

Manuals with guidelines on the integration of sex and gender analysis into research contents, recommendations for curricula development and indicators



GENDER-NET

PROMOTING GENDER EQUALITY IN RESEARCH INSTITUTIONS AND
INTEGRATION OF THE GENDER DIMENSION IN RESEARCH CONTENTS



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Visit our GENDER-NET IGAR online tool based on this report: igar-tool.gender-net.eu

Contents

Executive summary	5
A. General introduction	8
A.1 Aim and structure of the report within the GENDER-NET ERA-NET framework	8
A.2 Definitions and Concepts	10
A.3 European and International Normative/Regulatory Agenda	14
B. Manuals with guidelines on integrating gender analysis into research	25
B.1 Introduction to the Manuals	25
B.1.1 Objectives of the Manuals	25
B.1.2 Methodology	25
B.1.3 Target Audience	26
B.2 Manuals for Funding Agencies	27
B.2.1 Key Guidelines	28
B.2.2 Check List	32
B.2.3 IGAR in H2020	33
B.3 Manuals for Grant Applicants	41
B.3.1 Key Guidelines	42
B.3.2. Check List	45
B.4 Manuals for Peer Reviewers/Evaluators	45
B.4.1 Key Guidelines	45
B.4.2 Check List	48
B.5 Examples	49
<i>H2020 SC1: Health, demographic change and wellbeing</i>	49
<i>H2020 SC2: Food security, sustainable agriculture and forestry, marine and maritime and inland water research, and the Bio economy</i>	50
<i>H2020 SC3: Secure, clean and efficient energy</i>	51
<i>H2020 SC4: Smart, green and integrated transport</i>	52
<i>H2020 SC5: Climate action, environment, resource efficiency and raw materials</i>	53
<i>H2020 SC6: Europe in a changing world - inclusive, innovative and reflective societies</i>	55
<i>H2020 SC7: Secure societies - protecting freedom and security of Europe and its citizens</i>	56
<i>Information, Communication and Technology (ICT)</i>	57
<i>Nanotechnologies, advanced Materials, Biotechnology and advanced manufacturing and Processing (NMPB)</i>	58
<i>Access to risk finance – entrepreneurship</i>	59
<i>Future Emerging Technologies (FET)</i>	62
B.6 Useful References	63

C. Recommendations and models for integrating gender analysis into university curricula in scientific and technological fields	74
C.1 Introduction	74
C.2 Methodology	76
C.3 Recommendations for IGAUC in Scientific and Technological Fields	76
C.3.1 Recommendations at HEI level	76
C.3.2 Recommendations at HEI and national levels	78
C.3.3 Recommendations at national level	80
C.4 Models on the Integration of the Gender Analysis into University Curricula (IGAUC)	81
C.4.1 A Successful Strategy to Integrate Sex and Gender Medicine into a Newly Developed Medical Curriculum The Charité University Hospital, Berlin	82
C.4.2 The study program GENDER PRO MINT at the TU Berlin	85
C.4.3 Integrating Intersectional Gender Studies Expertise in Engineering Education at the TU Braunschweig	89
C.4.4 Gender Relations Subjects targeting all the undergraduates at the University of Valencia	92
C.4.5 Foundations for a Novel Emergency Medicine Subspecialty and Fellowship: Sex, Gender, and Women's Health at Brown University	94
C.4.6 Model Database on "Gender in bachelor and master courses - integrate women's and gender studies into the curriculum" - The Women's and Gender Research Network NRW (North Rhine-Westphalia)	97
C.4.7 University of Barcelona: Study on the Gender perspective in the university teaching practise	99
D. Relevant indicators for monitoring of state-of-play and progress to facilitate evaluation of the integration of gender analysis into research	102
D.1 Introduction to indicators on the Integration of Gender Analysis into Research (IGAR)	102
D.2 Methodology	104
D.3 Recommended Indicators	105
D.3.1 Main indicators for RFOs	105
D.3.2 Other Complementary indicators for RFOs	107
D.3.3 Indicators on the Integration of Gender Analysis into University Curricula (IGAUC) for HEIs	109

Executive summary

Gender-specific research points out and explains inequalities between men and women in different areas of society, including Science, Technology and Innovation (STI) field (in which Higher Education Institutions –HEIs- are also comprised). Still today, the way scientific knowledge is produced, applied and translated to the society is not free from the global and structural system that produces gender inequalities based on organising men and women in hierarchical different roles. Gender-blind and gender-biased research methods produce poor science and miss opportunities, often based in gender stereotypes and the use of male/men as default generic model for all human beings. To tackle this problem, efforts are being made to raise awareness on gender biases and to show other ways of producing more inclusive science, responsive to the needs of everybody, by means of Integrating the Gender Analysis into Research (IGAR, also known as “incorporating the gender dimension into research content”). IGAR refers to the use of sex- and/or gender analysis in all the phases of the research cycle.

The rationale is that the vast majority of research topics do involve human beings either directly or indirectly. That is, when humans are the object of research, IGAR is obviously relevant given the sex and gender differences in their bodies, behaviours, social constrains, etc. But even in cases when humans are not directly involved, for instance, in technological research, men and women (as users, customers, citizens, workers, etc.) can also be affected differently by the results of the study. The exception are few cases where the application of the results may not affect human beings (in)directly. Therefore, the use of sex/gender analysis methods is not only relevant for gender-specific research; it is also an essential quality factor for almost all the research and innovation challenges. IGAR is aimed at ensuring more rigorous, evidenced-based and ethical research, applicable to the needs of men, women, and the society as a whole. Given these new standards in quality research, IGAR has been considered a mark of scientific excellenc .

IGAR helps the STI community to move from gender-biased to gender-competent, gender-inclusive, and gender-transformative science. The sex/gender analysis research outputs can also provide to the society, policy makers, the media and other institutions with useful information and insights to estimate the impact of certain policies/measures and to stimulate the public debate questioning current norms and values in order to transform society into a more egalitarian one. This can also contribute to a better account on the social responsibility of the investments of Research Funding Organizations (RFOs) and Research Performing Organizations (RPOs), particularly in public institutions

which are expected to show that public money is used for the benefit of the whole society which is diverse.

RPOs and RFOs are also expected to account for other types of gender policies: the gender balance/gender equality ones, aimed at ensuring equal participation of men and women (by means of gender equality plans including measures oriented to work-family life balance, non-biased recruitment and promotion procedures, etc.). It is worth noticing that these other gender policies help not to lose female talent, but do not guarantee IGAR. Interestingly, the few research fields where IGAR is not relevant are usually male dominated and, therefore, still requiring the implementation of gender balance/equality policies to tackle these inequalities.

The present report is a deliverable of the **GENDER-NET** ERA-NET, funded by the European Commission under the 7th Framework Programme (Science-in-Society work programme)¹. The aim of the report is to assist national/regional research funding and performing organizations with the know-how to integrate sex and gender considerations into policies, programmes, plans and strategies, and to raise awareness about the importance of sex and gender in research and innovation. Therefore the goal of this document is not to address gender balance or gender equality in research teams and institutions. These other important issues are considered in other relevant **GENDER-NET deliverables**. Also in previous GENDER-NET reports, it has been noticed that gender balance/gender equality policies are more developed than IGAR policies and that there is a common confusion between them (IGAR often thought to be the same as the former one). Many research institutions have shown lack of IGAR understanding and expressed their interest on receiving assistance about it.

The present document is divided into four different chapters. Chapter A introduces the GENDER-NET project framework and provides general definitions and concepts related to sex and gender in research. It also provides a normative/regulatory framework, mainly at European level.

Chapter B is dedicated to providing manuals with guidelines and checklists on IGAR to assist national/regional RFOs, grant applicants and peers reviewers/evaluators with the know-how to integrate sex and/or gender considerations into research (policies, programmes, projects). For the RFOs, recommendations are provided in the following key areas of the funding system: Policy and/or Strategy; High Level Support and Leadership at Institutional Level; Research Funding Programme; Strategic Training, Dissemination Materials and Awareness Raising Activities; Gender Specific Research; Monitoring and Evaluation;

¹ Detailed information on GENDER-NET is available at the page <http://www.gender-net.eu> and a brief description is provided in the following section

Budget and Resources; and, Supplementary and/or Eligible Funding. For applicants and peer reviewers/evaluators, the key guidelines follow the research cycle: Research Approach, Literature Review, Research Questions and Hypothesis, Research Methods, Ethics, and Dissemination/ Knowledge Translation, and also suggest in which sections of the H2020 application form the recommendations should be integrated. Additionally, it presents several examples which seek to provide elements of reflection and concrete cases of the relevance of IGAR (in H2020 societal challenges and other areas of interest), as well as useful references suitable to RFOs, applicants and/or peer reviewers/evaluators.

Chapter C presents recommendations and models for Integrating Gender Analysis into University Curricula (IGAUC) in scientific and technological fields (beyond humanities and social sciences), given that HEIs are crucial to avoid generating and transmitting gender-biased knowledge. IGAUC is oriented to guide students in developing IGAR skills to identify gender-biases in research, and to adequately apply IGAR methods in knowledge production and transfer. The recommendations are provided at HEIs level, national level and at both levels. The last subsection of this chapter is dedicated to present 7 cases of experiences related to IGAUC development. These cases include 6 universities (5 European and one in U.S.) and a Network of professors and scientists (in Germany): Charité University Hospital of Berlin, Technical University of Berlin, Technical University of Braunschweig, University of Valencia, Brown University, University of Barcelona, and the Women's & Gender Research Network NRW (North Rhine-Westphalia). The first four cases are descriptions of existing programmes at European universities, and the three last ones are examples of inspiring initiatives aimed at supporting the promotion of IGAUC at different levels.

Lastly, chapter D proposes a set of main and complementary indicators aimed at supporting policy makers, RFOs and HEIs in the monitoring and evaluation of IGAR and IGAUC goals, as a way of measuring advancement and change.

Chapters B, C and D could be used independently from the others at the reader's discretion, but all of them share the first common introductory chapter. All contents will soon be made available as online tools accessible through the GENDER-NET website.

A. General introduction

The present report is a deliverable of the **GENDER-NET** ERA-NET, funded by the European Commission under the 7th Framework Programme (Science-in-Society work programme)².

A.1 Aim and structure of the report within the GENDER-NET ERA-NET framework

GENDER-NET is a pilot transnational research policy initiative (a European Research Area Network) designed to address the common challenges still facing European research institutions in achieving gender equality and gender mainstreaming in research and innovation. These challenges concern the persistent barriers and constraints to the recruitment, advancement and mobility of women in the European scientific system, the lack of women in decision-making, but also the limited integration of the gender analysis into research programmes and contents. The present report focuses on this latter aspect.

GENDER-NET brings together a balanced partnership of 14³ national research programme owners from across Europe and North America (i.e. ministries, national research funding agencies and research performing organisations, and other types of national organisations – see consortium members on page 2) as well as a number of Observer organisations (10 national organisations as of August 2015) and an Expert Advisory Board, all with a shared commitment to gender equality and synergistic expertise in gender and science issues.

The present GENDER-NET Deliverable 3.11 (D3.11) is one of the outcomes of Work Package 3 (WP3 : *Gendering Research Contents and Programmes*). As part of this WP3, existing national-level legislations, strategies and programmes which explicitly promote the inclusion of sex/gender analysis into research contents have been mapped and analysed, and these findings have been presented in GENDER-NET Deliverables **D3.9** (*Compendium of national initiatives on the in-tegration of the gender dimension in research contents*) and **D3.10** (*Comparative analysis of existing national initiatives on the integration of the gender dimension in research contents*).

The **D3.9** Compendium contains fact sheets of 40 national organisations, coming from 22 different countries that answered an on-line survey to collect information on existing national and regional-level initiatives in the following main areas: 1) Policies and strategies aimed at integrating sex/gender analysis in research, 2) Research-funding programmes aimed at integrating sex/gender analysis in research, 3) Guidelines and training materials for applicants, 4) Guidelines/Training for grant proposal reviewers, 5) Recommendations and/

² Detailed information on GENDER-NET is available at the page <http://www.gender-net.eu> and a brief description is provided in the following section

³ As of November 2015, one new late entry have been joining: the Ministry of Science, technology and Space of the State of Israel (MOST). A retroactive amendment procedure to the Grant Agreement is under way for this purpose

or models for university curricula development in scientific and technological fields, 6) Transnational and other activities

The **D3.10** report consists of a comparative analysis of the data presented in the **D3.9** Compendium, mainly by type of organisation and proactivity level across the main survey areas. It also presents: successes and promising practices, as well as barriers and challenges, that were collected through the survey; three full case studies of respondent organisations selected for being good examples at the general objective of integrating the gender analysis into their own research funding systems; and, finally, the main conclusions of the analysis

Some of the main findings of the above mentioned Compendium and Comparative analysis reports reveal that the integration of the gender analysis into research is less developed than the gender balance/equality structural change and there is often confusion between the two concepts. Many research funding organisations lacked understanding of what integrating sex/gender analysis into research contents meant and/or expressed a need for assistance on how to better integrate this analysis into their programmes, and specified they were particularly interested in receiving support for the development of trainings and guidelines for reviewers and applicants. Additionally, national-level players had limited knowledge of existing university-level programmes in their country that integrated a gender perspective in their curricula in scientific and technological fields. The present D3.11 report attempts to help fill these gap

Particularly, the aim of the present **D3.11** report is to assist national/regional research funding organisations/agencies with the know-how to integrate sex and gender considerations into policies, programmes, plans and strategies, and to raise awareness about the importance of sex and gender in research and innovation.

The GENDER-NET Description of Work document details D3.11 as “*Manuals with guidelines on gendering research contents for: i) funding agencies; ii) evaluators of grant proposals; iii) curricula development; iv) indicators for monitoring of state-of-play and progress to facilitate evaluation*”. The present report also includes a manual section targeted to grant applicants with the goal to coordinate and harmonize recommendations addressed to assist funding agencies and peer reviewers/evaluators to support research grant applicants in their respective considerations on how to appropriately incorporate sex and gender analysis in research contents. Therefore, the present document is structured in four different chapters:

- The present chapter A introduces the GENDER-NET project framework and provides general definitions and concepts related to sex and gender in research. It also makes a case for the importance and scientific relevance of the integration of the gender analysis into research (IGAR) and provides a normative/regulatory framework at European level.

- Chapter B is dedicated to providing manuals with guidelines on IGAR to assist national/regional funding agencies, grant applicants and peers reviewers/evaluators with the know-how to integrate sex and/or gender considerations into research (policies, programmes, projects)
- Chapter C presents recommendations and models for integrating gender analysis into university curricula (IGAUC) in scientific and technological fields (other than humanities and social sciences)
- And lastly, chapter D provides relevant indicators as possible tools to measure and monitor in which degree the integration of the gender analysis into research -IGAR-, is being accomplished

The upcoming GENDER-NET D3.12 report (also as part of WP3) will identify the core elements of a framework for implementing transnational strategic activities and monitoring of common indicators.

The present report prepared by MINECO and CIHR as task leaders, was reviewed by CNRS (GENDER-NET Coordinator), by Londa Schiebinger (GENDER-NET Expert Advisory Board), by HEA/IRC (GENDER-NET partner), and by the Deutsche Forschungsgemeinschaft (DFG, GENDER-NET observer).

A.2 Definitions and Concepts

The following definitions and concepts are taken from the compilation made at GENDER-NET report [D3.10](#).

Sex is a biological quality or classification of sexually-reproducing organisms, generally female, male, and/or intersex, according to functions that derive from the chromosomal complement, reproductive organs, or specific hormones or environmental factors that affect the expression of phenotypic traits that are strongly associated with females or males within a given species. Hormonal (and environmental) effects, which may be organizational (differentiating) and essentially permanent, or activation, thus possibly reversible, are strongly influenced by the genetic make-up of the individual (Wallen, 2009).⁴

Gender – a socio-cultural process— refers to cultural and social attitudes that together shape and sanction “feminine” and “masculine” behaviours, products, technologies, environments, and knowledges. “Feminine” and “masculine” describe attitudes and behaviours on a continuum of gender identities. Gender does not necessarily match sex.⁵

Equality between women and men (Gender Equality): refers to the equal rights, responsibilities and opportunities of women and men and girls and boys. Equality does not mean that women and men will become the same but that women's and

4 Source: http://ec.europa.eu/research/swafs/gendered-innovations/index_en.cfm?pg=home

5 Source: <http://genderedinnovations.stanford.edu/terms/gender.html>

*men's rights, responsibilities and opportunities will not depend on whether they are born male or female. Gender equality implies that the interests, needs and priorities of both women and men are taken into consideration, recognizing the diversity of different groups of women and men. Gender equality is not a women's issue but should concern and fully engage men as well as women. Equality between women and men is seen both as a human rights issue and as a precondition for, and indicator of, sustainable people-centered development.*⁶

Gender Mainstreaming: is a globally accepted strategy for promoting gender equality. Mainstreaming is not an end in itself but a strategy, an approach, a means to achieve the goal of gender equality. Mainstreaming involves ensuring that gender perspectives and attention to the goal of gender equality are central to all activities - policy development, research, advocacy/ dialogue, legislation, resource allocation, and planning, implementation and monitoring of programmes and projects.⁷

Sex/gender analysis: is an umbrella term for the entire research cycle that includes the integration of sex/gender issues from the setting of the research priorities through developing methodologies, gathering and analysing data to evaluating and reporting results and transferring them to markets.⁸

Gender dimension in research means integrating sex and gender analysis into all phases of basic and applied research—from setting priorities, to funding decisions, to establishing project objectives and methodologies, to data gathering, analyzing results, and evaluation.⁹

Sex and Gender intersecting factors: Sex and gender also intersect in important ways with a variety of other factors. These factors or variables can be biological, socio-cultural, or psychological aspects of users, customers, experimental subjects, or cells. These factors include but are not limited to age, socioeconomic status, ethnicity, geographical location, etc.¹⁰

Methods for Sex and Gender Analysis are described as follows: Sex and gender can influence all stages of research or development processes, from strategic considerations for establishing priorities and building theory to more routine tasks of formulating questions, designing methodologies, and interpreting data. Many

6 Source: UN Women, available at [Concepts and Definition](#)

7 Source: UN Women, available at [Gender Mainstreaming](#)

8 Source Guidance on Gender Equality in Horizon 2020, European Commission, 2014, available at http://ec.europa.eu/research/participants/data/ref/h2020/grants_manual/hi/gender/h2020-hi-guide-gender_en.pdf. Also <http://genderedinnovations.stanford.edu/what-is-gendered-innovations.html>

9 Source: <http://genderedinnovations.stanford.edu/terms/dimension.html>

10 Source: <http://genderedinnovations.stanford.edu/methods/factors.html>

pitfalls can be avoided—and new ideas or opportunities identified—by designing sex and gender analysis into research from the start. Sex and gender analysis work alongside other methodologies in a field to provide yet further “controls” (or filters for bias) providing critical rigor in science, medicine, and engineering research, policy, and practice.¹¹

Integrating Gender Analysis into Research (IGAR, also known as “incorporating the gender dimension into research content”) refers to the use of sex- and/or gender-based analysis in all the phases of the research cycle. In some projects only a sex analysis is relevant to the research problem (e.g. preclinical studies on cells and tissues, and in animals in many cases, given that *an over-reliance on male animals, and neglect of attention to the sex of cells, can lead to neglect of key sex differences that should be guiding clinical studies, and ultimately, clinical practice*¹²). In some other cases, only a gender analysis is necessary (mainly in studies where biological differences do not play a role). Gender inequalities, however, are based in the structural gendered division of labour and power and are crucial to understand and take into account the different interests, needs, behaviours, roles, stereotypes, constraints, etc. of women and men regarding their access to resources, power, positions, activities, etc. Study results may then affect the social and economic relationships between these groups, for instance, reduce the existing gender inequalities by means of developing new tools aimed to detect and prevent gender-based violence. And in other cases, both sex and gender interact in a particular study. In some instances sex and gender *cannot* be distinguished, as for example in studies of nutrition or exercise, where hormonal, physiological, and cultural factors can influence the likelihood of disease¹³. Therefore, as a concept, ‘IGAR’ also covers the inclusion of sex analysis (not only gender), and is used as such in the present report.

Gender-sensitive research takes into account the differences between men and women in all aspects of the research, from an initial idea, formulating research questions, objectives and methodologies to the outcomes and presentation of results. Apart from integrating gender into the content, gender-sensitive approach strives to provide equal participation of both women and men in scientific work.

11 Source: <http://genderedinnovations.stanford.edu/methods-sex-and-gender-analysis.html>

12 Source: NIH Takes Steps to Address Sex Differences in Preclinical Research

13 Source: LERU (2015). *Gender and sex matter in research: Twenty recommendations from Europe’s research universities*. For instance, traditional gender attitudes towards beauty and body image have biased research on eating disorders. This research field has only recently come to focus on male experience. A paper by Chengyuan Zhang (2014) tracks the evolution of approaches to anorexia nervosa in men since 1873. The study by Ulla Räisänen & Kate Hunt (2014) has showed that the widespread perception of Eating Disorders (EDs) as uniquely or predominantly a female problem led to an initial failure by young men to recognise their behaviours as symptoms of an ED

*Gender-sensitive approach takes into account transgender and transsexual population as well.*¹⁴

Gender blind research does not account for the differences between men and women. It can ignore or misuse the existence of gender differences to pursue research outcomes. It overlooks women’s groups and interests and reinforces unequal power relations¹⁵. *Gender-blind research does not take gender into account, being based on the often incorrect assumption that possible differences between men and women are not relevant for the research at hand.*¹⁶

Gender aware research demonstrates knowledge of women’s and men’s needs, interests and assets. It collects sex disaggregated data however, the research does not set out to analyse the underlying inequalities between men and women.¹⁷

Gender transformative research accounts for gender differences and inequalities from the start and designs a sound research plan to address these differences. It sets out to transform the relationships between men and women that produce inequalities.¹⁸

Gender-specific research: *Gender-specific research focuses on gender itself as a subject matter*¹⁹. It is increasingly more usual to describe the field of study to which gender and gender relations are central as “gender studies” rather than “women’s studies”, which reflects an historical, chronological shift as well as intellectual connections and the growth of empirical research in the field. Although gender studies are relatively recent in the academy, most work in this area builds upon the growth of the women’s movement as part of the identity politics of the 1970s and 1980s and the development of Women’s Studies Centres in North American, Australian and European countries. All these centres were characterized by emancipatory aspirations that sought to provide robust empirical evidence and scholarly bases for political change, in particular by putting gender, and [...] women onto the political agenda and into discourse²⁰. It is also related to the term “feminist studies”. *Feminist studies, especially feminist theories, remain central to the [gender studies] field, al-*

14 Source: [Toolkit for Integrating Gender-Sensitive Approach into Research and Teaching](#) (GARCIA Working Papers 6, 2015, p.4)

15 Source: [Integrating Gender into Forestry Research](#) (Center for International Forestry Research, 2012, p.48)

16 Source: [Toolkit - Gender in EU-funded research](#) (EC, 2009). Part 1.2

17 Source: [Integrating Gender into Forestry Research](#) (Center for International Forestry Research, 2012, p.48)

18 *Ibidem*

19 Source: [Toolkit - Gender in EU-funded research](#) (EC, 2009). Part 1.2

20 Source: Woodward, Kath & Woodward, Sophie (2015). Gender studies and interdisciplinarity. *Palgrave Communications*, article no. 15018. (p.2 of PDF version available at <http://www.palgrave-journals.com/articles/palcomms201518>)

though gender studies, like women's studies are marked by diverse, and sometimes overlapping intellectual traditions and movements [...] The shift towards gender studies also reflects a widening intellectual base, to include, among others, critical studies of masculinity, LGBTQ (lesbian, gay, bisexual, trans, queer) studies, ecological feminism, techno-science studies, etc.²¹

Integrating Gender Analysis into University Curricula (IGAUC) means effectively integrating the gender analysis into all contents and information passed in the higher education process to future active social agents, professionals and future researchers. Specifically has to do with guiding students to develop skills aimed at Integrating the Gender Analysis into Research (IGAR). It includes issues such as learning to identify gender-biases in research, and to adequately apply IGAR methods in knowledge production and transfer. Higher Education Institutions (HEIs) play a fundamental part in reducing and eventually eliminating the "gender gap in science content". Universities are then crucial to avoid generating and transmitting knowledge which is gender-biased, and which does not integrate appropriately the needs of both men and women, thus perpetuating an unequal system of generation of scientific knowledge. It must be noted that IGAUC refers to a specific area within the gender dimension/approach in university curricula. The later also includes other issues such as inclusive teaching methods, making female scientists visible, non-sexist use of language and images, questioning gender professional stereotypes and roles, etc.

A.3 European and International Normative/Regulatory Agenda

The importance of taking into account the Integration of the Gender Analysis into Research (IGAR) has been increasingly recognised these past ten years. The current international and European regulatory framework for education, research and innovation policies and programmes now clearly stresses the importance of integrating the gender dimension.

We present the key elements of this framework (mostly released in the last five years), starting from the United Nations, the Council of Europe and the European Research Area, and finalizing with a 2015 European Parliament Resolution and an Own-initiative Opinion of the European Economic and Social Committee in 2014.

As stated earlier, as part of GENDER-NET WP3, existing national-level legislations, strategies and programmes which explicitly promote the integration of sex/gender analysis into research contents have been mapped and analysed, and findings presented in GENDER-NET Deliverables [D3.9](#) and [D3.10](#) (see section B6 on Useful references).

²¹ *Ibidem*

United Nations

The fifty-fifth session of the Commission on the Status of Women (CSW) took place at United Nations (UN) Headquarters in New York, 2011. The Priority theme in this occasion was the *Access and participation of women and girls in education, training, science and technology, including for the promotion of women's equal access to full employment and decent work*. The agreed conclusions adopted by the Commission were transmitted to the Economic and Social Council being one of the main areas: *Making science and technology responsive to women's needs, which encourages the creation of awareness of the needs of women in science and technology, including by encouraging the media to sponsor popular science programming, and report on the differential impact of science and technology on women and men and the integration of a gender perspective in the science and technology curricula throughout all stages of education and continuous learning, and the use of gender-based analysis and gender impact assessments in research and development in science and technology, and promote a user driven approach to technology development in order to increase the relevance and usefulness of advancements in science and technology for both women and men*²².

In the previous decade the UN International Research and Training Institute for the Advancement of Women (UN-INSTRAW)²³ had launched the guide [Gender research: A how-to guide United Nations International Research and Training Institute for the Advancement of women](#). The guide was aimed to provide researchers with *practical information on integrating gender concerns into research projects and programmes in order to make research more accurate and ultimately more useful in influencing policy formulation and implementation. The guide includes concrete examples that illustrate the different steps involved in making research gender-sensitive, a top-ten list of gendered research characteristics, and a section with additional resources. The guide is purposefully general so that it can be adapted to particular circumstances – research methods that best capture the complexities of gender issues are those that are adapted to the specific context* (p.1)

More recently, at the UN Sustainable Development Summit on 25 September 2015, world leaders adopted the 2030 Agenda for Sustainable Development, including a set of 17 [Sustainable Development Goals](#) (SDGs, also known as the Global Goals), aimed to fight poverty, inequality and climate change, to improve access to health and education, and more.

²² CSW 2011- Agreed conclusions on access and participation of women and girls in education, training and science and technology, including for the promotion of women's equal access to full employment and decent work. (p.10)

²³ Part of UN Women since 2010



The report resulting from the 6th Gender Summit in Seoul (2015)²⁴ highlights the scientific examination of the SDGs by the International Council for Science (2015)²⁵ which identifies 78 scientific topics involving “gender” and/or “women” as the main and a separate concern. Moreover, the 6th Gender Summit resulting report clarifies that *although not every aspect of science for development and [not] every measure used to implement the SDG targets, involves direct influence of sex and gender differences, their potential impact on outcomes must be considered in all instances* to avoid sidelining sex and gender issues as happened in many cases of the Millennium Development Goals, and consequently makes the following recommendation:

“When planning interventions for each of the 17 SDGs we must continually ask: Will these interventions work equally for women? Will they work equally for men? We must use the best scientific evidence when formulating sex- and gender-conscious solutions to ensure this, and also to address wider societal and environmental challenges” (p.6)

Council of Europe

On 21st November 2007, the Committee of Ministers of the Council of Europe adopted the [Recommendation to member states on gender equality standards and mechanisms](#) (CM/Rec(2007)17). In this document the Committee recommends that the governments of member states take or reinforce necessary measures to implement gender equality in practice, taking fully into several principles and standards. One of these principles is **Education, science and culture** and within it the committee recommends:

- the explicit inclusion of the principle of gender equality in national framework legislation on education and of a gender perspective in all education policies
- the regular monitoring of educational curricula, subject contents, education standards, teaching and learning resources, and classroom and school organisation, in order to eliminate gender stereotypes at all levels of the educational system

²⁴ [The Role of Gender-based Innovations for the UN Sustainable Development Goals Toward 2030: Better Science and Technology for All](#) (Edition 1, pp. 4-6)

²⁵ ICSU, ISSC (2015). [Review of Targets for the Sustainable Development Goals: The Science Perspective](#). Paris: International Council for Science (ICSU)

- the existence of gender/women’s studies and research in universities and research institutions and their adequate support and financing

European Research Area

European Commission:

Gender equality and gender mainstreaming in research have been a key priority for the European Union for over fifteen years, since 1999²⁶.

The [European Commission’s 2012 policy Communication on the European Research Area \(ERA\)](#) (COM(2012) 392) established five key ERA areas to focus until 2014. The subject of the integration of gender analysis into research is covered as one of these main ERA priorities: [“Gender Equality and Gender mainstreaming in research”](#). This also clearly confirms the EC’s commitment to pursue these efforts.

More recently, in its [Recommendations on the Implementation of the ERA Communication 2013](#), the expert group commissioned by the EC states that *the gender dimension must be integrated in research and innovation and in higher education curricula in order to ensure research quality, long-term sustainability of research and innovation findings, and social robustness of research, as well as in avoiding economic losses. Training will be necessary for research staff and peers at RFOs to achieve this*. As found in the [Progress Report 2014 on the ERA](#), *the pace of change is too slow and there are still many disparities among countries. The persistence of gender bias in careers, of gender imbalance in decision-making roles, and the lack of a gender dimension in research programmes remain common challenges*. *There is a need for more joined efforts and systemic strategy aiming at longer-term institutional change in the European research system*.²⁷

EC **Framework Programmes** for research funding have increasingly taken into account the importance of gender equality and IGAR. The Gender Impact Assessment Studies carried out during **FP5 (1998-2002)** was an effort established to assess the way in which gender issues had been addressed then and from which recommendations were made for **FP6 (2002-2006)**. There *the ‘gender dimension’ enters as a concept to be addressed in research into the world of science and technology*. This first report was followed by the one called [Monitoring](#)

²⁶ EC (1999), [‘Women and Science’. Mobilising Women to enrich European Research](#) “Care should also be taken to ensure that the research funded by the Union meets the needs of its female as well as its male citizens. This is what is meant by promotion of research for women. This implies vigilance when drawing up the work programmes (2.2.2.a) and an in-depth analysis of how all the fields covered by research (2.2.2.b) affect women” (p. 11) See also the EC 2009 [“Stocktaking 10 years of “Women in Science” policy by the European, Commission 1999-2009”](#)

²⁷ As it can be seen in the Council of the EU subsection below, all MS need to come up with a national ERA roadmap in 2016 including these aspects

Progress Towards Gender Equality in the 6th Framework Programme (2008). This 2008 report presented a synthesis of the key findings and recommendations of six studies carried out between 2004 and 2007 to monitor progress towards gender equality and gender relevance awareness during the 6th Framework Programme for Research and Technological development (FP6). Each study focused on different aspects of the research thematic priorities in FP6, monitoring how gender issues were taken into account and making recommendations for better integration in future. It shows the European Commission's commitment to enhance scientific excellence by mainstreaming gender equality, giving continuity to the gender mainstreaming goals already established for FP6: to promote the participation of women scientists in Framework Programme activities (40% target) and to ensure that the gender dimension is addressed in European research wherever relevant. In establishing these two goals, FP6 made an important step towards gender equality in science.

Within the **FP7** Seventh Framework Programme (FP7) several funded projects are worth being highlighted for their impact on facilitating Gender in Research Contents²⁸:

- The **'Gender in EU-funded Research'** (2009-2012) toolkit and training was funded by the European Commission. The project was coordinated by Yellow Window and aimed at:
 - Raising awareness among various actors in the implementation of FP7
 - Providing practical guidance and suggestions on how to increase female participation in EU-funded research and integrate the gender/sex dimension in the content of the work
 - Strengthening participants' advocacy and argumentation skills
- The **Gendered Innovations Project** provided scientists and engineers with practical methods for sex and gender analysis, based on a set of case studies. To match the global reach of science and technology, methods of sex and gender analysis were developed through international collaborations. Gendered Innovations involved experts from across the U.S. and the EU 27 Member States. The project was initiated at Stanford University in July 2009. In January 2011, the European Commission set up an expert group, "Innovation through Gender," aimed at developing the gender analysis in EU research and innovation. The US National Science Foundation later joined the EC in supporting the project, which released a [report](#), at the European Parliament, in 2013

²⁸ For more detailed information about the outputs of these projects see the Useful References section

- The current **GENDER-NET project** (2013-2016) is a pilot transnational research policy initiative, funded by the European Commission under the Science in Society (SiS) work programme of FP7, builds on previous efforts on this topic, and aims to complement these with more research policy-oriented findings and recommendations and tools

Other FP7 efforts towards the integration of sex and gender analysis into research contents:

1. The **Meta-analysis of gender and science research** (2008-2010) was a project aimed at collecting and analysing gender and science research produced in all European languages from 1980 to 2008, covering 27 EU Member States as well as the Associated States to the 7th Framework Programme (Norway, Iceland, Israel, Switzerland, Turkey, and Croatia). One of the outputs of the project was the topic report on the *Gender Dimension in Research Content*²⁹. It reviews theoretical approaches and focuses on two areas: "Biomedical and Health research" and "Engineering and Technology".
2. The FP7-supported **genSET** project initiated in 2011 the first Gender Summit, an event dedicated to supporting and advancing excellence and effectiveness of research and innovation at all levels through the inclusion of gender. Several summits have followed since then, in Europe (2012, 2014 and 2015) and North America (2013), Africa (2015), and Asia (2015).
3. The **GenPORT** project, a comprehensive web portal financed through the European Union's 7th Framework Programme (FP7), 2012 SiS work programme, launched in 2013, will, before 2017, facilitate access to a wealth of research, statistical data, policy reports and practical resources on gender and science, technology and innovation.
4. Several "structural change" projects funded under FP7-SiS since the 2010 work programme, and aimed at implementing gender equality plans in universities and research organisations, increasingly started including IGAR as a key component of these plans. For instance, the **STAGES** project (2012-2015) developed trainings for medical faculty and students of the University of Milan, while the **TRIGGER** project (2014-2017) and the **EGERA** project (2014-2017) bring together research and higher education institutions from several EU member states with the dual objective of achieving gender equality in research, and strengthening the gender dimension in research. Similarly, the **GARCIA** project (2014-2017), more focused on fighting gender inequalities at the early stages of scientific careers, is also aimed at integrating a gender perspective into research and teaching (both in STEM and in SSH disciplines).

²⁹ The online database (Gender and Science Database, GSD) and the reports are available at the website of the study: www.genderandscience.org

5. **RRI Tools** is a three year long project funded under the FP7 (2014-2016) to foster Responsible Research and Innovation (RRI) in Europe with a view to a harmonious and efficient relationship between science and European society. RRI is encompassing 6 fields relating to R&I: public engagement, formal and informal education to science, gender equality, ethics, the open access to scientific results and R&I governance itself. It also covers the integration of the gender analysis into R&I contents under its gender equality theme.

For more detailed information about the outputs of these projects see the Useful References section.

Horizon 2020, the EU funding programme for R&I launched in December 2013 and which will run until 2020, has indeed set gender as a **cross-cutting priority**. Three objectives support the Commission's activities on gender equality in Horizon 2020³⁰. They are in line with the RTD strategy on gender as well as with the ones set in the **ERA Communication of July 2012**:

- Fostering gender balance in Horizon 2020 research teams, in order to address the gaps in the participation of women, at all levels, in the Framework Programme's projects
- Ensuring gender balance in decision-making, in order to reach the Commission's target of 40% of the under-represented sex in panels and groups (50% for Advisory Groups)
- Integrating gender/sex analysis in research and innovation (R&I) content, to help improve the scientific quality and societal relevance of the produced knowledge, technology and/or innovation

These objectives are part of the Commission provisions for the implementation of Horizon 2020 and are integrated at each stage of the Research and Innovation cycle. Recently a new *ad hoc* **Advisory group on Gender** has been created under the H2020 Programme. The goal of this group is to provide advice to the Commission services on the implementation of the gender dimension in research and innovation content as a cross-cutting issue in Horizon 2020 work programme. The group has released a document to use during the preparation of the Horizon 2020 work programmes. This paper is called "**For a better integration of the gender dimension in Horizon 2020 Work Programme 2016-2017**" produced in March 2015. Details on how H2020 incorporates gender in the content of research programmes are further explained in chapter C of the present report.

³⁰ As set in Article 16 of the **Regulation (EU) No 1291/2013** establishing Horizon 2020

It is also worth mentioning the **Responsible research and innovation (RRI)** approach by the European Commission, which has recently began to promote the design of inclusive and sustainable research and innovation. The EC describes RRI as a framework that consisted of six key action points; the second one of them is **Gender Equality**, reflecting the 3 main objectives of H2020: Fostering gender balance in research teams, Ensuring gender balance in decision-making and integrating the gender dimension in research and innovation (R&I) content.

The **ROME Declaration** of November 2014 stresses the need for an RRI in which processes and outcomes meet the needs and values of society, fully respecting the gender equality, the gender dimension in research and the ethical aspects of research.

In June 2015, the report **Indicators for promoting and monitoring Responsible Research and Innovation** was released by the EC. This report of the **Expert Group on Policy Indicators for Responsible Research and Innovation** considers options for RRI indicators. It provides, among others, some indicators to monitor the width and breadth of penetration of gender perspectives in research contents (see chapter D of the present report).

Council of the European Union

The EU Council Conclusions concerning various issues related to the development of the European research area (ERA), as adopted by the Competitiveness Council at its meeting on 26 May 2010, stressed the need to *further progress in the reinforcement of the integration of the gender dimension in European research and it endorses the other recommendations proposed by the Helsinki Group (HG) in its Position Paper, Gender and Research beyond 2009*, where the group, composed of national representatives (policy makers and gender experts) from the 27 EU Member States at that time, *invites the European Commission to renew its commitment to mainstreaming gender in research, both by ensuring the inclusion of the gender dimension in research priorities and funding programmes and by monitoring the participation of women in research funded by the Framework Programmes*.

The EU Council, in its December 11th 2012 Conclusions³¹, clearly underlined that "*the integration of a gender dimension into the design, evaluation and implementation of research needs to be improved to effectively foster research and innovation excellence*".

³¹ Council of the European Union (December 11th, 2012), Conclusions on A reinforced European Research Area Partnership for Excellence and Growth, 3208th Competitiveness Council meeting: http://www.consilium.europa.eu/uedocs/cms_data/docs/pressdata/en/intm/134168.pdf

In 25th February 2014, the EU Council [Conclusions on the progress report from the Commission on European Research Area \(ERA\) 2013](#) (6945/14) invited the Member States to *step up the efforts to systematically mainstream gender equality and the gender dimension in R&I policies and programmes.*

On the 5th of December 2014, the Council adopted its [Conclusions on the European research area Progress Report 2014](#). One of such conclusions is that the Council *“notes the persistence of gender bias in careers, of gender imbalance in decision-making roles, as well as the lack of a gender dimension in most of the national research programmes. Invites therefore Member States to support gender mainstreaming and equal opportunities”*.

In May 29th 2015 the Competitiveness [Council Conclusions on the ERA Roadmap 2015-2020](#) (9351/15), adopted the ERAC (European Research Area Committee) [Opinion on the ERA Roadmap 2015-2020](#) (ERAC 1208/15) which calls on the Member States and the Commission to start the implementation of the top action priorities identified in the ERA Roadmap and, therefore, in respect to gender equality and IGAR it calls to *“translating national equality legislation into effective action to address gender imbalances in research institutions and decision making bodies and integrating the gender dimension better into R&D policies, programmes and projects”*.

Such an **ERA Roadmap** has been developed to facilitate and reinforce the efforts undertaken by the Member States. The ERA Roadmap 2015-2020 identifies a limited number of key implementation priorities which are likely to have the biggest impact on Europe’s science, research and innovation systems if all the members of the ERA Partnership get them right. Visible progress must be made by the Member States by 2020 and it should be possible to demonstrate this progress on all ERA priorities. In regards to the **gender equality and gender mainstreaming in research** priority, the ERA roadmap states that: *“... the gender dimension in research content is commonly overlooked. Addressing these issues will also reinforce the attractiveness of Europe to high quality researchers”*.

On December 1st 2015 the [Competitiveness Council Conclusions on advancing gender equality in the ERA](#) (14846/15) reaffirm the Council’s *“commitment to enhance gender equality in the ERA and recognises that the implementation of the ERA Roadmap and the priority on gender equality offers an excellent opportunity to translate national equality legislation into effective action to address gender imbalances in research institutions and decision making bodies and integrate the gender dimension better into R&I policies, programmes and projects”* (as stated in the 29th May 2015 Council Conclusions).

Consequently, the Council invites Member States and research-funding organisations *“to provide incentives to encourage research performing organisations, in-*

cluding universities, to revise or develop gender mainstreaming strategies, gender equality plans including the gender dimension in R&I content and programmes and mobilise adequate resources to ensure their implementation”.

The Council also invites the Commission to continue to strengthen the implementation, monitoring and evaluation of all gender equality objectives in Horizon 2020 relating to gender representation in research teams, decision-making *as well as the gender dimension in research content, at all possible stages of the research cycle; and calls on the Commission to explore the possibility to provide more comprehensive, transparent sex-disaggregated data and gender indicators on participation of evaluators and researchers as well as of the integration of the gender dimension as research subject in projects and programmes funded by Horizon 2020*. Additionally, the Council invites Member States in collaboration with the Commission to make full use of mutual learning exercises, including within the framework of ERAC, and the exchange of good practices in the field of gender equality in R&I; taking into account the recommendations from the Helsinki Group, and the outcomes of projects on this topic funded by the EU framework programmes, such as the GENDER-NET ERA-Net.

European Parliament

On the 9th September 2015, the European Parliament approved the [Resolution on women’s careers in science and universities, and glass ceilings encountered](#). In this resolution The Parliament, *inter alia*:

- Stresses the need for full integration of the gender dimension in research and gender balance in participation into Horizon 2020; believes that this will require renewed efforts to integrate the gender dimension into the formulation and implementation of the next work programme; welcomes the creation of the Horizon 2020 Advisory Group on Gender (AGG); strongly believes that the objectives of Horizon 2020 will only be reached with the full participation of women scientists
- Strongly believes that the gender dimension is a source of added value for research and provides a return on investment; highlights that gender analysis can foster innovation and multidisciplinary cooperation in science and technology
- Calls on the Member States to provide incentives to research institutes and universities to introduce and apply gender equality plans, to introduce a gender dimension in their national research programmes, to remove legal and other barriers to the recruitment, retention and career progression of female researchers, and to implement comprehensive strategies for structural change in order to overcome the existing gaps in research institutions and programmes
- Asks the Commission to integrate the gender dimension into scientific and technological content in order to put an end to subtle forms of discrimination, by means of incentives to take sex and gender into account in research development

European Economic and Social Committee (EESC)

In October 15th 2014 the [European Economic and Social Committee](#), acting under Rule 29(2) of the Rules of Procedure, adopted an [Own-initiative Opinion on Women in science \(2015/C 012/02\)](#). The EESC advocates that “*integrating a gender analysis into R&I content ensures that research, as well as today’s innovations, adequately take into account the needs, behaviours and attitudes of both women and men. Studies show that the integration of sex and gender analysis increases the relevance and quality of research and innovation. It also adds value to society and business by making research responsive to a broad and diverse user base and by creating more inclusive innovation processes, as demonstrated by the Gendered Innovation project*”. Consequently, the EESC urges the European Commission to propose a recommendation which “*should encourage Member States to remove legal and other barriers to the recruitment, retention and career progression of female researchers; address gender imbalances in decision-making processes and strengthen the gender dimension in research programmes*”³²

It also recommends Member States that *the evaluation, accreditation and funding of research institutions and organisations should be linked to their performance on gender equality* stating also that *Member States and their respective institutions should develop a methodology for monitoring and evaluating the efficiency of action on gender equality*.

³² Conclusions and recommendations: 1.5 from the [Opinion of the European Economic and Social Committee on Women in Science](#). (2015/C 012/02)

B. Manuals with guidelines on integrating gender analysis into research

B.1 Introduction to the Manuals

B.1.1 Objectives of the Manuals

The objective of these Manuals is to *assist national/regional funding agencies, grant applicants and peers reviewers/evaluators with the know-how to integrate sex and/or gender considerations into research (policies, programmes, projects) while raising awareness about the importance of sex and gender in research and innovation*³³.

B.1.2 Methodology

The present chapter is structured under three different manuals depending on the target group they are aimed at: one for Funding Agencies, one for Applicants, and one for Peer Reviewers/Evaluators. The three manuals share the same structure and provide specific information for each target group with Key Guidelines, and Check-lists. The manuals are followed by a section dedicated to providing examples following the main areas specified in the H2020 Work programme (seven societal challenges and the other areas of interest in H2020). This chapter concludes with a section that outlines useful references suitable for Funding agencies, Applicants and Peer Reviewers/Evaluators (marked in blue, orange or yellow depending on the target audience).

The present chapter collects and completes the information analysed in the GENDER-NET [D3.10](#) “*Comparative analysis of existing national initiatives on the integration of the gender dimension in research contents*” including the outputs resulting from two GENDER-NET expert workshops:

1. *Develop Recommendations on Gendering of Research Contents for Funding Agencies, Applicants and Reviewers/Evaluators* (MS9, 24-25 March 2015, Paris) which focused on work sessions to develop training modules and guidelines tailored to the different calls for proposals and related supporting documents
2. *Preparation for the Strategic Seminar on the Implementation of the Gendering of Research Contents and Programmes and its Monitoring* (MS14, 28th Sept. 2015, Cyprus)

The aim of these manuals is to provide a support resource that takes into account some of the key elements of the H2020 framework program, complementing other valuable publications available (see the References section). Moreover, although there already exist relevant materials (web pages, on line tools, reports, papers...) targeting mainly applicants and researchers, the present manuals make also additional recommendations oriented to supporting funding agencies and peer reviewers/evaluators by providing them with specific guidelines, check-lists and references together with general examples on integrating gender analysis into research (IGAR) in their respective spheres of work.

³³ GENDER-NET Description of Work (page 13)

Some of the recommendations and check lists included in the present chapter have been disseminated at *Integrating Gender Analysis into Research (IGAR)*, a high level [Strategic seminar on Gender in Research & Innovation Content](#) that took place at the Norway House in Brussels on the 21st April 2016. The aims of this seminar were to:

- Foster the integration of the gender dimension into R&I policies, programmes and projects
- Contribute to the implementation of the ERA roadmap and national ERA roadmaps on gender mainstreaming in research
- Contribute to the implementation of the ERA roadmap and national ERA roadmaps on gender
- Provide recommendations to the European Research Area Committee (ERAC)

This high level seminar targeted mainly the ERAC and the Strategic Configuration of the H2020 Programme Committee members, Science Europe Member Organisation leaders, GENDER-NET consortium members and other policymakers.

B.1.3 Target Audience

The manuals with guidelines on IGAR presented in this report are aimed at three specific target groups: Funding agencies, Applicants and Peer Reviewers/Evaluators

Funding agencies: This target group is comprised of organisations that fund research, programmes and projects, at their competence level. These organisations vary from ministries, research agencies, higher education institutions and research institutes. Some of these research organisations are also implicated in the design and development of scientific policies at their national level. Their crucial role thus consists also of setting the standards and regulations on science and research at a political level.

Funding agencies and research organisations, especially when dealing with public money, have the responsibility to fund the best quality research possible and this implies, among other important considerations, ensuring that the funded projects or programmes integrate appropriately the gender analysis, encouraging this as a precondition for excellence by supporting, assisting and guiding those seeking funding in how to best develop excellent science. This meaning in this case how best to integrate both women's and men's needs into research, and to provide the proper criteria (including scoring) and indications to get this through all the project evaluation processes (which in turn requires ensuring adequate peer reviewers/evaluators' competencies on sex/gender analysis).

Grant Applicants: This target group is comprised of researchers applying for funding to develop their projects or programmes. The quality of science, research and innovation depends on the research community's ability to be responsive to the needs of society as a whole. Not including the gender analysis

into the methodology, content and impact assessment of research can lead to poor science and missed opportunities. RFOs should therefore expect that all research applicants will integrate sex and gender into their research designs when appropriate. It is the applicant's responsibility to ensure they comply with the requirements of the specific call or grant; consequently it is important that there is relevant specification on IGAR at the call level

Peer Reviewers/Evaluators: Experts in the evaluation process assist in the evaluation of proposals and also in the monitoring of actions. Peer reviewers/evaluators play a critical role in ensuring excellence in the research funded. When evaluating project proposals on open calls, peer reviewers and evaluators need to know how to approach the specific subject of the integration of the sex/gender analysis into the evaluated proposals. Therefore they need to have the knowledge and expertise to properly address and evaluate these considerations. The funding agency, in turn, is responsible for making sure that experts with double competence (i.e. both in sex/gender analysis and in the research field in question) are included in the evaluation panels, and that the other evaluators are at least aware of the specific requirements on integrating sex and/or gender analysis in the project design/content. It is the role of the peer reviewer/evaluator to determine if this integration has been approached sufficiently and appropriately in all the research cycle process.

B.2 Manuals for Funding Agencies

To ensure effective gender integration into research contents³⁴, funding agencies will need to have in place policies and strategies that require explicit sex and gender considerations across the research continuum. In the GENDER-NET *"Comparative analysis report on gendering research contents"* three funding agencies were presented as case studies that were selected for being good examples regarding the general objective of integrating the gender analysis into their own research funding systems: Canadian Institutes of Health Research (CIHR), Irish Research Council (IRC), and U.S. National Institutes of Health (NIH). They were selected out of 40 organizations that responded to the GENDER-NET online survey above mentioned in the general introduction to the present report. The detailed information provided by these organisations is collected in the fact sheets available in the previous GENDER-NET [Compendium of existing national and regional initiatives on the integration of the gender dimension in research contents](#). The following subsection links one example document to each one of the key guidelines presented, in order to easily clarify what is meant, independently that other good examples can be found in the above mentioned reports and in other documents included in the Useful References section below.

³⁴ Institutions should make the necessary efforts in order to clarify explicitly the distinction between Gender Balance/Gender Equality and Gender in Research Contents to avoid confusion and misinterpretation

B.2.1 Key Guidelines

As Funding Agency you have a crucial role to ensure that high-quality basic and applied research relevant to society is appropriately funded. This is best ensured when research communities are diverse, when they have the ability to cooperate across and within disciplines, and when the research is inclusive, taking into account both men's and women's needs. Therefore, in the following 8 key areas of the funding system, research funding organizations are recommended to:

1. **Policy and/or Strategy:** Adopt and implement a specific *institutional* policy or strategy that facilitates integrating the gender analysis into the funding programmes for research, including training mechanisms for staff, grant applicants and peer reviewers/evaluators [e.g. [IRC Gender Strategy & Action Plan 2013-2020](#)]³⁵. Institutions should make the necessary efforts in order to clarify explicitly the distinction between Gender Balance/Gender Equality and IGAR to avoid confusion and misinterpretation. It is also recommended to intensify and widen transnational activities aimed to foster IGAR in view of their potentially high leverage effect on national policies³⁶.
2. **High Level Support and Leadership at Institutional Level:** Showing a *firm commitment* by institutional leaders to sustain the effective implementation of the policy or strategy within the organisation is fundamental [e.g. [NIH Statement on Gender](#)].
3. **Research Funding Programme:**
 - **At the programmes design level:** Include measures aimed at integrating the gender analysis into all programmes *as a cross-cutting element*, and not only in specific programmes [e.g. the H2020 requirement for a gender expert in each Advisory Group³⁷]. Launching a research programme is often the result of consultations with relevant stakeholders (researchers, policy makers, etc.). It is crucial that IGAR is included during the formal and informal consultations. This can be done by providing gender training, but also ensuring gender expertise in the team preparing and writing the call documents
 - **At call dissemination level:** *Flag/tag* (make explicit) the pertinent sections/topics where sex/gender analysis is specifically relevant [as in the case of [H2020 "Quick finder" link](#) that shows the list of all the gender-flagged topics (the ones with an explicit cross-cutting gender dimension)]. Taking sex/gen-

³⁵ Adopting a legal/normative framework which supports IGAR can help in giving the legitimate support to develop the implementation of policies or strategies and to develop further measures, and allocating the financial means to do so

³⁶ GENDER-NET is a pilot initiative in this respect. See the upcoming GENDER-NET D3.12 report (*Elevating Promising Practice: Potential Transnational Actions for Integrating Gender Analysis into Research*) for a detailed framework oriented to transnational activities

³⁷ See for instance [Gender Equality in Horizon 2020](#)

der analysis into account is relevant in most research fields with the exception of some fields (e.g. pure mathematics, theoretical physics and several branches of experimental physics, astronomy) and/or few cases when the application of the results may not affect humans beings (in)directly as patients, consumers, users, citizens, etc. It is important to explain why gender matters in the funded area/s, that is, to indicate why and how exploring sex and gender aspects are relevant to the topic, and to highlight areas where gender analysis has been ignored so far³⁸

- **At the level of the call for proposals:** *Require applicants* to indicate whether sex and/or gender are relevant to their proposed research. If relevant, require applicants to outline how sex/gender analysis will be integrated into all the research cycle. If applicants indicate that sex and/or gender is not relevant, require an explanation for why not. This requirement should be mandatory, so that applicants are given the opportunity to think further about it and to provide their feedback on these questions before proceeding with their grant application [e.g. [CIHR Sex, Gender and Health Research Guide: A Tool for CIHR Applicants](#)]³⁹. The call should also integrate the peer review/evaluation requirements explained in the next point
- **At proposal peer review/evaluation and project monitoring level:** Include at least one *gender expert*⁴⁰ in evaluation panels and/or boards [e.g. [H2020 Guidance for the selection of evaluators with gender expertise](#)] and make

³⁸ GENDER-NET converges here with the March 2015 position paper from the H2020 Advisory Group on Gender: *For a better integration of the gender dimension in Horizon2020 Work Programme 2016-2017* [[H2020-AG-GENDER \(2015\)](#)]. This paper stresses the need to *present the gender dimension as providing added value in terms of creativity, excellence and return on investment, both from private and public perspectives* (p. 3). It also recommends including gender in the impact statement: *the statement on expected impacts is an important part of the topic description, which the evaluators will assess under the impact criterion. Gender is one of the key aspects of the expected impacts. It can be expected that the funded action will have an impact for instance on boys or girls, women or men, gender relations, socio-economic positions and the status of men and women. It can also be expected that the funded actions should contribute to gender equality* (p. 3). See the B.5 Examples section in the present report

³⁹ As shown in the GENDER-NET [D3.9 Compendium of existing national and regional initiatives on the integration of the gender dimension in research contents](#), outcomes from the evaluation of the CIHR IGAR policy after the first three grant applications cycles, *show a progressive increase in the number of funded researchers – across all the four CIHR pillars – who are integrating sex and/or gender into their studies. The main impact of the initiative is that, requiring all applicants to respond to the mandatory questions on sex and gender may have contributed to increased attention to sex and gender as key considerations in healthy research, and increase in the uptake of sex and gender across CIHR funded research* (p.46)

⁴⁰ As in the case of the H2020 Advisory Groups. A basic training on IGAR can help peer-reviewers/evaluators not to overlook basic IGAR considerations, but gender expertise ensures that complicated aspects such as the in-depth integration of gender analyses, as well as particular theoretical frameworks (such as those related to gender in relation to intersectionality, transgender, etc.) will be accurately understood and evaluated

explicit the *gender-specific criteria* and *scoring* for the appropriate integration of sex and gender in the grant proposal⁴¹. Include the integration of sex/gender analysis as one of the issues to be monitored in mid-term/final project reporting. The peer review/evaluation system for the topics where gender is relevant must guarantee that those proposals not considering IGAR, cannot be funded. And in the case of those proposals which do consider IGAR, it is recommended to design a scoring system that allocates higher scoring to the proposals which appropriately include IGAR across all the research approach/cycle as opposed to those ones which provide inappropriate (inconsistent, apparent,...) inclusion of IGAR considerations. For programmes including a negotiation phase or a second round, this phase/round must be considered as an opportunity to improve IGAR in case it was not appropriately addressed in the proposal. Ensure that these requirements are integrated in the evaluation and monitoring guidelines and briefings. A step further in the project monitoring procedures is to create and accreditation scheme framework at institutional, call, or topic level aimed to certify funded projects which have successfully integrated the sex/gender analysis into their contents⁴²

4. Strategic Training Programme, Dissemination Materials and Awareness Raising Activities: Provide strategic training opportunities and dissemination materials (including manuals, relevant instructions, check lists, videos, gender experts databases, face-to-face and on-line seminars, gender studies website or inventory⁴³, etc.) both at general level and by discipline/main field of science *to applicants, peer reviewers/evaluators and grant administration staff*⁴⁴ to equip them with the necessary tools for effective integration of sex/gender analysis [e.g. [CIHR Sex, Gender and Health Research Guide: A Tool for CIHR Applicants](#)]. When doing so, it is recommended to develop and

41 For instance, the [Guidance for evaluators of Horizon 2020 proposals](#) explicitly mentions the need to check how sex and/or gender analysis is taken into account as requested in the proposal template and consider this while giving a score under the “excellence” and/or the “impact” criteria

42 This accreditation can work, on the hand, as an incentive for research teams; and on the other hand, it can also be beneficial to better identify the successful examples to be used in the awareness raising, training and dissemination activities and materials

43 For instance, the [KILDEN](#)'s website publishes news articles on the latest results in gender research and gender-sensitive research. KILDEN is an affiliated sub-unit funded by Research Council of Norway, participating in GENDER-NET

44 Specially top leaders and boards but also to the staff responsible of areas such as: call design, support to applicants, support to peer reviewers/evaluators, funding approval, project monitoring, etc. Strategically, it may be adequate to provide all project officers with comprehensive gender training, but this may not provide the expertise needed for in-depth follow up or support to researchers. At this point, the availability of in-house gender expertise would be of great value in assisting project officers. It is also recommended to include mandatory IGAR training for peer reviewers/evaluators, at least in the briefing session

disseminate specific guidelines inside the call manuals targeted to the own Research Funding Programmes' applicants and peer reviewers/evaluators rather than (or additionally) to referring them to general resources such as external manuals and websites. The reporting/monitoring phase should also be considered in the activities and materials. Additionally, in the early phase, it might also be useful to have program officer who can provide support to applicants on how to take into account IGAR in their proposal⁴⁵. It must also be highlighted that *awareness raising activities* are also crucial to promote an IGAR responsive culture in the political, management, scientific (including journals), media and general public communities: identifying IGAR ambassadors among top-level researchers (Nobel Prize, etc.); promoting peer-to-peer awareness in terms of “scientists convincing scientists”; sharing promising/best practices (successful IGAR policies/strategies, projects per topic, etc.); “gender thematic learning network”⁴⁶; other communication activities (blogs, forums, conferences, meetings...); etc. Mechanisms should be put in place to avoid common confusion between policies for gender balance/gender equality in institutions and careers, and IGAR policies. For that purpose, it is important to provide clear definitions and examples on IGAR compared to other gender balance/gender equality strategies and measures in research and innovation policies, programmes, institutions and projects.

5. Gender Specific Research: Launch a *specific funding programme on gender* aimed at fostering the production of new knowledge for a better understanding of gender issues (in addition to considering gender as a cross-cutting issue in all funding programmes) [e.g. [CNRS Gender Challenge](#)]

6. Monitoring and Evaluation: Design and implement a sound and systematic monitoring and evaluation approach with pertinent, measurable and appropriate *indicators to measure the performance and impact of the implemented policies*⁴⁷ and to be able to apply corrective measures if needed. Ensure internal and external *regular reporting* (e.g. annual) on progress in the implementation and impact of the IGAR policy/strategy. This can also contribute to the

45 The Bill & Melinda Gates Foundation does this for gender in agriculture research (personal communication by Londa Schiebinger)

46 Some RFOs *provide thematic learning networks* whereby they assemble the researchers from different projects within the same research programme. A *gender thematic learning network* can operate as a learning community of great value in building and consolidating gender knowledge within the research community. For the RFO, this can also be useful to identify good practice cases which can enrich guidelines and tools

47 See chapter D in the present report, where gender indicators are suggested for the 8 key areas of the funding system. For an example of impact assessment, see also the following research article: Johnson Joy, Sharman Zena, Vissandjée Bilkis & Stewart Donna E. (2014). Does a Change in Health Research Funding Policy Related to the Integration of Sex and Gender Have an Impact? In: PLoS ONE 9(6): e99900. doi:10.1371/journal.pone.0099900

gender budgeting of the RFO and to better account on the social responsibility of its investments, especially in public RFOs where they have to show that public money is used for the benefit of the whole society, in its gender and other diversity intersecting factors.

7. Budget and Resources: Dedicate *a specific budget line and relevant resources* (human, materials, etc.) to ensure sound implementation and sustainability of the uptake of sex/gender considerations in research⁴⁸. Provide the institution with the structures and bodies required to strengthen and properly implement the IGAR policy/strategy (its design, promotion, coordination, monitoring...) and, additionally, liaise or coordinate with individual/institutions with expertise in gender studies. For example by setting-up an office or appointing an office responsible for coordinating the abovementioned efforts throughout the organisation and to champion IGAR considerations in the institution's mandate. Allocate sufficient funds and personnel assigned to this structure to fulfil its mandate [e.g. [CIHR's Institute of Gender and Health](#)].

8. Supplementary and/or Eligible Funding: Include supplementary and/or eligible funding *for exploring how sex/gender analysis can be added* to current or proposed research *and for providing gender training* for the research teams [e.g. [Seed Grants for Biological/Medical Research on Sex Differences and/or Women's Health](#) from the Stanford's Women & Sex Differences in Medicine Centre]

B.2.2 Check List

This checklist is designed to assist RFOs (decision-makers, managers, officers... in the integration of the gender analysis into the research policy of the organisation and in the research funding programmes. It will guide users through the main steps in identifying the main elements to take into account when designing appropriate gender-sensitive policies/strategies.

- Does your organisation have a policy or strategy that facilitates the integration of the gender analysis into research (IGAR)?
- Does your organisation clearly show a firm senior management commitment to the policy or strategy?
- Do all your research funding programmes, where relevant, include measures aimed at IGAR?
- Are you flagging section/topics where sex and gender analysis is specifically relevant in the calls?
- Do you require applicants to indicate whether sex and/or gender is relevant to their proposed research?

⁴⁸ Moreover, the availability of funds exclusively dedicated, or conditioned, to projects which integrate in their proposals the sex/gender analysis, is considered a success factor to encourage and promote the widespread inclusion of the gender dimension in the contents of research

- When applicants respond NO to the above question, do you require them to justify why not?
- Do your peer review/evaluation panels include at least one gender expert?
- Does your evaluation system include specific scoring for the appropriate integration of sex and/or gender in the research?
- Do you provide training on IGAR to...
 - staff
 - applicants
 - reviewers/evaluators?
- Do you provide dissemination materials to facilitate IGAR to...
 - grant administration staff
 - applicants
 - peer reviewers/evaluators?
- Do you provide awareness raising activities on IGAR?
- Do you have a specific funding programme aimed at advancing new knowledge in sex and gender in research?
- Do you have a systematic monitoring and evaluation approach that includes measurable and appropriate indicators to assess the success of your policy or strategy?
- Do you have a dedicated budget and relevant resources to implement your gender policy?
- Do you provide any supplementary funding/eligible costs for training/exploring on IGAR to the research team?

See section B.5 for Examples and B.6 for Useful References

B.2.3 IGAR in H2020

The integration of gender analysis into research contents, as shown in section A.3 of the present report, has been one of the priorities of the EC in the framework of the ERA, and strong efforts have been made so far to implement it in H2020, the EU funding programme for research and innovation⁴⁹.

H2020 has been mentioned above as an example on how to implement some of the key considerations for funding agencies (e.g. gender-flagged topics, the [Guidance for the selection of evaluators with gender expertise](#), etc.). The present section highlights how H2020 can still improve IGAR in the next years and post-2020.

⁴⁹ See for instance the EC (2016) [Vademecum on Gender Equality in Horizon 2020](#)

Some recommendations are presented at the end of this section. They are based on the above considerations for RFOs, and on the review of various H2020-related documents.

The H2020 legal basis and reference documents⁵⁰ were considered. In addition, the findings of a preliminary paper produced by DG RTD-B7 services, entitled «Initial Lessons Learned From the First Calls of Horizon 2020» and presented in October 2014 at a meeting of the Strategic Configuration of the H2020 Programme Committee, was also reviewed. This report pointed out that, although gender-flagged topics in the participant portal can ease access for applicants, this should not [...] prevent applicants of non-flagged topic from including a gender dimension in their proposal if they find it is relevant.⁵¹ Additionally, it presented some IGAR recommendations for the Work Programme for 2016-2017:

- 23. Continue to address the gender dimension upstream when preparing future Work Programmes and increase awareness among applicants, NCPs and evaluators on what the gender dimension in research content means and encompasses
- 24. Identify new and more gender-related topics as well as specific studies in order to develop a better understanding of the role of gender in Horizon 2020 domains/challenges such as climate change, energy, cities, etc.
- 25. Go beyond generic language and propose more meaningful wording in future Horizon 2020 topics; as part of this include the gender dimension under the “impact” part of topics
- 26. Develop guidelines/methods for monitoring and assessing the inclusion of the gender dimension in the various domains of Horizon 2020

In March 2015 a set of IGAR specific recommendations were also presented by the H2020 Advisory Group on Gender (AGG) in their report entitled “For a better integration of the gender dimension in Horizon 2020 Work Programme 2016-2017”. In this paper, the AGG states that *there is room for improvement and more*

⁵⁰ Such as REGULATION (EU) No 1291/2013 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 11 December 2013 establishing Horizon 2020 - the Framework Programme for Research and Innovation (2014-2020) and repealing Decision No 1982/2006/EC; REGULATION (EU) No 1290/2013 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 11 December 2013 laying down the rules for participation and dissemination in „Horizon 2020 - the Framework Programme for Research and Innovation (2014-2020)“ and repealing Regulation (EC) No 1906/2006 (available at <http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32013R1290>); Council Decision of 3 December 2013 establishing the specific programme implementing Horizon 2020 - the Framework Programme for Research and Innovation (2014-2020) and repealing Decisions 2006/971/EC, 2006/972/EC, 2006/973/EC, 2006/974/EC and 2006/975/EC (available at <http://eur-lex.europa.eu/legal-content/EN/ALL/?uri=CELEX%3A32013D0743>); and other ones in the Reference Documents section at the EC Research & Innovation Participant Portal (http://ec.europa.eu/research/participants/portal/desktop/en/funding/reference_docs.html#h2020-legal-basis-sp).

⁵¹ (p. 17)

can be done to better integrate the gender dimension in the topics and calls of the 2016-2017 Work Programme. Their recommendations refer to issues such as: explicitly explaining “why gender matters” in the concerned area; fostering “the production of new knowledge on gender”; being aware that “gender implies a multidisciplinary approach”; and including “gender in the impact assessment”.

In September 2015, the EC published a set of Key Performance and Cross-Cutting Issues indicators to monitor and evaluate H2020: [Horizon 2020 indicators. Assessing the results and impact of Horizon](#).⁵² Within the cross-cutting issues category, it included 4 indicators on Gender, one of them addressing specifically IGAR: 6.4 Percentage of projects taking into account the gender dimension in research and innovation content (p.17). The type of data required for this indicator was specified as “projects properly flagged”.⁵³ While most of the other cross-cutting issues included indicators in terms of monitoring and evaluating the EU financial contribution allocated to their implementation, gender did not include any indicator in this sense.

In November 2015, the report *Gender Equality in Horizon 2020 Monitoring and Evaluation* prepared by the Commission’ services (presented at the Strategic Configuration of the H2020 Programme Committee) pointed out that within the H2020 2014-2015 Work Programme, *the gender dimension in R&I was explicitly mentioned in 99 of the 610 topics (16%), distributed in 12 WP Parts. Among these 99 topics, 60 [59%] had a strong gender component*.⁵⁴ And within the Work Programme for 2016-2017, *the gender dimension was explicitly mentioned in 108 of 568 topics [19%, an increase of 3 points] distributed in 13 [Work Programme] parts. Among these 108 topics, 82 [76%] had a strong gender component (an increase of 17 points)*. However, it is worthwhile noticing that the percentages of the total topics where gender is mentioned with a strong component vary as a function of the different Work Programmes and priorities.

The report also provided data showing the extent to which IGAR was integrated in a sub-set of 65 funded projects which were screened for that purpose (24 in gender-flagged and 41 in non-flagged topics from the 2014 calls): in gender-flagged topics, a surprisingly 42% (10) of the funded projects had not included

⁵² The report states that Horizon 2020 indicators *will deliver information on outputs and results across all areas of the programme. They will provide the basis for analysing the nature and scale of impact of Horizon 2020 on the European research and innovation system and how Horizon 2020 has contributed to building a society and an economy based on knowledge and innovation across the Union by leveraging additional research, development and innovation funding (p.6). [...] The legal basis of H2020 includes an obligation to carry out an annual monitoring of H2020 addressing a list of 14 cross-cutting issues (including gender) to monitor the programme implementation (p.10)*

⁵³ This means the projects that have indeed developed a sex and gender analysis

⁵⁴ *The component is considered strong when it is introduced by a wording such as must, shall, should, will, is expected to. (p. 2)*

IGAR at all in the submitted proposal, 25% did it poorly and only 33% good; and in non-flagged topics, the percentages reached 76% with no IGAR at all, 17% with poor IGAR, and 7% with fair or good IGAR. Therefore, as expected, IGAR figures were better for funded projects in gender-flagged topics than in non-flagged ones. However, it must be noted that in these gender-flagged topics the percentage of funded projects with no IGAR at all in the submitted proposal should have been 0%. The report specifies that some corrective measures were taken to improve such figures: e.g. updating the Section on Gender equality of the [Guidance for Evaluators of H2020 proposals/FAQ](#) to include in it a reference to the *Gendered Innovations* website, and enriching both the *training offer* for the EC staff and the *awareness raising* activities and materials for National Contact Points (NCPs).

Finally, it is important to remark that the first IGAR indicator included in the [She Figures 2015](#), the *Proportion of a country's scientific publications integrating a gender dimension in their research content*,⁵⁵ shows a consistent pattern for the two considered time periods (2002–2005 and 2010–2013): IGAR figures for the EU-28 Member States are slightly lower than the worldwide average ones in all the fields where IGAR seems to have been more developed so far (Medical sciences, Social sciences and Humanities); while there is coincidence in the fields where IGAR figures are between 0-0,2% (Natural sciences, Agricultural sciences and Engineering and technology). Although the time periods are prior to H2020 implementation, and not really focused on outputs of FP7 and former Framework Programmes funded projects, these data can be taken as a baseline that is expected to be improved by means of the active IGAR measures in H2020 (the ones implemented till date and the future improved ones).

Taking into account the above review, as well as the views expressed by different key stakeholders on this issue⁵⁶, the present report provides the fol-

⁵⁵ This indicator consists of a country's number of peer-reviewed scientific papers (those with at least one author from the said country) in which a gender dimension has been identified in the research content, divided by the total number of peer-reviewed scientific papers from the corresponding country. The countries of all authors of a publication are considered (the analysis is not restricted to the corresponding author for this indicator). Papers are counted using full counting: that is, each publication is counted only once for a given country, even if more than one author from the said country are listed as authors in the publication. [...] All proportions are underestimated to a similar extent across countries for literature written in English. (pp.174-175)

⁵⁶ For instance "Integrating gender in Horizon 2020", *Pan European Networks, Science and technology* 15, 1, 2015, Elizabeth Pollitzer, Ineke Klinge, Claudine Hermann, Brigitte Mühlenbruch and Londa Schiebinger. This paper analysed the efforts made by the EC in the integration of gender in the 2014-2015 work programmes and the planned 2016-2017 work programmes, and presented several recommendations geared to improve the next call for proposals in H2020, namely: gender issues should be flagged more frequently and in more gender-related topics; continued efforts are needed to address the gender dimension in the preparation and implementation of the next work programme; more meaningful descriptions of the relevance of gender are needed to improve take up by applicants; better guidelines for experts, advisors and NCPs are required

lowing recommendations on how to improve the implementation of IGAR in Horizon 2020 and in the upcoming 9th Framework Programme:

Recommendations for H2020 at the Work Programme design and dissemination level

The number of H2020 gender-flagged topics has progressively increased in the last H2020 Work Programme but this is not the case for all parts of the Work Programme. This can be improved to **guarantee that all the call topics where IGAR is relevant explicitly require applicants to develop a sex and/or gender analysis**. And moreover, in those gender-flagged topics, it is crucial to **ensure that the topic description mentions specifically the sex and/or gender-related issues to consider**⁵⁷ (this implies going beyond a generic wording, and including meaningful details in the scope and impact sections of the topic description).

Additionally, in H2020 calls, applicants are required so far to address the following: "Where relevant, describe how sex and/or gender analysis is taken into account in the project's content",⁵⁸. A suggested improvement to this question is to also **require an explanation for why not, in the case where applicants consider sex and/or gender analysis not to be relevant for their proposal**.

The European Research Council (ERC), a key component of the Excellent Science pillar of Horizon 2020, has started to incorporate IGAR in its latest 2017 Work Programme⁵⁹ published on July 25th 2016. The ERC has taken a step further with respect to its previous commitments towards gender equality, which are presented in its gender equality plan for 2014-2020.⁶⁰ The new Work Programme indeed states the following: *Under Horizon 2020, [...] ERC Principal Investigators should also determine the relevance of integrating sex and gender analysis into their research. Specific activities promoting equal opportunities or gender balance or covering the gender dimension of research funded by the ERC can be considered as eligible costs where these costs are necessary for the implementation of the action.* This clear commitment is welcome and the ERC is encouraged to follow the recommendations detailed above and below in the enforcement of this policy.

⁵⁷ As also suggested in three of the documents mentioned in the above review ([Initial Lessons Learned From the First Calls of Horizon 2020](#); [Integrating gender in Horizon 2020](#) and [For a better integration of the gender dimension in Horizon 2020 Work Programme 2016-2017](#))

⁵⁸ See for instance the EC (2016) [Guidance on Gender Equality in Horizon 2020](#)

⁵⁹ <https://erc.europa.eu/sites/default/files/document/file/ERC-Work-Programme-2017.p>

⁶⁰ https://erc.europa.eu/sites/default/files/document/file/ERC_ScC_Gender_Equality_Plan_2014-2020.pdf

Recommendations for H2020 at the proposal peer review/evaluation and project monitoring level:

Evaluators of H2020 proposals in gender-flagged topics are required to check *how sex and/or gender analysis is taken into account as requested in the proposal template and consider this while giving a score under the “excellence” and/or the “impact” criteria.*⁶¹ In case of non-flagged topics (those in which the gender dimension is not explicitly integrated in the topic’s text, but where *applicants can still decide to address it in their proposal if they find it relevant*) evaluators are required to deal with gender issues as they would with other relevant aspects of the proposal.⁶²

However, no further clarifications have been found on how IGAR should be taken into account in the H2020 scoring system⁶³. And as mentioned above in the H2020 review, under the present scoring system, there seems to be no particular filter to avoid funding those projects with no IGAR at all when proposals are submitted to gender-flagged topics. Therefore, the main recommendation to improve IGAR in the H2020 peer review/evaluation system is to **guarantee that proposals ignoring IGAR, in spite of an existing requirement in the call topic, have to be evaluated poorly.**

It is also recommended to inform **the expert reviewers of proposals submitted to H2020 gender-flagged topics on the need to consider IGAR** while giving their scores, not only **under the “excellence” and/or the “impact” criteria, but under the three H2020 evaluation criteria for full proposals: “Excellence”, “Impact” and also “Quality and efficiency of the Implementation”**. When evaluating IGAR under the *“Quality and efficiency of the implementation”* criterion, it can be considered whether the consortium as a whole brings together IGAR expertise and/or if adequate resources are allocated in the project to ensure effective IGAR. As part of the *Individual Evaluation*, expert reviewers can also give their view on whether each applicant has the necessary basic operational capacity on IGAR to carry out the proposed respective activities that would require IGAR expertise and/or experience.

To adequately evaluate IGAR in project proposals, the **evaluation briefings** are then crucial to **provide clear information on IGAR requirements**⁶⁴, **but in the**

⁶¹ [Guidance for evaluators of Horizon 2020 proposals](#) (p.5). Also in EC (2016) [Vademecum on Gender Equality in Horizon 2020](#) (p.3). *In case gender issues have been developed for a non-flagged topic, evaluators will deal with them as they will with the other relevant parts of the proposals*

⁶² *Ibidem*

⁶³ See for instance the main aspects to be considered in the evaluation template according to the EC (2015) [Horizon 2020 Proposal Evaluation. Standard briefing](#) (v20151112) or in the [2016-2017 Standard self-evaluation form for RIA, IA & CSA](#)

⁶⁴ According to the [Vademecum on Gender Equality in Horizon 2020](#), briefings of evaluators should include a tailored component on gender in research content, especially for the gender-flagged topics (p.3)

case of proposals submitted to **gender-flagged topics** it would also be necessary to **include in the evaluation panel at least one evaluator with gender expertise**⁶⁵. To this end, there is need to increase **the number of experts with gender expertise** in the Expert Management Participant Portal (EMPP)⁶⁶, for instance by: reaching out to existing gender experts and encouraging their registration; stimulating RPOs to promote and recognize gender expertise in research across the various fields of research; etc.

According to the [Vademecum on Gender Equality in Horizon 2020](#), *the Commission will monitor the implementation of gender as a cross-cutting issue, at various stages in the funding process*. However, there is no mention on how the monitoring of IGAR will be implemented for those funded projects in gender-flagged topics. It is therefore recommended to improve the integration of sex/gender analysis as one of the issues to be monitored in **mid-term/final project reporting, at least for gender-flagged topics** (e.g., informing applicants and project PIs/coordinators that IGAR is part of the monitoring process, providing training and guidelines to project officer on how to check that the IGAR activities and criteria have been implemented adequately, etc.). A step further in the project monitoring procedures is to create an **accreditation scheme framework on IGAR** (at H2020 Framework Programme, Work Programme, and/or topic level) aimed to recognize and disseminate those funded projects which have successfully integrated the sex/gender analysis into their contents.

The above-mentioned IGAR improved requirements for the evaluation of project proposals and for the monitoring of funded projects are recommended to be **explicitly integrated**, where appropriate, **in the evaluation and monitoring guidelines and briefings**, as well as in the **self-evaluation forms and grants manual** for applicants.

Recommendations for H2020 on IGAR in Strategic Training Programme, Dissemination Materials and Awareness Raising Activities:

According to the [Vademecum on Gender Equality in Horizon 2020](#), *a novelty of Horizon 2020 is the inclusion of gender trainings among the eligible costs of an action* (aimed at to encouraging *researchers to further develop and share gender*

⁶⁵ H2020 evaluation procedures already include the appointment of additional ethics experts for the ethics review. See for instance [Grants Manual - Section on: Proposal submission and evaluation](#) (Version 1.4, 28 May 2015, p.11)

⁶⁶ Despite the EMPP categories have been adapted to include subcategories on gender in the various fields of research (as mentioned in the [Vademecum on Gender Equality in Horizon 2020](#), p.3), and complementary [Guidance for the selection of evaluators with gender expertise](#) has been developed by the H2020 Advisory Group on Gender, the percentage of Potential Full Profile Experts with Gender expertise registered in the EPMM is still very low (5%, as mentioned in a [GENDER-NET Expert workshop on comparative analysis of national/regional policies and programmes on the gender dimension in research contents](#) that took place in Brussels, on February 2015)

expertise in relation to the funded project). And the annex of the Work Programme explicitly refers to the possibility of including gender trainings as an activity in proposals as well as to the type of costs that would actually be eligible. Additionally, there is some specific training on the integration of the gender dimension in research & innovation content among the two types of gender training available for the Commission staff involved in the drafting and the implementation of work programmes (such as research programme officers; policy officers, project officers / advisors / assistants; call coordinators; AG coordinators, members and coordinators of H2020 Groups)⁶⁷.

There are some H2020 dissemination materials specific on gender in H2020⁶⁸ which describe general gender balance and IGAR requirements and concepts, and list some useful relevant resources for further information on IGAR which have been outputs from some EU-funded projects⁶⁹.

This could be improved by providing **specific training opportunities and dissemination materials on IGAR** (including more detailed manuals and targeted instructions, check lists, videos, face-to-face and on-line seminars, gender studies website or inventory, etc.) **by Work Programme/main field of science/Societal Challenge**, etc. to advisors, applicants, evaluators, Project Officer (POs) and National Contact Points (NCPs) to equip them with the necessary tools for effective integration of sex/gender analysis in their respective areas of competence. The IGAR trainings are recommended to be **mandatory** for POs and NCPs, research programme officers call coordinators, Advisory Group coordinators and coordinators of other H2020 Groups. Specific IGAR manuals/guidelines and checklists are recommended to be tailored for these target groups as well as for evaluators, applicants and members of H2020 advisory groups. To ensure a stronger impact, it is advised to require evaluators of grant proposals submitted under gender-flagged topics to show that they have done the IGAR training before⁷⁰; and similarly, to require applicants to have done the IGAR training before applying at gender-flagged topics

Additional specific **awareness raising activities** are recommended **on the importance of IGAR across all H2020 Societal Challenges** and Leadership in Enabling and Industrial Technologies (LEIT).

⁶⁷ [Vademecum on Gender Equality in Horizon 2020](#) (pp.4-5)

⁶⁸ Such as the [Vademecum on Gender Equality in Horizon 2020](#), [Fact sheet: Gender Equality in Horizon 2020](#), [Training-Slides-for-NCPs-Gender-Equality-in-H2020](#).

⁶⁹ Such as the [Gendered Innovations](#) publication and Website, the [GenPort](#) or the [Gender Toolkit](#), *inter alia* (further described in the [Useful References](#) section of the present report)

⁷⁰ For instance, a machine certificate (showing an A, B,... mark) after passing an online training

Recommendations for H2020 on Gender-Specific Research:

The successive 'Science with and for Society' (SwafS) Work Programmes are funding specific initiatives in support of the H2020 gender equality strategy, such as Coordination and Support Actions (CSA) for RPOs and RFOs initiatives to implement gender equality plans, or for the networking of national representatives and resource centres on gender in R&I, etc.⁷¹

However, H2020 does not seem to fund Research and Innovation Actions (RIA) on Gender-Specific Research topics across Societal Challenges and LEIT. Therefore, it is recommended to fund gender-specific research, aimed at fostering the production of new knowledge for a better understanding of gender issues, besides considering gender as a cross-cutting issue in different research topics "when relevant", and even in gender-flagged topics.

Recommendations on Monitoring and Evaluation of the H2020 IGAR policy:

Regarding the monitoring and evaluation of H2020, the EC is expected to *monitor the implementation of gender as a cross-cutting issue, at various stages in the funding process*⁷². Only one out of the 4 indicators to be used on an annual basis to determine the prevalence of gender as a cross-cutting issue in H2020 is related to IGAR: *% of projects with gender dimension in the project design*⁷³.

The IGAR monitoring and evaluation system can be improved by **adapting and applying to the H2020 context other main and complementary indicators on IGAR for RFOs** included in the *Recommended Indicators* section (D.2) of the present report.

The IGAR annual data resulting from a more detailed monitoring and evaluation system are recommended to be **available to the public directly**, both for transparency purposes and follow-up of the IGAR strategy implementation and impact.

One of the key drivers for research is to generate evidence and good science that can lead to innovation. For the research evidence generated to be applicable to all (women/girls and men/boys, or to female and male animals, tissues and cells), researches need to take into consideration the importance of sex and gender and ensure that the entire research cycle (from grant application design to research findings dissemination) is responsive to relevant sex and/or gender considerations.

⁷¹ See for instance, the [Vademecum on Gender Equality in Horizon 2020](#) (p.5), some specific topics on gender equality at that time foreseen in the WP 2016-2017

⁷² EC (2016). [Vademecum on Gender Equality in Horizon 2020](#) (p.4)

⁷³ *Ibidem*

B.3 Manuals for Grant Applicants

B.3.1 Key Guidelines

Your role as a researcher is to pursue excellence and to ensure maximum quality standards in your research, both in terms of outcomes and in methods and procedures. Therefore, in the following steps of the research cycle, grant applicants are highly recommended to:

1. Research Approach: Include explicit definitions of sex and gender as they relate to aspects of the research study in question and clearly outline the relevance to your research topic. Notice that IGAR is relevant in most research fields, and should always be considered when humans are involved directly or indirectly. That is, when humans are the object of research, IGAR is obviously relevant given the sex and gender differences in their bodies, behaviours, social constraints, etc. But even in cases where humans are not directly involved, for instance, in technological research, men and women (as potential users, customers, citizens, workers, etc.) can also be affected differently by the results of the study⁷⁴. The exception are the few cases where the application of the results may not affect human beings (indirectly)⁷⁵. And of course, sex-based analysis is highly relevant in biomedical research on cells, tissues and animals – while certain animal studies have started to consider gender as playing a part in animal behavior (e.g. social interactions)⁷⁶.

- Key question to consider: *How will the research findings from the study in question apply to the specific needs of women and/or men?*

In H2020 proposals⁷⁴ this can be included in the **Excellence** section: *1.1 Objectives and 1.2 Relation to the work programme*

2. Literature Review: Ensure that the literature review cites prior studies that highlight significant similarities and/or differences between men and women (or female/male animals, tissues and cells) and apply these findings to the research design in question.

- Key question to consider: *Do the findings from the literature review consider the integration of sex and/or gender to elucidate implications for men and/or women (or for female/male animals, tissues and cells)?*

⁷⁴ E.g., see the mobile use example in the B.5 Examples section of the present report

⁷⁵ However, it should be noted that if IGAR is not relevant in certain research studies, that does not mean nothing should be done regarding contents. Even in this kind of research, the way results are disseminated or published might be gender-biased, e.g. with the pictures shown, with the examples or metaphors given, with the language used

⁷⁶ See for example: “Vocal negotiation over parental care? Partners adjust their time spent incubating based on their acoustic communication at the nest”, Ingrid C.A Boucaud, Mylene M. Mariette, Avelyn S. Villain and Clémentine Vignal. *Biological Journal of the Linnean Society*, Volume 117, Issue 2, pages 322–336, February 2016; Active males, reactive females: stereotypic sex roles in sexual conflict research? Karlsson Green, K. & Madjidian, J. A. *Animal Behaviour*, Volume 81, Issue 5, p. 901-907, May 2011

⁷⁷ H2020 Standard Proposal Template. Research and Innovation Actions 2016-2017

3. Research Questions and Hypothesis: Include a systematic analysis and assessment of the state of knowledge about sex/gender and highlight how these findings could apply to your research topic.

- Key question to consider: *Does your research question or hypothesis take into account sex and/or gender analysis by clarifying differences and/or similarities between men and women (or female/male animals, tissues and cells)?*

In H2020 proposals these two key considerations can be included in the **Excellence** section: *1.3 Concept and methodology, a) Concept*

4. Research Methods: Ensure that the research sample (participants, users, customers...) in question is appropriate, and where relevant includes proportional representation of men/boys and women/girls (or female/male animals, tissues and cells) to capture sex and gender-based factors, and other important factors intersecting with sex and gender (age, ethnicity, disability, religion, sexual orientation...)⁷⁸.

- Key question to consider: *Will it be possible to collect data that are disaggregated by sex and/or gender and will the information collected be appropriate for sex and/or gender analysis?*

In H2020 proposals this can be included in the **Excellence** section: *1.3 Concept and methodology, b) Methodology*

5. Ethics: Ensure that an ethical lens in terms of sex and gender⁷⁹ is applied across the research cycle, from design to dissemination.

- Key question to consider: *Does your study design account for relevant ethical issues that may have particular significance for men and/or women in similar or different ways? Have you addressed this appropriately?*

In H2020 proposals this can be included in the **Impact** section: *2.1 Expected Impacts*

6. Dissemination/ Knowledge Translation: Ensure that the research proposal design includes a robust dissemination strategy that facilitates effective use of the sex and gender findings or outcomes. Ensure appropriate dissemination

⁷⁸ That is, the research sample must allow conducting cross analyses or multi-variate analyses with sex/gender and other variables. The analysis of specific gender sensitive data will be crucial to reveal gender structures and mechanisms relevant to the research object. See the B.5 Examples section of the present report

⁷⁹ E.g., ethical issues concerning the inclusion/exclusion of (pregnant) women in clinical trials. See for instance the Verina Wild (2012) paper on [How are pregnant women vulnerable research participants?](#), and the one by Jyotsna Agnihotri Gupta (2011) on [Ethical issues and challenges in bioethics education from a gender perspective](#)

tion and description of the differences in outcomes based on sex and/or gender⁸⁰. If there are no such data or no differential outcomes, this also should be specific⁸¹. The role of researchers and Research Performing Organizations (RPOs) implies reporting to the research community about findings and innovations, but also informing and sensitising society, policy makers, the media and other institutions about this progress. By communicating on sex/gender differences or stereotypes found, researchers and RPOs can provide useful information and insights to estimate the impact of certain policies/measures and to stimulate the public debate questioning current norms and values in order to transform society into a more egalitarian one.

- Key question to consider: *How will you ensure that key sex and/or gender findings from your research are known, used and applied appropriately? When publishing/disseminating the results, are you clearly stating that your research has/has not integrated, the sex/gender analysis and disseminated the differential results accordingly?*

In H2020 proposals this can be included in the **Impact** section: *2.2 Measures to maximise impact, a) Dissemination and exploitation of results and b) Communication activities*

It must be noted that to appropriately follow the above considerations it is necessary that the research team is skilled in **IGAR competencies**. Otherwise, external **gender expertise** can be used in different stages of the research, for example, when writing the research proposal, gender experts can be called in to establish how gender is relevant and how it can be integrated into the research methodology or to organise gender training for the research team (either at the proposal stage or at the beginning of the project)⁸². Anyway, when gender is relevant in the research topic, basic gender knowledge is required for all team members so as to ensure that this analysis is not overlooked in any part of the research.

⁸⁰ For instance the dissemination strategy can include a commitment to publish the results based on the sex and/or gender analysis in mainstream journal within the research field (e.g. *Medicine & Health*) and/or in sex/gender specific journals within the field (e.g., *Gender Medicine*). In terms of IGAR awareness raising, it is important to publish in mainstream journal also articles that have sex/gender as a core variable amongst other variables because gender-blind researchers are not likely to read sex/gender specific journals. Additionally, project dissemination events (seminars, conferences, etc.) can include a specific section (workshop, keynote speaker) focused on IGAR results or applications

⁸¹ Often not mentioning this in the results is due to lack of integration of the sex/gender analysis in the research and this should be appropriately justify

⁸² Notice that some programmes (e.g., H2020) consider the costs for exploring how sex/gender analysis can be added to current or proposed research and for providing gender training for the research teams as eligible funding. However, at the level of writing up the proposal, it is important to make sure the project coordinator is trained, so that the person responsible to submit the proposal fully understands the implications of IGAR

B.3.2. Check List

This checklist is designed to assist researchers and grant applicants in implementing the necessary steps for integrating the gender analysis into their research projects. It will guide users through the main stages of the research cycle in identifying the main elements to take into account when designing appropriate gender-sensitive research.

- Does your research approach clearly articulate sex and/or gender relevance to the research topic?
- Have you addressed how research findings from your study will apply to the specific needs of men and/or women?
- Have you appropriately applied the insights from your literature review on similarities and differences between men and women (or female/male animals, tissues and cells) to your research design?
- Have you included a systematic analysis and assessment of sex and/or gender in your research questions and hypothesis?
- Where relevant, does your methodology specify appropriate representation of the research sample in terms of sex and/or gender?
- Have you included a mechanism to disaggregate your data by sex and other gender-related variables (e.g. marital status, professional status, etc.) both at the collection and at the analysis stages?
- Have you considered other intersecting factors with sex and gender (e.g. age, ethnicity, disability, religion, sexual orientation...) in your methodology?
- Do you have a dissemination/knowledge translation plan to facilitate effective use of the sex and/or gender outcomes from your research?
- Are there any ethical implications as relate to sex and/or gender that you need to address in your research?

See section B.5 for Examples and B.6 for Useful References

B.4 Manuals for Peer Reviewers/Evaluators

Sex and gender analysis is relevant to a research proposal when the expected outcomes affect men and women or different groups of them in a different way, depending on their age, ethnicity, nationality etc. (or can affect differently to male and female animals, tissues and cells). Taking into account the gender analysis contributes to the highest standards of scientific excellence and the knowledge, technology and innovation produced is more relevant to societal needs.

B.4.1 Key Guidelines

As a peer reviewer/evaluator you play a critical role in ensuring excellence in the outcomes of the research to be funded by the grant you are evaluating. The present section will help you to assess if sex and/or gender are appropriately incorporated across the crucial steps of the project proposal in a way that can bring meaningful outcomes for men and/or women.

1. Research Approach: The applicant is required to include explicit definitions of sex and gender as they relate to aspects of their research study and to clearly outline the relevance to their research topic. Notice that IGAR is relevant in most research field, and should always be considered when humans are involved directly or indirectly. That is, when humans are the object of research, IGAR is obviously relevant given the sex and gender differences in their bodies, behaviours, social constraints, etc. But even in cases where humans are not directly involved, for instance, in technological research, men and women (as potential users, customers, citizens, workers, etc.) can also be affected differently by the results of the study⁸³. The exception are the few cases where the application of the results may not affect human beings (in directly⁸⁴. And of course, sex-based analysis is highly relevant in biomedical research on cells, tissues and animals – while certain animal studies have started to consider gender as playing a part in animal behaviour (e.g. social interactions)⁸⁵.

- Key question to consider: *Does the applicant's research approach include a clarification on how the research findings apply to the specific needs of women and/or men?*

In H2020 proposals⁸⁶ check that this is included in the **Excellence** section: *1.1 Objectives and 1.2 Relation to the work programme*

2. Literature Review: As part of the literature review the applicant is asked to cite prior studies that highlight significant similarities and/or differences between men and women (or female/male animals, tissues and cells) and to apply their findings to their research design

- Key question to consider: *Does the literature review in the proposal consider the integration of sex and/or gender in order to elucidate implications for men and/or women (or for female/male animals, tissues and cells)?*

⁸³ E.g., see the mobile use example in the B.5 Examples section of the present report

⁸⁴ However, it should be noted that if IGAR is not relevant in certain research studies, that does not mean nothing should be done regarding contents. Even in this kind of research, the way results are disseminated or published might be gender-biased, e.g. with the pictures shown, with the examples or metaphors given, with the language used

⁸⁵ See for example: "Vocal negotiation over parental care? Partners adjust their time spent incubating based on their acoustic communication at the nest", Ingrid C.A Boucaud, Mylene M. Mariette, Avelyne S. Villain and Clémentine Vignal. *Biological Journal of the Linnean Society*, Volume 117, Issue 2, pages 322–336, February 2016; Active males, reactive females: stereotypic sex roles in sexual conflict research? Karlsson Green, K. & Madjidian, J. A. *Animal Behaviour*, Volume 81, Issue 5, p. 901-907, May 2011

⁸⁶ H2020 Standar Proposal Template. Research and Innovation Actions 2016-2017

3. Research Questions and Hypothesis: The applicant is expected to include a systematic analysis and assessment of the state of knowledge about sex and gender and to highlight how their findings could apply to their research topic.

- Key question to consider: *Has the applicant taken into account sex and gender analysis in their research questions or hypothesis, are the differences and/or similarities between men and women (or female/male animals, tissues and cells) clearly articulated?*

In H2020 proposals check that these two key considerations are included in the **Excellence** section: *1.3 Concept and methodology, a) Concept*

4. Research Methods: To ensure that the research sample (participants, users, customers...) appropriately captures sex and gender based factors, including other intersecting variables (age, ethnicity, disability, religion, sexual orientation etc.), the proposal has to include proportional representation of men/boys and women/girls (or female/male animals, tissues and cells), where relevant⁸⁷.

- Key question to consider: *Is the sample design of the research proposal disaggregated by sex and gender and will the information collected be appropriate for sex and gender analysis?*

In H2020 proposals check that this is included in the **Excellence** section: *1.3 Concept and methodology, b) Methodology*

5. Ethics: In cases where the research could impact men and/or women similarly or differently, the applicant needs to apply an ethical sex and gender lens⁸⁸ across the research cycle - from design to dissemination.

- Key question to consider: *Does the proposal consider relevant ethical issues that may have particular implications for men and/or women in similar or different ways? Has this been addressed appropriately?*

In H2020 proposals check that this is included in the **Impact** section: *2.1 Expected Impacts*

⁸⁷ That is, the research sample must allow conducting cross analyses or multi-variate analyses with sex/gender and other variables. The analysis of specific gender sensitive data will be crucial to reveal gender structures and mechanisms relevant to the research object. See the B.5 Examples section of the present report

⁸⁸ E.g., ethical issues concerning the inclusion/exclusion of (pregnant) women in clinical trials. See for instance the Verina Wild (2012) paper on [How are pregnant women vulnerable research participants?](#), and the one by Jyotsna Agnihotri Gupta (2011) on [Ethical issues and challenges in bioethics education from a gender perspective](#)

6. Dissemination/ Knowledge Translation: A key component of the research cycle is the effective dissemination and knowledge translation of the research outcomes. Sex and gender considerations are also critical at this stage. The research findings have to be effectively disseminated⁸⁹ and knowledge translated to ensure appropriate application to the specific needs of men and/or women.

- Key question to consider: *Does the proposal design include appropriate application to men's and/or women's needs within its dissemination and knowledge translation strategy?*

In H2020 proposals check that this is included in the **Impact** section: *2.2 Measures to maximise impact, a) Dissemination and exploitation of results and b) Communication activities*

B.4.2 Check List

This checklist is designed to assist peer reviewers/evaluators of research projects to assess the adequate integration of the gender analysis into the research projects at the evaluation stage. It will guide users through the main stages of the research cycle in identifying the main elements to take into account when evaluating appropriate gender-sensitive research.

- Clarification in the applicant's research design on how findings from the project will apply to the specific needs of women and/or men
- A clear elucidation in the applicant's literature review on implications of the research findings on men and/or women (or female/male animals, tissues and cells)
- Research questions or hypotheses that include a thorough analysis of sex and gender with clarity on the differences and/or similarities between men and women (or female/male animals, tissues and cells)
- Research proposal sample designs that allow for data disaggregation by sex and gender to ensure that the information collected will facilitate sex and gender analysis
- Appropriate consideration of relevant ethical issues that may have particular implications for men and/or women in similar or different ways

⁸⁹ For instance the dissemination strategy can include a commitment to publish the results based on the sex and/or gender analysis in mainstream journal within the research field (e.g. *Medicine & Health*) and/or in sex/gender specific journals within the field (e.g., *Gender Medicine*). In terms of IGAR awareness raising, it is important to publish in mainstream journal also articles that have sex/gender as a core variable amongst other variables because gender-blind researchers are not likely to read sex/gender specific journals. Additionally, project dissemination events (seminars, conferences, etc.) can include a specific section (workshop, keynote speaker) focused on IGAR results or applications

- A robust strategy for knowledge dissemination/translation to facilitate appropriate application of the research findings to the specific needs of men and/or women

See section B.5 for Examples and B.6 for Useful References

B.5 Examples

The following examples are not intended to be exhaustive or cover all research on gender and science in each of these disciplines, but rather seek to provide elements of reflection and concrete examples of the relevance of gender in research. There are examples where gender bias in a particular area is analysed, as well as the consequences in terms of malpractice and gaps in knowledge, or examples of how to integrate a gender perspective, their contribution in scientific impact or technological development

Taking into account that sex/gender is relevant in all the research fields (with few exceptions such as pure mathematical analysis, astronomy, etc.), the present section offers examples in diverse research areas. To offer a common ground to structuring these different research areas, the following examples are organised by the H2020 Societal Challenges⁹⁰ and other areas of interest in H2020. Given that other sources also provide examples (see the References section), this report tries not to overlap too much with those cases although inevitably some of the topics are common.

A brief introduction to each societal challenge or other interest area in H2020 is presented before each example, summarizing or citing part of the corresponding research area indications given by the H2020 Advisory Group on Gender (H2020-AG-GENDER) in its 2015 position paper "[For a better integration of the gender dimension in Horizon 2020 Work Programme 2016-2017](#)".

H2020 SC1: Health, demographic change and wellbeing

*Promoting healthy ageing and personalised health care requires attention to sex differences and to gender aspects as they jointly determine any eventual health outcome of individuals. High quality research must take into account biological, behavioural and social differences between girls and boys, men and women and gender diverse people. In addition it is relevant to examine how differences and similarities develop throughout the lifespan. Other relevant issues within SC1 are, for instance: risk factor for chronic diseases (NCD), mental health, diet, nutrition and exercise patterns, data collection in basic and preclinical research, collection and use of "big data" for understanding disease pathways and risk factors leading to disease, etc.*⁹¹

⁹⁰ **Societal Challenges:** Horizon 2020 reflects the policy priorities of the Europe 2020 strategy and addresses major concerns shared by citizens in Europe and elsewhere. A challenge-based approach brings together resources and knowledge across different fields, technologies and disciplines, including social sciences and the humanities. This covers activities from research to market with a new focus on innovation-related activities, such as piloting, demonstration, test-beds, and support for public procurement and market uptake

⁹¹ Source: [H2020-AG-GENDER \(2015\)](#), p. 4

Chemical Contamination:

In daily life, men, women, and children are exposed to different kinds of chemicals in varying concentrations. The level of exposure to toxic chemicals—as well as the resulting impacts on human health—are determined by social as well as biological factors.[...] Several factors, including differences in occupational roles, household responsibilities, and biological susceptibility, impact gender differences in exposure to toxic chemicals and the resulting health impacts. [...]

Women often experience relatively higher physiological susceptibility to the impacts of toxic chemical exposure, especially in connection with reproductive cycles. At particular stages of their lives, such as pregnancy, lactation, and menopause, women's bodies undergo rapid physiological change, making them more vulnerable to health damage from toxic chemicals. Women's exposure to pesticides can be the cause of miscarriages, premature births, birth defects, and low birth weight (WHO 2004). A substantial portion (up to 33 percent) of a woman's chemical burden can be passed on to her baby during gestation (through the placenta) as well as via breastfeeding. Moreover, because of their special reproductive roles, women are biologically engineered to carry greater reserves of fatty tissue throughout their life cycles, making them generally more vulnerable than men to the impacts of fat-soluble chemicals (such as Persistent Organic Pollutants—POPs). Men also have unique vulnerabilities based on their physiology and the types and frequency of chemical exposure they typically encounter in the workplace. Illnesses associated with men's occupational exposures to toxic chemicals include a variety of cancers, chronic diseases, and reduced reproductive capacity. In many societies, it is generally accepted that men can be asked to do more dangerous jobs than women therefore increasing the likelihood of exposure to hazardous situations and chemicals (WHO 2004).

Source: UNDP. 2007. [Gender Mainstreaming a Key Driver of Development in Environment & Energy. Chemicals Management](#) (Energy & Environment Practice - Gender Mainstreaming Guidance Series), (pp.1-4)

H2020 SC2:
Food security, sustainable agriculture and forestry, marine and maritime and inland water research, and the Bio economy

There are still strong gender differences in agriculture, forestry, fisheries and marine activities in terms of responsibilities, ownership and decision-making. [...] Also, there is scope to investigate the influence of societal changes on diet and the selection of healthy food options. For example, in the traditional matriarchal household, women had a strong influence on food choices. However there have been many changes in society and many factors influence food choice, such as changes in family structures, fewer opportunities for younger and older genera-

tions to interact, social media, advertising, television and so on. [...] Additionally, integrating sex analysis into the field of nutrigenomics could provide a better understanding of how diet affects the metabolism and well-being of women and men at the genetic, molecular and cellular level, and studies designed to investigate female and male (social and biological) responses to specific diets need to include both women and men.⁹²

The role of women in food security:

Approximately 3.1 billion people, or 45% of the global population, live in rural areas. Of these, around 2.5 billion depend on agriculture as their principal means of subsistence. A portion of this figure is made up of peasant women, specifically 500 million, who do not own any land and receive barely 5% of the agricultural resources. The promoting of investment and the restructuring of the agricultural sector in developing countries represent the most effective way to increase productivity and stimulate their economic growth. [...] closing the gender gap which exists in the rural sector would certainly be one of the most effective ways to achieve such an increase in productivity. Women who live in rural areas represent 25% of the world's population and constitute an average of 43% of the workforce in developing countries. And it is precisely in such rural areas where the differences and difficulties suffered by women and girls are most acute. Yet similar inequalities also exist closer to home, in Europe. A few statistics will suffice to prove this point: more than 80% of women living in the countryside collaborate with or assist their husbands, 28.7% of agricultural workers are women and agricultural holdings run by women are 40% smaller than those run by men.

Source: Hidalgo García, María del Mar. 2013. The role of women in food security. In: Spanish Institute for Strategic Studies (IEEE) [Food Security and Global Security](#) (pp.82-96). Spanish Ministry of Defence (Strategic Dossier 161-B). (p.83)

H2020 SC3:
Secure, clean and efficient energy

While energy research is increasingly opening up to social scientific research that addresses end-user engagement, equity and distributional issues, for example in relation to more participatory approaches, the particular question of how gender imbalances are institutionalized and reproduced over time has not received research attention so far.⁹³

⁹² Source: [H2020-AG-GENDER \(2015\)](#), pp. 5-6

⁹³ Source: [H2020-AG-GENDER \(2015\)](#), p. 6

Improving women's access to sustainable energy and empowering women to become energy entrepreneurs

Today, about 1.3 billion people lack access to electricity and 2.9 billion use solid biomass for cooking and heating. Based on current trends, it will take until 2080 to achieve universal access to electricity, and the mid-22nd century for access to clean energy for cooking.

Women's voice and participation have been largely absent in energy policies. Yet women bear the disproportionate burden of energy poverty. Their health and safety are at risk from household air pollution, carrying heavy fuel loads, and lack of lighting – undermining women's social and economic rights, including rights to education and paid employment.

But women are also powerful agents of change. In many countries, they are the primary household managers of domestic and productive energy. As entrepreneurs women have enormous potential to create networks in rural and in urban areas that increase the availability of energy services and technologies while lowering costs to consumers.

This potential is vastly under-utilized. Removing barriers to equal opportunities and outcomes for women workers, producers, and entrepreneurs in sustainable energy is necessary for achieving universal access to modern energy and the Sustainable Development Goals (SDGs) by 2030.

Source: UN WOMEN & UNEP (2015). [Women's Sustainable Energy Entrepreneurship and Access. Flagship Programme.](#)

H2020 SC4:
Smart, green and integrated transport

There is ample evidence of gender as a vital cross-cutting category that relates to structures, identities and cultures in European transport and mobility. At the same time, there is a need for more complex and fresh approaches, to explore the influence of gendered practices in transport demand and supply, and the links to the shaping of transport policies as well as research and innovation activities. It is needed a deeper and sounder understanding of how gender relates to the new technological agendas and future prospects of European transport and mobility and innovation in topics such as transport safety, urban planning/ mobility challenges in urban areas, automated road transport, safe accessible and fair transport for all, and particularly for seniors.⁹⁴

⁹⁴ Source: [H2020-AG-GENDER \(2015\)](#), p. 8

Mobility: Gender differences in bicycle behaviour and use

Literature review shows, by providing a quantitative valuation, how women demonstrate different patterns of cycling, may prefer different bicycle facilities, and have different safety considerations. These findings—in concert with more refined investigation—will inevitably aid policy discussions. For example, they draw attention to the fact that different infrastructure decisions likely have varying impacts on different audiences in terms of making cycling environments safer or more attractive to different users. From a practical standpoint, such information may be useful for marketing or for directing segmented and targeted policies. If women have different use patterns, make different route choice decisions, or prefer different cycling facilities, these factors are likely to have important implications for provision of different facilities and the use that planners and other policy officials can expect from them. For example, women may prize lighted paths and paved shoulders more than do men. Future research could be oriented toward understanding how these patterns play out by age and location and moreover what the underlying behavioral reasons for these patterns are.

Source: Kevin J. Krizek, Pamela Jo Johnson and Nebiyou Tilahun. 2005. [Gender Differences in Bicycling Behaviour and Facility Preferences. Transportation Research Board Conference Proceedings, 35](#) (Research on Women's Issues in Transportation - Vol.2: Technical Papers), 31-40.

H2020 SC5:
Climate action, environment, resource efficiency and raw materials

Public engagement and governance issues are very common to areas such as systemic eco-innovation, climate services, nature-based solutions and sustainable supply of raw materials, and attention to socially responsible solutions (participant, cooperative, grassroots initiatives) is particularly necessary in this field. Gendered social roles, communication practices and power issues need to be taken into account. For instance, a change from a consumption-centred economy to a more sustainable model will raise issues such as identity-building processes, domestic practices, attitudes to thriftiness, etc., which are strongly gendered.⁹⁵

⁹⁵ Source: [H2020-AG-GENDER \(2015\)](#), p. 8

Women-led action research on the impacts of climate change

The feminist participatory action research (FPAR) project, supported by the Asia Pacific Forum on Women Law and Development (APWLD) was led by 9 grassroots women's organizations from Bangladesh, India, Indonesia, Nepal, Papua New Guinea (PNG), Vietnam, Philippines and Thailand to conduct research in their communities to document the impacts of climate change on their lives and to take actions to build a local climate justice movement. The participants are not objects of research but rather the subjects who participate in research process, and control the use of the outcomes. The research found that rising sea level, warming temperatures, erratic rainfall, extreme typhoons and false climate solutions like REDD+, are some of the major climate impacts in the Asia Pacific region.

Climate Impact: The implementation of FPAR in these Asia Pacific countries has increased the collective capacity and knowledge of women to take climate action. They have become the agent of change in their local community to fight climate change. This has not only contributed to dismantle traditional gender inequalities but has also introduced new techniques and skills to adapt and mitigate climate change. For example women in the Asia Pacific region have participated and led the implementation of adaptation and mitigation measures like livelihood diversification program, new cropping technique, disaster risk reduction programs, rain-water harvesting and garbage collections. The FPAR has proved that women play a central role in adaptation and mitigation to climate change and has helped them to become a leader of climate solution in their community.

Gender Impact: The FPAR project helped to raise women's voices across the Asia Pacific region by strengthening women's collective action in the targeted communities. FPAR is fostering change inside and outside of the communities. Through FPAR activities women developed their capacity to act as agent of climate solutions in local community. FPAR has helped the women of Asia Pacific to come together with collective intention of breaking the oppressive power structure of climate change; FPAR gave them the strength and the knowledge to demand climate justice. For example, women have been succeed in being included in local decision making bodies, local disaster risk reduction team and climate policy reviewing processes. These roles were traditionally considered exclusively for man.

Source: Women and Gender Constituency (2015). [Gender-Just Solutions](#). (p.41)

H2020 SC6:
*Europe in a changing world -
inclusive, innovative and reflective
societies*

The gender perspective is crucial to perceive key, but often hidden or overlooked, aspects of inequalities and better help combat xenophobia, intolerance and social exclusion. [...] Smart, sustainable and inclusive growth is not possible without specifically addressing gender inequalities in different segments of society [...] It is important to track and remove persisting obstacles, which block women from equal access to employment, goods and services such as education, healthcare, housing, digital resources, public services and leisure. These obstacles should be analysed with other factors such as age, family status, domestic and care tasks, income level, leisure opportunities, religion and culture. [...] The gender dimension should be an integral part of the measurement of the impacts of policies. [...] Innovative approaches to public governance must include gender equality as a tool for increasing participation and civic engagement. When building up a new generation of public services, gender equality should be a major issue representing diversity. [...] Education and skills, as crucial areas of co-creation, should be prioritized including by combating stereotypes in elementary and secondary education, as well as an introduction to gender studies at tertiary level.

The changing nature of the European labour market, the increasing migration of citizens across Europe and the growing inequalities and casualization in work all demand a detailed analysis using a gender dimension. [...] Projects should not only investigate the [gendered] barriers, but also what would enable access to work that offers a fair level of security.

Research should also address the role gender plays in the constitution of the "new economy". The rise of alternative economies based on sharing and cooperation instead of individual ownership and competition results in major re-configurations of the distinction between public and private domains. [...] Re-privatization of welfare arrangements has resulted in new burdens for women as traditional caregivers. It is also crucial to carry on research on the gendered division of work in the new privately organized living arrangements (as alternatives for institutional care, such as cooperative living homes for the elderly, among others).⁹⁶

⁹⁶ Source: [H2020-AG-GENDER \(2015\)](#), pp. 9-11

Unpaid care work

Unpaid care work is both an important aspect of economic activity and an indispensable factor contributing to the well-being of individuals, their families and societies (Stiglitz et al., 2007). Every day individuals spend time cooking, cleaning and caring for children, the ill and the elderly. Despite this importance for well-being, unpaid care work is commonly left out of policy agendas due to a common misperception that, unlike standard market work measures, it is too difficult to measure and less relevant for policies. Yet, neglecting unpaid care work leads to incorrect inferences about levels and changes in individuals' well-being and the value of time, which in turn limit policy effectiveness across a range of socio-economic areas, notably gender inequalities in employment and other empowerment areas.

Women typically spend disproportionately more time on unpaid care work than men. On account of gendered social norms that view unpaid care work as a female prerogative, women across different regions, socio-economic classes and cultures spend an important part of their day on meeting the expectations of their domestic and reproductive roles. This is in addition to their paid activities, thus creating the "double burden" of work for women. How society and policy makers address issues concerning care has important implications for the achievement of gender equality: they can either expand the capabilities and choices of women and men, or confine women to traditional roles associated with femininity and motherhood (Razavi, 2007). The unequal distribution of unpaid care work between women and men represents an infringement of women's rights (UN, 2013) and also a brake on their economic empowerment.

Source: Gaëlle Ferrant, Luca M. Pesando & Keiko Nowacka, 2014. [Unpaid Care Work: The missing link in the analysis of gender gaps in labour outcomes](#). OECD Development Centre. (p.1)

H2020 SC7:
Secure societies - protecting freedom and security of Europe and its citizens

The gender dimension is a fundamental aspect of sound research in all areas in the field of secure societies. [...] Newly developed tools and methodologies need to be designed and tested for diverse user groups. [...] Gender aspects could be further explored as part of the societal dimension of security, where new research domains are emerging, such as the links between culture, risk perception and disaster management, human factors in security areas, immigration and border control, digital security, new technologies and the fight against crime. The issues related to the

above mentioned Societal Challenge 6 are also relevant for the SC7 Secure Societies one.⁹⁷

The humanitarian impacts of nuclear weapons from a gender perspective

Using a gender perspective deepens insight into the humanitarian consequences of nuclear weapons. There are biological differences; women are more vulnerable to ionizing radiation than men. A number of social and cultural gender differences can also be found. These relate to psychological impact, stress, and shame in situations of evacuation and displacement, for instance, as well as to the nature and relative intensity of social stigma and discrimination. This paper indicates that the sex- and gender specific impacts of nuclear weapons have policy implications. As yet, these gendered impacts and implications do not appear to have been subject to comprehensive research. Nevertheless, existing information underlines the challenges of adequate humanitarian response—and thus the importance of preventing nuclear weapons from ever being used again in populated areas.

Source: Anne Guro Dimmen. 2014. [Gendered Impacts: The humanitarian impacts of nuclear weapons from a gender perspective](#). ILPI & UNIDIR Vienna Conference Series (Paper No 5 of 6), (p.6)

Information, Communication and Technology (ICT)

Other areas of interest in H2020:

Regarding the "internet of things" issue, integrating women and gender in ICT and overcoming the gender gap in ICT education is much more than just a way to boost the functioning of Metcalf's law, that the more people are connected, the higher is the value produced by a network. The "things" and "objects" connected among themselves and to the net should be designed and programmed to take into account the physical, psychological and social characteristics of the gendered user. It also becomes an imperative to be able to forecast the effects of the Internet of Things on gender relations, as both the possibilities of dominance and control and of empowerment and liberation will increase with the new technologies.

In the robotics field, it is important to take into account that women and men differ in their needs for and experience with technology. [...] Thus, it is important to include both women and men in technology design. Analysing sex and gender as well as including both women and men users in technology development is a positive action that can lead to better designs and improve marketability of products. [...]

⁹⁷ Source: [H2020-AG-GENDER \(2015\)](#), p. 11

Through participatory research and design with both the elderly and their caregivers, designers are gaining key insights for developing assistive products that are useful to a broad user base. Involving users and stakeholders in the design process enhances outcomes. Building machines based on gender analysis will be important for the development of the next generation of assistive technology.⁹⁸

**Robotics: Persuasive Robotics:
The Influence of Robot Gender on Human Behavior**

Persuasive Robotics is the study of persuasion as it applies to human-robot interaction (HRI). Persuasion can be generally defined as an attempt to change another's beliefs or behavior. The act of influencing others is fundamental to nearly every type of social interaction. Any agent desiring to seamlessly operate in a social manner will need to incorporate this type of core human behavior. As in human interaction, myriad aspects of a humanoid robot's appearance and behavior can significantly alter its persuasiveness – this work will focus on one particular factor: gender. In the current study, run at the Museum of Science in Boston, subjects interacted with a humanoid robot whose gender was varied. After a short interaction and persuasive appeal, subjects responded to a donation request made by the robot, and subsequently completed a post-study questionnaire. Findings showed that men were more likely to donate money to the female robot, while women showed little preference. Subjects also tended to rate the robot of the opposite sex as more credible, trustworthy, and engaging. In the case of trust and engagement the effect was much stronger between male subjects and the female robot. These results demonstrate the importance of considering robot and human gender in the design of HRI.

Source: Mikey Siegel, Cynthia Breazeal, and Michael I. Norton. 2009. [Persuasive Robotics: The influence of robot gender on human behavior](#). *Intelligent Robots and Systems, 2009. IROS 2009. IEEE/RSJ International Conference on*. (pp. 2563-2568).

Nanotechnologies, advanced Materials, Biotechnology and advanced manufacturing and Processing (NMPB)

There are gender differences in the public perception of nanotechnology, biotechnology and advanced manufacturing and processing. Understanding these differences could be of relevance for the up-take of the results by businesses and consumers in the NMPB fields.

For example, biotechnologies related to health (new methods or devices for diagnostics...), blue biotechnology searching for bioactive molecules, and advanced materials and nanotechnologies for health care and energy applications. There is a need for better understanding of the risks associated with nanomaterials,

⁹⁸ Source: [H2020-AG-GENDER \(2015\)](#), pp. 11-12

advanced materials and biotechnologies, and the potential differences in the way women and men are affected.

Actions in the focus area of the circular economy will include research and innovation tackling the gap between potential solutions and their societal and industrial take-up and deployment; this could take into account the different roles of male and female individuals as consumers and producers.

The industrial eco-system to deliver nanotechnologies and material technologies to the customer and citizen also requires new strategies taking these technologies from the idea to the product. Topics implemented as cross-cutting Key Enabling Technology (KET) pilot activities will build on previous research and this is a key point at which gender can be taken into account through taking the KETs forward.⁹⁹

Second-generation metal-on-metal (MoM) hip prostheses implants fail more in women

Second-generation metal-on-metal (MoM) hip prostheses are widely used for hip replacement, consisting of cobalt-chromium metal alloys. However, the devices fail through pathological inflammation, osteolysis, and/or pseudotumor formation. Inflammation also results in increased angiogenesis which augments the pathological conditions of further inflammation and pseudotumors. Furthermore, hip implants fail more in women. Given that follicle stimulating hormone (FSH) is elevated in women receiving hip implants, FSH has been shown to promote increased angiogenesis. Joshua Jamison and Steven Wood are [...] examining how angiogenesis and the inflammatory response may be the result of untoward interactions of FSH with endothelial cells exposed to MoM wear particles.

Source: Joshua Jamison & Steven Wood (2015). FSH Increases VCAM-1 in Endothelial Cells Exposed to Metal-on-Metal (MoM) Particles. In: [2015 FDA Science Forum. Emerging Technologies](#). p. 203

Access to risk finance – entrepreneurship

Gender is a crucial aspect to be taken into account when designing policies and programmes that should be “gender-informed and sensitized”. In order to stimulate better knowledge transfer there is a need to understand the differences between men and women when looking at their readiness and willingness as scientists to go into business and/or create their own business.

The research and activities suggested below could be funded in various parts of Horizon 2020 and not only under “Access to risk finance”. It can include issues such as:

⁹⁹ Source: [H2020-AG-GENDER \(2015\)](#), p.p. 12-13

- *Study of the gender aspects of financing: how many women ask for money, how many get financed, how many female scientists, etc.? Is there any correlation or causation between female scientists and entrepreneurs and investment levels? What is the level of financial intermediation (i.e. debt, equity, etc.) in R&I intense micro-enterprises and SMEs?*
- *Historical data assessments: consolidate data and information, disaggregated by gender, from various sources (e.g. Eurostat, PISA, International Fin Stats, WDI, etc.)*
- *Develop “gender specific variables” and a related “checklist” for banks, financial intermediaries, venture capital, etc. to check and measure “gender aspects of financing”*
- Etc.¹⁰⁰

Women’s Entrepreneurship: closing the gender gap in access to financial and other services and in social entrepreneurship

A recent study requested by the Committee on Women’s Rights and Gender Equality of the European Parliament aimed to identify *differences between men and women entrepreneurs and social entrepreneurs. It explored the barriers and discriminatory effects that hinder women’s entrepreneurship, including access to finance in the European Union. [...] The study was conducted using a combination of literature review and field research conducted in four case study countries in the EU: the Czech Republic, Italy, Sweden and the United Kingdom. [...]*

The literature review showed that women accounted for only 29% of the 40.6 million entrepreneurs in the EU in 2012. Women entrepreneurs tend to operate in smaller businesses; usually go solo; tend to concentrate on sectors that are considered by financiers to be less profitable; tend to have lower growth and turnover compared to male-owned businesses.

Women entrepreneurs tend to self-assess the level of innovation of their own business lower than male counterparts. They tend to start off with less capital, borrow less and use family, rather than debt or equity finance.

Domestic circumstances often force women into periods of intermission; this hinders their ability to accumulate social, cultural, and financial capital, and constrains the generation of a respectable credit history.

Women entrepreneurs are more reluctant to assume a position of debt compared to men [...] and generally have less powerful professional networks, compared to men.

¹⁰⁰ Source: [H2020-AG-GENDER \(2015\)](#), p. 13, which also recommends as a very practical example from the US, May 2014: [“Gender Effects in Venture Capital](#)

Women’s Entrepreneurship: closing the gender gap in access to financial and other services and in social entrepreneurship

The gender gap for social entrepreneurship tends to be smaller than for mainstream entrepreneurship. [...]

Two key pieces of legislation were considered relevant for the study. Directive 2010/41/EU of the European Parliament extends the right to maternity benefits to self-employed women or spouses, or partners of those who are self-employed. Regarding the first, case studies suggest that women continue to struggle balancing raising a family with the demands of running a business. EU Directive 2004/113/EC prohibits gender discrimination. However, a problem is that indirect discrimination is difficult to prove, even though there appears to be evidence that indirect discrimination does occur. [...]

All case studies suggested that women set up businesses that are predominantly in sectors that are female-dominated. These sectors are less attractive to investors or lenders. Women entrepreneurs tend to seek lower loan or investment amounts. This makes them less attractive to both equity and debt financiers who will achieve lower returns as a result of lower debt amounts.

Across the case studies, it was identified that banks and equity funders are less attracted to businesses that are run by individuals with a lower level of business experience. This places women at a structural disadvantage. It was also suggested in the Czech Republic that some banks directly discriminate against women who are on parental leave.

In all case studies socially constructed gender roles were reported to act as a barrier to women setting up and running businesses.

It was noted in all case study countries that there was a lack of angel investors [...] who could be a benefit to women entrepreneurs. Furthermore, one of the key factors that affect women’s chances of accessing funding and growing business is the size of their professional networks.

In all case studies, women were reported to be predominantly responsible for the care of children or other dependents. This was a substantial barrier for women who wish to run businesses.

No case study respondent reported that EU legislation had made much of a difference to the situation of women entrepreneurs in their country.

Source: Katie McCracken, Sergio Marquez, Caleb Kwong, Ute Stephan, Adriana Castagnoli & Marie Dlouhá (2015). [Women’s Entrepreneurship: closing the gender gap in access to financial and other services and in social entrepreneurship](#). Policy Department Citizens’ Rights and Constitutional Affairs - DG Internal Policies - European Parliament (PE 519.230, Document requested by the Committee on Women’s Rights and Gender Equality). pp. 1-7

Future Emerging Technologies (FET)

FET focuses on research beyond what is known, accepted or widely adopted and supports novel and visionary thinking to open promising paths towards powerful new technologies. FET seeks for genuine cross-fertilisation and deep synergies between the broadest range of advanced sciences and cutting-edge engineering disciplines.

Future and emerging technologies can have a profound impact on our lives and society. Therefore, the Social Sciences and Humanities (SSH) play an important role in the multi-disciplinary research supported by FET. Attention will be given also to Responsible Research and Innovation (RRI), including the gender aspects of appreciation of emerging technologies, thus contributing to a more sustainable future and to a society that is supportive of research.

Specific actions will increase the impact on education. For example, through new academic curricula giving inspiration around FET topics to high-school students, entrepreneurship courses, gender and ethics courses, and training opportunities for industry¹⁰¹.

Mobile use
<p>Mobile technology is often considered gender neutral – although the different uses, structures and cultures associated with mobile technology are not gender neutral. Gender (in) balanced access to mobile technology has implications for ensuring equal access to opportunities for political discourse, economic empowerment and civil society participation which increase social inclusion.</p> <p>When it comes to mobile use¹⁰², women tend to experience certain barriers more acutely than men:</p> <ol style="list-style-type: none"> 1. Cost is the most important barrier to mobile phone ownership and use. Women tend to cite handset and credit cost as a barrier more commonly than men. Cost is a greater barrier for women because they are often less financially independent. Women tend to have more basic phones. Lower priced handsets will disproportionately benefit women. 2. Network quality and coverage is the second most important barrier overall, and is an issue in both rural and urban areas. Women may perceive network quality and coverage as a greater barrier than men because of mobility constraints, more basic handsets, and fewer SIMs to choose from¹⁰³.

101 Source: [H2020-AG-GENDER \(2015\)](#), p. 13

102 Study conducted in 11 developing countries, Niger, India, DRG, Mexico, Indonesia, China, Turkey, Kenya, Colombia, Egypt, Jordan

103 Mobile services help women feel safe and avoid harassment: The case of [Fightback](#) in India, [Banglalink Emergency](#) in Bangladesh, and [Mobinil's Call Block](#) service in Egypt: Innovative mobile services can help women perceive mobile phones as a tool for improving safety and peace of mind. In India, the app 'FightBack' enables users to instantly send an alert in an emergency. By pressing a simple button (and then confirming), SOS SMS and emails, GPS coordinates, and location maps are automatically sent to preselected contacts. The app has had more than 100,000 downloads and is now available in 22 Indian states and 81 countries worldwide

3. Security and harassment is the third most important overall barrier. Security is usually a greater barrier for women. Harassment from strangers is usually a greater barrier for women
4. Technical literacy and confidence is usually a greater barrier for women. Women are often less educated than men, which contributes to technical literacy challenges. Women are often less confident with technology than men. Well-designed services or handsets in familiar languages can often be more accessible for diverse users in terms of literacy and self confidence in technology use.
5. [Gender] Social norms are an underlying, 'hidden' barrier to women accessing and using mobile phones¹⁰⁴. For example, the social norms in many countries of girls receiving less education than boys, marrying early, and becoming predominantly homemakers contributes to women having less individual income than their male counterparts. Social norms influence women's mobile purchasing decisions.

The opportunity: Ensuring women have access to and can use mobile Phones, besides being a good market opportunity, helps women feel safer, more connected, save time and money, and can increase education and employment opportunities

Source: GSMA. 2015. [Bridging the gender gap: Mobile access and usage in low and middle-income countries](#)

B.6 Useful References

- References suitable for Funding Agencies ●
- References suitable for Applicants ●
- References suitable for Reviewers/evaluators ●
- References suitable for Higher Education Institutions (HEIs) ●



[Gendered Innovations website](#) ● ● ●

(available and updated since 2009)

The goal of the Gendered Innovations project is to provide scientists and engineers with practical methods for sex and gender analysis. To match the global reach of science and technology, methods of sex and gender analysis were developed through international collaborations. Gendered Innovations involves experts from across the U.S. and the EU 27 Member States. The current Gendered Innovations project was initiated at Stanford University, July 2009. In January 2011 the European Commission set up an expert group, "Innovation through Gender," aimed at developing the gender analysis in EU research and innovation.

At the moment of preparation of the present report the Gendered Innovations project provides case studies in the areas of:

Science: Animal Research, Brain Research, Genetic of Sex Determination, Stem Cells, Text Books

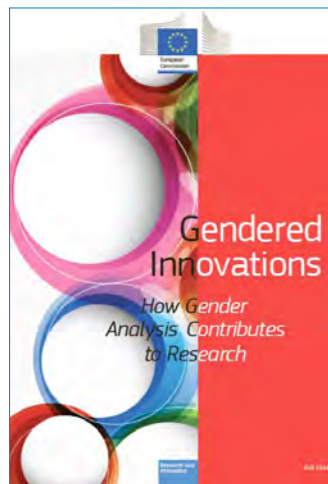
104 These gender norms are the root of the above mentioned barriers

Health & Medicine: Colorectal Cancer, De-Gendering the Knee, Dietary Assessment Method, Heart Disease in Women, Nanotechnology-Based Screening for HPV, Nutrigenomics, Osteoporosis Research in Men

Engineering: Assistive Technologies for the Elderly, HIV Microbicides, Human Thorax Model, Information for Air Travelers, Machine Translation, Making Machines Talk, Pregnant Crash Test Dummies, Video Games

Environment: Climate Change, Gender Mainstreaming in Decision-Making, Environmental Chemicals, Housing and Neighbourhood Design, Public Transportation, Water Infrastructure.

The Gendered Innovations website also contains videos explaining some of these examples, as well as additional case studies presented by Stanford students.



Gendered Innovations Publication (2013) ● ● ●

Report of the European Commission's Expert Group "Innovation through Gender". Chairperson: Londa Schiebinger. Rapporteur: Ineke Klinge. The report provides scientists and engineers with practical tools for gender analysis which help them rethink concepts, formulate relevant questions and develop appropriate methods. The report also offers recommendations to research funding agencies, research institutions, heads of higher education establishments, industries, journal editors and other interested parties. The case studies presented are basically the same ones as on the Gendered Innovations website.



Toolkit - Gender in EU-funded research (EC, 2009) ● ●

This toolkit and training package, funded by the European Commission under the FP7, give the research community practical tools to integrate gender aspects into research, including equal opportunities for women and men and the gender dimension of research, thereby contributing to excellence in research. The training introduces this practical toolkit. It comprises an overall introduction into gender and research and shows how gender is interwoven with all aspects of research. It then examines in pragmatic terms how the gender dimension of research content contributes to excellence in research. The web page provides information on how to proceed with a sex/gender analysis, including methods, terms and check lists, and it also dedicates sections to Policy Recommendations and to the Institutional Transformation.

The case studies presented are based on concrete examples drawn from nine specific research fields: health; food, agriculture and biotechnology; nanos-

ciences, materials and new production technologies; energy; environment; transport; socio-economic sciences and humanities; science in society and specific activities of international cooperation.

Currently, it provides examples in the following fields

Health: Social networking for dietary guidance, Mosquito immunity and reproduction, Clinical decision-making and people with severe mental illness

Food, agriculture and biotechnology: Agri-food law, Biofortification, Sweet sorghum for food and fuel

Nanosciences, nanotechnologies, materials and new production technologies: Personalised skin care, Medical imaging, Customised production

Energy: Opportunities and needs in biofuels, Scenarios for the evolution of energy technologies, A common method for gathering biomass information

Environment: Determining air pollution distribution and change around hotspots, Sustainable consumption policies, Highland aquatic resources

Transport: Avionics for small aircraft, Transport research and tourism, Indicators of transport accessibility

Socio-economic sciences and humanities: The acquisition and loss of nationality, European social model, corporate social responsibility

Science in society: Awareness of the marine environment, civil society involvement in sustainable development, Multi-stakeholder dialogue on nanosciences and nanotechnologies

Specific activities of international cooperation: S&T dialogue between the EU and Latin America, ICT cooperation among the EU, Eastern Europe and Central Asia, Research cooperation between Europe and Australia



Gender and sex matter in research: Twenty recommendations from Europe's research universities (LERU, 2015) ● ● ●

In this September 2015 report, the League of European Research Universities (LERU) analyses the role of gender and sex analysis in research and innovation (R&I), arguing that it needs to be better integrated into R&I funding, content and implementation process. The paper offers twenty recommendations for stakeholders to act upon, emphasising the importance of support, promotion and resources for Gendered Research and Innovation.

It provides examples, taken from research developed by LERU member universities (and a few from the Gendered Innovations project), in the areas of:

Health and Medicine: Research on heart failure and cardiovascular disease in women and national support initiatives, Effects of pregnant women’s smoking on baby boys and girls, Eating disorders in young men are underdiagnosed and undertreated.

Animal Studies: Gender-specific aggressive behaviour in fruit fly , Developmental and evolutionary origins of sex differences in avian vocal behaviour.

Engineering: Female and pregnant crash test dummies lead to better vehicle safety standards (from the Gendered Innovations Project).

Social Sciences: Gendered effects in the labour market, Underestimation of sexual exploitation of boys and young men.

Climate Change: Climate change: analysing gender as well as other factors intersecting with gender (from the Gendered Innovations Project).

ICT: Fixing he-she pronoun errors in machine translation (from the Gendered Innovations Project).



[Sex, Gender and Health Research Guide: A Tool for CIHR Applicants](#) (CIHR, 2013) ● ●

The Canadian Institutes of Health Research (CIHR)¹⁰⁵ has developed this on line tool to assist applicants to CIHR funding on the integration of the gender dimension into their research. This is due to the CIHR requirement that all grant applicants respond to mandatory questions about whether their research designs include sex and gender (effective December 2010). This requirement is part of CIHR’s wider strategy for meeting the requirements of a 2009 federal government (Health Portfolio) policy on sex and gender based analysis.



[Integrating Gender and Sex in Health Research: A Tool for CIHR Peer Reviewers](#) (CIHR, 2013) ● ●

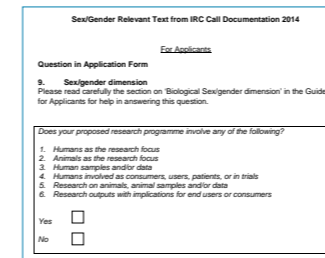
This tool provided by the CIHR, as the one mentioned above, is as well an on line tool which gives peer reviewers a framework to evaluate whether gender and/or sex are appropriately integrated into CIHR applicants’ proposed research designs.

¹⁰⁵ The CIHR is Canada’s federal funding agency for health research



[Guide for Applicants](#) (IRC, 2014) ● ●

This is an example of how a funding agency, in this case the Irish Research Council (IRC), integrates within its general Guide for Applicants the guidelines and recommendations to integrate the gender dimension into the calls. The IRC has developed this pdf guide which provides practical information to potential applicants in preparing and submitting an application for either the Irish Research Council Government of Ireland (GOI) Postgraduate Scholarship or the Irish Research Council Enterprise Partnership Scheme (EPS) Postgraduate Scholarship. One of the sections of this guide is dedicated to the Sex/gender dimension Statement and its mandatory requirements for applicants.



[Sex/Gender Relevant Text from IRC 2014 Call Documentation](#) ● ● ●

This document collects all the references to sex/gender relevance in the IRC documentation for applicants and assessors in 2014 calls including guidance on the sex/gender dimension in the IRC statement, a summary from the ‘Tool-kit Gender in EU-funded research’ and a check list for sex/gender in research content.



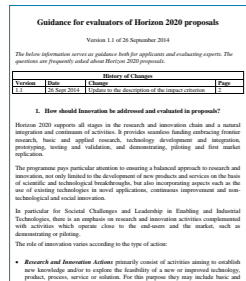
[Gender as a cross-cutting issue in HORIZON 2020 Online Manual](#) ● ● ●

Within the H2020 Online Manual there is a section which covers information about cross cutting issues. One of this cross cutting issues is gender and in within these guidelines there is information covering the two main gender areas: gender balance and integrating the gender dimension into the content of research and innovation. The on line manual is designed to provide guidance to applicants to integrate the gender aspects in to their proposal, both in terms of gender equality and in gender in research contents. When applying for a grant under Horizon 2020, the applicant is invited to explore whether and how the gender dimension is relevant to her/his research. In the proposal template the applicant is asked to “describe how sex and/or gender analysis is taken into account in the project’s content”. This will be assessed by the evaluators alongside the other relevant aspects of the proposal.



Vademecum on Gender Equality in Horizon 2020 and Guidance on Gender Equality in Horizon 2020 (EC, 2014 – Rev. March 2016) ● ●

The purpose of this Vademecum is to provide the Commission/ Agency staff, potential applicants, the Helsinki Group, NCPs, as well as experts' evaluators and other actors involved in the implementation of Horizon 2020 with practical guidance on the effective application of the new Gender Equality provisions. This means integrating Gender Equality issues at each stage of the research cycle: from programming through implementation, monitoring and programme evaluation



Guidance for evaluators of Horizon 2020 proposals (EC, 2014) ●

This Guide from the European Commission (EC) helps evaluators of H2020 proposals to review all the evaluation aspect of the project including how the gender dimension should be addressed and evaluated in proposals.

For a better integration of the gender dimension in Horizon 2020 Work Programme 2016-2017 (Horizon 2020 Advisory Group on Gender, 2015) ● ● ●

This paper was prepared by the H2020 Advisory Group (AG) on Gender which mandates is to

to provide advice to other AGs and to the Commission on the integration of the gender dimension into research content pertaining to all activities where it is relevant, as well as its possible interactions with other crosscutting issues. It provides hints and thematic suggestions in the 7 societal challenges of H2020¹⁰⁶ and in the areas of ICT, Nanotechnologies, advanced Materials, Biotechnology and advanced manufacturing and Processing (NMPB), Access to risk finance – entrepreneurship and Future Emerging Technologies.

Interactive module on Sex and Gender in Biomedical Research (CIHR, 2015) ● ●

Three free interactive modules designed to improve the ability of health researchers and peer reviewers to account for sex and gender in 1) biomedical research involving animals, cells or tissues, 2) Primary data collection with human participants, 3) Secondary data collected from human participants

¹⁰⁶ H2020 Societal Challenges: 1. Health, demographic change and wellbeing 2. Food security, sustainable agriculture and forestry, marine, maritime and inland water research, and bioeconomy 3. Secure, clean and efficient energy 4. Smart, green and integrated transport 5. Climate action, environment, resource efficiency and raw materials 6. Inclusive, innovative and reflective societies 7. Secure societies



Online Education on Sex and Gender Differences (NIH, 2015) ● ●

This National Institutes of Health (NIH) online series of courses provides a foundation for sex and gender accountability in medical research and treatment. After completing the courses, researchers, clinicians, and students in the health professions are expected to integrate knowledge of sex and gender differences and similarities into their research and practice. These courses are open to the public and offered at no cost.



Compendium of existing national and regional initiatives on the integration of the gender dimension in research contents (GENDER-NET, 2015) ●

This document from GENDER-NET (Deliverable D3.9) presents the data/information collected by a survey launched in 2014, into a compendium of national and regional strategies, policies, programmes, plans and strategies that foster the effective integration of sex and gender considerations into research contents. The main areas of this survey were: 1) Policies and strategies aimed at integrating sex/gender analysis in research, 2) Research-funding programmes aimed at integrating sex/gender analysis in research, 3) Guidelines and training materials for applicants, 4) Guidelines/Training for grant proposal reviewers, 5) Recommendations and/or models for university curricula development in scientific and technological field, 6) Transnational and other activities.

The document captures, particularly, successful national and regional examples that can be tailored within transnational contexts, while highlighting gaps areas that will need close attention for effective implementation. The Compendium contains information from 40 national organisations, coming from 22 different countries.



Comparative analysis of existing national initiatives on the integration of the gender dimension in research contents (GENDER-NET, 2016) ●

In this GENDER-NET report (Deliverable D3.10) the information compiled in the above-mentioned Compendium is analysed in order to identify common trends and areas of development on initiatives to facilitate IGAR by the respective organisations in the framework of their national programmes. It provides a comparative section on the main areas of the above-mentioned survey, a section on Successes and Best Practices, a section on Barriers and Challenges, three Case Studies including the cases of CIHR, IRC and NIH and a final section with Recommendations.

Elevating Promising Practice: Potential Transnational Actions for Integrating Gender Analysis into Research (GENDER-NET, upcoming) ●

This upcoming GENDER-NET (Deliverable D3.12) report will be a synthesis report (of the present report and the two previous GENDER-NET ones) identifying the core elements of a framework for implementing transnational strategic activities and monitoring of common indicators on IGAR.



The Role of Gender-based Innovations for the UN Sustainable Development Goals Toward 2030: Better Science and Technology for All

(WISET & PORTIA, 2016) ● ● ●

This report from the Korea Center for Women in Science, Engineering and Technology (WISET) and PORTIA has been published as a result of the 6th Gender Summit (Seoul, 2015) aims to help improve efficacy of the measures used to implement the SDGs, including their cross cutting impacts, by identifying research that investigates all sources and conditions of inequality in the lives of girls, boys, women, and men. It cites substantial research evidence, with 170 examples, to show that sex-gender considerations must be more deeply and broadly integrated into science knowledge and technologies supporting measures to achieve the SDG targets. Future versions of this report will continue to identify additional resources. It also lists over 150 examples of research topics recommended by experts as in need of further investigation.



EGERA (2014-2017) ● ● ●

EGERA (Effective Gender Equality in Research and the Academia) is a EU FP7 funded project which brings together eight research and higher education institutions in seven EU member states (Belgium, the Czech Republic, France, Germany, the Netherlands, Portugal and Spain) + Turkey, bound by a same commitment to the dual objective of achieving gender equality in research, and strengthening the gender dimension in research. One of the Work Packages of this project it is dedicated to Strengthening the Gender Perspective in Research. The workload consists in different tasks, in order to effectively support the implementation of planned actions related to gender in research. Tasks range from the mapping and critical review of existing tools¹⁰⁷, through awareness-raising (AR) actions targeting different categories of research actors, to the creation of a database of good practices implemented by partner institutions.

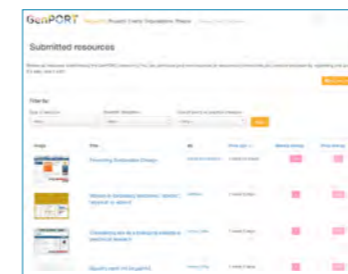
¹⁰⁷ See the EGERA deliverable [D6.1 Report on Mapping & Critical assessment of existing tools for including gender in research \(UAB\)](#)



genderSTE (2012-2016) ● ● ●

genderSTE is a policy-driven targeted network funded by COST (European Cooperation in Science and Technology). This project is a network of policy makers and experts committed to promoting a fairer representation of women and better integration of gender analysis in research and innovation. It disseminates state of the art know-how on structural change of institutions and on methods for gendered analysis in research. It aims at advancing the state of knowledge in the specific fields of: cities, transport, energy, climate and industrial innovation.

genderSTE members represent government bodies, research organisations, universities, non-profit, and private companies from 40 countries, in Europe and beyond, as well as international organisations.



GenPORT (2013-2017) ● ● ●

GenPORT (an EU FP7 funded project) is a developing online community of practitioners, served by an internet portal and made up of organisations and individuals working across the globe for gender equality and excellence in science, technology or innovation. GenPORT covers all sciences - natural and social sciences, and humanities. The project incorporates a data base of resources with different field, one of them being "Incorporate sex and gender analysis in research".



Toolkit for Integrating Gender Sensitive Approach into Research and Teaching (Garcia project) (2015) ●

This working paper from the GARCIA project (2014-2017) is aimed at supporting researchers in integrating the gender dimension into their research and into their teaching practices and curricula design at all academic levels. This Toolkit should help research and teaching staff in thinking in what way is gender relevant for their research and curricula and it provides practical guidance on how to integrate a gender-sensitive approach in research and teaching by: a) posing questions to academics that would encourage them to think critically about their previous research/teaching and inspire future more gender-sensitive practices; and b) using vivid examples of how gender is relevant for research and curricula in six test institutions involved in the GARCIA project.



EnRRICH project (H2020 - 2015-2017) ●

The Enhancing Responsible Research and Innovation through Curricula in Higher Education (EnRRICH) project aims to build the capacity of staff in higher education to facilitate their students' development of knowledge, skills and attitudes and competencies in responsible research and innovation, and respond to the research needs of society, particularly underserved civil society organisations (CSOs). It will do this by identifying, developing, testing, and disseminating resources, based on existing good practice and trials of new initiatives, to embed the five RRI keys in academic curricula across Europe, with specific reference to science and engineering. It will develop case studies which showcase examples for students, teachers, professional trainers and academic staff of HEIs. Through ongoing dialogue with academics, policymakers, and CSOs, EnRRICH will kick start debates at institutional, national and international levels to create awareness of, and enhance the policy context for, RRI in curricula and thereby produce more responsible and responsive graduates and researchers.



HEIRRI Project (H2020 - 2015-2018) ●

The aim of HEIRRI (Higher Education Institutions and Responsible Research and Innovation) project is to start the integration of RRI within the formal and informal education of future scientists, engineers and other professionals involved in the R+D+i process. HEIRRI mainly works around the six RRI «key aspects» identified by EC (societal/public engagement, gender equality, open access, science education, ethics and governance in R&I), but above all those six «keys», HEIRRI wants to stress the potential of RRI as a transformative, critical and radical concept.



FoTRRIS Project (H2020 - 2015-2018) ●

The main objective of FoTRRIS is to develop and introduce new governance practices to foster Responsible Research and Innovation (RRI) policies and methods in research and innovation systems. Since research and innovation systems and practices in different European MS and within different research performing organisations vary, FoTRRIS will consider the implementation of new governance practices in the different MS. The projects want to offer efficient and effective methods for researchers, citizens, businesses and policy-makers to solve 'glocal' challenges in a co-RRI way. Its methodology relies on the design of transition arenas associated with a support unit called a competence cell. Transition arenas are groups of people interested in co-solving a glocal challenge. The competence cell will comprise trained researchers in co-RRI methodologies who will share their know-how with transition arena members.



The Sex and Gender Equity in Research (SAGER) guidelines (2016)

The Sex and Gender Equity in Research (SAGER) guidelines provide researchers and authors with a tool to standardize sex and gender reporting in scientific publications. They were designed to improve sex and gender reporting of scientific research, serve as a guide for authors and peer-reviewers, be flexible enough to accommodate a wide range of research areas and disciplines and improve the communication of research findings.

These guidelines are designed primarily to guide authors in preparing their manuscripts, but they are also useful for editors, as gatekeepers of science, to integrate assessment of sex and gender into all manuscripts as an integral part of the editorial process.

Guía práctica para la inclusión de la perspectiva de género en los contenidos de la investigación (Fundación CIREM, 2012) ● ●

The guide in Spanish, based on the Gendered Innovations project, provides a set of methodological tools and a number of examples mainstreaming gender in research. Each methodological tool is illustrated with three examples, each from a different scientific field: medicine and biotechnology; architecture and urban planning; and information and communications technology.

C. Recommendations and models for integrating gender analysis into university curricula in scientific and technological fields

C.1 Introduction

An important aim of the present report is to advance sex and gender awareness at the university level in order to support a wider and deeper integration of gender analysis in research into the university curricula. University curricula play a fundamental role when it comes to transmitting knowledge, practise, and culture. Higher Education Institutions (HEIs) also contribute to society through the development of inclusive curricula, which respond to the needs of all - women and men, boys and girls - and enhances value to society. It is also their role to educate open-minded individuals and researchers, able to cope with the diversities around them and with the skills and knowledge to produce science designed by and for all¹⁰⁸.

Talking about Integrating Gender *Analysis* into University Curricula (IGAUC) means effectively integrating the gender analysis into all contents and information passed in the education process to future active social agents, professionals and future researchers. Specifically has to do with guiding students to develop skills aimed at *Integrating the Gender Analysis into Research* (IGAR). It includes issues such as learning to identify gender-biases in research, and to adequately apply IGAR methods in knowledge production and transfer. HEIs play a fundamental part in reducing and eventually eliminating the “gender gap in science content”. Universities are then crucial to avoid generating and transmitting knowledge which is gender-biased, and which does not integrate appropriately the needs of both men and women, thus perpetuating an unequal system of generation of scientific knowledge.

It must be noted that IGAUC refers to a specific area within the gender *dimension/approach* in university curricula. The later also includes other issues such as inclusive teaching methods, making female scientists visible, non-sexist use of language and images, questioning gender professional stereotypes and roles, etc.

In 2014, the GENDER-NET project launched a comprehensive online survey that was disseminated to ministries, national research funding agencies and research performing organisations as well as other national-level private organisations located in the Member States and Associated Countries participating in GENDER-NET. In total, 40 such organisations from 22 countries responded. The aims of this survey questionnaire was to: a) capture successful national and regional policies, programmes, plans and strategies that facilitate the integra-

¹⁰⁸ See also the *Introduction chapter* (pp. 7-11) by Laura Grünberg to the UNESCO 2011 report [From Gender in Studies to Gender IN Studies. Case Studies on Gender-Inclusive Curriculum in Higher Education](#)

tion of sex and gender analysis into research – especially outside humanities and social sciences – and that could be tailored within transnational contexts and implemented across countries; and b) identify gaps for which the GENDER-NET project could provide support. The survey results have been published in Deliverable report [D3.9](#), which included the factsheets of each responding organisation, and further analysed in Deliverable report [D3.10](#).

From the outputs of this survey, there was only 1 out of the 40 respondent organisations (the US National Academies) who reported having Recommendations and/or models for university curricula development in scientific and technological fields (other than humanities and social sciences) integrating the gender dimension. 30 out of the 39 organisations (77%) who stated not having such recommendations or models attributed it to the fact that they did not have responsibility for university-level curricula development. The rest of the organisations stated that universities in their national context were autonomous, or that was not the mandate of their organisations. One organisation indicated that such Recommendations were under preparation (the Ministry of Education and Science of the Republic of Lithuania).

The respondent organisations were also asked to name any universities which they knew developed the integration of sex/gender analysis in the curricula of fields outside Social Sciences and Humanities, and this knowledge was also found to be very limited.

Therefore, although the majority of organisations contacted declared not being responsible for universities management, it seems that the scope of this specific issue needs further analysis and support in order to create awareness and to reach the right institutional levels (decision-makers) to approach the integration of the gender dimension into curricula development at university level.

Recently, in April 2015, the Gender Equality Commission (GEC) of the Council of Europe (COE) has published a compilation on [Good practices to promote an education free from gender stereotypes and identifying ways to implement the measures which are included in the Committee of Ministers' Recommendation on gender mainstreaming in education](#). This compilation offers examples of promising activities implemented in 17 Council of Europe Member states, aimed to promote an education free from gender stereotypes. This compilation does not report any experience specifically oriented to IGAUC in STEM areas, which shows that this is also quite an undeveloped issue even within the Higher Education sector. However, it includes few cases which can be considered efforts towards including gender topics in academic contents, for instance the case of France (“*Training teachers in equality and gender*” and “*Comprehensive scheme for training on gender equality in higher education and research*”).

C.2 Methodology

The structure of this chapter is comprised of the above introduction to the subject, a description of the methodology used followed by a series of recommendations to better integrate the gender dimension into the university curricula. The last section is dedicated to presenting 7 case studies on IGAUC, either by means of designing a specific curriculum which integrates the gender perspective, or by means of other initiatives aimed to promote the IGAUC. The final goal of these presentations is to provide models or guides for potential transferability to other university settings.

The methodology followed to develop this chapter comprises outputs from a GENDER-NET expert workshop developed in the framework of Work Package 3 specifically dedicated to helping partners in the preparation of guidelines/training manuals for funding agencies and recommendations for the development of university curricula integrating sex/gender analysis (MS9, 24-25 March 2015, Paris). During this workshop three case studies were presented, coming from the Institute for Gender in Medicine in the Charité University Hospital of Berlin; the Technical University of Berlin, and the Technical University of Braunschweig (the three ones are described in the C.4. section on models for IGAUC). The initial set of recommendations and models has been enriched by means of further review and analysis. The recommendations have been structured on three categories: 1) at HEI level; 2) at HEI and national levels; and, 3) at national level.

C.3 Recommendations for IGAUC in Scientific and Technological Fields

This section includes, among others, recommendations from the above mentioned GENDER-NET workshop, the 2015 LERU paper *Gendered research and innovation: Integrating sex and gender analysis*¹⁰⁹ – where one of the main recommendations is to *promote integrating the outcomes of GRI into the teaching curriculum, to better prepare the leaders of tomorrow for dealing with societal challenges* – and the UNESCO report *From Gender Studies to Gender IN Studies*¹¹⁰ where cases from different Eastern European universities are analysed in terms of the development of their curriculum from a gender perspective. Other recommendations are also inspired by the 7 models presented in section C4 of the present report.

C.3.1 Recommendations at HEI level

- When designing a university curricula, at any level (Bachelor, Master, or PhD) and field (including STEM fields), use **complementary approaches**: that is, **gender-specific modules/subjects** (e.g. “Gender and Space” or “Sex and Gender Research Methods”) within the degree, **and cross-cutting gender** into the rest of modules/subjects in the degree (mainstreaming the gender dimension by integrating it in the general content, e.g. including gender-sensitive theories, methods, readings, questions, activities, etc. in an “Urban Planning” subject). Additionally, **gender-specific degrees** (e.g. Masters on

¹⁰⁹ [Gendered research and innovation: Integrating sex and gender analysis, LERU 2015](#)

¹¹⁰ [From Gender Studies to Gender IN Studies: Case Studies on Gender-Inclusive Curriculum in Higher Education UNESCO-CEPES 2011](#)

“Gender Studies”, “Gender and Development”, etc.) especially in main universities or in inter-universities programmes

- **Ensure the participation of gender experts** in the committees/groups that design the curricula at the degree level or in the ones that advice or approve the teaching guides for each one of the subjects at university, programme, department or faculty level
- Set up a **task force on gender mainstreaming in curricula** (at faculty, school, and etc. level) for monitoring and evaluating the implementation of the gender cross-cutting approach and the support resources available for it. They can propose solutions for the problems and gaps identified and can support the necessary coordination (e.g. among faculties, departments, and gender equality units)
- Higher Education authorities are recommended to **foster the appointment or promotion**, in every main field of science, **of academic staff with double knowledge/expertise in gender studies and in other specific science fields** (interdisciplinary). For this it can be useful to establish links with existing Gender Studies centres or departments
- Include, during the personnel recruitment and promotion procedures at the institution, **specific scoring in the area of gender expertise and/or gender training**
- Establish a **reward scheme** to highlight those students at undergraduate and graduate level who include in their research the sex/gender analysis as a cross-cutting issue¹¹¹
- Ensure **technical support**, ideally through an Institute for Gender Studies at the University to provide technical expertise on demand
- Provide **training and awareness raising activities**¹¹² and **dissemination materials**¹¹³ for academics

¹¹¹ For instance, the University of Vigo 2014 and 2015 EGERIA Awards for Bachelor’s and Master’s thesis integrating the gender dimension in their research content (further information available [here](#), in Galician and Spanish)

¹¹² For instance, the general training courses on gender perspective in university teaching offered to academics at the University of Santiago de Compostela (further information available [here](#), in Galician)

¹¹³ See for instance the model database for 55 university disciplines across different main fields of Science and Engineering “[Gender in bachelor and master courses - integrate women’s and gender studies into the curriculum](#)” developed by the Women’s and Gender Research Network NRW (for further details of this initiative see the C.4 models subsection of the present report). Another example at field-specific level is the no-cost web-based repository of sex and gender specific evidence-based research and educational resources for students and faculty in the medical and health care professions, developed by the Sex and Gender Women’s Health Collaborative (SGWHC), a coordinated effort of the American Medical Women’s Association, the American College of Women’s Health Physicians, and Society for Women’s Health Research (for more information on this initiative see [Advancing sex and gender competency in medicine: sex & gender women’s health collaborative](#))

C.3.2 Recommendations at HEI and national levels

- Setting up a gender **curricula review process**, at Bachelor and Master levels (e.g. checking for gender cross-cutting integration in all disciplines and at least one gender-specific subject per degree)
- **Involve student's participation** on gender-specific projects or on gender cross-cutting applied projects to other topics within their discipline scope (e.g. in their Bachelor's or Master's Thesis, but also in other team/group projects during their course studies)¹¹⁴
- **Develop a policy or strategy to integrate gender into research contents within University Curricula** in scientific and technological fields (both in undergraduate – Bachelor's – and graduate levels – Master's and PhD)¹¹⁵
- Ensure **political support through high level management** (e.g. Rectorates/Vice-rectorates/Deans in case of HEIs) and **dedicated staff** (officer, equality change agent...) committed to the management and coordination of these measures
- Design and promote **interdisciplinary research groups** around gender-focused themes and **other academic activities** (conferences, lecture series, faculty-development seminars, fellowships, etc.) for faculty on IGAUC¹¹⁶. This kind of **interdisciplinary academic cooperation initiatives** fosters the sharing of knowledge and expertise, and facilitates the identification of gaps, resistances and coping strategies for developing gender-sensitive university curricula¹¹⁷. In STEM degrees it is even more essential to enable the esta-

114 See for instance the TU Berlin GENDER PRO MINT programme at the C.4 models sub-section of the present report

115 For instance, one of the measures included in the Spanish [Strategic Plan for Equal Opportunities 2014-2016](#) is *promoting gender studies and studies to foster equal treatment and opportunities at university graduate and postgraduate level* (p. 146 of the English version). Previously, at the time of the Bologna Reform, the Spanish [Royal Decree 1393/2007](#), stipulated in its Article 3.5 that *"among the general principles which are to inspire the design of the new degrees, the curricula of the university degrees must take into account that the instruction of any professional activity has to be realized: a) Based on fundamental and equality between men and women rights, and for that reason, the teaching on subjects related to these rights must be included in the curricula of the degrees in which it is appropriate."* And at a HEI level, see for instance, the I Gender Equality Plan of University of La Laguna 2014-2017 and the Implementation Programme for 2014, which include a permanent action (2.1.1) and indicators on gradually increasing the number of gender-specific and gender cross-cutting Bachelor and Master subjects (both documents available in Spanish at <http://www.igualdad.ull.es/ambito%20ull.html>)

116 For instance, in 2012 the Equality Unit of the University of Vigo organized a workshop on gender innovations in teaching and research targeted to Spanish universities. The proceedings are available at the Equality Unit [website](#) (in Galician and Spanish)

117 See for instance the Conference report paper on [Embedding Concepts of Sex and Gender Health Differences into Medical Curricula](#), which was published by the *Journal of Women's Health* and summarizes the proceedings, recommendations and action items that came up from a 2-day experts workshop hosted in 2012 by Mayo Clinic, aimed to *articulate the need to integrate sex- and gender-based content into medical education and training, to identify gaps in current medical curricula, to consider strategies to embed concepts of sex and gender health into health professional curricula, and to identify existing resources to facilitate and implement change*

blishment of a common ground among gender experts and STEM experts in order to facilitate adequate interdisciplinary subjects and students projects, since gender studies expertise cannot be implemented only through guidelines or checklists targeted to technological experts¹¹⁸

- Having a **well-developed, coordinated and institutionalised system of Gender Studies** (masters, departments, research institutes, research programs, coordination units, accreditation procedures, etc.), is a good practice in terms of providing evidence and advancement in gender knowledge and practice, but also to strengthen the institutional infrastructure for producing knowledge about gender
- Set up the **relevant structures/offices** and appoint the appropriate personnel (change agents) in charge of designing, promoting, coordinating and monitoring the policy/strategy aimed at IGAUC¹¹⁹. At the HEIs level, it is crucial the coordination between the Gender Equality Office, the Gender Studies Institute/Department and the above mentioned Gender Tasks Forces in faculties/schools¹²⁰. At national level, it is also necessary the contribution of Gender Equality Offices at relevant ministries/agencies (Education, Research/Innovation and Equality) and an Equality Sector at the Rectors' Conference. This kind of structures were initially set up to focus on gender equality/balance issues between women and men participation in all the fields of HEIs and R&I institutions, but they are also increasingly focusing, as recommended, on the integration of the gender analysis into research content and university curricula
- **Assign the necessary funds** to ensure long-term appropriate resources (such as enough personnel, training resources for academics, gender studies departments, double expertise faculty...) to implement appropriately the policy or strategy aimed at IGAUC

118 See for instance the Technical University of Braunschweig GenderING programme at the C.4 models sub-section of the present report

119 For instance, the Gender Equality Unit of the University of La Laguna disseminates at its [website](#) a guiding publication edited by the former Spanish Ministry for Equality as a result of a Conference on the European Higher Education Area and the Women, Feminist and Gender Studies. The publication provides models for gender cross-cutting and gender-specific university subjects in different main fields of science (in Spanish)

120 For instance, the Equality Unit of the University of Alicante has promoted the *University, Teaching, Gender and Equality Network*, which is advised by the University Centre on Women Studies. The Network has developed a [Teacher Resource Website with Gender Perspective for University Teaching](#), which includes a digital library to support and extend the inclusion of gender perspectives in university teaching (for more detailed information see the paper by José Vicente Berná Martínez, María José Rodríguez Jaume & Francisco Maciá Pérez (2014): Portal de recursos docentes con perspectiva de género para la docencia universitaria. In Miguel Riesco, Marián Díaz & Benjamin López (eds.), *Actas de las XX Jornadas sobre enseñanza universitaria de la informática (JENU)* (pp. 177-184)

C.3.3 Recommendations at national level

- **Reward and highlight** those **innovative experiences** in the integration of the gender analysis into university curricula¹²¹
- **Liaise with relevant institutions** at national and European level (LERU, EUA, National Rectors' Conferences, ministries, EC DG Research & Innovation, DG Education, Student associations...) to better coordinate common approaches¹²²
- Design and implement a solid **monitoring and evaluation system** with pertinent, measurable and appropriate indicators to measure the impact and success of the policy or strategy aimed at integrating gender in research contents within University curricula¹²³
- Conduct **participatory assessments**¹²⁴ to assess the level of acceptance and detect possible resistances from institution personnel in order to implement the pertinent measures
- Ensure the **communication and coordination among the relevant national institutions** with responsibilities in the areas of HEI, Gender Equality, Research and Innovation, by means of inter-ministries working groups, committees, etc.
- Ensure that **accreditation agencies effectively apply relevant IGAUC criteria** when accrediting the Bachelor and Masters programmes¹²⁵

¹²¹ For instance, the annual awards established by the University of Santiago de Compostela since 2010 highlight and reward academics that have successfully integrated the gender dimension, in either their teaching activities (excluding gender-specific courses) or their research projects in any field of science. The prize winners receive a certificate and a modest amount of money. For further information see the 2015 call and results [here](#) (in Galician). Another example is the volunteer participation of some departments at University of Lund in the "Gender Certification on the department level" project, aimed to increase the knowledge on gender issues and to create conditions for a possible "gender certification" including criteria such as gender perspective in research and teaching (see the description of this initiative in the Energy Sciences Department [website](#))

¹²² Conferences, workshops and summits are good opportunities for this. For instance, the European Conferences on Gender Equality in Higher Education (e.g. [the 8th edition](#)), the [Gender Summits](#) or the 2012 workshop above mentioned ([Embedding Concepts of Sex and Gender Health Differences into Medical Curriculum](#))

¹²³ See section D. Relevant Indicators

¹²⁴ See for instance, at the C.4 models sub-section of the present report, the University of Barcelona (UB) *Study on the Gender perspective in the university teaching practice*. The UB University Institute of Educational Sciences has a Research Funding Programme on University Teaching (REDICE) which supports this kind of studies. Particularly, from 2008 onwards, some of the calls have explicitly included a prioritized research topic on *Gender in university teaching* (e.g., [Convocatòria REDICE-14](#), in Catalanian)

¹²⁵ The paper by Ruth Becker et al. (2008), below mentioned at the C.4 section on Models for IGAUC, details three main aspects to be considered "minimum standards" on gender interdisciplinary issues when accrediting university programmes: 1) professional aspects of the subject area, 2) the criticism of discipline specific knowledge, and 3) aspects of the production and use of the discipline's research results. (pp.9-10). Available at <https://www.gender.hu-berlin.de/de/publikationen/gender-bulletins/texte-34/bulletin-texte-34>

C.4 Models on the Integration of the Gender Analysis into University Curricula (IGAUC)

- Ministries and national agencies are recommended to **develop specific projects/activities** targeting the institutions (universities, accreditation agencies, local governments, etc.) and the institutional levels (decision-makers) with responsibility for university curricula development in order **to map, monitor, improve, etc.** their policies/recommendations aimed at letting students get the necessary skills for conducting sex/gender analysis in research and innovation projects¹²⁶. For it, is also convenient to count on the non-academic professional's perspective, for instance, to identify the lacks of sex/gender competencies they have found in the daily practice on their respective fields and the useful materials they have found/create to cope with them¹²⁷
- Boost the **networking of academics by main field of science** at national/international level, to support each other and to promote the exchange of good practises in IGAUC and the advancement in their specific fie

7 cases are presented in this section. Each one is divided in three subsections: 1) an introduction to the programme/initiative; 2) a description of its objectives, and 3) further details about the development of the experience. To follow the same structure for the 7 cases, the extracts quoted from these initiatives do not follow the linear order of the reference documents. These cases involve 6 universities (5 European ones and one more in U.S.) and a network of professors and scientists (in Germany): the Charité University Hospital of Berlin, the Technical University of Berlin, the Technical University of Braunschweig, the University of Valencia, Brown University, the Women's & Gender Research Network NRW (North Rhine-Westphalia), and the University of Barcelona.

The first four cases are descriptions of existing programmes at European universities. The three last ones are examples of inspiring initiatives aimed at sup-

¹²⁶ See for instance, in the C.4 section (on Models for IGAUC), the case of the on-line model database resulting from the "Gender in bachelor and master courses - integrate women's and gender studies into the curriculum" research project supported by the Ministry for Innovation, Science, Research and Technology

¹²⁷ For instance, at an international level, the report on [Integrating gender into the curricula for health professionals](#) is the result of a meeting that the WHO Department of Gender, Women and Health (GWH) convened in December 2006 to ensure that these considerations are addressed in health policies and programmes. The document provides lists of core gender competencies for physicians and public health professionals and recommendations for policy-makers and medical educators to move the agenda forward. Another example is *The Sex and Gender Women's Health Collaborative (SGWHC)* coordinated effort of the American Medical Women's Association, the American College of Women's Health Physicians, and Society for Women's Health Research initially aimed to address the gaps in medical education surrounding sex and gender specific care of women but also expected to lead to a critical assessment of our understanding of men's health (more detailed information in [Advancing sex and gender competency in medicine: sex & gender women's health collaborative](#))

porting the promotion of the gender analysis in university curricula at different levels, and have been selected as complementary steps oriented to facilitate IGAUC.

The main focus of these models is on scientific and technological fields other than humanities and social sciences, due to the GENDER-NET specific goal on this issue. Typically, STEM¹²⁸ fields have been so far less advanced on IGAR and IGAUC. Consequently most of the recent resources (manuals, websites, etc.) developed to support and make researchers aware of IGAR methods usually highlight examples in STEM fields. However, it must be noted that efforts should still be made to further develop IGAR and IGAUC in Social Sciences and Humanities (SSH) research and teaching practices. Three of the models presented in this section have a broad scope including SSH fields

**C.4.1 A Successful Strategy
to Integrate Sex and Gender
Medicine into a Newly
Developed Medical
Curriculum The Charité
University Hospital, Berlin**¹²⁹

- Introduction

The impact of sex and gender represents a major domain in the field of diversity and is analysed in the novel discipline of sex and gender medicine. Sex and gender medicine takes into account both biological sex and gender as a sociocultural process and their effects on women's and men's health to improve health and health care for both women and men. Because sex and gender cannot be properly separated in the medical field, biological sex is seen to influence health by modifying one's behaviour and lifestyle and gender-behaviour can modify biological factors and thereby health, thus the term "sex and gender medicine" was introduced. (pp. 996-997)

In 2010, a large European medical faculty, the Charité-Universitätsmedizin Berlin, started to enrol all new medical students into a new medical curriculum.¹³⁰ This undergraduate program is of modular structure, fully integrated, competence based, outcome oriented, and involves patient contact from the beginning. The new curriculum has been sequentially (i.e., module and term wise) planned and implemented following a standardized, systematic, and faculty-wide approach. (p. 997)

¹²⁸ Science, Technology, Engineering and Mathematics

¹²⁹ This information is extracted from the paper: Ludwig Sabine, Oertelt-Prigione Sabine, Kurmeyer Christine, Gross Manfred, Grüters-Kieslich Annette, Regitz-Zagrosek Vera, and Peters Harm. A Successful Strategy to Integrate Sex and Gender Medicine into a Newly Developed Medical Curriculum. *Journal of Women's Health*. December 2015, 24(12): 996-1005. doi:10.1089/jwh.2015.5249

¹³⁰ Supplementary Data are available online at www.liebertpub.com/jwh

- Objectives

The key institutional goal is to systematically integrate sex and gender medicine and gender perspectives into the curriculum in order to foster adequate gender-related knowledge and skills for future doctors concerning the etiology, pathogenesis, clinical presentation, diagnosis, treatment, and research of diseases. (p.996)

The final aim is to foster the students' ability to apply the gender perspective as an important tool to improve their diagnostic, clinical and treatment skills as well as communication abilities with the patient. The consideration and knowledge of sex and gender differences in the development, diagnosis, and treatment of diseases results in a more personalized, cost-effective, and better quality of medical care for men and women. (p.997)

- Details

The new undergraduate medical training program is 6 years long and follows the European Union standard requirement of 5500 teaching hours per student. There are two intakes per year, comprising 300 students each. Years 1–5 consist of 10 semesters and comprise 40 modules. Year 6 consists of 3 clinical rotations, each 4 months long. The planning of the modules of the new curriculum started in 2010 and was finalized in 2014. During each curricular development cycle, four modules of one semester were planned. The planning cycle began nine months before the corresponding semester started. Module planning and design involved a standardized eight-step approach, with eight sessions, where one session was 2 hours per week. (p.997)

In terms of methodology, a change agent was integrated directly into the curriculum development team to facilitate interactions with all key players of the curricular development process. The gender change agent established a supporting organizational framework of all stakeholders, and developed a 10-step approach including identification, selection, placing relevant sex and gender medicine-related issues in the curricular planning sessions, counseling of faculty members, and monitoring of the integration achieved. (p.996)

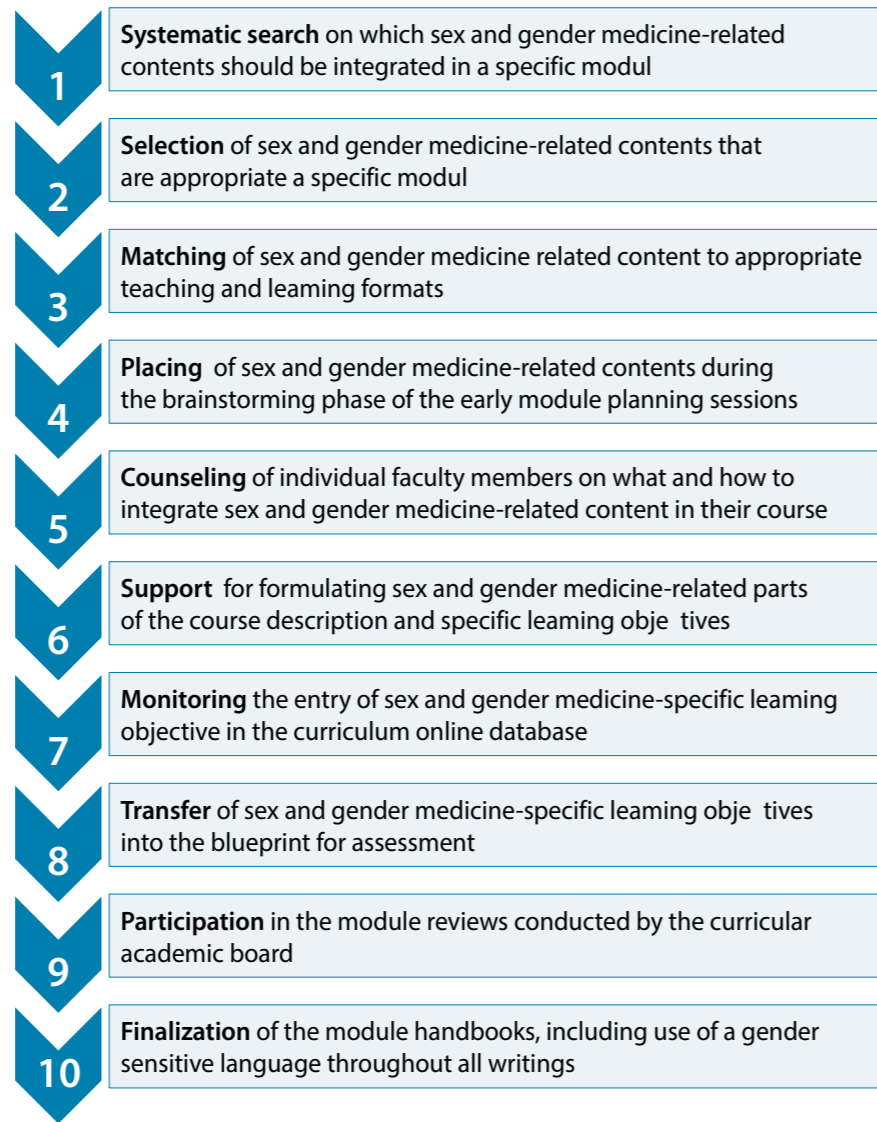


FIG.1 Systematic, 10-step approach to incorporate sex and gender medicine issues along the regular module-planning cycles of the new medical curriculum. (p.999)

There was one change agent employed for a full position as research officer being recruited through a common vacancy announcement. The position was co-financed by a grant of the Berlin state government (Berliner Chancengleichheitsprogramm). The change agent did not receive any special training, but was supported mainly content-wise — by the Institute of Gender in Medicine at Charité. That person was then given the opportunity and also expected to deepen his/ her knowledge while being in this position (“learning on the job”). In addition to the characteristics similar to those of a curriculum developer, the key features of the change agent were a medical background (medicine, public health) and a qualification involving social

sciences/gender studies. Also, a thorough knowledge of sex and gender medicine aspects as well as gender mainstreaming into organizations, like those of higher education institutions, were compulsory. (p.997)

The change agent developed and followed a systematic, 10-step approach (Fig. 1 above). For the planned curriculum, this approach involved three phases and was adjusted to the general standardized curriculum planning process. (p. 998)

With this approach, quantitatively sex and gender medicine-related content was widely integrated throughout all teaching and learning formats and from early basic science to later clinical modules (94 lectures, 33 seminars, and 16 practical courses). Gender perspectives involve 5% of the learning objectives and represent an integral part of the assessment program. Qualitatively, the relevance of gender (sociocultural) differences was combined with sex (biological) differences in disease manifestation throughout the curriculum. (p. 996)

One of the main success factors identified after the implementation of this program has been the appointment of a change agent that facilitates the development of systematic approaches that can be a key and serve as practice models to successfully integrate new overarching curricular perspectives and dimensions—in this case sex and gender medicine—into a new medical curriculum. (p. 996)

For more information:

- <http://gender.charite.de/en/education/> & <http://gender.charite.de/en/institute/>
- http://eugim.charite.de/en/eugim/teaching/module_1/module_description_1/
- http://dsfz.charite.de/forschung/projekte/genderaspekte_im_msm/

C.4.2 The study program GENDER PRO MINT at the TU Berlin¹³¹

- Introduction

The study program **GENDER PRO MINT** at the TU Berlin is a target specific study program to train students in gender competencies in science, technology, engineering and mathematics (STEM). These gender competencies include comprehensive and field-specific gender competencies as well as reflexive and creative gender competencies. Gender skills are based on knowledge of gender theories and focus on Gender Studies approaches in the STEM field in question as well as on Science & Technology Studies (STS). In particular, the ability to transfer these

¹³¹ This information is extracted from the paper Lucht, Petra & Mauss, Bärbel (2015). Teaching research-based gender competencies in STEM: The study program GENDER PRO MINT at the Technische Universität Berlin. Presented at the 43rd SEFI Annual Conference 2015: Diversity in engineering education: an opportunity to face the new trends of engineering

approaches to a study project or a qualifying thesis in a STEM field is being conveyed, aiming at the implementation of Gender Studies perspectives in science and engineering. In this way, gender competencies are related to both research results of Gender Studies and current research and development in science and engineering. (p.1)

The study program GENDER PRO MINT addresses the question of how gender and diversity knowledge can be made productive for engineering education and for the subsequent professional practice. It is not taught in addition to study courses of STEM but Gender Studies knowledge is taught in integrative ways in relation to the contents and approaches of STEM. (p.2)

The study program started in March 2012 with the introductory course "What have natural and technical sciences to do with gender?" - developed and taught since then by Bärbel Mauss. The program can be completed with a "GENDER PRO MINT Certificate I" (18 ECTS) and the consecutive "GENDER PRO MINT Certificate II" (12 ECTS) of the TU Berlin. GENDER PRO MINT is offered exclusively to the target group of bachelor, master and PhD students of the STEM at the TU Berlin. Currently, more than 200 students have registered for the study program; more than 110 students have successfully completed at least one module of GENDER PRO MINT. In November 2014, the first GENDER PRO MINT Certificates of the TU Berlin have been awarded to the first graduates at TU Berlin. (p.3)

GENDER PRO MINT is located at the [Center for Interdisciplinary Women's and Gender Studies \(ZIFG\)](#), a renowned research institute with a focus on STS directed by Prof. Sabine Hark. The students may attend all courses of the ZIFG within the program as well as a variety of Gender Studies courses at other universities in the Berlin area. Study projects are supervised in cooperation with the faculties in STEM. (p.3)

This program is structured and conceptualised in ways that allow students to acquire research-based gender competencies as an integral part of their engineering education at the TU Berlin. One of the main teaching concepts of the study program is that students integrate gender and diversity aspects into given study projects in STEM. Through working on these study projects, students learn how to implement gender and diversity aspects into STEM. (p.7)

One of the objectives of the study program GENDER PRO MINT at the TU Berlin is to train students in the ability to analyse science and technology from multiple Gender Studies perspectives. Learning outcomes enable students to consider and to integrate gender and diversity needs while developing scientific knowledge, developing planning processes and developing technology. (p.7)

- Objectives

GENDER PRO MINT at the TU Berlin aims to train students in the ability to analyse science and technology from multiple Gender Studies perspectives. Learning outcomes enable students to consider and to integrate gender and diversity needs while developing scientific knowledge, developing planning processes and developing technology. (p.7)

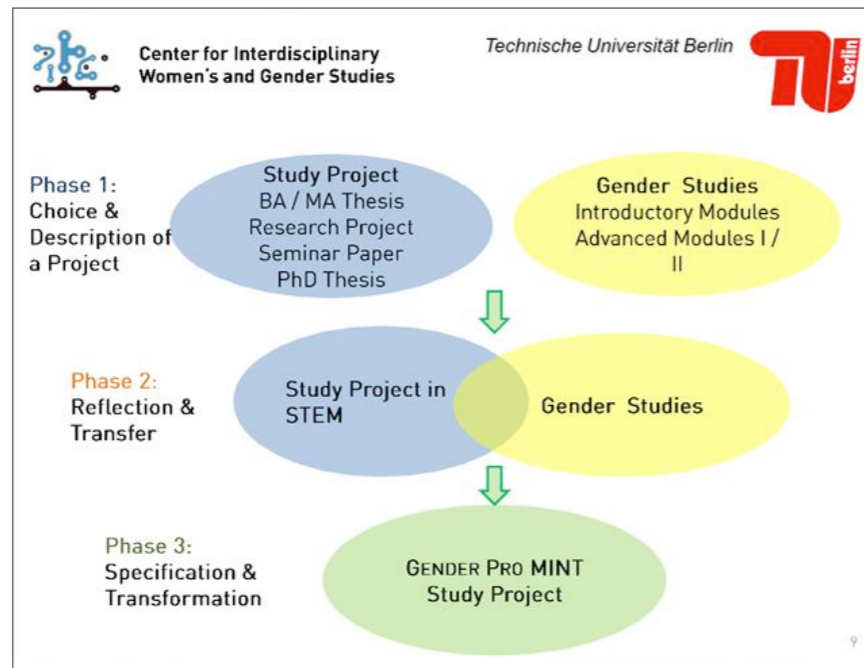
GENDER PRO MINT offers a target group specific study program to train students in research-based gender competence in science, technology, engineering and mathematics: Research-based gender competence in STEM in the study program GENDER PRO MINT is based on current research in Gender Studies. Therefore, gender competence cannot be taught as fixed knowledge. Rather, research-based gender competence must be understood to be in process. Students in STEM at the TU Berlin are trained in research-based gender competence in the structured study program GENDER PRO MINT at the following levels of competence:

- **Reconstructive gender competence:** *Students acquire knowledge about key terms, concepts of Gender Studies and knowledge of important fields. They are expected to learn how Gender Studies in STEM are systematised in order to be able to reconstruct scientific studies in Gender Studies to STEM*
- **Field-specific gender competence:** *Students develop the skills to transfer methods as well as gendered and epistemological foundations of the scientific studies to their own area of expertise in STEM*
- **Reflexive-creative gender competence:** *Students in STEM develop the skills to reflect systematically on their own or internal positions and unquestioned assumptions, settings etc. in STEM. And therefore students are expected to transfer knowledge and skills about 'gender' and STEM to new situations through theoretical and methodological approaches*
- **Shaping gender competence:** *Students learn to develop and shape new projects and new questions and new approaches in their own field in STEM based on their acquired expertise in Gender Studies. (p.4)*

- Details

The structure of the study program is shaped in accordance with study courses of STEM fields at the TU Berlin.

Figure 1: Phases of working on a study project in GENDER PRO MINT at the TU Berlin (p. 5)



The study program consists of five consecutive modules (30 credits in total):

- 1. Introductory Module (4/6 ECTS):** The overarching question of the introductory module is: "What is the connection between science and engineering sciences on the one hand and gender on the other hand?" In this module students learn the fundamentals of Gender Studies in STEM fields starting from scientific and technical concepts, practices, designs and professional images.
- 2. Advanced Module I (9 ECTS):** Profile development in Gender Studies: In this module students get deeper insights into different topics of Gender Studies.
- 3. Project Module (6 ECTS):** The overarching question of this module is: "How can we translate the knowledge of Gender Studies in STEM into a concrete study of their own field?" In this module students reflect on the professional culture as well as on the content and practices of their own field through carrying out study projects in science or engineering science.
- 4. Advanced Module II (4 ECTS):** Profile development in Gender Studies: The students get a deeper insight into the relevant fields for the final project.
- 5. Final Project Module (8 ECTS):** Gender and Diversity in the design of research projects and technology: The students transfer gender skills into technology and research design.

Graduates receive the "GENDER PRO MINT Certificate I" of the TU Berlin (18 ECTS) after having completed the third module and the "GENDER PRO MINT Certificate II" of the TU Berlin (12 ECTS) after having completed the fifth module. (pp. 3-4). Figure 2 shows a list of examples of study projects in GENDER PRO MINT.

Figure 2: Examples of study projects in STEM and analytical perspectives of Gender Studies

Examples of Study Projects in GENDER PRO MINT, TU Berlin			
	Study Project	Analytical perspective	Perspective on results
Medical Engineering Mareike Okrafka	(1) Wheel chair (2) Tele-Rehabilitation (in case of stroke) - Master thesis -	Androcentrism / I-Methodology & Disability Studies	Inscription of social norms into technology with regard to notions of autonomy and gender
Landscape architecture Anne Miersch	Playgrounds in the 1950ies and 2000s - Master thesis -	Critique of Gender Mainstreaming in planning, Analyses of gendered spaces	Analyzing how spaces are being gendered Queering space
Computer science Melanie Irrgang	Violent Scenes Detection in Hollywood Movies - Study project -	Androcentrism / I-Methodology	Inscription and exclusion of gendered notions of violence in detection algorithms

In these project modules, students learn how to consider and integrate gender and diversity aspects into their study projects as well as into their qualifying theses (BA, MA and doctoral level). The students' study projects show that it is possible to identify, to consider and to integrate - in various ways and to various degrees - perspectives of intersectional Gender Studies within a relatively short time span of one semester into research, development and planning in STEM fields (see Figure 1). (p.5)

For more information on the GENDER PRO MINT programme: <https://www.genderpromint-zifg.tu-berlin.de/>

C.4.3 Integrating Intersectional Gender Studies Expertise in Engineering Education at the TU Braunschweig¹³²

- Introduction

In December 2012 the Maria-Goeppert-Mayer chair for "Gender, Technology and Mobility" was established at the TU [Technical University] Braunschweig and the

¹³² This information is extracted from the paper: Bath Corinna & Draude Claude (2015). [Diversifying a Car Body Development Course. Integrating Intersectional Gender Studies Expertise in Engineering Education](#). Presented at the 43rd SEFI Annual Conference 2015: Diversity in engineering education: an opportunity to face the new trends of engineering

Ostfalia University of Applied Sciences, Germany. The work group is partly financed for four years by a larger program of the federal state Lower Saxony that aims at strengthening the field of gender studies within academia. Central to the team's work is to foster a constructive dialogue between gender studies and engineering in order to integrate gender studies knowledge into engineering education and research & development, with a special focus on mobility technologies.

*The TU Braunschweig successfully applied for funding from the German federal ministry for education and research for a program "Teach4TU". This program includes annual subprogram facilitating processes of innovation within the university's courses. To participate, Prof. Dr. Bath's work group collaborated with Prof. Dr. Vietor (Institute for Engineering Design); they shaped a pilot scheme called "GenderING. Gender Studies in Engineering Sciences" (ING refers to the German term *Ing enieurwissenschaften=engineering sciences*). (p.1)*

- Objectives

The innovative aim of this project is to integrate knowledge derived from intersectional gender studies into a regular university engineering course (exemplarily in the course "Introduction to Car Body Development"). In the 'GenderING' project, gender studies is understood as a means for reflection, especially on in- and exclusions and on marginalized positions in engineering projects. Thus, gender studies help to make formerly invisible or neglected topics visible. Furthermore, gender studies question hierarchies and power structures and emphasize the diversity of people, situations and contexts. (pp.1-2)

The project proposes objectives for the learning and teaching process. These objectives are inspired by qualifications that gender studies students acquire. They mainly centre around two basic topics:

- **To reflect upon and broadening the engineer's own standpoint:** *Students and teachers are expected to learn to recognize their self-understanding and the limitations of their own perspectives. They are invited to take over new, alternative roles and learn about changing viewpoints*
- **To put engineering in context:** *The lecture materials as well as the resulting practices are expected to be understood within their societal context and situatedness. Artefact production is something that is never value-free – technology is designed and built under specific historical and political conditions and by specific people*

Other further aims or possible outcomes of the project from these two:

- **To allow a change in perspectives and to question the given state of the field** *in order to open up spaces for the development of new, even non-conventional,*

technological solutions. Alternative models, the use of thought experiments, especially those including formerly marginalized positions, can lead to a renewal of the discipline. (pp. 6-7)

- **To strengthen the responsibility for technological design and production** *every engineer should be aware of – not just for their immediate environment but for different people and local and global contexts. (p.6)*
- **Other possible further outcomes** *are that students are educated to work in a globalized world. Future engineers need to learn to be sensitive towards other cultures and to discuss and reflect upon their own background. Gender studies methods include the facilitation of interactive approaches, interdisciplinarity and target-group specific tailoring of products and procedures. (p.7)*

- Details

In the project 'GenderING', aspects of intersectional gender studies are to be integrated exemplarily in the course "Introduction to Car Body Development". This module, which consists of a weekly lecture and an accompanying exercise course, familiarizes students with car development with a special focus on design engineering the car body. It provides an overview of construction methods, the use of materials, safety, ergonomics and production, production costs, etc. Additional talks are given by practitioners and car industry experts. The current format of the lectures is teacher-centered. Lecturers use examples in form of demonstration materials and visual aids. The exercise course is optional and gives student teams the opportunity to practice the expertise and knowledge gained in the lectures in test scenarios. The lectures cover topics such as requirements for car (body) development, packaging, car body composition and material, dimensioning, construction modes and production. Ideally, the module enables students to define, design and evaluate concepts for car body development according to given requirements.

The team of 'GenderING' consists of two researchers from gender studies in engineering and the two lecturers from mechanical engineering. One important step in interdisciplinary projects is to establish common ground. Engineering and gender studies both have developed their own academic cultures. Gender studies are rooted in the humanities and social sciences, where knowledge is mostly distributed in smaller seminars by reading and discussing texts. Engineering, in a traditional sense, is oriented toward problem-solving and teaches applied knowledge. Professional terminology and habitus in the disciplines differ as well. Thus, intensive work meetings are essential to the project. These serve to exchange basic concepts and terms and provide a deeper insight into each other's field. Such an interdisciplinary translation work is essential, since gender studies expertise cannot be realized merely in the form of guidelines or checklists for technological endeavours.

Parallel to the work meetings, the gender studies team reviewed the existing lecture material and identified connecting points for intersectional gender studies input. These connecting points were discussed with the engineering design team. This interlinkage is important, since the goal of the project is to interweave gender expertise with the existing material rather than providing additional lectures or an add-on. Ideally, these newly integrated contents would also alter the structure of the existing module, leaving more space for an active reflection of the material by the students and shifting the focus from teacher-centred to student-centred teaching. At this point, the didactical restructuring has not been implemented. (p.4)

Gender studies and mechanical engineering are not just two academic fields that differ in methodology, culture, and participants. They each enjoy very different positions in academia as well as in society at large. Not just in a country like Germany with its Ingenieurskultur (engineering culture), engineers holds a high social status. In contrast, gender studies is a rather marginalized discipline, in which positions are often unstable and contested in academia. One effect of this difference in hierarchies is that gender studies experts are often required to prove the significance of their input when they are engaged in technological projects. This can even lead to circular reasoning: the in- and exclusions of technological production, for example, are not visible before the process has undergone an intersectional gender studies analysis. However, if gender studies experts have to prove the relevance of their research for engineering before they enter into alliances with technological fields, it is difficult to provide results. Thus, collaborations of gender studies and engineering need time, space and acceptance of and for the discipline.

In the project 'GenderING', integrating intersectional gender perspectives means additional work for the teachers, too. Furthermore, they have to revise their current thinking and need to get involved in unknown territory. It is noteworthy that so far, enriching the content of the car body development lectures is successful, but to alter the structure of the course is a challenge. To reach and train important educational goals such as reflection and awareness, however, a restructuring of the current format of the lecture from teacher-orientation towards student-orientation is necessary. (p.7)

For more details about the GenderING programme: <https://www.tu-braunschweig.de/gtm/index.html>. For further information, see also the LIT-Verlag upcoming book *Reboot ING. Handbuch Gender-Lehre in den Ingenieurwissenschaften* (edited by Corinna Bath, Göde Both, Petra Lucht, Bärbel Mauß, and Kerstin Palm).

C.4.4 Gender Relations Subjects targeting all the undergraduates at the University of Valencia

- Introduction

The University of Valencia is implementing its Second Gender Equality Plan. The university has an Equality Unit created by resolution of the Governing Council on October 2007. The Equality Unit aims to implement the right to equal treatment and opportunities for women and men. This Unit prepares and deve-

lops the necessary programmes to promote equality policies at the university and coordinates specific actions that can be adopted by the different bodies, centres and services. For instance, in 2010 the Equality Unit presented a report on the integration of the gender dimension in the syllabus of the new degrees.

Within the University of Valencia there is also the Women's Studies Institute where researchers, professors and students raise a critical review of the mainstreaming discourse, promoting cooperative relations with other scientific organisations and institutions and, above all, the development of alternative proposals in order to meet social demands, from an open perspective and according to the need to promote equality between men and women.

The Institute of Women's Studies, offers a Master's Degree and a PhD. Programme in Gender Studies. It also offers four courses on Gender Relationships open to all undergraduate students of the University of Valencia. The University of Valencia is divided in four main scientific areas: Natural Sciences — Engineering and Architecture, Health Sciences, Humanities, and Social Sciences. There is one specific *Gender Relations* course according to the scientific area:

1. *Gender Relations, Health and Society* (for undergraduates in Health Sciences, except the Degree on Pharmacy).
2. *Gender Relations, Thought, History and Society* (for undergraduates in Arts and Humanities, Education, Pedagogy and Social Education).
3. *Gender Relations, Politics, Citizenship and Society* (for undergraduates in Law and Social Sciences, except Education, Pedagogy and Social Education).
4. *Gender Relations, Science, Technology and Society* (for undergraduates in Engineering & Architecture, Pharmacy, Physics, Chemistry and Biology).

The University has been offering these four courses since 2012. It is a pioneer initiative in Spanish universities.

- Objectives:

- To provide an opportunity to expand academic training by acquiring complementary transferable competencies to those specifically included in the syllabus
- To allow the enrichment of the educational profile at any degree by providing knowledge and useful skills for the future professional performance practice
- To promote educational innovation and interactive communication, since classes are delivered in a blended modality with a considerable proportion of online teaching and use of various audio-visual resources

- To advance the university curricula in accordance with to the European Commission normative and to the Bologna Process incorporating the criteria of equality and gender mainstreaming in the academic and professional training for the European labour market
- To encourage critical thinking, allowing further analysis of inequalities between men and women in public and private spheres and to extent the knowledge on contemporary social and cultural complexity

- Details

The Institute of Women´s Studies is responsible for organizing the courses and the selection of teachers among the Institute professors and researchers.

The four courses share some common basic topics besides the specific content adapted to each main scientific fie .

For instance, the main fi e topics of the *Gender Relations, Science, Technology and Society s* subject are the following:

1. Gender in the mainstream of current European research.
2. Key concepts of gender analysis in natural sciences and engineering. Main gender biases in scientific esearch.
3. The gender perspective in the epistemological critique of the theories of science and of technological practices
4. Making Women visible in science and engineering.
5. Gender, globalization and diversity. Women in Science at the EU and Spain.

The value of each course is 6 ECTS credits out of the 240 total credits of any degree. Each course consists of 2-hour 14 classroom sessions together with 28 hours of complementary on-line activities (such as text readings, discussion of audio-visual resources, tutorials, forums and chats) and team/individual students essays.

For more information about these subjects: See the School of Engineering [web-site](#) and the University Institute of Women Studies [website](#).

The Department of Emergency Medicine at The Warren Alpert Medical School of Brown University has a [Division of Sex and Gender in Emergency Medicine](#) (SGEM), responsible of an SGEM Fellowship and an SGEM (Resident) Elective Education.

133 The quotations are extracted from the paper: Alyson J. McGregor, Tracy E. Madsen, Brian Clyne, 2014. [Foundations for a Novel Emergency Medicine Subspecialty: Sex, Gender, and Women’s Health](#). Academic Emergency Medicine 2014;21:1469–1477

C.4.5 Foundations for a Novel
Emergency Medicine
Subspecialty and Fellowship:
Sex, Gender, and Women’s
Health at Brown University¹³³

Alyson J. McGregor et al. (2014)¹³⁴ described the rationale, methods and solutions used to develop the curriculum (learning objectives, competencies and activities/recommendations) and to cope with barriers for establishing an SGEM training programme based in a department of Emergency Medicine (EM). Their paper presents *suggestions for establishing elective and fellowship experiences that could serve as a framework for similar programs. Incorporating curricula in women’s health, and sex- and gender-based medicine more formally within emergency medicine, is a first step toward recognition as a subspecialty. Additionally, these programs can be a strategic asset, serving as a resource for education, clinical care, and research. Establishing additional programs will benefit departments seeking to develop experts in women’s health and sex- and gender- based medicine who can lead the next generation.* (p.1476)

- Introduction

Sex- and gender-specific medicine (SGM) is a rapidly developing field rooted in women’s health. [...] EM is an ideal specialty to cultivate this new field because of its broad interdisciplinary nature, increasing numbers of patient visits, and support from academic medical centres to promote expertise in women’s health. (p. 1469)

In 2013, The Journal of Women’s Health published a “Directory of Residency and Fellowship Programs in Women’s Health,” listing 23 fellowship programs in the United States dedicated to providing subspecialty training in women’s health. Identifying the educational gap that none were sponsored by departments of EM [...] a curriculum for EM residents on sex, gender, and women’s health [...] was developed at the Alpert Medical School of Brown University also identifying areas where emergency care, gender-specific medicine, and clinical research overlap to contribute to the growing body of scholarship on women’s health beyond reproductive issues. The curriculum subsequently evolved into a novel postgraduate training program designed to meet the need for focused and intensive training in women’s health and SGM in the context of EM. The program draws on local resources—in medical education, research, and clinical care—to provide a unique specialty training experience. (p. 1470)

The decision to establish a women’s health/SGM fellowship evolved from positive experiences with the EM elective, favorable institutional conditions, and the need to develop leaders in the field of women’s health and SGM. (p. 1471)

- Objectives

To develop the Women’s Health/SGM elective curriculum for EM residents, *an initial needs assessment and literature search were conducted followed by a review of guidelines and women’s health curricula from other specialties and health*

134 *Ibidem*

professions. Additionally, core faculty held informational interviews with content experts and developed educational objectives. [...] Focus groups with local educational stakeholders were conducted to refine the learning objectives and identify available resources. The process resulted in a distinct educational goal: To teach residents how to improve emergency medical care of women through discovery of the biological, physiological, pathological, and therapeutic differences between men and women and how that influences emergency care for all. Learning objectives were then developed that broadly reflect the important topics for EM residents to learn on a women's health/SGM elective. The Learning Objectives established for the **Women's Health/SGM Resident Elective** were:

1. Recognize sex and gender differences in the acute presentation and management of common EM conditions.
2. Explain the scientific evidence behind current controversies in the diagnosis and management of sex-specific conditions, such as emergency urological, gynecological, and obstetric conditions.
3. Identify risk factors and effective screening tools for intimate partner violence (IPV) and sexual assault, as well as best practices for treating victims of IPV and sexual assault.
4. Understand the unique medical and mental health needs of transgender or gender variant patients, including barriers to health care access. (pp. 1470-1471)

Developing the curriculum for the **Women's Health/SGM Fellowship** followed a rigorous process, similar to that of creating the resident elective, but with emphasis on advanced clinical proficiency, research skills, teaching abilities, and leadership. The goal for this kind of Fellowship is to develop physician-leaders with the specialized knowledge and skills for clinical care, education, research, and advocacy in women's health and SGM. [...] It was designed as a 2-year experience with adequate time to achieve the following objectives:

1. Gain the skills necessary to practice comprehensive SGM emergency care.
2. Develop research skills to address evidence gaps in SGM emergency care.
3. Complete a master's degree in public health or other related advanced degree coursework.
4. Identify teaching, leadership, research, and advocacy opportunities in women's health/SGM.
5. Recognize the unique challenges associated with the care of gay, lesbian, and transgender patients in the ED. (pp.1470-1471)

- Details

Focusing on the Women's Health/SGM Fellowship, the selection process seeks to identify EM residents with demonstrated interest and aptitude for academic medicine. Non-EM graduates may also be considered, with options to complete their clinical experience in primary care or urgent care settings. This flexibility allows a program to accommodate candidates with various training backgrounds and support career interests that include acute care, but perhaps not EM. A 2-year program provides sufficient breadth and allows fellows to customize some aspects of the experience. The fellowship will likely be less structured than the resident elective to allow for exploration of specific interests. Depending on their specific goals, fellows may choose to spend more time focusing on either teaching or research activities, especially during their second year. (p.1471)

Fellowship Core Competencies have an emphasis on research, teaching, and the routine incorporation of sex and gender into clinical practice. The fellowship extends beyond EM, promoting a broader understanding of sex, gender, and women's health through experiences in public health and population research. [...] Key fellowship elements include clinical work, formal research training through coursework, hands-on research experience, teaching opportunities, leadership development, and ongoing self-directed learning. (p.1473)

For more information on this programme: <http://www.rhodeislandhospital.org/services/emergency-department/sex-gender-in-emergency-medicine-SGEM.html>;

- Introduction

The **Women's & Gender Research Network NRW** connects professors and scientists located in academic institutions in the Federal State of North Rhine-Westphalia (NRW). In the context of the research project **Gender in bachelor and master courses - integrate women's and gender studies into the curriculum**¹³⁵, the Women's and Gender Research Network NRW developed and published an on-line **Model Database** including 55 subjects/disciplines across the different main fields of Science and Engineering with the respective gender-sensitive curricula proposal for each one. The database contents are updated regularly.

Additionally, a **list of gender experts** (resulting from the collaborative experience in the gender curricula section) is provided in order to facilitate that anyone can easily contact with gender-sensitive evaluators for study programmes. Gender experts can be found in the list according to their respective specialisation in different Science and Engineering field

¹³⁵ Supported by the Ministry for Innovation, Science, Research and Technology of the State of North Rhine-Westphalia (Germany)

C.4.6 Model Database on "Gender in bachelor and master courses - integrate women's and gender studies into the curriculum" - The Women's and Gender Research Network NRW (North Rhine-Westphalia)

This online resource (displayed both in English and German languages) also offers recommended [literature](#) (useful references lists across the different disciplines)

- Objectives

According to Ruth Becker et al. (2008)¹³⁶, in the 2003 “Berlin Communiqué”, the European education ministers stated that *“the necessity to improve the competitiveness (...) [has] to be brought into agreement with the goal of increasing the significance of the social dimensions of the European higher education realm.” This concerns “strengthening the social coherence as well as decreasing social and gender specific inequality on national and European levels.”*

And consequently, the coordination office of the Women’s Research Network NRW took this declaration of intent as an opportunity to investigate the extent to which the demand for decreasing gender specific inequality (i.e., according to a Bologna Process’ gender-balanced design) has been implemented in the changing degree programmes at German universities. The goals of the study also included developing criteria for a gender-balanced course of studies and indicating possible content which, from the perspective of Women’s and Gender Studies, should be integrated into the spectrum of programmes available at German universities.

Strategies previously developed for ensuring the integration of gender aspects in the development of BA/MA programmes were also to be pointed out. (pp.1-2)

- Details

Almost all of the subjects/disciplines currently included in the model database can be considered gender cross-cutting ones, the exception being Gender Linguistics (gender specific). The courses can be listed all together on an alphabetical order system or grouped by the following main fields

- Agricultural and Forestry Studies
- Society and Social Sciences
- Engineering
- Mathematics, Natural Sciences
- Medicine and Health
- Law and Economics
- Languages and Cultural Studies, Art and Design

The gender experts and the literature proposals are grouped by main fields and by disciplines.

¹³⁶ Becker Ruth, Jansen-Schulz Bettina, Kortendiek Beate & Schäfer Gudrun (2008). Gender Related Aspects of Introducing and Accrediting Bachelor and Master Programmes. In: GRENZ, Sabine, et al. (eds.), (2008): Bologna and Beyond: Perspectives on Gender and Gender Studies (pp. 1-16). Center for Transdisciplinary Gender Studies at the Humboldt University, Berlin (Series “Bulletin – Texte” No.34). Available at: <https://www.gender.hu-berlin.de/de/publikationen/gender-bulletins/texte-34/bulletin-texte-34>

The website welcomes *networking and exchange* as well as *further recommendations for improvement concerning gender-equitable curricula* in the visitor’s own discipline.

For more information on the project and website see: <http://www.gender-curricula.com/en/gender-curricula-startseite/>, the above mentioned paper by Ruth Becker et al. (2008)¹³⁷, and the chapter by Beate Kortendiek (2011)¹³⁸.

C.4.7 University of Barcelona: Study on the Gender perspective in the university teaching practise

The project *Study on the Gender perspective in the university teaching practise*, mentioned in the LERU paper¹³⁹, it is not a teaching programme as such, but a research project oriented to better identify beliefs, gaps and resistances within the faculty members, with the objective of advising on the integration the gender perspective into university curricula and the teaching practice.

- Introduction

Introducing a gender perspective in higher education means developing a critical look at discrimination towards university students, to present the students the cultural worldview of gender-power and to take a responsible and active (participant) position in social change. This implies a change in the teaching-learning process, in the conceptual contents about gender relations, in knowledge not subjected to sexist distortion, in teaching methodologies not biased by gender, in the identification of cultural elements that tend to domination, in teaching strategies for change and deconstruction of identities crossed by gender (Donoso-Vázquez, Montané & Pessoa de Carvalho, 2014¹⁴⁰).

- Objectives

The ultimate goal of this research project is to analyse the faculty of the University of Barcelona (UB) in relation to their needs, beliefs and resistances to the introduction of the gender perspective into their teaching practice. It also seeks to identify the significant elements that must be part of a gender-sensitive teaching to help the university professors in their educational practice.

This research has allowed analysing what tools, resources, policies and strategies are needed to introduce a gender perspective in teaching and how to better approach it to higher education professors:

¹³⁷ Available at <https://www.gender.hu-berlin.de/de/publikationen/gender-bulletins/texte-34/bulletin-texte-34>

¹³⁸ Kortendiek, Beate (2011): Supporting the Bologna Process by Gender Mainstreaming. A Model for the Integration of Gender Studies in Higher Education Curricula. In: Grünberg, Laura (Ed.): *From Gender Studies to Gender IN Studies. Case Studies on Gender-Inclusive Curriculum in Higher Education*. Bucharest: UNESCO-CEPES Studies on Higher Education, pp. 211–228

¹³⁹ *Gendered research and innovation: Integrating sex and gender analysis*, LERU 2015 (p.15)

¹⁴⁰ Donoso-Vázquez, T, Montané, A & Pessoa, M.E. (2014). Género y calidad en Educación Superior. *Revista Electrónica Interuniversitaria de Formación del Profesorado*, 17(3), 157-171

1. **To analyse beliefs, gaps and resistances** of university professors towards the introduction of the gender perspective in their educational practice. This aim is justified by the need to approach the reality about the lack of enforcement of the established legislation on the introduction of the gender dimension into the teaching practice. Both beliefs, gaps and resistances of professors have been analysed in order to have an overview of their ideological aspects and teaching tools.

Specific objectives:

- To identify training needs experienced by the faculty of the UB to develop a gender-sensitive teaching
- To identify the level of awareness of the UB faculty on the gender perspective
- To identify the beliefs of UB faculty on the contributions of gender theory in the training of future professionals and researchers
- To develop educational proposals to raise awareness and train teachers at UB about integrating a gender perspective in their educational practice

2. **To understand factors and general and specific elements to introduce a gender perspective in the educational practice.** This objective has allowed to go one step further and make a compilation of the elements and factors for the development of teaching skills with gender as a cross cutting issue.

Specific objectives:

- To analyse what elements and factors should be taken into account in applying a gender perspective in the teaching-learning process
- To analyse what teaching methodologies, strategies, tools and resources are best suited to work with a gender perspective
- To know what features can be introduced into the teaching-learning process to cross it by gender
- To analyse the experiences that are taking place within the UB to introduce a gender perspective in teaching

- Details

This research project has been intended as a descriptive-analytical study aimed at gathering information through a mixed of quantitative-qualitative approaches that would allow to complete the objectives:

- **Qualitative study:** A part of the qualitative study involved only four teaching fields (Philosophy, Nursing, Pedagogy and Psychology) with a total of 24 par-

ticipants (18 women and 6 men). On the other hand, for conducting in-depth interviews with gender expert faculty, also a purposive sample was performed covering all faculties of the UB, with a total of 11 (8 women and 3 men)

- **Quantitative Study:** the quantitative study intended to work with all professors in the various faculties of University of Barcelona (UB). An online survey on the needs, beliefs and resistances around gender in teaching and pedagogical practice was performed. The intention with these questionnaires was to measure the degree of importance and relevance of the topic assigned by the professor, level of training in the field and awareness of the contributions of the gender perspective in the training of university students

The study has followed two different phases:

- **Phase 1. Preparation of the analysis:** The documentary research was conducted in different databases, obtaining 113 documents considered relevant and related to the topic. This analysis allowed to identify factors from other university settings and to provide pointers for conducting focus groups and interviews
- **Phase 2. Analysis of reality:**
 1. **Group discussions:** The basic themes of the discussions were: 1) General aspects about gender (What is meant by gender?, What do we mean by sex?, What is the gender perspective?); 2) Gender stereotypes; 3) Teaching practice and introducing gender perspective in teaching, courses and on the structural elements that hinder a gender perspective in educational practice.
 2. **Interviews:** all persons identified as experts or with some awareness on the issue of gender. From these interviews categories were established to make an analysis of good practices and be able to extract significant elements that could serve as benchmarks for transfer such practices to other contexts.
 3. **Online questionnaire** to collect the views of professors on the importance, relevance, appropriateness and degree of resistance to the introduction of the gender perspective in educational practice in Higher Education. The questionnaire was sent to all professors of schools with the support of equality commissions.
 4. **Data analysis:** Results¹⁴¹.

¹⁴¹ The results of this project have not yet been published at the time of submitting the present report, but the preliminary ones point out to some factors inhibiting the integration of the gender dimension into university teaching practices. Factors such as the lack of specific training, lack of awareness, negative perception and stigma associated to gender issues, lack of time, and the perception that there is no real need to work on these issues

D. Relevant indicators for monitoring of state-of-play and progress to facilitate evaluation of the integration of gender analysis into research

D.1 Introduction to indicators on the Integration of Gender Analysis into Research (IGAR)

This chapter focuses on the use of indicators on the Integration of Gender Analysis into Research (IGAR)¹⁴² as a way of measuring advancement and change. Indicators are criteria or measures against which changes can be assessed. Indicators are generally used to make things comparable in two main senses: 1) signifying changes in specific conditions or progress from baselines towards particular objectives; and 2) showing the relative position of one entity compared to others. In the first sense, indicators can be used for accountability purposes within the analysed entity, but also for external account to other institutions and to the citizenship. Accountability mechanisms can serve also as tools for raising awareness on IGAR for both programme implementers and promoters. And additionally, a formally approved annual report assembling the IGAR indicators is a further motivational factor to progress. However, the use of some indicators (especially in the second sense, as it is the case of those included in main rankings), can make institutions too much targeted on them by only focusing in the bureaucratic aspect. Therefore, the complexity of the measured issue can be overlooked as well as the interest on other factors which could facilitate progress. To cope with this risk, among others, institutions are recommended to have a critical thinking approach on the use of indicators.

In the present chapter the objective is to provide indicators to measure in which degree IGAR is being accomplished. Indicators on IGAR are an emergent issue. It is worth mentioning that progress on the ERA Roadmap 2015-2020 has at this stage been decided to be monitored at EU level by means of one indicator per ERA priority¹⁴³. As a result, the advancement on the Gender Equality and Gender Mainstreaming priority would be monitored by means of a single indicator, the proportion of women in Grade A positions (full professorships) in the Higher Education sector. Therefore, at the time of preparing the present report no indicator is expected to cover the ERA progress of the IGAR aspect of this ERA priority at EU level, which is an issue.

However, the EC *She Figures*¹⁴⁴, which since 2003 are published every three years and gather statistics and indicators on Gender in Research and Innovation across EU countries, and which in the past editions has only been focused

¹⁴² It also provides some indicators on the Integration of Gender Analysis into University Curricula (IGAUC)

¹⁴³ Although national ERA roadmaps can of course extend the set of ERA progress indicators

¹⁴⁴ *She Figures* 2015 Full report and Handbook available [here](#)

on data about the participation of women at all levels and in all scientific disciplines, will in its 2015 full report introduce for the first time an indicator on IGAR: the *Proportion of scientific publications including a sex/gender dimension in their research contents (GDRC)*.

As already mentioned in section B.2.3 *Specific recommendations on how to improve IGAR in H2020* of the present report, in September 2015, the EC published the list of indicators that are used to monitor and evaluate H2020 in the report: [Horizon 2020 indicators. Assessing the results and impact of Horizon](#). One of the indicators of gender (as one of the cross-cutting issues), used to address specifically IGAR is: 6.4 *Percentage of projects taking into account the gender dimension in research and innovation content*.

The Type of data required for this 6.4 indicator is “Projects properly flagged” and the type of data required for this indicator was specified as “projects properly flagged”¹⁴⁵. While most of the other cross-cutting issues included indicators in terms of monitoring and evaluating the EU financial contribution allocated to their implementation, gender did not include any indicator in this sense

Additionally, the EC (2015) report on [Indicators for promoting and monitoring Responsible Research and Innovation](#) proposes three gender equality indicators related to IGAR:

- “percentage of research projects including gender analysis/gender dimensions in the content of research” (this is the only one on IGAR out of the 4 gender equality prioritized indicators in the report)

- “percentage of research institutions that provide training/support for researchers in regard to the inclusion of gender dimensions in the content of research” (not prioritized)

- “percentage of research projects including gender analysis/gender dimensions in the content of research” (not prioritized)

Below, a set of main and complementary gender indicators are proposed, aimed to support policy makers, Research Funding Organisations (RFOs) and Higher Education Institutions (HEIs) in the monitoring and evaluation of the advancement in IGAR/IGAUC goals. Noting that indicators always need to be adapted to specific contexts, it is recommended to collect data and make it available on a yearly basis in order to facilitate progress evaluation and comparability at national and EU level.

¹⁴⁵ This means the projects that have indeed developed a sex and gender analysis

D.2 Methodology

The sources used to develop this indicators chapter are outputs from the GENDER-NET Work Package 3 MS10 Workshop (Bern, 12 May 2015) aimed *to identify common elements for transnational implementation and criteria for indicators for monitoring state-of-play and progress on the integration of the gender dimension in research contents*. During this workshop, the following areas were discussed and indicators proposed to develop: National Policies and Strategies, Guidelines & Training for Reviewers, Guidelines and Training for Applicants, Funding Programmes and Calls.

This chapter also incorporates information from the GENDER-NET workshop: *Preparation for the Strategic Seminar on the Implementation of the Gendering of Research Contents and Programmes and its Monitoring* (MS14 Cyprus, 28 Sept. 2015), where the main indicators detailed below were presented and discussed, as well as the upcoming GENDER-NET report D3.12 on *Elevating Promising Practice: Potential Transnational Actions for Integrating Gender Analysis into Research*.

The following section presents a set of recommended indicators to inform about the status and progress towards IGAR in institutions, programmes and projects.

For Research Funding Organizations the indicators are divided in two different categories:

- a) **main** indicators which are considered basic for the purpose of measure and monitoring
- b) **other complementary** indicators, that can provide valuable additional information on the subject and will inform a more detailed and in depth picture of the situation.

These two categories are also divided in 8 subsections which correspond to the same subdivisions followed in the Key Guidelines provided for Funding Agencies in the present report:¹⁴⁶

1. **Policy and/or strategy**
2. **High level support and leadership at institutional level**
3. **Research Funding Programme** (At the programmes design level, At call dissemination level, At the level of the call for proposals, At proposal peer review/evaluation and project monitoring level)
4. **Strategic Training (T), Dissemination Materials (DMs) and Awareness Raising Activities**

¹⁴⁶ See Chapter B (section B.2.1). You can find there a more detailed description of what are RFOs recommended to do in order to integrate the IGAR in the following key areas of the funding system

5. Gender Specific Research

6. Monitoring and Evaluation

7. Budget and Resources

8. Supplementary and/or Eligible Funding.

D.3 Recommended Indicators

D.3.1 Main indicators for RFOs

Main Indicators for RFOs	
Policy and/or strategy:	A policy requiring the integration of the gender analysis into research funding programmes in place: Yes/No.
High level support and leadership at institutional level:	Senior managers involved in the implementation of the policy: Yes/No. Clarify the specific role of each senior manager.
Research Funding Programme:	
At the programmes design level:	Number and % of programmes which include measures aimed at integrating the gender analysis.
At call dissemination level:	Number and % of topics which are gender flagged/tagged (explicit cross-cutting gender analysis).
At the level of the call for proposals:	<p>Number and % of calls that include a mandatory requirement for applicants to indicate whether sex and/or gender is relevant to their research proposal.</p> <p>Number and % of calls that include a mandatory requirement for applicants who do not include sex and gender analysis to explain why not.</p> <p>Number and % of proposals submitted that have responded YES to the sex/gender relevance question.</p> <p>Number and % of YES respondents to the sex/gender relevance question that:</p> <ul style="list-style-type: none"> • Do not include explicit consideration to sex/gender in the content of the research approach/cycle • Provide inappropriate (inconsistent, apparent,...) explicit inclusion of sex/gender considerations in the research approach/cycle • Appropriately include sex/gender analysis across all the research approach/cycle <p>Amount and % of the total call budget spent on projects which include sex/gender analysis.</p>

Main Indicators for RFOs	
<u>At proposal peer review/evaluation and project monitoring level:</u>	<p>Number and % of evaluation panels that include at least one gender expert.</p> <p>Weighting of sex/gender analysis scoring criteria (% of total).</p> <p>Explicit integration of sex/gender analysis as one of the issues to be monitored in mid-term/final project reporting: Yes/No.</p>
<u>Strategic Training Programme, Dissemination Materials and Awareness raising activities:</u>	<p>Number and % of calls that include dissemination materials and guidelines to support APPLICANTS in the integration of the gender analysis into research proposals.</p> <p>Number and % of calls that include dissemination materials and guidelines to support REVIEWERS/EVALUATORS in the integration of the gender analysis into research proposal evaluations.</p> <p>Number and % of staff/researchers who have received training on IGAR.</p> <p>Number and % of reviewers/evaluators who have received training on IGAR.</p> <p>IGAR awareness raising activities in place: Yes/No.</p>
<u>Gender Specific Research¹⁴⁷:</u>	Gender specific research funding programme in place: Yes/No.
<u>Monitoring and Evaluation:</u>	Monitoring and evaluation system in place for assessing incorporation of gender in research content (e.g. checklist, self-assessment indicators, etc.): Yes/No.
<u>Budget and Resources:</u>	<p>Gender Equality and/or Gender in Research Content Unit/Committee in place: Yes/No.</p> <p>Amount and % of overall budget dedicated to enforcing the gender integration in research contents, please clarify budget lines (e.g. gender training, gender experts, gender eligible costs in calls etc.).</p>
<u>Supplementary and/or Eligible Funding</u>	Supplementary or eligible funding offered for exploring how sex/gender analysis can be added to current or proposed research.

¹⁴⁷ A research funding programme specific on gender studies, additional to considering gender as a cross-cutting issue in all funding programmes

D.3.2 Other Complementary indicators for RFOs

Other Complementary Indicators for RFOs	
Research Funding Programme:	
<u>At the programmes design level</u>	<p>Number and % of programmes which include measures aimed at integrating the gender analysis by main research fields.</p> <p>Number and % of programmes addressing gender specific topics.</p>
<u>At the level of the call for proposals</u>	<p>Number and % of calls that include an optional requirement for applicants to indicate whether sex and/or gender is relevant.</p> <p>Number and % of calls that include an optional requirement for applicants who do not include sex and gender to explain why not.</p> <p>Number and % of proposals that have responded "NO" to the sex/gender relevance question, and: Do not clarify why.</p> <p>Provide inappropriate clarification of why not (incorrect, lack of understanding...).</p> <p>Provide appropriate (reasonable, correct...) clarification of why not.</p> <p>Success rate by 1) "YES" respondents and 2) "NO" respondents.</p> <p>Number and % of research proposals that include at least a gender expert within the research team.</p> <p>Number and % of research proposals that apply for supplementary/eligible funding to improve IGAR (sex/gender training/exploring for team members).</p>
<u>At proposal peer review/evaluation and project monitoring level:</u>	<p>Criteria used to appropriately select gender expert evaluators: Yes/No.</p> <p>Evaluation criteria include different IGAR scores as a function of the level of quality: Yes/No.</p> <p>Number and % of project publications including IGAR.</p>

Other Complementary Indicators for RFOs	
Strategic Training (T) Programme, Dissemination Materials (DMs) and Awareness Raising Activities (ARAs):	Level of satisfaction (on a scale) with the training of trained staff/evaluators.
	Level of applicants' satisfaction (on a scale) regarding DMs.
	Number of training activities offered per year to staff/researchers.
	Number of training activities offered per year to reviewers/evaluators.
	Criteria used to appropriately select gender trainers: Yes/No.
	Level of trained staff/researchers/evaluators' satisfaction (on a scale) with the T and DMs.
	Level of applicants' satisfaction (on a scale) regarding DMs and guidelines.
	Level of trained staff/researchers/evaluators' comprehension (on a scale) regarding the T and DMs.
	Level of applicants' comprehension (on a scale) regarding DMs.
	Success rates of calls which included (or not) DMs for applicants.
Level of participants' satisfaction (on a scale) regarding ARAs.	
Gender Specific Research	Success rate of gender specific calls compared to the rest of the calls.
	Amount and % of funding dedicated to gender specific calls.
Monitoring and evaluation	IGAR is included, where relevant, in the Impact Assessment of institutional policies: Yes/No.
	Annual reports of the organisation account for IGAR results: Yes/No.
Budget and Resources	Number of human resources appointed by the institution to be responsible for promoting and/or coordinating the implementation of the IGAR policies and measures.

D.3.3 Indicators on the Integration of Gender Analysis into University Curricula (IGAUC) for HEIs

Other Complementary Indicators for RFOs	
Supplementary and/or Eligible Funding	Total amount of supplementary/eligible funds granted for exploring how sex/gender analysis can be added to current or proposed research.
	Total amount of supplementary/eligible funds granted for providing gender training for the research teams.
Indicators on the Integration of Gender Analysis into University Curricula (IGAUC)	Number and % of Gender specific ¹⁴⁸ subjects in Bache-lor/Master Curricula by (main) field of science.
	Number and % of Gender cross-cutting subjects in Ba-chelor/Master Curricula by (main) field of science.
	Number and % of (Post) Graduates that had at least one Gender specific subject by (main) field of science.
	Number and % of academics trained on IGAR by (main) field of science.
	Recruitment/Promotion criteria for academics includes scoring on IGAR expertise: Yes/No

(Footnotes)

144 For a clarification of what is meant by "gender specific" vs. "gender cross-cutting" subjects, see the C.3.1 *Recommendations at HEI level* subsection of the present report.

The GENDER-NET ERA-NET

GENDER-NET is a pilot transnational research policy initiative funded by the European Commission under the Science-in-Society work programme of the 7th Framework Programme for Research and Technological Development (2013-2016).

It is the first ERA-NET (European Research Area Network) to be dedicated to the common challenges still facing European research institutions in achieving gender equality in research and innovation i.e. the persistent barriers and constraints to the recruitment, advancement and mobility of women in the European scientific system, the lack of women in decision-making, as well as the limited integration of the gender dimension in research programmes and contents.

Coordinated by French CNRS, GENDER-NET brings together a balanced partnership of national research programme owners (e.g. ministries, national research funding agencies and other national organisations) as well as a number of Observer organisations, from across Europe and North America, all with a shared commitment to gender equality and synergistic expertise in gender and science issues.

Based on the mutual opening of their respective programmes and policies, partners have joined forces to carry out joint assessments of existing national/regional initiatives, to define priority areas for transnational collaborations and implement a selection of strategic joint activities, in an effort to reduce fragmentation across the ERA and help reach a critical mass of ministries, research funders, universities and research institutions across Europe engaging in the implementation of gender equality plans or related initiatives and fostering the integration of sex and gender analysis in research contents.

For more information, please visit our website : www.gender-net.eu
and our Online IGAR Tool : <http://igar-tool.gender-net.eu>

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