INITIATING AND SUSTAINING STRUCTURAL CHANGE
Reflection on the outcomes of the workshop on

STRUCTURAL CHANGE in order to improve Gender Equality in Research Organisations in Europe

Towards a Recommendation to the Member States
30 June – 1 July 2011

The workshop has been organised by the European Commission's Directorate General for Research and Innovation, Directorate European Research Area, Unit B6, Ethics and Gender.

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EXECUTIVE SUMMARY

Researchers, administrators and practitioners in gender equality in science were invited to participate in a participatory event by the European Commission to discuss how to advance structural change in order to improve gender equality in research organisations in Europe. They agreed that **standard setting and guidelines** as high level political commitments are **robust instruments for engaging in changes** to advance modernization process in research institutions.

Structural changes have as objective improving the **attractiveness** of research as a labour market activity and creating conditions for **sustainable** and **appealing careers** in research for both, women and men. The participants' suggestions on **how** policies and practices need to unfold may be summarised as follows:

Requirements for **initiating** structural change:

- Ø Setting **institutional standards** and **guidelines**
- Ø Communication for **raising awareness**
- Ø **Gender education** from early childhood years
- Ø Involvement of **policy leaders** in promoting **gender literacy**
- Ø Support from **gatekeepers** of excellence in science
- Ø Transfer of knowledge on **gender bias** and restoring **forgotten knowledge**
- Ø Allocation of public and private **funding**

Requirements for **sustainable** structural change:

- Ø Commitment to and setting in place **instruments for implementation**
- Ø Modernisation of **research management**
- Ø Changes to **recruitment procedures** in research organisations
- Ø Changes to standards and practices for **retaining women** in research organisations
- Ø Changes to **intersectorial mobility** and **peer review**

Requirements for **monitoring and measuring impact** to justify use of public resources:

- Ø **Benchmarking**
- Ø **Gender audits**

For structural change to be **innovative, effective and efficient** pursuing a **holistic approach** and implementing an **integrated toolbox** for addressing each of the above identified multilayered dimensions are indispensable.

The adoption of **legal instruments** and provision of **incentives** for bringing forward gender equality in research organisations may be considered as the most important factors for successful implementation.

1. Setting the stage

1.1 Aims and objectives of the workshop

The aim of the workshop was to contribute to the elaboration of possible recommendations to the Member States in the context of the European Research Area on **how** to advance structural change in order to improve gender equality in research organisations in Europe. The dedicated initiative is expected to be an instrument to engage Member States and to better coordinate policy-making and monitoring developments towards gender equality in research.

One of the objectives of the workshop was also to bring together a broad-base community of stakeholders engaged in **longer term cooperation** for co-creation of standards and for co-implementation of measures for improving gender equality in research organisations in Europe. That is why a mix of researchers, civil servants and practitioners active in gender equality in science issues were brought together at the workshop. Among the 60 participant[2] there were members of the Helsinki Group on Women and Science established by the European Commission in 1999[3], and members of the Expert Group on Structural Change which was set up by the Commission at the beginning of 2011.

A participatory approach was chosen for exchanging knowledge and experience, learning from others, and drawing on the knowledge of the participants for capturing the key insights. The experience that the participants brought was valorised through sharing of insights and dialogue. The approach used for designing, hosting and harvesting strategic conversation is known as the *Art of Participatory Leadership* or the *Art of Hosting meaningful conversation*[4]. The approach engaged participants in open-ended questions, and applied a variety of methods such as World Café, Circle, Open Space, Pro Action Café, and Collective Mind Map for soliciting dialog, promoting mutual learning, and harvesting the fruits of cross fertilized knowledge.

There are many ways to present the results of a workshop. The Commission has chosen two dissemination tools for this event: a *Newsletter* prepared by the workshop organisers, and a *Report* drafted by an independent expert rapporteur.

The *Newsletter* of the workshop presents in a chronological order the information generated by the participants on worksheets and mind map. The key elements spoken by the participants while sharing ideas for potential recommendations were captured in real time and recorded in

[2] List of Participants is provided in Annex 1.

[3] The group is composed of national experts responsible for women and science issues in the Member States and countries associated to the Framework Programme.

[4] For details see: www.artofhosting.org. The *Newsletter* of the Workshop produced by DG Research and Innovation provides details on the participatory approach and describes the landscape as a visual representation of a participatory process.

the *Newsletter* by the Unit staff "Ethics and Gender" of DG Research and Innovation of the European Commission. It was circulated to the participants immediately following the workshop.

The aim of this report is to provide the Commission with a **personal reflection** of the rapporteur on the workshop process, content and outcomes. The report thus contributes to the maximisation of the outputs by systemising the outcome. This report builds on literature review and analysis of the background documents of the European Commission, personal research, and meta-harvesting of the workshop. It encapsulates analysis of conversations and highlights in a structured way issues, challenges, and ideas put forward during the workshop. It also provides some reflections on issues that have not been covered during the workshop but which could be dealt with in other activities in this context.

Involvement of all the key actors, in particular public authorities, research institutions and scientists, is seen as the key success factor for designing the content and later implementing actions. That is why the Commission pursues a wide-scaled cooperation and has chosen participatory approach as the method of work for this workshop. Octavio Quintana Trias, RTD Director in charge of the European Research Area who opened the workshop, underlined a strong engagement of Commissioner Máire Geoghegan-Quinn to promote gender equality in research and innovation. The workshop was one in the line of several preparatory activities aimed at helping to create a vision of a “soft” law. Vivian Willis-Mazzichi, Head of the Gender Sector stressed that it should encapsulate a shared strategy and main lines of action for implementing a commitment by Member States to move forward gender equality in research organisations. Anke Lipinsky, member of the Gender Sector who coordinated the organisation of the workshop, encouraged everyone to take the chance provided, to identify collaborative initiatives and strategic alliances that can underpin existing measures and be carried out in the different contexts of the participants.

1.2 The structure of this report

In view of making this report informative and easily understandable to a broad range of stakeholders who are directly and indirectly engaged in gender equality in research I first summarise the **EU vision** of gender issues in research. I identify the **nature and scale of the problem**, how it is evolving, and why gender balance in research organisations matters. I identify **structural barriers and constraints** which need to be broken down for bringing forward gender equality in research organisations. Then I present the **key learning** from the workshop for making structural change happen. The topics discussed and potential recommendations suggested by the participants are structured as follows: requirements for effectively **initializing structural change**; requirements for **making structural change sustainable;** and requirements for **monitoring and measuring impact**. I end this report by identifying the main achievements of the workshop and pointing to issues which have not been covered at length at the workshop that could be tackled in the future.

2. Opportunities and challenges for improving gender equality

2.1 The EU vision of gender issues in research

Supporting women in European science and technology is widely recognized as a requirement for the development of the European Research Area (ERA). The Competitiveness Council of the European Union called for structural change as part of the **modernisation process** of research institutions.[5] The **breaking down of barriers** to gender equality regarding training, and recruiting and retaining women in research organizations in Europe is seen as one of the key success factors for the Europe 2020 strategy and its «flagship initiative» Innovation Union.[6] **Structural changes** aiming at improving the framework conditions for research and innovation for both women and men in scientific careers are seen as ways forward for gender equality and quality of research.[7]

Among many initiatives aimed at addressing challenges for smart, sustainable and inclusive growth, a central role is given to **enlarging the talent pool** by including more **women** researchers in public and private commercial enterprises. In particular, recruiting and retaining women in scientific and technical fields is both means for increasing labour participation and for **matching labour market needs and skills**.

2.2 The EU challenges

Women are under-represented in research organisations. They account for 30 percent of all researchers in EU-27.[8] While the participation of women in research has been growing throughout the 2000s resulting in more balanced representation, there are marked differences between sectors and between scientific fields. In traditional academia, i.e. the higher education sector, women represent 37 percent of all researchers and in the government sector the share is as high as 39 percent. However, women account for only 19 percent of all researchers in the business enterprise sector. There has been an increase in the overall number of female researchers in almost all fields of science, but the lowest participation of women remains in engineering and technology. Horizontal segregation is therefore persistent and in these sectors professions and management posts pay, working conditions and career prospects continue being tailored according to male norms. Furthermore, differences between Member States are significant as the proportion of female researchers varies between 49 percent at the upper end of the scale (in Lithuania) and 18 percent at the lower end of the scale (in the Netherlands).

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[5] Council of the European Union (2010), Council conclusions on various issues related to the development of the ERA, as adopted by the Competitiveness Council at its meeting on 26 May 2010. Council conclusions RECH 203 COMPET 177.

[6] European Commission (2010), EUROPE 2020. A strategy for smart, sustainable and inclusive growth, Brussels: European Commission. 3.3.2010.COM(2010)2020.

[7] Helsinki Group on Women and Science (2009), Gender and Research Beyond 2009, position paper.

[8] European Commission (2009), She Figures 2009. Statistics and indicators on Gender Equality in Science, Directorate –General for Research. Luxembourg: Publications Office of the European Union.

2.3 Why gender balance in research organisations matters

Gender equality is a matter of **democracy** embedded in the long history of the development of social and political Europe. It is a matter of rights enshrined in national and EU legislation. The knowledge-based democracy builds on co-creation of knowledge and co-creation of standards by women and men. Values and normative systems are being increasingly and in new ways underpinned by business, economic, and demographic cases. **Business benefits** from tapping into the wider pool of skilled women researchers brings about more openness to innovation, improvement of corporate image and branding and enhancement of marketing opportunities. Activating and retaining more highly skilled women in research and innovation brings also **macro-economic benefits** for regional and national developments[9] as it contributes decreasing the dependency ratio in populations.

Population ageing in Europe is a strong pressure factor for changes to the ways our societies are organized, the shaping of the life-course of individuals, and values attached to inter-generational solidarity. In a longer term prospective - up to mid 21st century - demography will be an ever stronger driver for change with more jobs than people in ageing Europe.[10] Employers will need to be more flexible about how and where people work and how they are rewarded**.** Widening the talent pool by activating and retaining more women in research will no longer be an option but a **strategic necessity**.

2.4 Building blocks for future actions in research organisations

Mobilising women to enrich European research[11] and gender mainstreaming as means of consideration of gender in all aspects of policy has a long history in the European Union. The publication of Stocktaking 10 years of "Women in Science" policy by the European Commission 1999-2009[12] documents how EU policy has evolved. Policy builds on knowledge about the situation of women in science in Europe, and about practices for recruiting, promoting and retaining more women in science careers, and mainstreaming gender in research policy. The EU funded research into causes and implications of gender inequalities, identification of similarities and differences in the framework conditions between countries, and gender in the content of research, contributed state-of-the-art knowledge[13] and inspired high level political commitments in Europe[14].

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[9] Danilda, I. & J. Granat Thorslund (eds.) (2011), Innovation & Gender. Vinnova.

[10] Global Europe 2030-2050 (2011), Expert Group report (work in progress). European Commission DG Research & Innovation.

[11] Communication from the Commission "Women in Science – Mobilising women to enrich European research" – COM(1999) 76 final – 17 February 1999

[12] Marchetti, M. & T. Raudma (2010), Stocktaking 10 years of "Women in Science" policy by the European Commission 1999-2009. Luxembourg: Publications Office of the European Union.

[13] Policy areas and EU funded projects under FP 5, FP6 and FP7 on gender issues and women in research may be found at:
http://cordis.europa.eu/fp5/;
http://cordis.europa.eu/fp6/dc/index.cfm?fuseaction=UserSite.FP6HomePage;

Some examples of projects funded under FP7 relevant for gender equality in science, and paving the way for implementing structural changes as a strategy are: PRAGES providing a database of management tools for research organisations and guidelines for implementation; Meta-Analysis providing a database of scientific journal articles and regional reports on Gender Equality in Science in the last 30 years; and GenSET involving research and policy stakeholders in the debate on gender issues[15].

The generally acknowledged paradigm shift in research and in policy building occurred over years moving away from focusing mainly on **women's coping strategies** towards addressing **barriers** to gender equality in organisations.[16] Long term, widespread change in ways research organizations operate are initiated and supported by EU policy decisions. Today, central issues are **how** to implement **structural changes** in order to improve gender equality in research organisations in Europe.

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http://europa.eu/pol/index_en.htm and most recent projects on structural changes at http://ec.europa.eu/research/science-society/index.cfm?fuseaction=public.topic&id=1284&lang=1.

[14] The Helsinki Group on Women and Science was created in 1999 in view of putting the women and science debate on a policy footing. It brings together national representatives providing a forum for dialogue about national policies and for sharing and comparing experiences.

[15] http://cordis.europa.eu/fp7/projects_en.html

[16] This paradigm shift is often referred to as moving the objective from "fixing women" to "fixing administration" (see for example Schiebinger, L. (2007) conference "Gender issues in research – innovation through equality of opportunity", Berlin, April 18/19, 2007.

3. Making structural change happen

3.1. The meaning of structural change

The first set of open-ended questions that the workshop addressed related to barriers and constraints, opportunities and challenges for gender equality in research organisations. The debate was initiated by the presentation of **Inés Sanchez Madariaga**, the Chair of the Expert Group on Structural Change, on the main groups of obstacles that hamper participation of women and progression in scientific research careers. The participants then shared own experience on specific **barriers and constraints** which need to be broken for achieving systemic change. They may be summarised as follows.

- Ø **Recruitment** methods are often opaque. Transparency of recruitment criteria and practices is important for both women and men. However, men are traditionally the standard against which women are measured and lack of transparency in the definition and measurement of research excellence still works more against women than men.

- Ø **Work environment** and **working conditions** in research organisations are not sufficiently supportive to women. Partial incompatibility between research career and parenthood still works more against women than men. Establishment in the research community coincides with early stages in family formation when women have higher parental investment.

- Ø **Appraisal system for career evolution** does not take sufficiently into account life-course development. It is often argued that men publish more scientific papers then women without looking at the quantity/quality relationship in a longer term perspective.

- Ø **Stability of employment** is lacking in the early stages of research. The system of stipends for early stage researchers is more prohibitive for women than for men.

- Ø **Career development** strategies in research organisations are often inexistent or opaque and do not roll out long-term perspectives for women in research. Vertical segregation and the so called glass ceiling that halts career advancements to the top academic positions are often shaped by lack of transparency as to the requirements and standards set by the male norm.

- Ø **Mobility** of researchers often fails to include **career breaks** and **career reintegration**. This translates into systemic barriers for the mobility of women and work-life balance.

- Ø **Dual researcher couples** are rarely supported in early career stages. Researchers often form couple and/or marry researchers. The career prospects of one are often associated with a slowdown or interruption of the career track of the other – the other being more frequently woman than man.

- Ø **Management of research** which shapes hiring, tenure, promotion, nomination for prizes practices, and decisions on the strategic research orientation, choice of topics and projects, definition and evaluation of research excellence, continues being male dominated.

- Ø **Content of research** does not include sufficiently gender as a subject matter. Women as subjects are often underrepresented in some important areas of life sciences, and in particular *clinical trials* on behalf of academic and *pharmaceutical* entities. Development of standards for transport, urban planning, ICT, or ambient assisted living are more often tailored for men, or tend to be "gender blind".

- Ø **Gender education** is not sufficiently incorporated in curricula or starts much too late when boys and girls will have already been assigned different roles and many gendered expectations and social demands based on prejudices have already set in.

The identification of constraints and barriers to gender equality has extensive coverage in the research of causes and manifest forms of gender inequalities. What is identified by the workshop as **innovative** is the policy **commitment to structural change.**

A converging message stems from the workshop. The majority of participants shared the view that pilots focusing on any single issue, be it management practices, or gender unconscious bias, can bring about temporal success, but that a comprehensive strategy is necessary for achieving systemic improvement of gender equality in research.

Based on the specific conditions of success stories and failures narrated by the participants it may be concluded that:

- Ø Systemic changes can effectively be initiated and sustained by a **holistic approach** and an **integrated toolbox** for addressing each and all multilayered dimensions: recruitment practices; work environment and working conditions, appraisal system for career evolution; stability of employment; mobility of researchers; supporting dual researcher couples; management of research; content of research; and gender education.

Participants' good and bad experience of gender issues in research organisations allows drawing a shared definition of what are the key components of structural change. It also allows identifying a roadmap for **what** needs to be done to make structural change happen.

- Ø **Structural change** have as objective **improving attractiveness** of research and creating conditions for **sustainable** and **appealing** careers for women in research. For this to happen, improvements need to be made in **regulatory frameworks**, and **institutional standards** and **guidelines** for recruiting and retaining women in research organisations.

3.2 How to improve gender equality

The sharing of successful experiences by the workshop participants and explanation of success factors resulted in a long list of conditions that needed to be fulfilled in the past to promote gender equality. The workshop participants chose nine specific topics for sharing knowledge and developing topical recommendations. The topics were diverse and varied in scope and potential impact for future policies, and generated more than 70 requirements and recommendations on how to move forward gender equality in research organisations[17].

All the specific components recorded by means of appreciative inquiry as participants worked in pairs to explain success factors, through World Café where one pair connected with another pair, and harvest plenary for developing potential recommendations, as well as sharing at nine topical sessions with two rounds each, are a very rich harvest of insights, inspirations, and commitments of the participants.

I chose to structure insights about requirements and potential recommendations advanced by the participants according to three dimensions: **initiating structural change**; **making structural change sustainable**; and **monitoring and measuring impact**. These may be considered as interlocked components of strategy involving a chain of actors.

I chose to use the term 'requirement' to underline what must be delivered or accomplished in any context and how this can be done. I believe that the term 'requirement' is better embedded in the method of work of the workshop which built on first-hand experience of participants, then the term 'recommendation' on which normative agreement is yet to be achieved. Furthermore, the normative basis for specific recommendations, as a rule, needs to be context-sensitive and take into account accomplishments of various countries, regions and institutions. This could not be fully achieved in the workshop.

3.2.1 Requirements for initiating structural change

There was general consensus among workshop participants that commitment and support from leadership and setting general principles and guidelines at the European and national level is of intrinsic value for gender equality. It may be concluded that:

- Ø **Standard setting** is a powerful policy instrument and a **robust trigger for structural change**. Endorsement by the Member States of **institutional standards and guidelines** for improving gender equality in research organisations is an important initial step towards systemic improvement of gender equality.

Literature review suggests that there are considerable between-country differences in achievement of gender equality in research. This implies that the selection of priorities will depend on how gender equality measures build upon past achievements and other priority policies at national and regional level. In countries with high proportions of female researchers in high education sectors (e.g. Latvia, Lithuania), government sector (e.g. Malta,

[17] For a complete list of success and failure factors, and suggestions what is needed to move forward , conditions for moving forward, and suggestions how to move forward recorded by the participants on Worksheets see: *Newsletter* DG Research and Innovation Workshop on Structural Change, pages 9 to 13.

Estonia) and business enterprise sector (e.g. Romania, Bulgaria) priorities will be different from those in countries with low proportions of women in research (e.g. Netherlands, Germany). [18] In some countries more effort needs to go into creating favourable conditions for mobility of women researchers, in others greater participation in research management may be a higher priority. Countries need to make choices as to whether gender balance in high education committees and various boards will come before recruiting more women researchers, or implementing measures for reconciliation of work and family life for early stage researchers.

- Due to different pathways and **pace of modernisation** of research in different countries the **prioritization** of areas in which improvements need to be initiated will vary from one country to another.

The necessity of support by the prominent actors and in particular policy leaders, public administrations, business sector, gatekeepers of excellence in research institutions, and researchers was systematically evoked by the workshop participants.

- **Communication** for raising awareness to kick-start systemic change needs to be persistent, sustained, and tailored to a broad range of stakeholders and general population for breaking stereotypes, and making positive role models and achievements of women in science visible.

- **Gender education** needs to be initiated already in **pre-school** institutions for broadening children's view of what girls and boys can do.[19] It needs to continue throughout all educational levels for breaking down gendered expectations and social demands based on prejudices.

- **Involvement of policy leadership** at all levels of governance in promoting **gender literacy** is a matter of democratic legitimacy and social cohesion.

- **Support from gatekeepers of excellence** (e.g. rectors, deans, heads of department, editors of scientific journals, committee chairs, etc.) is instrumental for perseverance, dedication and visibility of good practice initiatives.

- **Transfer of knowledge** on bias literacy[20] and restoring of forgotten knowledge[21] is necessary for sharing and valorising the pre-existing know-how. This includes

[18] For data see: European Commission (2009), She Figures 2009 - Statistics and indicators on Gender Equality in Science. Directorate-General for Research. Luxembourg: Publications Office of the European Union.

[19] The workshop addressed the topic of training teachers and pupils in primary and secondary education. However the issue of pre-school education was not addressed at length but mention was made of the importance of early start before boys and girls will already have assigned different roles. See for example: http://www.sweden.se/eng/Home/Education/Preschool/Reading/Equality-at-daycare/

[20] Alice Hogan the founding Program Director of ADVANCE: Increasing the Participation and Advancement of Women in Academic Science and Engineering Careers launched by the US National Science Foundation shared her experience with Workshop participants and highlighted the importance of addressing unconscious gender bias in research organisations. For details on the Advance program see http://www.portal.advance.vt.edu/

recognising and avoiding institutionalised cognitive errors leading to gender bias, and revival of some gender equality practices and measures that enhanced gender equality in research which are being forgotten and disregarded in some opaque academic environments.

- Ø **Allocation of public and private funding** is necessary for rolling out structural change in research organisations. Funding of structural changes to improve gender equality should have the same status as public funding of the baseline infrastructures indispensable for macro-economic performance. The return of investment can be significant for businesses and economy since tipping into the wider talent pool of women enhances market opportunities, innovation, and increases the number of economically active population in high quality jobs.

3.2.2 Requirements for sustainable structural change

One of the topics discussed in view of sharing potential recommendations, the case of Spanish strategy, opened the pathway for identifying requirements for sustainability of structural changes. In Spain, in addition to top-level political support, and mobilisation of women in the feminist movements, in administration and in academia, the establishment of a legal basis, setting targets, and providing incentives for putting in place equality plans in Universities, proved to be a successful strategy[22].

The workshop participants identified the adoption of **legal instruments** and provision of **incentives** for bringing forward gender equality in research institutions as the most important general set of success factors for implementation.

A broad range of specific suggestions by the workshop participants related to **how** policies and practices can be sustained. They may be systematised according to the following dimensions: commitment to implementation; modernisation of research management; changes for recruiting women in research organisations; changes for retaining women in research organisations; changes to inter-sectorial mobility and peer review.

3.2.2.1 Commitment to implementation

- Ø Long term commitments to systemic changes need to be devised and structured according to **levels of governance** and **research sectors**.

- Ø Mechanisms for change should address **EU level**, **national** and **regional** level; and all sectors of research: **high education**, **government**, and **business enterprise research**.

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[21] Several participants who had worked in research organisations in former planned economies shared their experience on selected examples of good gender equality practices which have been forgotten during the transition to market economies. This in particular, according to Mihaela Ionescu from the Technical University of Civil Engineering, affects young women wanting to pursue career in technical and engineering sectors.

[22] For details see *Newsletter* DG Research and Innovation Workshop on Structural Change, page 23.

- Ø **National action plans** need to be **result oriented**.

- Ø **Targets** and **benchmarking** needs to be set in the context of a holistic approach to systemic change encapsulating multiple dimensions of gender equality.

- Ø **Commitment** by the policy leaders at all levels of governance needs to be made **explicit** and **public**.

3.2.2.2 Modernisation of research management

- Ø **Appointments to leadership positions** in research organisations need to be subject to endorsement of gender equality strategy which should be proposed by the candidates when applying for a management post.

- Ø **Research management** training needs to include **gender literacy**.

- Ø **Gatekeepers** of excellence in research need to receive **training** for addressing gender bias.

3.2.2.3 Recruiting women in research organisations

- Ø **Recruitment methods** need to be **transparent.**

- Ø **Selection criteria** must be **clear** and consistently applied.

- Ø **Convincing motivations** of the selection outcome need to be provided to each applicant.

The workshop identified Marie Curie recruitment and evaluation rules as examples of good practice. The European Charter for Researchers, and The Code of Conduct for the Recruitment of Researchers (2005) and related recommendations were an important step towards setting general principles and requirements which specify roles, responsibilities and entitlements of researchers as well as of employers and or/funders of researchers. Strengthening the participation of women researchers is one of the Commission's recommendations[23].

A conclusion may be drawn that recruitment practices in research organisations in all Member States in all research sectors, high education, government and business enterprise, should **implement fully the European Charter for Researchers and the Code of Conduct for the Recruitment of Researchers, as well as key principles on gender equality enshrined in the EU treaties**.

[23] The European Charter for Researchers and The Code of Conduct for the Recruitment of Researchers (2005) European Commission, Directorate-General for Research, Human resources and mobility (Marie Curie Actions) see www.europa.eu.int/eracareers/europeancharter

3.2.2.4 Retaining women in research organisations

Retaining women in research should build on integrated innovative workforce management practices to address work environment and working conditions; appraisal system for career evolution; stability of employment; mobility of researchers; supporting dual researcher couples; research project leadership; content of research; and gender education.

- Ø **Work environment** and **working conditions** in research organisations need to become more supportive to women. Modernisation of the **work culture** should shape ways women's career in research and training unfold and include measures for reconciliation of work and family life.

- Ø **Appraisal system for career evolution** needs to broaden and build on the life-course approach. While women may publish less in some phases in the career development, the longer term appraisal of the entire career track of both women and men may contribute breaking down the stereotyping about productivity, quality and breaths of excellence.

- Ø **Stability of employment** is important, especially in the early stages of research. Fixed-term work contracts provide better security than stipends.

- Ø Research organisations need to roll out **career development** strategies for women in research in long-term perspectives. Vertical segregation and the so-called glass ceiling that halts career advancements to the top academic positions can be offset by clarity about what the standards of excellence are, how career tracks are shaped, and flexibility about timing of career advancements.

- Ø **Mobility** of researchers between higher education organisations is indispensible for high quality training, transfer of knowledge, and cross fertilisation of learning outcomes. Provisions need to be made for **career breaks** and **career reintegration** of women.

- Ø **Supporting dual researcher couples** by including mobility actions for couples involved in similar or different domains of research is necessary.

- Ø **Research project leadership** needs to be made more accessible to women. Participation of women researchers as lead experts in projects co-funded by public authorities (at EU and national and regional level) should be part of quality criteria for the selection of research projects.

- Ø **Content of research** needs to include gender as a subject matter. Gender dimensions of research content, methods and priorities need to be assessed when allocating resources for research projects.

3.2.2.5 Intersectorial mobility and peer review

- Ø **Intersectorial cooperation** needs to be established between women in research in academia and industry.

- Ø **Mobility** of women researchers between **academia** and **industry** needs to be supported for enhancing innovation and greater participation of female researchers in business enterprises.

- Ø **Connecting** systematically various groups active in gender equality in research in all sectors is needed, and **peer reviewing** of their position papers, reports and action plans instated for achieving transformative innovation.

3.3 Monitoring and measuring impact

Setting **measurable targets** for monitoring progress is necessary to reinforce accountability and ensure sustainability of gender equality. The workshop participants agreed that statistics and indicators on gender equality in science published under "She Figures" provide a rich database for comparing performance of countries in different domains, but that there is room for improvement.

- Ø **Benchmarking** for determining gaps in performance, targeting future performance, and reviewing and recalibrating is necessary.[24]

- Ø **Gender audits** in organisational setting can build on robust methodology for examining the extent to which equality is being institutionalized; helping to identify good practices; and pointing to effective and efficient ways of moving forward in mainstreaming gender in all research activities.[25]

In order to give legitimacy to measures introduced to improve gender equality in research organisations, and justify the use of public resources for that purpose, measurable indicators for assessing impact of measures and mechanisms for change need to be elaborated and results and outcomes made public.

[24] See: European Commission (2008), Benchmarking policy measures for gender equality in science. Directorate-General for Research.

[25] See for example: International Labour Office (2007), A manual for gender audit facilitators, The ILO participatory audit methodology. Geneva: International Labour Office.

4 Has the workshop been a driver for change?

The participatory method proved to be an excellent tool for sharing knowledge that the participants brought to the event. This knowledge constitutes significant building blocks for contributing to the development of a dedicated "soft-law" initiative of the European Commission and EU Member States.

The workshop participants converged towards joint understanding of the notion of structural change, recognised that commitment to implementation of structural change is innovative in the policy landscape, and identified numerous interlocked requirements for successful implementation.

In the closing remarks Gilles Laroche**,** head of Unit Ethics and Gender concluded that “This workshop is a step on a long road”. It may be concluded that this step has the potential for inspiring a public consultation and further involvement of stakeholders.

The participatory approach was well tailored for fostering a good dialogue among participants active in various areas of interest in creating more gender equality. Inspirations and commitments by participants were formulated at the check-out session. Possibly the most salient commitment to community building was voiced by one participant: “How do I include others in the spirit of this workshop?" On the basis of the concluding remarks by the participants it may be said that the workshop contributed to the consolidation of a core group that will continue being active in involving the whole community and implementing gender equality in a longer term-perspective.

5 Further issues to be tackled

In the workshop on Structural Change in order to improve Gender Equality in Research organizations in Europe, held in Brussels 30 June -1 July 2011, not all the aspects of gender in research challenges could be addressed comprehensively due to the vastness of territory to be covered and time constraints.

Recruiting and maintaining more women in research organisations in Europe is relevant for at least two flagship initiatives under the Europe2020 umbrella: Innovation Union meaning more jobs, improved lives, better society, and the Agenda for new skills and jobs for reaching its employment targets. In that global context some further issues to be tackled may be identified.

This rapporteur would suggest that at least five perspectives merit further attention: linking funding criteria with gender equality criteria, rethinking economy of time, addressing the situation of women researchers in the business enterprises, and looking at Europe in the global research world.

5.1 "Money talks"

Many good initiatives, pilots and actions have built on raising awareness, and mobilizing charismatic men and women in leadership positions to promote gender equality. However, when strong leaders change institutions or retire, many initiatives lose steam or join the arsenal of forgotten knowledge. Change can be initialized and temporarily supported by visionary individuals but robust mechanisms need to be built into research organisations for sustaining gender equality. One of the strong incentives is money. The slogan "money talks" summarises a call for linking **funding criteria** with **gender equality criteria** as this would accelerate changes by strongly motivating managers of research to take on board gender equality issues.

Public resources may need also to be allocated for supporting female researchers in the private sector. It is often argued that the business case for women in research is growing and that the market will automatically enhance recruiting and retaining women researchers in the private sector. However, changes in standard practices are very slow and public resources may need to be channelled for improving gender equality in research in the business enterprise sector.

5.2. Economy of time

In a longer-term perspective it may be argued that the key population and gender related challenge of the 21st century is associated with the economy of time. The **way women and men spend time** on daily activities, spread activities during their life course, and manage risks associated with family dynamics, maternity, labour force participation, retirement and old-age over their entire life span, and prioritize their budget of time, will largely affect the quality of life of individuals, intergenerational solidarity, social cohesion in general, and trans-generational continuity.[26]

The time-budget continues to be shaped according to the male norm. By way of example, the Netherlands has the second highest participation of women in the labour force in the European Union, 71.5 percent of all women are in gainful employment.[27] But, three quarters of Dutch women work on the part time basis making them number one in Europe in this respect.[28] Part-time work is popular in the Netherlands because it allows women to combine work and care for young children. Part time jobs are well institutionalised and relatively high skill work can also be done part-time in the Netherlands. The downside of this female pattern of distributing time between paid work and other activities is a strong barrier in professions that require fuller commitment of time. Indeed, the Netherlands has the lowest participation of female researchers in the European Union in the business enterprise sector (10 percent) and in the government sector (29 percent) and among the lowest in the high education sector (29 percent).[29] Economy of time contributes to the horizontal segregation and puts caps to women's career prospects. This calls for **rethinking**, **re-framing** and **re-contextualising** gender equality in a life-course perspective in many, if not all European countries.

5.3 Gender equality in business enterprises

In all FP7 activities (Cooperation, People, Ideas and Capacities) partnership between academia and industry is given a prominent place. By way of example, opening and fostering the dynamic pathways and partnerships between academia and private commercial enterprises is given high priority in co-funding training and education of researchers[30]; cooperation in research between academia and Small and Medium Enterprises (SME)[31] is fostered and co-funded. Quest for economy- and innovation-driven initiatives is reinforced by the gender dimension. **Women are remarkably underrepresented in research in the business enterprise sector.** The EU-27 average for women researchers stands at only 19 percent of all

[26] Avramov, D., R. Cliquet (2003) Economy of Time and Population Policy – Rethinking the 20th Century Life Course Paradigm. Verlag für Sozialwissenschaften, Wiesbaden, Zeitschrift für Bevölkerungswissenschaft, Jg. 28, 2-4/2003, S. 369-402.
[27] Central Bureau of Statistics, www.SBS.nl.
[28] Bosch, N., B. Van der Klaauw, J. Van Ours (2009), Female part-time work in the Netherlands. www.voxeu.org
[29] European Commission (2009), She Figures 2009 - Statistics and indicators on Gender Equality in Science. Directorate –General for Research. Luxembourg: Publications Office of the European Union.
[30] See : http://cordis.europa.eu/fp7/people/industry-academia_en.html
[31] See: http://cordis.europa.eu/fp7/dc/index.cfm?fuseaction=usersite.capacitiesdetailscallpage&call_id=311

researchers in industry. This is in sharp contrast to the presence of women in high education and government sector (the EU-27 average stands at 37 and 39 percent respectively).[32]

A dedicated workshop, involving researchers from the business enterprise sector and managers of research in the business enterprise sector, would be necessary to address constraints, challenges and opportunities for women researchers and businesses. The topics, and roles of various actors in supporting women in research in business enterprises may be similar, but challenges are not identical to those in higher education and government sectors. In particular mechanisms for recruiting and retaining more women in research in the private sector need to be addressed, as market rationale *per se* may not be sufficient to address gender inequality.

5.4 Europe in the world

Enlarging the talent pool by including more women in research is a global necessity which is *inter alia* embedded in the population dynamics. By way of example, the decrease of the number of people of active age will be affecting also the Chinese population, and quite remarkably so from 2025 onward[33]. Europe, already confronted with the decrease of the population of working age cannot afford not tipping into the talent pool of women, and by devising policies, and implementing effective and efficient instruments, can serve as a model to other regions and countries.

Creating a community and longer term cooperation with industrialised countries, new emerging power-houses and developing countries, for addressing content-wise also non-European contexts of gender (in-)equality in research and innovation, could reinforce the leading position of Europe in the global world economy.

[32] European Commission (2009), She Figures 2009 - Statistics and indicators on Gender Equality in Science. Directorate –General for Research. Luxembourg: Publications Office of the European Union.
[33] Avramov, D. (2010), Social dimension of international migration. Expert report for Global Europe 2030-2050. Brussels, 08 July 2010. European Commission DG Research & Innovation

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Appendix 1: List of workshop participants

List Of Participants

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