GENDER DIMENSION IN R&I ACTIVITIES IN HORIZON EUROPE PROPOSALS

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NCP@UEFISCDI

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Gender Dimension in Research and Innovation Activities in Horizon Europe (RIA/IA and MSCA proposal/project)

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In March 2020, the European Commission launched the European Union (EU) Gender Equality Strategy (2020-2025), with the aim of achieving an Equality Union. The strategy sets out policy objectives and actions to make significant progress by 2025 towards a Europe of equality between women and men, in which women and men, girls and boys, in all their diversity, are free to follow the path chosen in life, to have equal opportunities to thrive and to be able to participate equally and lead European society.

The main goals of the EU's Gender Equality Strategy are to end gender-based violence; eliminating gender stereotypes; reducing gender gaps in the labor market; achieving equal participation in different sectors of the economy; reducing the gender pay and pension gaps; closing the gap and achieving gender balance in decision-making and politics[1].

The EU Framework Program for Research and Innovation, Horizon Europe (2021-2027), closely follows the objectives of the EU Strategy on Gender Equality through requirements on three levels:

1. Eligibility criterion. From 2022 onwards, for all proposals submitted to Horizon Europe, the Gender Equality Plan (GEP) is a condition of eligibility for the following types of organizations:

- Public bodies, such as research funding bodies, national ministries or other public authorities, including for-profit public organizations
- Higher education institutions, public and private
- Research organizations, public and private

2. Award criterion. The gender dimension must be taken into account and integrated into the actual research and innovation content of the project proposal (Part B), being evaluated by the evaluators in the “Excellence” criterion.

3. Ranking criterion. For equally scored proposals, the gender balance in the entire project research team (Part A) will be considered in order to prioritize proposals.

We will refer here to the second level, the Gender dimension in R&I activities in the project (Award criterion).

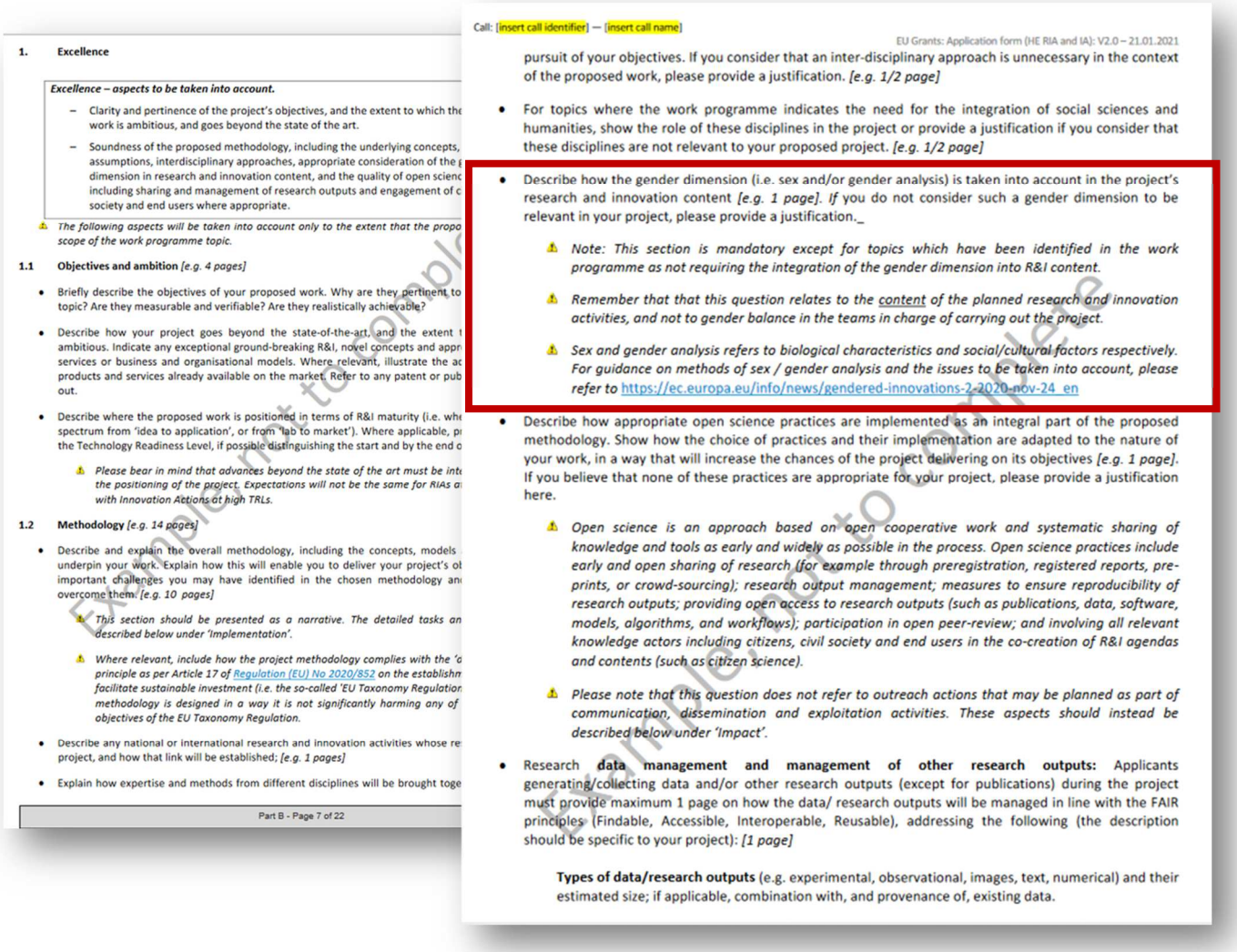
[1] https://ec.europa.eu/info/research-and-innovation/strategy/strategy-2020-2024/democracy-and-rights/gender-equality-research-and-innovation_en

The integration of the gender dimension into R&I content is mandatory. It is a requirement set by default across all Work Programmes, destinations and topics, unless its non-relevance for a specific topic is specified in the topic description, e.g. by the mention “In this topic the integration of the gender dimension (sex and gender analysis) in research and innovation content is not a mandatory requirement”.

The integration of the gender dimension in research and innovation activities is required for RIA (Research and Innovation Action), IA (Innovation Action) and MSCA (Postdoctoral Fellowships - PF, Doctoral Networks - DN, Staff Exchanges - SE and COFUND), types of instruments. The gender dimension should be addressed in the ‘Excellence’ section (section 1) of the proposal template, more specifically in the sub-section 1.2. Methodology (Figure 1).

> Evaluation criteria ‘Excellence’:
>
> 1.1. Clarity and pertinence of the project’s objectives, and the extent to which the proposed
>
> work is ambitious, and goes beyond the state of the art.
>
> 1.2. Soundness of the proposed methodology, including the underlying concepts, models, assumptions, interdisciplinary approaches, **appropriate consideration of the gender dimension in research and innovation content**, and the quality of open science practices, including sharing and management of research outputs and engagement of citizens, civil society and end users where appropriate

In the proposal template, you should describe how the gender dimension (i.e. sex and/or gender analysis) is taken into account in the project’s R&I content. If you think such a gender dimension is not relevant in your project, you should provide a sound justification, which will be taken into account during evaluation of the proposal, e.g. with appropriate scientific references.



1. **Excellence**

Excellence – aspects to be taken into account.

- Clarity and pertinence of the project's objectives, and the extent to which the work is ambitious, and goes beyond the state of the art.
- Soundness of the proposed methodology, including the underlying concepts, assumptions, interdisciplinary approaches, appropriate consideration of the g dimension in research and innovation content, and the quality of open scienc including sharing and management of research outputs and engagement of c society and end users where appropriate.

The following aspects will be taken into account only to the extent that the propo scope of the work programme topic.

1.1 **Objectives and ambition** *[e.g. 4 pages]*

- Briefly describe the objectives of your proposed work. Why are they pertinent to topic? Are they measurable and verifiable? Are they realistically achievable?
- Describe how your project goes beyond the state-of-the-art, and the extent t ambitious. Indicate any exceptional ground-breaking R&I, novel concepts and appr services or business and organisational models. Where relevant, illustrate the ac products and services already available on the market. Refer to any patent or pub out.
- Describe where the proposed work is positioned in terms of R&I maturity (i.e. whe spectrum from 'idea to application', or from 'lab to market'). Where applicable, pr the Technology Readiness Level, if possible distinguishing the start and by the end o

Please bear in mind that advances beyond the state of the art must be inte the positioning of the project. Expectations will not be the same for RIAs a with Innovation Actions at high TRLs.

1.2 **Methodology** *[e.g. 14 pages]*

- Describe and explain the overall methodology, including the concepts, models underpin your work. Explain how this will enable you to deliver your project's ob important challenges you may have identified in the chosen methodology an overcome them. *[e.g. 10 pages]*

This section should be presented as a narrative. The detailed tasks an described below under 'Implementation'.

Where relevant, include how the project methodology complies with the 'd principle as per Article 17 of Regulation (EU) No 2020/852 on the establishm facilitate sustainable investment (i.e. the so-called 'EU Taxonomy Regulation methodology is designed in a way it is not significantly harming any of objectives of the EU Taxonomy Regulation.

- Describe any national or international research and innovation activities whose re project, and how that link will be established; *[e.g. 1 pages]*
- Explain how expertise and methods from different disciplines will be brought toge

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Call: [insert call identifier] — [insert call name]

EU Grants: Application form (HE RIA and IA): V2.0 – 21.01.2021

pursuit of your objectives. If you consider that an inter-disciplinary approach is unnecessary in the context of the proposed work, please provide a justification. *[e.g. 1/2 page]*

- For topics where the work programme indicates the need for the integration of social sciences and humanities, show the role of these disciplines in the project or provide a justification if you consider that these disciplines are not relevant to your proposed project. *[e.g. 1/2 page]*
- Describe how the gender dimension (i.e. sex and/or gender analysis) is taken into account in the project's research and innovation content *[e.g. 1 page]*. If you do not consider such a gender dimension to be relevant in your project, please provide a justification._

Note: This section is mandatory except for topics which have been identified in the work programme as not requiring the integration of the gender dimension into R&I content.

Remember that that this question relates to the content of the planned research and innovation activities, and not to gender balance in the teams in charge of carrying out the project.

Sex and gender analysis refers to biological characteristics and social/cultural factors respectively. For guidance on methods of sex / gender analysis and the issues to be taken into account, please refer to https://ec.europa.eu/info/news/gendered-innovations-2-2020-nov-24_en

- Describe how appropriate open science practices are implemented as an integral part of the proposed methodology. Show how the choice of practices and their implementation are adapted to the nature of your work, in a way that will increase the chances of the project delivering on its objectives *[e.g. 1 page]*. If you believe that none of these practices are appropriate for your project, please provide a justification here.

Open science is an approach based on open cooperative work and systematic sharing of knowledge and tools as early and widely as possible in the process. Open science practices include early and open sharing of research (for example through preregistration, registered reports, pre-prints, or crowd-sourcing); research output management; measures to ensure reproducibility of research outputs; providing open access to research outputs (such as publications, data, software, models, algorithms, and workflows); participation in open peer-review; and involving all relevant knowledge actors including citizens, civil society and end users in the co-creation of R&I agendas and contents (such as citizen science).

Please note that this question does not refer to outreach actions that may be planned as part of communication, dissemination and exploitation activities. These aspects should instead be described below under 'Impact'.

- Research **data management and management of other research outputs:** Applicants generating/collecting data and/or other research outputs (except for publications) during the project must provide maximum 1 page on how the data/ research outputs will be managed in line with the FAIR principles (Findable, Accessible, Interoperable, Reusable), addressing the following (the description should be specific to your project): *[1 page]*

Types of data/research outputs (e.g. experimental, observational, images, text, numerical) and their estimated size; if applicable, combination with, and provenance of, existing data.

Example, not to complete

Figure 1. Gender dimension in Part B, sub-section 1.2. Methodology

(Source: https://ec.europa.eu/info/funding-tenders/opportunities/docs/2021-2027/horizon/temp-form/af/af_he-ria-ia_en.pdf)

What does integrating the gender dimension in R&I content mean?

It is an umbrella term covering the integration of **sex and/or gender analysis through the entire R&I cycle**, from the setting of research priorities through defining concepts, formulating research questions, developing methodologies, gathering and analysing sex/gender disaggregated data, to evaluating and reporting results and transferring them to markets into products and innovations which will benefit all citizens and promote gender equality.

Addressing the gender dimension in research and innovation thus entails taking into account sex and gender in the whole R&I process. It is different from addressing issues of gender balance and equal opportunities among the project's team members or among participants to events (e.g. conferences) organised by the project (which is ranking criterion, as stated above).

Definitions of key related terms:

• **Sex** refers to biology. Sex is determined by several biological features, according to functions that derive from the chromosomal complement, reproductive organs, or specific hormones or environmental factors that affect the expression of phenotypic traits (morphology) in sexually reproducing organisms. In humans, sex refers to the biological attributes that distinguish male, female, or intersex. In non-human animals, sex refers to biological attributes that distinguish male, female, or hermaphrodite. In engineering & product design research, sex includes anatomical and physiological characteristics that may impact the design of products, systems, and processes. Sex differences may be relevant for many R&I projects.

• **Gender** refers to sociocultural norms, identities and relations that categorise people, structure societies and organisations, and shape behaviours, products, technologies, environments, and knowledge. Gender attitudes and behaviours are complex and change across time and place, as cultural norms and values change. How we speak, our mannerisms, the things we use and our behaviours all signal who we are and establish rules for interaction. Gender is an organising principle that structures behaviours, attitudes, physical appearance and habits. We generally consider three related dimensions of gender: gender norms (socio-cultural expectations of what is appropriate for women, men or gender-diverse individuals, often relying on gender stereotypes), gender identities (how individuals or groups perceive and present themselves in relation to gender norms, with most commonly used categories including: woman, man, and non-binary or gender-diverse) and gender relations (how sex and gender shape social interactions in families, schools, workplaces and public settings, often involving power relations). As such, gender can be an important aspect of research and design.

• **Intersectionality** describes overlapping or intersecting categories such as gender, ethnicity/racial origin, age, socioeconomic status, sexual orientation and geographic location, that compound to determine the identities and experiences of individuals. Researchers and innovators should not consider gender in isolation. Gender identities, norms and relations both shape and are shaped by other social attributes.

Integrating sex and gender analysis into R&I content improves the scientific quality and societal relevance of the produced knowledge, technologies and innovation.

It:

• adds value to research and innovation in terms of excellence, creativity, rigor, reproducibility and business opportunities

• helps researchers and innovators question gender norms and stereotypes, and rethink standards and reference models

• leads to an in-depth understanding of all people's needs, behaviours, and attitudes

• contributes to the production of goods and services better suited to new markets

• is crucial to secure Europe's leadership in science & technology and support inclusive and sustainable growth.

Therefore, when drafting a proposal, you should in particular:

➢ **Reflect on why sex and/or gender could matter**: Think about and present the ways in which taking into account the gender dimension will provide added value in terms of creativity, excellence, and return on investment, both from public and private perspectives.

➢ **Consider the production of new knowledge on gender**: Consider what is already known in your area in terms of the gender dimension (e.g. related scientific literature) and identify what is missing. In many areas, gender knowledge still needs to be generated.

➢ **Include sex and gender aspects as part of a multidisciplinary approach**: Reflecting on sex and gender considerations in relation to health, transport, energy, security, etc. is a great opportunity to foster cooperation between scientists with gender expertise and others. It helps concepts cross the borders of scientific fields and encourages research methods to evolve.

➢ **Consider social categories/factors intersecting with sex and gender**: the way a research problem is formulated will determine which intersecting variables are relevant for analysis. Intersectional research should be designed to illuminate the multiplicative effects of different, but interdependent, categories and factors.

Integration of the gender dimension in R&I activities – Cluster specific recommendations

The European Commission published specific recommendations for types of gender activities to be considered in research and innovation projects (Gendered Innovations 2: How Inclusive Analysis Contributes to Research and Innovation – Policy Review)[2]. We summarise them below, as examples of types of gendered-relevant activities that you may want to consider in your proposal/project.

Cluster 1. Health

1. Staying healthy in a rapidly changing society

- Health and disease are strongly sex and gender related. Personalised and tailored solutions and advice can be achieved only when sex and gender are analysed in research aiming for personalised advice to promote health and prevent disease in individuals or for stratified solutions tailored to specific groups.

- Take account of the different health needs of women and men farmers and farm workers (some of whom may be foreign or seasonal). Analyse gender as it intersects with age, religion, race, ethnicity, socioeconomic status, geographical location, etc.

2. Tackling diseases and reducing disease burden

- Sex-disaggregated data are essential for better surveillance, prevention, timely detection, treatment and crisis management of infectious disease threats, for example COVID-19.

3. Ensuring access to innovative, sustainable and high-quality healthcare

- Gender aspects need to be considered when developing digital tools for medication regimens (e.g. apps to monitor diabetes therapy) that are managed by patients. Special attention to the needs of rural populations is also required.

- The use of FRSs in healthcare to identify and monitor patients is increasing. Take into consideration how these apps deal with gender, race/ethnicity, age and sexual orientation. Consider also that sex reassignment therapy may result in facial changes that may affect FRSs.

[2] https://ec.europa.eu/info/news/gendered-innovations-2-2020-nov-24_en

4. Unlocking the full potential of new tools, technologies and digital solutions for a healthy society

- Novel tools and technologies for biomedical research, prevention, diagnosis and therapy will probably be driven by data and ICT. It is crucial that these source data be precisely annotated for sex and gender.

- Extended VR is increasingly used in healthcare to diagnose and manage patients with pain, disability, obesity, neurological dysfunction, anxiety and depression. Potential sex and gender differences need to be taken into account in the development and testing of prototypes.

5. Computer models and simulations aiming to understand health

- Improving personalised medicine again requires that sex and gender data be collected and precisely annotated.

6. Maintaining an innovative, sustainable and globally competitive health industry

- Gender affects access to care globally, and incorporating this aspect may represent a unique selling proposition for companies. Decreased time to market must not mean reducing the variables tested, such as sex. Withdrawing a product from the market owing to lack of appropriate testing can damage companies (especially small and medium-sized enterprises, SMEs) permanently.

7. Living and working in a health-promoting environment

- Analyse occupational health risks in all genders. For farm workers, this includes attention to risky equipment and chemicals.

Cluster 2. Culture, creativity and inclusive society

- Help reverse social, spatial, economic, cultural and political inequalities and their causes, and promote gender equality.

- Analyse how agricultural and rural transitions contribute to the social inclusion of marginalised groups by supporting their integration into researching, planning, implementing and monitoring. Include and address gender as it interacts with, for example, age, religion, race, ethnicity, socioeconomic status and geographical location.

- VR has been used in heritage sites such as museums, monuments and historical buildings. Without gender analysis, however, there is a risk that opportunities to foreground women's cultural heritage will be missed. VR provides an excellent opportunity to fill this gap.

- Promote and conduct research on fair taxation and ensure the availability of appropriate gender-disaggregated data. Further research is needed on the gender-differentiated distributional effects of net wealth, property taxes, inheritance taxes, value added taxes, excise taxes, corporate taxes, tax expenditures and gender-differentiated allocative effects of corrective taxes. Research should also address the compliance of tax measures with legal gender equality obligations.

  - Ensure political commitment at the EU level and define targets and indicators to achieve substantive gender equality with regard to taxation.
  - Integrate a gender equality perspective into taxing for the future, combining social changes with an economy that works for people and a European Green Deal.

- Address gender bias in venture funding, business ownership and wages.

  - A first step is to analyse entrepreneurship for gender disparities in the venture funding sector and to ensure that stakeholders highlight and report on these disparities.
  - A next step is to include women entrepreneurs in target groups in both the private and public sectors.
  - A further step is to include gender equality demands in ownership and workforce in the public procurement of services and products

Cluster 3: Civil security for society

1. Disaster-resilient societies

- Farmers can help prevent natural disasters; it is important to include gender differences in farmers' perspectives on risk management, prevention and actions.

2. Protection of public space, security and resilience of infrastructure and vital societal functions, and fighting crime and terrorism

- Digital safety and security are important in terms of how digital assistants and chatbots handle data in relation to current laws (e.g. the General Data Protection Regulation). Data that virtual assistants may have recorded in the home in times of crisis (e.g. domestic violence) may prove useful for law enforcement and provide vulnerable people with added security; however, take care to consider major ethical issues with extracting such data.

- AI may be recruited to better protect citizens from violent attacks in public spaces. FRSs are a new way of identifying criminals and terrorists. However, take care to implement proper design and ethical considerations so that facial recognition technology does not exacerbate existing gender and social inequalities.

- Public urban space and transportation, digital worlds and cyberspaces, and disaster and risk management should ensure the safety of women, men and gender-diverse individuals, of various ages and ethnicities. VR 'walkthroughs' in settings such as cities, parks and railway stations have been used to understand users' experiences in terms of how they decode the environment when considering personal safety.

- Since women, men and gender-diverse people tend to experience threats to personal safety differently, it is important to apply a user-driven approach that includes diverse groups of people. Moreover, homes as well as public spaces should be understood in terms of security and safety. Smart homes, for example, have been shown to pose certain threats to women.

- In rural areas, safety can be an issue because there is less formal policing. Violence constitutes a particular risk for rural women and gender-diverse individuals, as remote housing prevents effective formal or social control, and specialised social services are absent. Investigate and include these specific risks as well as prevention and resilience options.

Cluster 4: Digital, industry and space

1. Key digital technologies

- Digital assistants and chatbots have an important role to play in being inclusive and representative. Developers should take care not to reinforce gender stereotypes, e.g. by feminising chatbots.

2. Artificial intelligence and robotics

- Ensure that AI technologies and their benefits are accessible to all citizens and address a diversity of needs and preferences. For example, women are more than twice as likely as men to feel unwell from using VR, with symptoms such as pallor, sweating and general discomfort.

- In agriculture, digitalisation is becoming more important. Beyond automatisation through computers in warehouses, stables and milking parlours, the sector uses chips in animals, drones

and self-driving tractors that are all connected to sensors, data processors and warning systems. Apply gender impact assessment to make sure gender-specific needs are taken into account.

3. Advanced computing and big data

- Ensure that AI and big data are free of gender bias. For example, wearing makeup can reduce the accuracy of facial recognition methods by 76%; automatic gender recognition may not recognise transgender people, especially during transition periods; and FRSs perform better on men's than women's faces overall, and better on lighter than darker skin overall. Carefully construct datasets to overcome these issues. Data containing human information should include metadata summarising statistics on factors such as participant gender, sex, ethnicity, age and geographical location. Data labelling using crowdsourcing, such as MS Turk, should include information about crowd participants, along with the instructions given for labelling.

- Employ AI and big data, where appropriate, to better understand gender-specific needs when designing products and services.

Cluster 5: Climate, energy and mobility

1. Advancing climate science and solutions for a climate-neutral and resilient society

R & I should consider:

- gender issues in access to energy, including energy poverty, analysed by age;

- the gender dimensions in transportation services and infrastructure, and women's, men's and gender-diverse individuals' needs in transportation;

- the gender dimensions in urban planning, including access to housing, employment and urban facilities, and ensuring the quality of public spaces;

- creating digital solutions that are free of gender bias and omissions;

- gender and diversity aspects when identifying causes of and solutions for climate change, ensuring that analysis factors in behavioural and structural determinants so that solutions will be adopted by a majority of European people and economies;

- disaggregating all data by sex and/or gender;

- analysing gender and diversity when developing climate services and decision-support tools and methodologies;

- disaggregating data by sex and/or gender when assessing impacts;

- employing gender impact assessments in agriculture and natural resource management sectors in order to avoid exacerbating inequalities when decarbonising the EU's economy and developing a fully circular economy.

2. Developing sustainable infrastructure, services and systems for smart and sustainable communities and cities

Consider the following suggestions.

- Employ co-creation and participatory research that include end-users when developing improved technologies, services and business models. Analysis should include attention to gender, age and socioeconomic status so that solutions appeal to users in their individual contexts.

- Employ co-creation and participatory research when developing methods of citizen engagement in energy and transport investment and transition policies. This research must understand what motivates citizens to participate or invest time and/or money in this work.

- Encourage citizen science or user-led innovation to engage in gender-sensitive and intersectional data collection, development and testing procedures to ensure greater acceptance of these solutions.

3. Empowering citizens to engage in the transformation to a decarbonised society

- Sex as a biological variable must be incorporated as a key component of environmental models that seek to determine species' sensitivity to climate change and species interactions. Only such models can be used for evidence-based policy.

4. Developing low-carbon and competitive transport solutions in all modes

- Consider the gender dimensions in mobility needs and behaviour when designing mobility services and infrastructure.

- Develop gender-sensitive digital solutions that enhance access for all.

- Make gender analysis central to the systemic transformation of transport and mobility.

Cluster 6: Food, bioeconomy, natural resources, agriculture and environment

1. Environmental observation

- Sex as a biological variable must be incorporated as a key component of environmental models that seek to determine species' sensitivity to climate change and species interactions. Only such models can be used for evidence-based policy.

2. Biodiversity and natural capital

- Research drivers of biodiversity loss. Analyse sex as a factor determining species' sensitivity to stressors.

- Effective communication and dissemination activities are critical to raising societal awareness. Sex analysis in the context of climate change provides an intriguing and novel key message highlighting the differential sensitivity of female and male marine species to climate change, the impact of climate change on sex determination and differentiation, and the role sex plays in population sensitivity. Examples that resonate with the public can inspire action.

3. Seas, oceans and inland waters

- Understanding, forecasting and monitoring changes within seas, oceans and inland waters will require analysing biological sex in marine organisms as a factor determining sensitivity. This includes disaggregating all results by sex.

- Sex analysis in marine organisms should become an integral component of robust world-class climate change science and must be incorporated into research, education, and environmental management and policy.

4. Food systems

- The success of the European Green Deal in the agricultural and food sector depends on the contribution of all rural residents – across all genders, ages, nationalities, cultures, etc. The active engagement of all citizens is needed to address the influence of gender norms in these sectors.

- Analyse gendered approaches to waste management to support the food system by lowering food waste and decreasing the burden of food packaging.

Practical steps for incorporating sex and gender analysis into participatory research

Researchers and designers should take these steps.

1. Identify the area of work or everyday life they wish to address

Investigate gendered structures in that area. What opportunities may have been missed in the past as a result of failing to analyse sex and gender?

For instance, in transportation planning and housing and neighbourhood design, it will be critical to consider the mobility of care, and how needs with respect to build environments vary by gender roles and gendered divisions of labour.

2. Identify potential target groups

Conduct literature reviews, assemble focus groups, send out questionnaires, carry out ethnographic observations, etc. What are the characteristics of target users/communities (these may include sex, age, socioeconomic status, ethnicity, native language, etc.)?

Questions include the following:

- How will different groups of people (defined by sex, race, age, geographical location, etc.) be affected by this project/product?
- What are their particular perspectives, needs and interests?
- Whose practical knowledge or experience is relevant to this research or design project?

For example, in sub-Saharan Africa (where women are typically responsible for fetching water), tapping into women's knowledge about soils and their water yields may be critical to ensuring the success and sustainability of community-managed water services. Similarly, involving gender diverse groups of elderly people and their caregivers in the development of assistive technologies can ensure solutions that are useful to a broad user base.

As an alternative to direct user involvement, developers may create personas. Personas are fictitious representations of typical (or atypical) target populations derived from data about these

actors' common traits and characteristics[3]. They are used as model characters or benchmarks for the user experience, which focus the design on the people whom the planned project seeks to benefit. An important consideration when developing personas is to avoid reinforcing stereotypes with respect to gender, race, age, etc., as this may end up constraining the uptake of your product, service or solution[4].

3. Seek user or community input

Engage users/communities in defining problems, requirements, and solution and design alternatives[5]. Ensure that your participant sample is heterogeneous enough to capture the various intersecting positions of relevance to your project. Involving users who vary in gender, ethnicity, age and socioeconomic status allows researchers and engineers to gather information about how a technology, product or public health measure will affect people's everyday lives, assist their work or enhance their leisure.

4. Observe workers or users

Observing people at work allows scientists and engineers to access tacit knowledge: knowledge that workers regard as self-evident or take for granted and rarely articulate. Capturing tacit knowledge may bring new perspectives to formal research and design.

Researchers might ask:

- How do sex and gender influence how the work is done, how an artefact is used or how a process works?
- How may this differ in a single-sex versus mixed-sex context?

Engineers and designers can probe their understandings of work processes in interaction with users. For example, to develop new software for customer-service call centres, ICT researchers observed, interviewed and worked with call centre employees – a majority of them women – to

[3] Miaskiewicz, T. and Kozar, K. A. (2011), 'Personas and user-centered design: how can personas benefit product design processes?', Design Studies, 32(5), 417–430.
[4] Turner, P. and Turner, S. (2011), 'Is stereotyping inevitable when designing with personas?', Design Studies, 32(1), 30–44.
[5] Oudshoorn, N. and Pinch, T. (eds.) (2003), How Users Matter: The co-construction of users and technologies, MIT Press, Cambridge, MA.

understand their needs. Analysing the gendered nature of the work and gathering user input produced software that better captured previously unrecognised needs[6].

5. Evaluate and redesign

Researchers can cooperate with users/communities in all steps of project evaluation, from defining goals or measures of success to determining if these goals have been achieved in the design, implementation and monitoring steps[7].

User and community input can also help to guide product redesign and further research.

[6] Maass, S. and Rommes, E. (2007), 'Uncovering the invisible: gender-sensitive analysis of call center work and software', in: Zorn, I., Maass, S., Rommes, E., Schirmer, C. and Schelhowe, H. (eds.), Gender Designs Information Technology (IT), Verlag für Sozialwissenschaften, Wiesbaden, 97–108.
[7] WHO (World Health Organization) (2002), Gender Analysis in Health: A review of selected tools, WHO, Geneva.

Annex - Checklist – Gender in research and innovation activities

Research ideas phase

- If the research involves humans as research objects, has the relevance of gender to the research topic been analysed?

- If the research does not involve humans, are the possibly differentiated relations of men and women to the research subject sufficiently clear?

- Have you reviewed literature and other sources relating to gender differences in the research field?

Proposal phase

- Does the methodology ensure that (possible) gender differences will be investigated that sex/gender-differentiated data will be collected and analysed throughout the research cycle and will be part of the final publication?

- Does the proposal explicitly and comprehensively explain how the gender issues will be handled (e.g. in a specific work package)?

- Have possibly differentiated outcomes and impacts of the research on women and men been considered?

Research phase

- Are questionnaires, surveys, focus groups, etc., designed to unravel potentially relevant sex and/or gender differences in your data?

- Are the groups involved in the project (e.g., samples, testing groups) gender-balanced? Is data analysed according to the sex variable? Are other relevant variables analysed with respect to sex?

Dissemination phase

- Do analyses present statistics, tables, figures and descriptions that focus on the relevant gender differences that came up in the course of the project?

- Are institutions, departments and journals that focus on gender included among the target groups for dissemination, along with mainstream research magazines?

- Have you considered a specific publication or event on gender-related findings?

Resources

Horizon Europe Programme Guide,

https://ec.europa.eu/info/funding-tenders/opportunities/docs/2021-2027/horizon/guidance/programme-guide_horizon_en.pdf

Horizon Europe Programme - Standard Application Form (HE RIA, IA), https://ec.europa.eu/info/funding-tenders/opportunities/docs/2021-2027/horizon/temp-form/af/af_he-ria-ia_en.pdf

Gendered Innovations 2. How inclusive analysis contributes to research and innovation: policy review, https://op.europa.eu/en/publication-detail/-/publication/33b4c99f-2e66-11eb-b27b-01aa75ed71a1/language-en/format-PDF/source-175460934

Maass, S. and Rommes, E. (2007), 'Uncovering the invisible: gender-sensitive analysis of call center work and software', in: Zorn, I., Maass, S., Rommes, E., Schirmer, C. and Schelhowe, H. (eds.), Gender Designs Information Technology (IT), Verlag für Sozialwissenschaften, Wiesbaden, 97–108.

Miaskiewicz, T. and Kozar, K. A. (2011), 'Personas and user-centered design: how can personas benefit product design processes?', Design Studies, 32(5), 417–430.

Oudshoorn, N. and Pinch, T. (eds.) (2003), How Users Matter: The co-construction of users and technologies, MIT Press, Cambridge, MA.

Turner, P. and Turner, S. (2011), 'Is stereotyping inevitable when designing with personas?', Design Studies, 32(1), 30–44.

WHO (World Health Organization) (2002), Gender Analysis in Health: A review of selected tools, WHO, Geneva.

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