

Gender Dimension in Research: Bridging Gender and Science

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Abstract: The European Commission (EC) has become a global leader in setting policy for integrating the gender dimension into research and innovation (R&I) content. It is a priority for ERA and, for Horizon Europe, an award criterion that becomes a requirement by default. Thus, after the impetus that the Gender Equality Plans (GEPs) have given to advancing gender equality, integrating the sex and gender dimension in research is now an unavoidable step for RPOs. A large body of literature has highlighted that ignoring sex/gender as key variables in R&I leads to incomplete and flawed results that perpetuate significant gender biases and gaps in knowledge. In parallel, there is strong evidence that integrating sex/gender analysis enhances the quality and impact of scientific results and adds value in terms of excellence and social relevance. However, sex/gender dimensions are still absent from several STEM research. There are at least two main constraints to their incorporation: the limited knowledge of gender issues among researchers, compounded by the shortage of gender experts in many Research Performing Organizations (RPOs), and the lack of adequate tools to support and streamline this process. Following EC guidelines, the Institut de Ciències del Mar (ICM) integrated into its GEP a measure aimed at promoting the inclusion of sex/gender dimension in research as a factor for improving quality. In this framework, we have developed a toolkit to provide practical tools for researchers, covering all phases of the research cycle (from formulating research questions to dissemination) and different research scenarios: research that deals with biological material (animals, cell cultures, etc.), research in which there are differentiated relationships between women and men with the research topic, or basic science research. The toolkit double approach aims to assist researchers in integrating sex/gender analysis into research content while improving equal opportunities for women and men in research teams. The toolkit also proposes indicators that both guide actions and allow the subsequent measurement of achievements. The toolkit has been designed considering previous experiences and best practices from different EU-driven projects and initiatives. ICM wants to share its experience in producing and implementing this toolkit.

Keywords: Gender Dimension in Research, Sex Variable, Gender Equality, Research Performing Organizations (RPO), Gender Equality Plan (GEP).

1. Introduction

Science, like any other field of human activity, is not free from the cultural and social conditioning that supports the development of stereotypes and biases. In many fields of knowledge, the sex variable and the gender dimension are still not sufficiently considered. There is a serious risk that “neutral” R&I, being sex/gender-blind, may have biased results that affect women and men differently by not considering their diversity.

One of the main limitations for incorporating the variables of sex/gender dimension in STEM R&I has been the limited availability of tools that guide and facilitate this integration. In the field of marine sciences, this absence is even more significant since much of the scientific production is considered basic science.

To reverse this perception, at the ICM, we have developed a toolkit to support researchers to integrate sex/gender dimension throughout the entire research cycle. While recognizing the usefulness of these tools, we must also acknowledge their limitations. Its use cannot be limited to ticking off each question; it must be accompanied by reflection. Their maximum effectiveness will be possible if it is supported by the necessary skills and, in many cases, by integrating gender expertise into the conceptualization and design of the research. Research that appears “neutral” may benefit different groups. For instance, it is not the same to research in the field of deep-sea fishing, coastal fishing, or shell fishing, as the communities that depend on these marine resources are different. This necessarily links scientific production with social impact and leads us to the need to consider the connection between scientific production and social needs. Sex/gender are notably important variables in this context.

Thus, from the ICM, we wish to share our journey in the design of these tools. The toolkit integrates tailored tools that maximise the learning of previously available tools and good practices, and responds accurately to the specific research in the ICM. Since the integration of the gender dimension is an essential requirement for the credibility and social accountability of research, the ICM wants the toolkit to be an instrument that facilitates and ensures such inclusion in ICM research, where relevant.

The paper is organised into five sections. Besides this introduction, section 2 reviews the key elements of the normative framework for gender equality and gender dimension in research in RPOs within the EU and Spain. Section 3 discusses gender equality and sex/gender dimension in R&I. Section 4 illustrates ICM's experience and

the key elements of the ICM toolkit to guide the integration of gender dimension in the centre's research projects. The paper ends with succinct conclusions and discussion (5).

2. Normative Framework for Gender Equality and Gender Dimension in Research

The existence of binding and enabling regulatory frameworks has significantly advanced gender equality in research-performing organizations (RPOs). Gender equality is a core value of the European Union (EU), and the European Commission (EC) is committed to promoting it across all EU policies, including research and innovation. These commitments are addressed through the European Research Area (ERA) and Horizon Europe (HE).

ERA focuses on policy coordination and support for inclusive gender equality plans and policies, combating gender-based violence in the European R&I system, ensuring gender mainstreaming in both research content and institutional policies.

HE reinforces ERA priorities through several key provisions. To receive funding, organizations must meet three key criteria: (1) having a Gender Equality Plan (GEP) is an eligibility requirement; (2) the inclusion of a gender dimension in R&I content is mandatory and evaluated under the excellence criterion; and (3) gender balance in research teams serves as a ranking criterion in cases where proposals receive the same evaluation score. Moreover, the integration of the gender dimension in research and teaching content is one of the five recommended content-related (thematic) areas that organizations may consider in their GEPs.

Additionally, Horizon Europe (HE) supports specific gender equality projects, known as 'sister projects,' which are consortium-based initiatives led by RPOs and High Education Institutions (HEIs). These projects are essential for knowledge generation and the development of best practices.

The Spanish regulatory framework transposes European regulations. The *Organic Law 3/2007, of 22 March, for the effective equality of women and men*, establishes the legal, institutional, and policy framework for gender equality across sectors. By its obligatory nature, GEPs have become essential to institutionalizing equal opportunities. *Law 14/2011 on Science, Technology, and Innovation*, updated in 2022, further reinforces GEPs in research centres and mandates the integration of gender perspectives in science, technology, and innovation. Spain's regulatory framework requires concrete actions to ensure gender equality, with GEPs serving as a powerful tool for institutional transformation.

3. Gender Equality and Sex/Gender Dimension in Research in RPOs

Real gender equality remains an unfulfilled goal in R&I. Structural barriers and persistent gender inequalities, particularly in STEM fields, continue to hinder women's careers, as they are embedded within organizational cultures, values and practices. Addressing gender bias, inequitable norms, and power imbalances is essential for achieving meaningful progress at all levels of R&I.

Beyond increasing representation, achieving gender equality requires fostering gender-sensitive and intersectional working conditions. RPOs advance equality through GEPs, which must be reflexive and context-specific, employing tailored strategies to address institutional challenges (Wroblewski & Palmen, 2022). However, structural change processes often encounter resistance, requiring sustained efforts, strong institutional commitment and negotiation among stakeholders (Linková & Mergaert, 2021) to ensure lasting impact—particularly given the persistent segregation and underrepresentation of women in leadership positions (Reuben, Sapienza, & Zingales, 2014).

This issue is especially evident in research groups, where women are frequently concentrated in lower academic ranks—such as researchers, technicians, or support staff—limiting their access to resources, recognition, and opportunities for merit accumulation. Their contributions often go unrecognized, and their voices remain marginalized in knowledge production. Ensuring full and equitable participation throughout the research cycle is essential to unlocking their potential.

Given women's underrepresentation in R&I, knowledge production itself reflects a male-dominated perspective (Müller & Pollitzer, 2021). Gender can influence research outcomes, as research subjects may respond differently to male and female researchers, shaped by mutual gender attitudes (Kane & Schippers, 1996). Likewise, a researcher's sex can impact interactions with animal subjects; for instance, male experimenters have been shown to induce stress-related analgesia in mice and rats (Sorge et al., 2014). Acknowledging these biases is essential for ensuring rigorous and unbiased scientific research.

The integration of the sex/gender dimension into research content is a recent challenge for many RPOs. As summarized in the *Gender Innovation 2* report (European Commission, 2020), there is strong evidence that this integration: a) adds value to research in terms of excellence, creativity and business opportunities; b) helps researchers and innovators question gender norms and stereotypes, and rethink standards and reference models; c) leads to an in-depth understanding of diverse gender needs, behaviours and attitudes; d) addresses the diverse needs of citizens and thereby enhances the societal relevance of the knowledge, technologies and innovations produced; and e) contributes to the production of goods and services better suited to new markets.

Addressing sex/gender dimension means considering sex/gender as key analytical and explanatory variables that are “(...) systematically controlled throughout the research process without necessarily being the main focus of analysis” (Rogg Trine and Rustad, 2018). The distinctions between *sex* and *gender* capture fundamental aspects of our biological and socio-cultural realities; therefore, these terms should not be used interchangeably.

Sex refers to the biological attributes that distinguish males, females, and intersex individuals based on chromosomal composition, reproductive organs, specific hormones, or environmental factors affecting the expression of phenotypic traits in sexually reproducing organisms. In non-human animals, sex distinguishes males, females, and hermaphrodites according to genetic factors as well as non-genetic. In the context of engineering and product design research, sex encompasses anatomical and physiological characteristics that may influence the design of products, systems, and processes (European Union, 2020).

Gender refers to the socially constructed norms, identities, and relationships that are learned through socialization processes. These constructs are context- and time-specific, subject to change, and determine what is expected, permitted, and valued in women, men, and gender-diverse people. Gender shapes how individuals perceive themselves and one another, influences behaviour and interactions, and affects the distribution of power and resources within society.

Human beings are both social and biological entities. Although gender is distinct from sex, they interact in unexpected ways. Sex and gender also intersect with other social categories—such as age, disability, socioeconomic status, sexual orientation, and ethnicity—to shape individual identities and experiences. This interplay, known as *intersectionality*, highlights the overlapping forms of discrimination that arise from these intersections (Shields, 2008).

No research, in almost any field, should be gender blind (Schiebinger *et al.*, 2011-2020). In fact, sex/gender can influence every stage of research process, from setting strategic priorities and defining research questions and hypotheses, to selecting research methods (including data collection and interpretation), conducting research activities, and analysing and reporting results. If relevant sex/gender issues are overlooked or poorly addressed, research findings will be partial and potentially biased. Furthermore, researchers should not consider sex/gender in isolation; as both shape and are shaped by other social attributes. It is always important to conduct research with high societal value and that to respond to the needs of society’s different groups.

The lack of awareness regarding the benefits of integrating the sex/gender dimension has led to significant knowledge gaps. A substantial body of literature indicates that ignoring sex/gender as key variables produces incomplete and flawed results, which in turn perpetuate biases and limit the relevance of science to society — or not equally relevant to all groups— and, in some cases, even poses life-threatening risks (Schiebinger *et al.*, 2011-2020; Kalpazidou & Cacace, 2019; European Commission, 2020).

4. ICM Experience Producing a TOOLKIT to Integrate Gender Dimension in Research

The *Institut de Ciències del Mar* (ICM) is the largest marine research institute of the Spanish National Research Council (CSIC), which is the largest public institution in Spain dedicated to scientific and technical research and one of the most prominent in the ERA.

Through its participation in two Horizon 2020 projects, *LeTSGEPs* and *ResBIOS*, the ICM developed its first GEP (ICM, 2021), that serves as a framework to address gender biases and drive structural change for effective gender mainstreaming across all organizational activities. The GEP includes the measure “Integrating Gender Dimension in Research” to enhance research quality and broaden its societal impact. The design of this measure —and the actions it encompasses— were informed by the in-depth, cross-cutting institutional gender diagnosis conducted before the GEP’s formulation with data from 2019. This diagnosis identified gender biases, inequalities, and discriminations, as well as the factors contributing to them. In particular, the diagnostic findings related to gender equality in research teams and the integration of the sex/gender dimension in research content provide a clear illustration of the existing reality.

Women's careers were characterized by vertical and horizontal segregation. Although women were well represented in the lower academic grades, the *leaky pipeline* effect was conducive to the progressive loss of female talent as one progressed to the higher grades. Women were only 14,3% in Grade A –full professor– and represented the 21,4% of principal investigators of the existing 14 research groups. The analysis of the barriers showed that some systemic issues continue to be inhibiting factors to their participation and success in research career, such as work-life balance, cultural norms related to gender and harassment.

An anonymous and voluntary survey on gender equality perception among ICM's staff (2023), with a 41.6% response rate (nearly 60% women), revealed significant differences and nuances on key issues. When asked about the possibility of integrating sex/gender dimension into their research projects, 46% of men and 36.8% of women responded affirmatively. Among women, 57.1% were researchers, 32.1% were technicians, and 10.7% were support staff, while among men, 69.5% were researchers and 30.5% were technicians. Most respondents associated gender dimension integration with achieving gender balance in research teams, overlooking the key aspect of incorporating sex/gender variables throughout the research cycle. Meanwhile, 28.9% of women and 28% of men answered negatively, primarily citing the nature of their work as basic science.

The lack of gender-sensitive knowledge production is evident in the scarcity of publications by ICM researchers addressing the gender dimension in their researches. There were no ICM publications explicitly incorporating terms such as "gender dimension," "gender mainstreaming," "gender approach," or "gender analysis" in their research content (search in Scopus, years 2021–2024). However, a few publications on gender equality in marine sciences include contributions from ICM researchers (Giakoumi S., Pita, C., Coll, M. *et al.*, 2021; Figuerola, B., Valiente, N., Barbosa, A. *et al.*, 2021).

4.1 The Toolkit: Step by Step

The Toolkit development includes 4 key phases:

a. Identifying Best Practices Concerning Integration of Sex/Gender Dimension in Research Content

With emphasis in best practices in the field of marine sciences, previous efforts from different EU-driven sister projects and initiatives were mapped (Yellow Window, 2011; WISET, 2026). Among these resources, the work led by Schiebinger *et al* (2011), which is regularly updated on the Stanford-hosted website, serves as an essential resource by providing practical methods for analysing sex, gender, and intersectionality, along with case studies that demonstrate how such analyses can drive innovation.

GenderWave, a digital tool developed by the Baltic Gender project (2020) to support the integration of gender perspectives in marine R&I, highlights how gender issues in marine science vary across topics and research contexts. These issues are often subtle and not immediately visible, requiring active exploration. Integrating the sex/gender dimension in research cannot rely on standardized tools or a mere 'check-the-box' approach; instead, it demands contextualization and adaptation.

b. Mapping ICM Projects to Assess Potential for Integrating Sex/Gender Dimension

The study reviewed 110 active projects in 2024 through document analysis and 28 interviews with principal investigators and researchers. Projects were categorized by funding source, leadership, research focus, methodology, spatial and temporal scale, and application and impact. To assess gender dimension integration in research, the key criterion was "application and impact," using European and national plan projects (95) as a reference, as they require justification for such inclusion.

In terms of funding, 49% comes from European funds and 51% from national funds. Regarding leadership, women serve as principal investigators (PIs) in 25% of projects and co-PIs in 22%, compared to 37% and 35% for men, percentual gaps that highlight the need for action (Table 1).

Table 1: Funding sources and leadership

FUNDS	LEADERSHIP											TOTAL	%T
	Individual PI				Co-PI								
	Women	%/T source	Men	%/T source	1w/1M	%/T source	2W	%/T source	2M	%/T source			
European Funds	12	26%	26	55%	4	9%	1	2%	4	9%	47	49%	
Spanish Funds (Plan Nacional)	12	25%	9	19%	14	29%	2	4%	11	23%	48	51%	
TOTAL	24	25%	35	37%	18	19%	3	3%	15	16%	95	100%	

Based on the "application and impact" criterion, the analysis found that 63% of research projects focused on basic science (e.g., plankton ecophysiology, microbial genomics, micro-benthos ecology), 17% on applied research (e.g., resource management, ecosystem restoration, aquaculture), and 3% combined both. The remaining projects —participatory, not exclusively research-focused— were classified as citizen science, 17% (Table 2).

Table 2: Distribution of research considering application and impact

	APPLICATION									
	Basic Science	%/T source	Applied Science	%/T source	Basic/ Applied Science	%/T source	Citizen Science	%/T source	TOTAL	%/ TOTAL
FUNDS	Basic Science	%/T source	Applied Science	%/T source	Basic/ Applied Science	%/T source	Citizen Science	%/T source	TOTAL	%/ TOTAL
European Funds	22	47%	11	23%			14	30%	47	49%
Spanish Funds (Plan Nacional)	38	79%	5	10%	3	6%	2	4%	48	51%
TOTAL	60	63%	16	17%	3	3%	16	17%	95	100%

Regarding the sex/gender dimension in research content (considering only the projects classified as basic science and applied science, 76), the sex variable is considered relevant in 17% of research projects (Table 3). For example, when studying the impact of endocrine-disrupting plastic additives —chemical compounds used to enhance plastic properties— on marine fish species. These "invisible" plasticizers can interfere with the endocrine system, triggering cellular, hormonal, and reproductive disruptions that may compromise long-term health (Delbes *et al.* 2022). While the research is centred on aquatic organisms, its findings have potential implications for human health.

Sex is also a key factor in fish biology research, particularly in understanding the genetic, epigenetic, and environmental influences on sex determination and differentiation (Piferrer & Guiguen, 2021; Moraleda-Prados *et al.*, 2020). These insights optimize sex ratio control in aquaculture and improve fisheries management, conservation, and breeding programs. From a gender perspective, the transfer phase should acknowledge that women often lead aquaculture initiatives in certain contexts, and ensuring their access to this knowledge can enhance their opportunities and impact.

Table 3: Project consideration of sex/gender dimension and gender equality

FUNDS	Sex/Gender Dimension									Gender equality										
	Sex	%/ CRP	Gender dimension	%/ CRP	Gender neutral/ Not applicable	%/ CRP	Not required	%/ CRP	TOTAL	Equal opportunities	%/ CRP	ICM/ CSIC GEP	%/ CRP	Specific project measures	%/ CRP	Equality Task Force	%/ CRP	Female STEAM Awareness	%/ CRP	TOTAL
European Funds	8	11%	9	12%	6	8%	6	8%	29	11	15%	7	9%	7	9%		0%	5	7%	30
Spanish Funds (Plan Nacional)	5	7%	2	3%	27	36%	1	1%	35	16	21%	22	29%		0%	9	12%	3	4%	50
TOTAL	13	17%	11	15%	33	44%	7	9%	64	27	36%	29	39%	7	9%	9	12%	8	11%	80

Only scientific research projects (76) (CRP)

Summation is not applicable, as a single project may include multiple concepts.

In analysing the integration of the gender dimension in research content, key trends emerged from the "gender dimension" section in the proposals. Of these, 44% classified their projects as "gender neutral/not applicable" (mainly in basic science), 15% considered integrating the gender dimension, and 9% corresponded to projects submitted before the 2021 requirement to justify this integration.

A notable number of projects used the "gender dimension" section to address issues of "gender equality" (Table 3). Thus, 36% used this section to affirm their commitment to equal opportunities, while 39% referenced adherence to the ICM and/or CSIC GEP. Additionally, 9% informed about specific gender equality measures in their projects, 12% acknowledged the advisory role of the Equality Task Force, and 11% cited initiatives promoting women in STEM.

The results of this process highlight that, while it is true that not all marine research can integrate the gender dimension, there are projects where it can be incorporated, even if the potential social impact is not immediately apparent or evident. Some projects classified as "gender neutral" could have integrated gender analysis and, potentially, yielded different results. Meanwhile, projects that claim to incorporate the gender dimension often limit this aspect to the dissemination of results. Research can be used to create new technologies, inform legislation, shape the way we think and understand the world, or develop skills and knowledge, and so, have social dimension. Even studies without human subjects can have social implications. When social implications exist, integrating the gender dimension becomes inevitable. Enhancing researchers' awareness and understanding is a necessary step in this process.

c. Develop an Internal Toolkit

The toolkit was developed based on institutional gender assessments, research mapping, literature review, and best practices. This comprehensive approach ensures it addresses key challenges in marine sciences through a dual strategy: (a) promoting gender equality in research team composition and dynamics (Tool 1), and (b) integrating sex/gender as essential analytical variables, generating broader societal benefits (Tool 2).

The toolkit provides researchers with practical guidance throughout all research phases, emphasizing gender considerations from project conception to completion. While it fosters reflection on gender equality and the sex/gender dimension, it does not replace the need for specialized gender expertise. Designed also as a comprehensive reporting tool, it guides the formulation of indicators to measure achievements. It will be available as an open-access learning resource on the ICM website.

Tool 1. Gender Equality in Research, is designed to ensure gender equality in the integration and functioning of research teams. In alignment with gender equality provisions in Horizon Europe, it not only promotes gender balance and equal opportunities within research teams, but fosters an enabling environment for effective equality. To ensure that this principle permeates every phase of the project cycle, the tool raises pertinent issues to be consider (see Figure 1).

Each phase is supported by a checklist that includes targeted questions to verify compliance with gender-related considerations. For instance, when assessing gender balance in team composition, it is essential not only to determine the percentage of women and men in the team but also to consider their distribution across different categories and leadership positions.

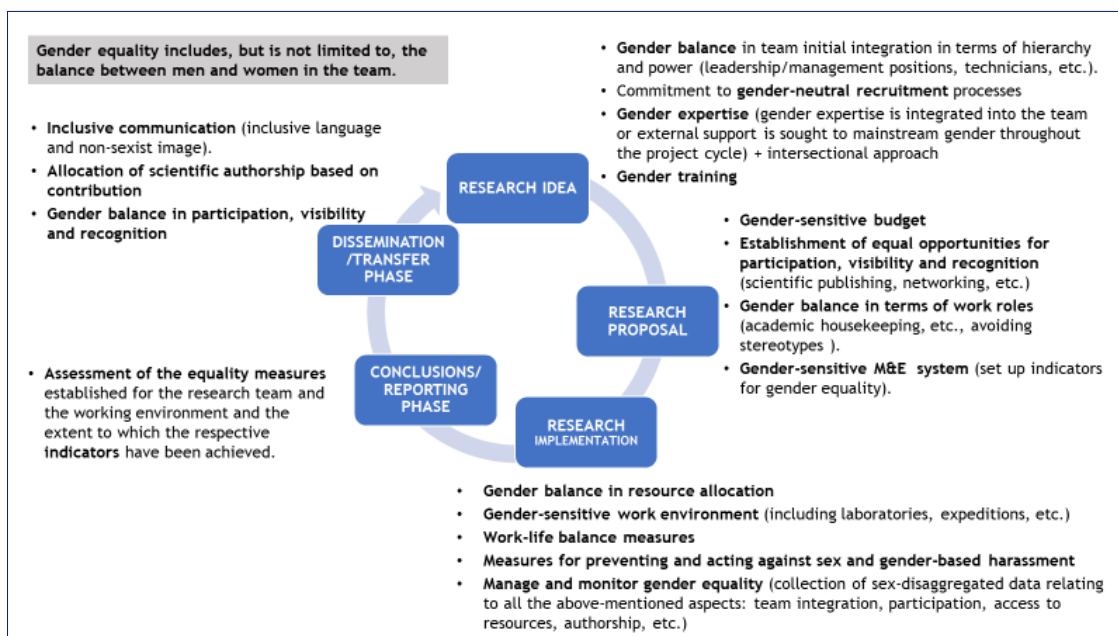


Figure 1: Ensuring gender equality in the research cycle

Finally, the tool aims to establish a set of indicators integrated into a monitoring and evaluation (M&E) system, enabling the progress measurement at different levels. These gender equality indicators serve as measurable benchmarks of performance and achievement, requiring the collection and analysis of sex-disaggregated data. The development of gender-sensitive qualitative and quantitative indicators depends, in part, on the availability

of reliable data. A critical requirement is that all databases incorporate sex/gender variables, include relevant information for every aspect under analysis, adhere to standardized data collection procedures, and generate periodic reports to support monitoring and evaluation

When establishing target values for indicators, pre-existing conditions —such as vertical and horizontal segregation— may shape initial benchmarks. However, these targets should be set to align with gender equality objectives. During the evaluation process, data collected from the original sources will be disaggregated by sex, enabling the update of indicator values and a comparison with baseline measurements to assess progress toward gender equality goals.

The effectiveness of this tool can be enhanced if the RPO has a GEP that integrates measures to support the proposed actions.

Tool 2. Gender dimension in research, is designed to ensure the consideration of sex/gender in marine research when appropriate. If the research - knowledge, results or outputs - is to have a social impact, researchers must assess who benefits and why, and then address the sex/gender dimension. However, social impact is complex and often long-term, making it difficult to measure immediately. Although the results may not have an immediate impact, they can lay the groundwork for future changes, so the need to take the gender dimension into account should always be considered.

Both basic and applied research can be societally impactful. Then, gender dimension must be systematically incorporated into research design, methodology, and the intended application.

Studies involving organisms that are distinguishable by sex should be designed to identify potential sex-related differences, even if these differences are not initially anticipated. If the sex/gender dimension is deemed irrelevant, its exclusion should be explicitly justified with a well-reasoned explanation.

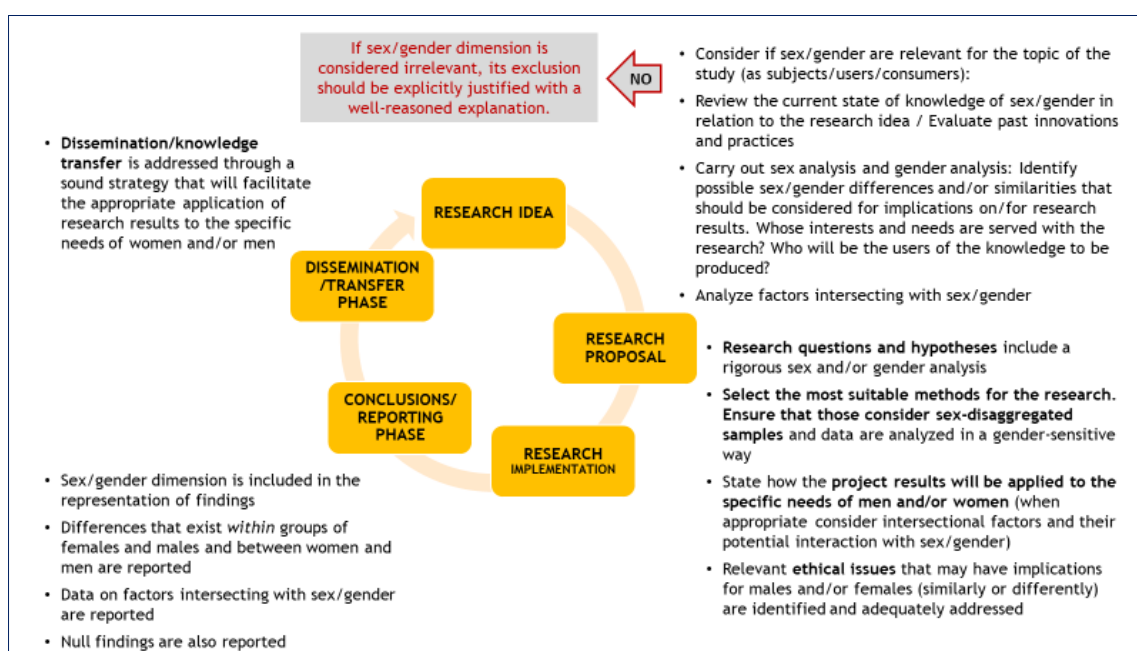


Figure 2: Integrating sex/gender dimension in the research cycle

The tool guides researchers through the different phases of the research by highlighting key issues at each stage (see Figure 2). Each phase is supported by a checklist featuring key questions on integrating sex/gender into research, complemented by illustrative subquestions and practical recommendations for implementation. The checklist encompasses various groups of questions that address the different fields and research scenarios previously mapped. For example, when designing a marine resource research project, integrating the gender dimension is crucial for ensuring equitable, inclusive, and effective resource management. A comprehensive gender analysis should assess how men and women interact with marine ecosystems, identifying disparities in access to resources, decision-making power dynamics, and labour distribution, particularly in small-scale fisheries and aquaculture. Engaging diverse and representative stakeholders—including fishers, policymakers, scientists, and local communities—is essential for capturing gendered challenges and knowledge gaps. Research

methodologies should be context-specific, and data collection must include sex-disaggregated data to enable accurate analysis and inform results.

d. Training and Promoting Toolkit Implementation

This last step is aimed at training research and technical personnel in the use of these tools which is expected to be applied on an ongoing basis.

5. Conclusions and Future Considerations

The ICM is committed to scientific excellence and collaboration with diverse social actors, using ocean knowledge to strengthen the relationship between humanity and the ocean. However, bridging society and scientific research remains a challenge, particularly when the gender dimension lacks an obvious application. Integrating sex/gender variables into R&I is essential for scientific quality, reproducibility, and social impact, as it reduces biases, enhances experimental efficiency, and fosters new opportunities for discovery. Yet, its implementation faces barriers such as limited awareness, methodological challenges, and resistance from some researchers, highlighting the need for a stronger social focus in marine research to ensure inclusive and socially relevant outcomes.

Based on the ICM's experience, several key lessons can be drawn:

- **Institutional commitment and support are essential**, requiring not only resource allocation but also fostering an enabling environment for gender equality initiatives. However, this commitment must extend to researchers, particularly those leading research groups.
- **Gender Equality Plans (GEPs) in Research Performing Organizations (RPOs)** must be institutionalized and aligned with Horizon Europe guidelines to ensure implementation with institutional backing. While GEPs have provided a framework for addressing gender biases and driving structural change, their adoption at the research group level remains limited, representing a pending effort.
- **Gender expertise is crucial** in both the development and implementation of tools. Training researchers is key to ensuring the qualified application of these tools.
- **Practical and adaptable tools must be designed** for different research settings and disciplines within institutions. These should offer structured guidelines and practical recommendations for integrating the sex/gender dimension across all research stages. A dual approach is essential: promoting gender equality in the composition and functioning of research teams while systematically incorporating sex/gender variables into scientific content.
- For maximum effectiveness, tools must be continuously updated, incorporating new approaches and best practices that are contextually relevant for their users. Likewise, their implementation should be closely monitored to ensure their ongoing suitability.

To advance the integration of the sex/gender dimension in marine sciences, future efforts should focus on:

- Strengthening interdisciplinary and transdisciplinary approaches by fostering synergies between social sciences, gender studies, and STEM disciplines.
- Institutionalizing gender expertise by ensuring access to training and resources that facilitate meaningful integration.
- Enhancing policy support and evaluation mechanisms by developing systematic tools to measure the gender impact of research outcomes.
- Contributing to recognising women's contributions—beyond the scientific sphere—to ocean knowledge. Scientific research must integrate their voices and needs, ensuring that women benefit from ocean science advances.

ICM's initiative underscores the importance of institutional commitment and continuous adaptation to fully integrate gender perspectives in research, paving the way for more equitable and impactful scientific advancements.

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Ethics Declaration

Ethical clearance was not required for the research.

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