moment was critical to the success of the PGA. Both the focal point and, above all, the management of the institutions needed to be aware of the purpose, and of the mode of implementation of the process. They also needed to be able to:

- liaise and acquire all the necessary information;

- help to identify the reference group of colleagues directly involved in the field visit, and mobilise them.

This, in itself, proved to be a learning process for the involved Genis Lab teams.

> _Some discovered that sex-disaggregated information is virtually not available, in spite of existing laws and policies._
>
> _Others found out that when a project is 'systemic' and not just a 'specific initiative for women', much more resistance is encountered._
>
> _Others met keen interest and curiosity…[23]_

ToRs (Terms of Reference) for internal project teams and specific information on the PGA process and data requirements were distributed as early as possible, and discussed with all organisations.

b. The audited organisation

Whole organisations or single departments were audited. Within each organisation or department, a reference group, i.e. a meaningful sample (30-40 people)

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23. Selection of information/suggestions emerged during Genis Lab activities in the six partner organisations.

directly engaged in collaborative inquiry activities (interviews and focus groups during PGA team visits) was identified. It included:

- cross-cutting representation (administration/research);

- both women and men (at least 50-50);

- management and HR representatives.

Everyone completed an on-line questionnaire.

c. The external PGA team

The external PGA facilitation team (2-4 people from ITC-ILO and FGB) included experts/facilitators in gender sensitive organisational change and HR practices, GB, and gender and science.

3.4.4. The process: steps and methods

The process below is a standardisation of the model used in the six scientific part-ners. Each audit took place over a total period of approximately three months. Slight variations needed to be made according to the size and structure of each institution. In order to guarantee full participation, and create trust among all staff and not only among 'top-level' researchers:

- activities took place in English and in the national language;

- confidentiality on the results of individual interviews was systematically guaranteed.

Desk review: gender mapping of the organisation

This implied:

- preliminary collection of statistical information by gender and, whenever possible, by age. Specific attention was given to atypical forms of work (tem-porary arrangements, PhD fellowships, etc.);

- dissemination and analysis of an (anonymous) on-line questionnaire to all

staff, aimed at mapping individual carrier paths, and at identifying work-life balance needs, as well as perceptions about gender equality;

•   desk review of key policies and of procedural, programme, and budgetary documents.

Field visit: participatory audit

During a five-day visit to the organisation, the PGA team individually interviewed an average of 20-30 staff members, across all professional categories and hierarchical levels.

Methods used in this phase comprised:

•   **individual interviews** with a reference group, including HR staff and staff responsible for resource mobilisation;

•   **focus groups** with a reference group, including HR staff and staff engaged in resource mobilisation/allocation;

•   specific **briefing** and **debriefing sessions** with the management.

<u>*c. Reporting*</u>

A draft report was prepared by the PGA team and presented to the management. It encompassed:

•   consolidated findings, including gaps and good practices;

•   conclusions;

•   recommendations for future actions.

The report was considered ownership of the organisation which committed to following up on the recommendations. All the institutions agreed to openly share the findings of the audit reports, which demonstrates the high degree of trust created among technical and scientific partners.

3.5. Results and follow-up of PGAs: gender performance indicators and self-tailored action plans

3.5.1. Comparative analysis and benchmarking tools to start action-planning

The participatory process turned out particularly useful since most of the recommendations were acceptable for institutions as they either built on existing schemes (e.g. specific mentoring schemes for women researchers in Germany) or proposed changes that had been discussed with the management and staff. Recommendations were useful to the institutions to start an internal discussion on how to develop the TAP. An additional effort was made to organise the results of the audits in a systematic and comparative manner. This allowed the six partners to benchmark themselves on the basis of a set of 'evidence-based indicators of gender performance' and, on this basis, organise their responses to the audit recommendations in a systematic manner. Technical partners encouraged the scientific partners to adopt result-based planning techniques, which in some cases were implemented. The resulting action plans are not simply a list of activities but include medium-term strategic result areas.

Table 4 and Table 5 present the 'evidence-based gender performance indicators', as well as a comparative table of 'challenges and gaps'. Technical partners proposed an initial benchmark but participating organisations were invited to self-assess themselves, and to adopt the tool to monitor progress for the future.

Table 4 – Evidence-based indicators of gender performance at macro-meso-micro levels (baseline collected through PGAs)

Evidence-based indicator of good practice 1. Institutional mechanisms for gender equality (laws, policies, institutions)		Inst 1	Inst 2	Inst 3	Inst 4	Inst 5	Inst 6
External	National legislation promoting equality and non-discrimination in employment						
	Local/Regional legislation						
	Specific mechanisms to promote women in science and technology						
Internal	Equality policy/Action plan within institution						
	Ombudsman/Equal Opportunities Counsellor/Gender Equality Advisory Board/Works Committees						
	Sexual harassment prevention policy						

Evidence-based indicator of good practice 2. HRM		Inst 1	Inst 2	Inst 3	Inst 4	Inst 5	Inst 6
Recruitment	Formal affirmative action to recruit women in non-traditional positions (e.g. IT)						
	Policies to attract (or reconvert) (young) women (and men) into scientific careers						
	Recruitment committees receive guidance in methodologies for recruitment or performance assessment free from gender bias.						

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Evidence-based indicator of good practice 2. HRM		Inst 1	Inst 2	Inst 3	Inst 4	Inst 5	Inst 6
	Quotas in selection/promotion committees						
	Adoption of the EU Charter for Researchers						
	Use of the Marie Curie Programme						
Performance management	Broadening of evaluation criteria (fund-raising, soft skills, team management)						
	Open peer review system						
	Mentoring initiatives for women scientists (*ad hoc*, individual professors)						
	Support measures to avoid negative impact of maternity break (individual initiatives)						
	Routine letters for students and researchers to confirm period of maternity and breastfeeding						
	Evaluation period for publications extended for women scientists who have been on maternity leave						
	Other support measures (individual)						
Working conditions	Family-friendly scheduling of meetings						
	Teleworking allowed for scientists (informally)						
	Policies on flexible working hours for researchers (formal)						

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Evidence-based indicator of good practice 2. HRM	Inst 1	Inst 2	Inst 3	Inst 4	Inst 5	Inst 6
Policies on flexible working hours for non-scientific staff (formal)						
Restrictions on week-end work and night work in labs						
Teleworking allowed to scientists (informally)						
Policies on flexible working hours for researchers (formal)						
Policies on flexible working hours for non-scientific staff (formal)						

Evidence-based indicators of good practice 3. Organisational culture/Stereotypes	BTH (SE)	CSIC (ES)	FTM (RS)	IFP (DE)	INFN (IT)	NIC (SI)
Organisational culture	Policy on gender sensitive language					
	No stereotypes on scientific potential and capacities of women researchers or technicians					
	Role models: women in key positions (e.g. Director/Dean of institution/professorship)					
	Role models of active fatherhood/men coaching other men					
	Acceptance of paternity leave as 'normal'					
	In-house discussion on gender and science					

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Flat non-hierarchical structure (at work unit level)/Collegial culture… but team as a family (paternalistic management approach?)					
Marketing/Orientation policies for student recruitment that are gender friendly.					
Campaigns/Policies to encourage youth into science (some with particular emphasis upon girls)					
Weekly meetings to discuss progress including gender issues (e.g. pregnancy/research work)					
Workshops where each of the group members can present his/her research or project results.					
Participation in 'family-friendly enterprise' initiatives or other certification body					

Table 5 – Benchmarking table of challenges to gender equality as identified by the PGAs

Challenges 1. Institutional set-ups for law implementation		BTH (SE)	CSIC (ES)	FTM (RS)	IFP (DE)	INFN (IT)	NIC (SI)
	Administrative procedures frequently not adequately flexible to meet needs of staff members who have the necessity to reconcile work and family life						
	Limited childcare facilities inevitably leave women with *having* to manage childcare.						
	Despite legislation, gender aspects not adequately addressed in planning and monitoring						
	Gender equality structures not effective/low status						
	Lack of awareness of rights/sexual harassment policies						

Challenges 2. HRM		BTH (SE)	CSIC (ES)	FTM (RS)	IFP (DE)	INFN (IT)	NIC (SI)
Recruitment	Approximation to parity between employment of men and women but.…						
	Women under-represented in senior positions						
	In the current economic environment (including transition into new status), career opportunities in science are perceived to be limited and in extreme competitive environments, and women in some countries are 'opting out.'						

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Performance management	Women frequently unable to reconcile the pressure of quantitative performance in terms of publications and patents with family life
	Active mentoring (by male and female superior) can be a critical factor but it is rarely institutionalised.
	Mobility: constraints in both 'home' and 'host' organisations that inhibit mobility for women researchers between institutions.
	Women need longer than men to advance in their career.
Performance evaluation	Limited 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
	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 from organisational support in this respect.
	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 from organisational support in this respect.
Working conditions	Tendency towards increased use of non-permanent contracts – particularly detrimental for women
	Part-time work perceived as putting a break on women's careers

Pay gap – a fact. Does it depend on gender-bias in job classification/evaluation?						
Lack of career prospects/motivation schemes for administrative staff – mostly women						
Maternity leave perceived as putting a break on women's careers						

Challenges 3. Organisational culture/Stereotypes	BTH (SE)	CSIC (ES)	FTM (RS)	IFP (DE)	INFN (IT)	N I C (SI)
Culture and stereotypes	General perception that demanding nature of research work does not allow for easy conciliation of work-life balance.					
	Leadership is often – unconsciously – related to male behaviours and symbols, and the assumption that women are not interested in managerial careers.					
	Primary child minders and caregivers for the family remain women.					
	Maternity leave perceived as putting a break on women's careers					
	Women still remain mainly responsible for domestic chores.					
	There tends to be a high degree of awareness on gender stereotypes but in reality there is a tendency to 'accept' these.					
	'Women must make a choice' between career and family life.					
	Both women and men contribute to the cultural transmission of stereotypes, and allow for their institutionalisation.					
	Potential gender biases in evaluation of excellence/performance, which are hidden in the accepted social representation of science.					

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3.5.2. Institutional change for gender equality: examples of interesting results

In BTH (Sweden)

Following the presentation and public discussion of results of the PGA with the management, the internal committee for equal opportunities, which had been dormant for a few years, was revived and given higher visibility. The Head of the committee is the Head of HR. As a further result, the Head of HR started an in-depth screening of HR procedures from a gender perspective, finding that more needs to be done.

The new BTH management scorecard includes gender equality as an area of performance.

In INFN (Italy)

Following up on the results of the PGA, an innovative pilot system for HR management, competency-based and free from gender bias has been developed. The system was inspired by the Competency-based System of the European Organization for Nuclear Research (CERN), as CERN has a similar mandate. With support from technical partners, the INFN Genis Lab team organised participatory focus groups to collect ideas from colleagues on the values and the core behavioural competences deemed necessary to work well in their organisations. 'Respect for differences' has been included in the core values of the institute's mission statement.

In NIC (Slovenia)

The PGA found out that in spite of conducive work-family legislation, an historically high presence of women in technical professions, and positive, more recent, trend of young men's attitudes towards sharing family responsibilities, as well as unconscious biases about women as mothers, along with gender stereotypes still play an important role. NIC decided to tackle this structural problem by introducing rules on the use of gender-sensitive language in the institution, and with a visual campaign on women's role in chemical research. In addition, in collaboration with the union, a new policy prohibiting sexual harassment was adopted.

3.6. Conclusions

- The participatory approach proved to be particularly successful in kicking off a conversation on a topic that met a high degree of resistance or 'fatigue' in the participating organisations.

- The standardisation of the methodology allowed for comparability of results and, at the same time, for the adaptability to specific organisational dimensions or structures.

- A challenge related to the HR dimensions is that many scientific organisations do not have a proper 'HR department' but rather 'personnel administration', and depend for their recruitment, promotion, and separation processes on national-level laws. This was used sometimes as a system to 'discharge responsibilities', but through dialogue it was possible to find areas which still called for useful organisational level actions. Where HR departments take a more 'modern' approach, innovative and promising initiatives have taken place.

- The audit raised a lot of expectations and enthusiasm but the ensuing process of action planning took a long time. In future projects it will be necessary to precede or accompany the PGA with specific capacity-building actions for the internal project teams.

- Although all institutions had committed to the process at a top level, in some cases this was more on paper than in practice. Accountability and 'passive resistance' at top decision-making levels is an issue which will need to be addressed openly at the outset of similar initiatives.

- The inclusion of gender equality monitoring – as part of the ordinary institutional monitoring systems – has been systematically included in the action plans of all participating organisations as it is the basis for any further structural change.

4. Gender Budgeting (GB)

(Barbara De Micheli and Angela Genova,
Fondazione Giacomo Brodolini)

4.1. Introduction

This part of the Genis Lab Guidelines focuses on the dimension of GB, and is based on the results of the introduction of GB in the six scientific organisations taking part in Genis Lab project, with the aim of promoting structural changes in the organisations to increase the presence of women in science.

While GB has been used as a tool for gender mainstreaming at administrative levels, such as regions and municipalities, there is limited literature on the implementation of GB in scientific organisations[24]; therefore, the proposal for a theoretical and methodological approach to implement GB in these organisations has been drawn up through active discussions with several stakeholders representing these organisations, as well as with international experts taking part in the project[25].

This part of the Guidelines focusing on GB is structured in three main parts. The first one introduces the definition of GB. The second one discusses the reason for using such tool in promoting women in science. The third one outlines the details of the theoretical and methodological framework developed in the Genis Lab project. Then, some general concluding notes and lessons learnt are suggested.

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24.   Cf. the project 'Gender Budgeting as an instrument for managing scientific organizations to promote equal opportunities for women and men – with the example of universities', September 2006-August 2008, available at: http://frauenakademie.de/projekt/e_projekt.htm

25.   The team of external evaluators supporting the Genis Lab project was composed of: Elizabeth Villagómez, Francesca Bettio, and Ailsa McKay who prematurely passed away.

4.2. What is GB?

Budget is considered a gender-neutral policy instrument because its data, expenditure, and revenue do not mention women and men either. Budget appears gender neutral, but the issue is that budget has usually ignored the different, socially defined roles, responsibilities and capabilities of men and women[26.] This gender-neutral approach is taken for a granted framework that brings about unequal gender outcome. Although the provisions in a budget may appear to be gender neutral, they actually affect men and women differently because their roles, responsibilities, and capabilities in any organisation are never the same. Therefore, rather than gender neutral, budget has to be considered gender blind27.

GB aims at mainstreaming gender into the decision process of resource allocation in organisations. The generally accepted definition of GB emerges from the report of the special group of the Council of Europe, which in 2005 reached the conclusion that:

> *Gender budgeting is an application of gender mainstreaming in the budgetary process. It means a gender-based assessment of budgets, incorporating a gender perspective at all levels of the budgetary process and restructuring revenues and expenditures in order to promote gender equality.[28]*

The same definition is also used in the framework of the EU. The overall aim of GB is not the mechanical division of financial means into equal parts or in equal

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26.   Elson, D., 'Gender-neutral, gender-blind, or gender-sensitive budgets? Changing the conceptual framework to include women's empowerment and the economy of care', Preparatory Country Mission to Integrate Gender into National Budgetary Policies and Procedures, Commonwealth Secretariat, London, 1997, p. 1, available at: http://www.undp.mn/publications/GenderBudgets/Budgets%20CD%20section%203/3.1%20gender%20neutral%20gender%20blind.pdf

27.   Budlender, D., Elson, D., Hewitt, G. and Mukhopadhyay, T., *Gender Budgets Make Cents. Understanding gender responsive budgets*, Commonwealth Secretariat, London, 2002, available at: http://www.gender-budgets.org/index.php?option=com_joomdoc&view=documents&path=suggested-readings/gender-budgets-makes-cents-understanding-gender-responsive-budgets&Itemid=587

28.   Council of Europe, *Gender budgeting. Final report of the Group of specialists on gender budgeting (EG-S-GB)*, Council of Europe, Strasbourg, 2005, p. 5, available at: http://www.coe.int/t/dghl/standardsetting/equality/03themes/gender-mainstreaming/EG-S-GB(2004)RAPFIN_en.pdf

proportion to the existing number of men and women, but rather an overall concept, based on solid analyses, for the financing and distribution of available resources according to the needs of both genders so that they can be used by both men and women, as far as possible equally. If one of the groups is disadvantaged, it would be possible to rectify such a situation by equalising measures, or by redeveloping the specific needs of the given group in this direction.

The EU's commitment to GB was also reflected in the Roadmap for Equality between Women and Men (2006-2010), which considered GB as a tool for the implementation of gender equality. In 2009 the Council of Europe published a handbook on the practical implementation of GB[29].

4.3. Why apply GB as a tool for institutional changes?

Financial choices reflect the dominating culture with related power relationships, as power is created through the concentration of resources. It is then important when addressing gender equality to understand and monitor how resources are distributed, and what effects the assignment of resources has on each gender.

The experience of the Genis Lab project shows that GB is a crucial tool to contribute to tackling several issues in the promotion of structural changes in research institutions towards gender equality. GB, in fact, specifically contrasts opaqueness in decision-making processes, which has been considered as the first main problem faced by research institutions in the implementation of structural changes for gender equality.

Data from the Genis Lab project confirm that the decision-making process is mostly concentrated within bodies and committees that do not adequately include women, and that their procedures and decision-making mostly fail to be

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29.   Council of Europe, *Gender budgeting: practical implementation*, Handbook prepared by Sheila Quinn, Directorate General of Human Rights and Legal Affairs, Council of Europe, Strasbourg, April 2009, available at: http://www.coe.int/t/dghl/standardsetting/equality/03themes/gender-mainstreaming/CDEG(2008)15_en.pdf

gender sensitive, in tune with the already available European data[30]. Therefore, GB contributes to increasing transparency in processes contrasting the phenomenon of the 'old boys' networks and patronage'[31].

Moreover, GB, as a tool of social accountability, contributes to increasing awareness of direct and indirect discrimination of systems and structures, policies, processes, and procedures in scientific organisations. Therefore, despite GB does not directly work on stereotypes, it aims to increase awareness on discrimination, and is therefore a crucial tool to be implemented as part of a broader strategy to foster women's participation in science.

The principle of GB, on the one hand, contributes to the fair distribution of financial resources, and on the other hand, increases the transparency of budgetary expenses. In the final phase, this results in ensuring the maximum efficiency of the means used.

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30.   European Commission, *Structural change in research institutions: Enhancing excellence, gender equality and efficiency in research and innovation*, Report of the Expert Group on Structural Change, Chairperson: Inés Sánchez de Madariaga, Rapporteur: Tiia Raudma, Publications Office of the European Union, Luxembourg, 2012, available at: http://ec.europa.eu/research/science-society/document_library/pdf_06/structural-changes-final-report_en.pdf

31.   European Commission, *Structural change in research institutions: Enhancing excellence, gender equality and efficiency in research and innovation*, Report of the Expert Group on Structural Change, Chairperson: Inés Sánchez de Madariaga, Rapporteur: Tiia Raudma, Publications Office of the European Union, Luxembourg, 2012, p. 15, available at: http://ec.europa.eu/research/science-society/document_library/pdf_06/structural-changes-final-report_en.pdf

4.4. How to implement GB in scientific organisations[32]

In tune with the main literature on GB[33], GB implementation in scientific organisations would comprise two main phases:

1. GB analysis aimed at assessing, from a gender perspective, the distribution of resources in the organisation;

2. GB programming aimed at changing the distribution of resources according to gender-aware criteria.

GB analysis is the first phase towards GB programming. GB analysis and GB programming have been each subdivided into several main steps, as outlined in Figure 2.

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32. This part of the Guidelines presents the theoretical and methodological proposal for the implementation of GB in scientific organisations, that has been developed within the Genis Lab team, based on the existing literature and adapting the previous well-known methodology to the context of the scientific organisations. FGB was responsible for developing and implementing GB, nevertheless the theoretical and methodological approach is the result of the discussion with the other technical partners (ITC-ILO and ADS) and with the Genis Lab team of each scientific organisation taking part in the project.

33. Elson, D., *Gender Responsive Budget Initiatives: Some Key Dimensions and Practical Examples*, UNIFEM-OECD-Nordic Council Conference hosted by the Belgian Government on Gender Responsive Budgeting, Brussels, 16-17.10.2001, pp. 15-29, available at:
http://www2.law.columbia.edu/faculty_franke/Gender_Devel/Elsen%20Gender%20Sensitive%20Budgeting.pdf

Figure 2 – The phases of GB
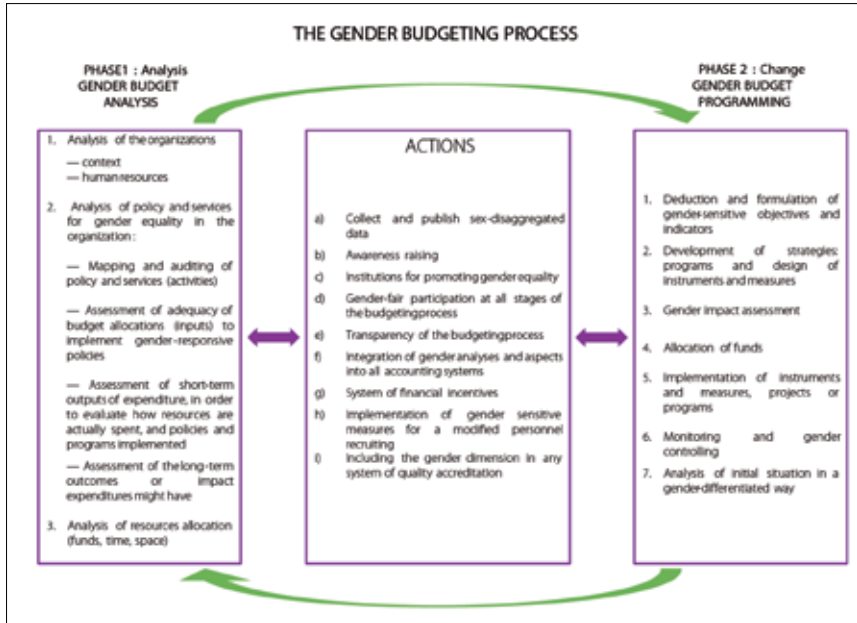
The analysis phase is structured in three main steps:

- the **first step** aims to outline the context of the organisation, along with its HR elements, within a gender-aware perspective;

- the **second stage** analyses policy and services aimed at supporting gender equality. It considers the activities and the related input invested, as well as the output and the long-term outcome of this policy. This is a crucial element, since, in most organisations, certain policies have already been developed to promote gender equality, however they have not yet been properly evaluated with regards to their impact[34]. Organisations taking part in the

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34. Timmers, T. M., Willemsen, T. M. and Tijdens, K. G., 'Gender diversity policies in universities: A multi-perspective framework of policy measures', *Higher Education,* Vol. 59, No 6, June 2010, pp. 719-735, available at: http://download.springer.com/static/pdf/716/art%253A10.1007%252Fs10734-009-9276-z.pdf?auth66=1424706352_39b4e5e602c370584119c6eab251da0f&ext=.pdf

process of implementing GB as a tool for achieving structural changes high-light the need for indicators to monitor and evaluate the improvement in women's participation in research activities, taking into account services that have been offered to facilitate the balance between family and work respon-sibilities. GB therefore represents the framework for collecting and monitor-ing such gender-disaggregated data;

- the **third and final step** in the analysis phase consists in focusing on gender differences in the allocation of resources within the organisation. The specific characteristics of scientific organisations have made it necessary to broaden the concept of *resource*, allowing for the analysis not only of the traditional economic resources available to the organisation, but also of two other types of resources that are fundamental to carry out research: time and space. Ac-cording to the literature, time allocation among academic faculties presents gender differences, affecting scientific outputs[35]. As regards space, in 1999, at the Massachusetts Institute of Technology (MIT), the Committee on Women in Faculty unveiled the existence of discrimination, between women and men, concerning space allocation[36]. Therefore, in investigating resource al-location in scientific organisations, time and space were considered as im-portant elements to be analysed.

For an organisation devoted to research activities, economic resources are cer-tainly important. The application of GB includes the analysis, from a gender per-spective, of the allocation and management of the economic resources, distin-guishing principally between the internal resources allocated by boards within the scientific organisation, and the external ones that are allocated through com-petition with other organisations. EU projects, governmental and non-govern-mental national projects, and some private enterprises are examples of external funds. These external funding sources have been paid more and more attention in recent decades, becoming a crucial source of economic resources.

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35. Winslow, S., 'Gender Inequality and Time Allocations Among Academic Faculty', *Gender & Society*, Vol. 24, No 6, December 2010, pp. 769-93.

36. Massachusetts Institute of Technology, *A Study on the Status of Women Faculty in Science at MIT: How a Committee on women Faculty came to be established by the Dean of the School of Sci-ence, what the Committee and the Dean learned and accomplished, and recommendations for the future*, Massachusetts Institute of Technology, Cambridge (MA), 1999, available at: http://web.mit.edu/fnl/women/women.html

All Genis Lab partners agreed on the importance of investigating internal and external resource allocation. Some data from the Serbian partner showed that, compared to men, women have lower application rates for funds, and that they gain access to innovative sources of funding later than men, although women's success rate for applications is higher.[37]

The **first element** to consider in implementing GB in scientific organisations is the analysis of the fund allocation procedure, examining how it might be made more transparent, and how gender-fair policies might be incorporated into it. To this end, the number and role of women in the resource allocation procedures require specific focus. Allocation criteria play an important role, and the discretionary power regarding internal fund allocation must also be investigated from a gender-aware perspective.

In the Spanish scientific organisation, project leaders are mainly men, with regard to all the different typologies of projects. In 2011, the total number of male project leaders is twice those of female project leaders[38].

Moreover, in investigating the sources of external funds, the attention paid to any gender issue has to be analysed. Some external funds could be a target for improving research with a gender focus, such as gender medicine, or gender engineering; or there could be funds aimed at improving gender equality within the organisations. The rate of women applying for, and coordinating projects has to be analysed, as has the gender composition of the research teams.

GB implementation in the Swedish organisation showed that female researchers' activities depend more on sources of external funding, especially for postgraduate and lecturer grades. The results confirm misallocation of resources being of such an extent that there is no equal opportunity for men and women doing research in terms of career development. Moreover, the review of research

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37. FTM Genis Lab Narrative Report.
38. CSIC Genis Lab Narrative Report.

strategies and interviews with heads of schools confirms the lack of gender per-
spectives. No school was able to present a current strategy or a commitment to
equalising resources between sexes. However, most of the deans were open to
such work[39].

Time and space are other resources of fundamental importance in the carrying out of research activities. The application of GB in scientific organisations requires, therefore, an analysis of time and space management from a gender perspective. Not only does the analysis of time management focus on the distribution, between genders, of housework, family care, and work[40], but also, regarding the time dedicated to work, it delves into time management procedures for the various activities required in conducting research. An analysis of gender differences in the use of time devoted to research and to the many other activities required, such as teaching, is therefore made.

Data collection concerning time and space requires the introduction of innovative tools. The discussion within the GB working groups on tools to measure time management revealed common scepticism towards the use of daily diaries (to be filled in by the personnel), in part because of the added workload that this would represent for the researchers, and in part because it might be perceived as a tool for scrutinising the actions of members of the organisations, and would therefore meet considerable resistance[41]. Nevertheless, some outcome indicators have been selected to measure the gender-specific time management among researchers. Foremost among these, we have the number of publications and patents, the number of teaching hours, and travelling time.

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39. BTH Genis Lab Narrative Report.

40. Gálvez-Muñoz, L., Rodríguez-Modroño, P. and Domínguez-Serrano, M., 'Work and Time Use By Gender: A New Clustering of European Welfare Systems', *Feminist Economics*, Vol. 17, No 4, 2011, pp. 125-157. Anxo, D., Mencarini, L., Pailhé, A., Solaz, A., Tanturrie, M. L. and Flood, L., 'Gender Differences in Time Use over the Life Course in France, Italy, Sweden, and the US', *Feminist Economics,* Vol. 17, No 3, 2011, pp. 159-195.

41. Implementing a short questionnaire would have been helpful to identify assistance work usually carried out by women.

Patents name and publishing in scientific journals are considered as output indicators of research. Comparative analyses show that male researchers have more favourable results in both of these indicators. Data from the Spanish organisation show that the male name is more frequent in the first place in patents, while in scientific publications the most important male names appear as last. The number of scientific publications with male names as last is twice as much as that of scientific publications with female name[42].

Space distribution represents an underestimated dimension of analysis in a gender perspective. However, it would be necessary to systematically collect data before expressing any judgment on the issue. Most of the organisations taking part in the project did not consider space allocation to be a crucial dimension. Nevertheless, one of the southern scientific partners, when discussing the definition of the GB methodology, brought to light its own experience: in the process of reallocation of office space after refurbishing one of the buildings, the map of the assigned offices showed a clear gender-divided imbalance. Members with the same roles had been assigned different types of office. Men had single rooms, while women had shared rooms. Based on an analysis of the literature and on this experience, space has been introduced as one of the relevant resources to consider when implementing GB in scientific organisations.

Another issue was to identify the items on which to focus when investigating space distribution. Three main features were defined: office distribution, laboratory access, and infrastructure access. The first was assessed through a mapping of the offices by incorporating a gender variable. Access to laboratories presents more sensitive elements. The presence or absence of explicit criteria in accessing laboratories is the first element to consider.

The southern partners discussed how difficult it is for some young women researchers to access the laboratory during daytime hours, when it is mainly used by senior men professors who have priority of access at any time of the day. The issue assumes different aspects in eastern and northern experiences, where the number of women researchers is higher, and gender equality is a more consolidated issue. However, all partners agreed on the importance of collecting data on this variable[43].

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42. CSIC Genis Lab Narrative Report.

43. Interviews conducted in the framework of the Genis Lab project.

For the main three types of resource – funds, time, and space – different subdimensions to be investigated have been outlined, and for each of these a specific item to be analysed has been defined. In order to make the process clearer, leading questions have been presented, and actions and methodologies suggested in order to obtain the outlined output and related indicators.

Concerning time allocation

Data from the Swedish Agency for Higher Education in 2007 pointed out that the distribution of working hours differs between men and women, as men devoted more time to research than women. Female lecturers and research assistants spend less time on research and more time on other tasks compared to men. Similar results have been shown in the survey involving 51 academic staff members in the Swedish organisation taking part in the project[44].

Concerning space allocation

Data analysis points out that in both organisations the majority of staff members have offices next to another person of the same sex as themselves. Therefore, women sit side by side with women, and men sit with men[45].

Table 6 – Summary of dimensions to be considered in the GB analysis implementation among scientific organisations

Dimension	Subdimension	Item
Funds	Internal funds	Procedure of allocation
		Allocation criteria
		Beneficiaries
		Targeted towards equal opportunities
	External funds	Source of funds
		Access criteria
		Beneficiaries

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44. Data from the BTH Report.

45. Data from the CSIC and BTH Reports.

		Topic of research
Time	Professor	Research activities
		Managerial – coordinator of activities
		Fundraising
		Teaching
	Junior researcher	Research activities
		Managerial – coordinator of activities
		Fundraising
		Teaching
	Non-structured junior researcher	Research activities
		Managerial – coordinator of activities
		Fundraising
		Teaching
Space	Office	Professor
		Structured researcher
		Non-structured researcher
	Laboratories	Professor
		Structured researcher
		Non-structured researcher

The **second phase** in the GB implementation, based on the results of the first phase, consists of programming changes in resource allocation within the organisation, in order to foster equal opportunities. In the programming phase, gender equality objectives, strategies, as well as gender impact assessment tools will be developed according to the allocated resources. Changes will be monitored and reanalysed periodically in order to determine whether adjustments are needed. Adequate dissemination of the results of the GB analysis is recommended in order to increase gender awareness, and implement further gender-focused structural changes.

Moreover, a certain selection of actions46 has to be considered crucial and common to both phases:

1. the collection and publication of **gender-disaggregated data** is a fundamental element in revealing gender discrimination, and in debunking the apparent gender neutrality of budget. As the experiences on GB show all over the world, the publication of, and the discussion on gender-disaggregated data, as part of the GB process, raise awareness about gender discrimination and inequalities[47]. However, obtaining disaggregated data may well represent the first serious operational challenge. Gender-disaggregated data were not available in any of the scientific organisations involved in the project. Therefore, in order to facilitate the process of introducing a system to collect gender-disaggregated data, the following steps have been defined: (1) check whether gender-disaggregated data are already collected in the organisation (even if they have not been analysed yet); (2) if data are not collected, check whether it would be possible to add gender-disaggregated information to the existing data collection system, or to introduce a new system; (3) where necessary, update or replace data collection systems, ensuring that resources are adequate to the task, and that responsibilities concerning gender-disaggregated data are well defined;

2. the whole process of implementing GB must be supported by **actions to raise awareness on gender discrimination**. Most of the organisations have a consolidated experience in gender equality campaigns and actions. However, stereotypes remain the most difficult aspect to tackle. The neutrality of science is at odds with the widespread over-representation of men. In most of the organisations, the gender neutrality of criteria applied in evaluating scientific careers (such as, for example, number of publications and hours of teaching) penalised women with children, because childcare responsibilities are not considered. Nevertheless, even in those cases in which they are

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46.   Cf. the project 'Gender Budgeting as an instrument for managing scientific organizations to promote equal opportunities for women and men – with the example of universities', September 2006-August 2008, available at: http://frauenakademie.de/projekt/e_projekt.htm

47.   Sharp, R. and Broomhill, R., 'Budgeting for Equality: The Australian Experience', *Feminist Economics,* Vol. 8, No 1, 2002, pp. 25-47.

formally recognised, stereotypes are still playing a significant role, affecting the evaluation process: 'The same element can be judged positively if it is in a man's curriculum vitae or negatively if it is in a woman's curriculum' said a member of the Genis Lab working group who had served as equal opportunities representative on a recruitment board;

3. **institutions specifically aimed at promoting equal opportunities should be extensively involved in the process of implementation** of GB in scientific organisations. In all of the studied organisations, these institutions have a weak role, although there are relevant differences between northern and eastern organisations, on the one hand, and southern organisations, on the other. The former feature an organisational culture that takes gender equality for granted because of the concerted effort applied to this issue during the 1970s and 1980s. Nevertheless, while many institutions or committees dedicated to gender equality were established decades ago, their functions have since then diminished to such an extent that they have now become mere formal institutions with no resources or power. In the Swedish and German experiences, the gender equality commissions at the beginning of the Genis Lab project in 2011 were no longer active, although actions to revitalise them had been introduced. In the Spanish and Italian scientific organisations taking part in the project, gender equality committees were established in the last 10 or 15 years, but with very few resources and rather vague objectives. Moreover, the analysis of the role of gender equality committees in the six scientific organisations taking part in the project shows that, when they are present, most members of the organisations are not really aware of their functions and role. Therefore, in order to promote a more active relationship between members of the scientific organisations and gender equality committees, the possibility of identifying a gender-aware member in each local department or research group has been discussed. Its main role would be to report data periodically, and provide a brief analysis of the research group's activities from a gender perspective, supporting the process of gender-disaggregated data collection;

4. action should be taken to guarantee **gender-fair participation and full transparency at all stages of the budgeting process**. The main challenge is to make the fund allocation process explicit, considering the formal and informal elements. Moreover, the fair participation policy has to overcome the

under-representation of women in higher hierarchical positions. Therefore, in most of the cases, this is one of the dimensions that should be considered as the principal aim of the GB process;

5. gender analysis must be part of the **whole accounting and quality accreditation system**. In recent decades more and more attention has been paid to the quality accreditation system in all scientific organisations. Attention to the gender dimension is part of the system in the northern and eastern countries, but is not yet considered in the southern ones. For example, gender analysis is not requested in the quality accreditation system in Italy. The organisations taking part in the programme discussed the opportunity of introducing an experimental focus on gender, adding this dimension in the presentation of the organisation's data, and then supporting activities to lobby for its introduction at national level. In the Swedish organisation, a specific gender scorecard has been introduced as part of the Genis Lab project output;

6. another action to be considered is the set-up of a financial incentives system together with the implementation of gender-sensitive measures for a modified **personnel recruiting strategy**. This is a rather controversial issue. Neutrality of science would not allow for any kind of explicit discrimination in favour of women, that thereby undermines male prospects. Nevertheless, the Swedish experience during the 1970s highlights the effect that positive discrimination actions had on increasing the number of women in science. Nowadays, in some of the recruitment systems of the analysed organisations, there are features that have to be considered as fostering equal opportunities, such as the opportunity of considering the relationship between the number of children and the number of years of research activity and publications. Nevertheless, a detailed microanalysis should be implemented in order to evaluate its correct implementation.

4.5. Lessons learnt

In all organisations taking part in our Genis Lab project, the issue has not been the lack of a legal framework for equal opportunities rights, but the real accessibility to these rights. GB has therefore been an innovative tool to **practically support** strategies, and to promote actions aimed at narrowing the gap between formal and substantial equality.

Structural and institutional changes in organisations towards gender equality require deep awareness of inequalities among all members of the organisation. Inequalities that are not recognised by the single member of the organisation and by the entire organisation are unquestioned and therefore perpetuated. GB is a crucial tool to support the **increase of awareness on gender discrimination**, both formal and informal, focusing on punctual analysis of resource allocation in a gender perspective.

Nevertheless, the introduction of GB in scientific organisations unveiled several key aspects that have to be considered in the promotion of institutional changes:

1. the initial **resistance** (cf. Chapter 2 by ADS) and scepticism of the members of these institutions. This is due in part also to the existence of limited literature on the implementation of GB in scientific organisations. The lack of consolidated methodology based on previous experiences of GB had the effect of disorienting partners. Therefore, the first challenge in introducing GB in scientific organisations was to build up an innovative methodology. This part of the Guidelines summed up the effort made to define a specific GB methodology to enforce GB in scientific organisations;

2. **data collection** presented several criticalities. Data concerning fund allocation were the most accessible although their analysis required additional qualitative information to better interpret them. Instead, the collection of data on time and space allocation, according to a gender perspective, has been a completely new process. Quantitative and qualitative data concerning time and space allocation need to be carefully collected by gender-sensitive trained researchers;

3. **turnover in management staff**. GB has to be considered as a specific tool to

foster gender mainstreaming in scientific organisations as part of a broader TAP. In tune with the literature on policies to contrast discrimination in organisations, the commitment of the heads of administrations and management has been crucial in supporting GB implementation. In some of the scientific organisations taking part in the project, turnover in management staff affected GB implementation differently;

4. **gender-sensitive organisational culture** in the scientific institutions. The widespread gender-sensitive organisational culture is pivotal to guaranteeing adequate implementation of GB. Therefore, the introduction of GB should be accompanied by training activities concerning gender, targeted to all members of the organisations;

5. **GB as circular activities** between analysis and programming. Data collection is one of the key features in the implementation of GB, and specifically in its first phase: analysis. Once data have been collected, analysed, and discussed, new objectives have to be settled to foster gender equality, according to a circular approach. GB should therefore be part of a regular set of actions, and not an isolated and sporadic experience;

6. **GB to break down the 'Matthew effect'**. The 'Matthew effect' is the systematic under-recognition towards those who have little to start with, as theorised by Robert Merton in 1968 based on the Bible, Gospel of Matthew 13:12. Introducing GB in scientific organisations would be a starting point to question such widespread path in science, directly affecting women who are rarely holding a leading position in scientific organisations. Implementing GB would support the promotion of the opposite effect, called 'Matilda effect' after Matilda Gage, who was an American suffragist and feminist critic[48].

To conclude, based on the active involvement of Genis Lab teams in each scientific organisation, and of all the other technical partners, Genis Lab has defined a detailed theoretical and methodological approach to introduce GB in scientific organisations, presenting many potentialities to foster institutional changes towards more gender equality and innovation. Nevertheless, these Guidelines are the starting point for a process that necessarily involves widespread knowl-

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48. Rossiter, M. W., 'The Matthew Matilda Effect in Science', *Social Studies of Science*, Vol. 23, No 2, May 1993, pp. 325-341.

edge of gender discrimination in each scientific organisation across Europe, and a strong commitment of management, underpinned at national and European level, to gender equality policies. Therefore, GB in scientific organisations could play a crucial role in institutional changes towards gender equality in science; nevertheless, its potentiality can be fully accomplished only when it is part of a long-term strategy aiming at supporting innovation and improvement in the organisation, within a broader context of promotion of women's participation in science.

Overall concluding remarks

Genis Lab and the institutional change experience

The analysis of TAPs showed some important commonalities among the six scientific partners: the impact of the crisis and uncertainties about the future, the perception of science as undergoing an important period of transition, the increase of new forms of work both as a negative trend (precariousness, fierce competition, increasing dependency on the needs of external economic actors) but also in their more positive aspects (collaborative, going beyond institutional borders, innovation spurred by partnerships with private actors, calling for stronger accountability of research). All these elements showed strong gender dimensions, in some cases increasing challenges, and in other cases offering opportunities to make science a more enabling environment for women and the youth. The need to strike a balance between work and private life as well as to recognise and redistribute care work was also a common trend for the institutions in those countries which do not recognise care services as a matter of public policy.

Some interesting differences can be detected among the various institutions, in relation to their countries' historical contexts:

- in Sweden, owing to the concurrence of a history of high female labour market participation – particularly in the public sector – with the provision of high-quality public care services, gender stereotypes seem to be more influencing the choice of studies and careers. Occupational segregation and related wage-setting mechanisms seem to be having an impact on a persistent pay gap, since they are female-dominated. In addition, Swedish authorities seem to have come to the recognition that 'collegial culture' in universities and research institutions still allows for a 'grey area' in which potential discrimination against women can persist;

- the relatively recent, and somewhat patchy policies to attract and maintain women in the labour market of countries like Italy and Spain seem to counterbalance the negative impact on the labour market participation with a

more positive trend in diversification of academic subjects and careers, and a relatively higher interest of women in undertaking scientific careers. However, the lack of adequate care policies, as well as age, in addition to male-dominated working cultures and environments, seem to function as 'sticky floors', obliging women to choose between scientific research and family;

- countries that have experienced egalitarian policies during the communist period stand out for both higher levels of participation, and lower levels of occupational segregation. However, egalitarian policies with their generous provisions targeting mothers (e.g. long maternity benefits) did not challenge gender roles. New and more transformative policies are being adopted, but still today there is resistance to see parental responsibility as a shared task, and also to accept that leadership in science does not imply 'giving up' motherhood;

- the perceived idea of women who make it as scientific leaders as 'non-women' or 'aggressive people' was reported as persistent in most institutions, which triggered a reflection on how the organisational environment and career paths could be made more gender friendly as well as more open to 'diverse' leadership styles.

All the six pilot scientific organisations involved in Genis Lab, despite their different dimensions and different cultural environment in which they perform, have shown some similarities and some challenges in the definition and implementation of TAPs:

- a gender-oriented structural change process has been launched in all the organisations, and despite the quantitative and qualitative impact that can be monitored in a two-year process, an innovation process, with an impact in terms of innovation of the institutional mechanisms, has been started up;

- the Genis Lab experiences have shown that it is very important to start the change/innovation process from the creation of a baseline in order to be able to monitor developments concerning change and gender equality. Involving organisations since the beginning in creating the baseline (i.e. through a participatory audit process) is already part of the process of change;

- it is also important to recognise that scientific research institutions can rarely rely on internal change management or sociological capacities. Since the

outset, it should be clear that internal project teams need to be established with full and continued management support, and specific capacity development actions (on gender analysis and planning, change management, and advocacy and lobbying, as relevant) should be envisaged to support internal change agents;

- at the same time, the information/knowledge exchange between technical and scientific partners has been crucial to defining the fact that universities and scientific research centres are 'special forms of organisations', in which the organisation's specific level of autonomy has to continuously struggle and mediate among different forces: the international scientific community – which sets the rules for the definition/recognition of excellence –, the national research policies and funds, and the single senior researcher's autonomy in research. The organisational level of autonomy, and the identification of different levels of power of various stakeholders have, of course, a huge impact on determining structural change;

- in addition, in the framework of a project dealing with different cross-cultural issues, systematic and continued efforts had to be made in order to ensure that all partners shared the same understanding of the words they used (defining and redefining is part of the process of change);

- all organisational change initiatives face resistance, and this is expressed in multiple ways. In the case of Genis Lab, although there was no explicit resistance against gender equality in science, many partners found it difficult to accept that gender disparities may be related to the negative interplay between gender and science stereotypes. Finding internal and external alliances with the right stakeholders, planning negotiating steps and procedures, and engaging and building on common interests of different groups within the organisation are all crucial elements for success.

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