



Deliverable 5.4

Preliminary ethics, gender and inclusion issues

WP5 – Holistic Sustainability Assessment

Version 1.0

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2	KRAFTBLOCK GMBH	KB	GE
3	CENTRO DE INVESTIGACIONES ENERGETICAS MEDIOAMBIENTALES Y TECNOLOGICAS	CIEMAT	ES
4	HOLOSS - HOLISTIC AND ONTOLOGICAL SOLUTIONS FOR SUSTAINABILITY, LDA.	HOLOSS	PT
5	PHASE CHANGE MATERIAL PRODUCTS LTD	PCMP	UK
6	FACHHOCHSCHULE ZENTRALSCHWEIZ HOCHSCHULE LUZERN	HSLU	CH
7	ENGICER SA	ENGI	CH

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Executive summary

The present document outlines the gender, ethics, and inclusion strategy developed within the COOPERANT project. As an EU-funded initiative, COOPERANT drives the development of next-generation Concentrated Solar Power and Thermal Energy Storage technologies to strengthen efficiency, dispatchability, and sustainability in support of Europe's shift toward a resilient, decarbonised energy system. Accordingly, while the project's primary focus lies in sustainable scientific and technological innovation, the Horizon Europe program still emphasises that high-quality research must also integrate gender equality, ethical responsibility, and inclusiveness as core components of excellence. As a result, addressing these dimensions, within the COOPERANT project is therefore essential to ensuring that research outcomes are not only scientifically *avant-garde* but also socially relevant and equitable.

Given this context, the relevance of this work also lies in the broader renewable energy sector, where persistent gender imbalances in STEM (Science, Technology, Engineering, and Mathematics) fields, leadership roles, and decision-making structures continue to shape participation patterns. These dynamics, combined with ongoing ethical challenges, influence whose perspectives ultimately guide technological choices. Consequently, the technologies developed often reflect a narrow set of experiences, leaving important societal needs and user perspectives underrepresented. Building on these observations, the strategy outlined in this document aims to counter these tendencies, by identifying gender, ethical, and inclusion considerations that will guide COOPERANT's research, development, and innovation activities. In this sense, it will further examine how gender equality, intersectionality, and inclusive research practices intersect with the project's scientific work. As a result, this approach aims to strengthen the societal relevance of COOPERANT's technological progress while embedding gender equality, ethical integrity, and inclusive practices as core elements of a fair, equitable green transition aligned with EU climate and energy goals.

To address these issues, a structured methodology was implemented to assess the consortium's context and practices. Moreover, this process included monitoring gender representation across partners, evaluating ethical awareness, and engaging participants through consultations and dedicated discussions. Furthermore, equal attention was given to fostering inclusion, ensuring that diverse perspectives, backgrounds, and needs were recognised and integrated into the project's research environment. These exchanges enabled partners to reflect on their roles, identify potential gaps, and build a shared understanding of responsible research and innovation. Alongside, the approach was grounded in EU ethical frameworks and aimed at fostering continuous awareness rather than one-off compliance.

Ultimately, by adopting these measures, the COOPERANT project positions itself to deliver technological advancements that are not only efficient and innovative but also socially grounded, inclusive, and ethically sound. As a result, by integrating gender, ethics, and inclusion considerations enhances the project's credibility, supports more equitable participation in the renewable energy sector, and contributes to a responsible and sustainable energy future for Europe.

Table of Contents

1	Introduction.....	13
1.1	Purpose of the document.....	13
1.2	Objectives.....	15
2	Relevant background.....	17
2.1	Gender.....	17
2.1.1	Basic concepts.....	18
2.1.2	Gender in research and innovation.....	19
2.1.3	Gender in decision-making.....	23
2.1.4	Gender in Horizon Europe	26
2.2	Ethics.....	28
2.2.1	Ethical principles.....	29
2.2.2	Ethics in research and innovation.....	30
2.2.3	Ethics in Horizon Europe	32
2.2.3.1	Research Integrity.....	33
2.2.3.2	Artificial intelligence.....	35
2.2.3.3	Personal data/Data protection.....	38
2.2.3.4	Health and Security	40
2.2.3.5	Environmental Protection.....	41
2.2.3.6	Non-EU countries.....	42
2.3	Inclusion.....	42
2.3.1	Inclusion basic concepts.....	43
3	Target scenario.....	45
4	Methodology applied	46
5	Results and discussion.....	47
5.1	Gender.....	48
5.1.1	Gender in the COOPERANT project.....	48
5.1.1.1	First survey results	49

5.1.1.2	Second survey results.....	54
5.1.2	Gender recommendations.....	58
5.2	Ethics.....	60
5.2.1	Ethics in the COOPERANT project.....	60
5.2.1.1	First survey results	62
5.2.1.2	Second survey results	66
5.2.2	Recommendations on ethics	71
5.3	Inclusion	72
5.3.1	Inclusion in the COOPERANT project	72
5.3.1.1	First survey results	74
5.3.1.2	Second survey results	78
5.3.2	Recommendations on inclusion	81
6	Conclusions	83
6.1	Next actions.....	84
7	References and resources.....	86
8	Annexe I.....	89
8.1	Images of the COOPERANT Seminar on Gender, Ethics and Inclusion aspects (held on M9).	89

List of Figures

Figure 1: Proportion (%) of Horizon 2020 (2014–2020) projects integrating a gender dimension (GDRIC), by country, 2014–2020.....	21
Figure 2: Proportion (%) of Horizon Europe (2020–2027) projects integrating a gender dimension (GDRIC), by country, 2021–2023.....	22
Figure 3: Data for Research funding organisations: gender of the members of the highest decision-making bodies.	24
Figure 4: Data for National academies of science: gender of the members of the highest decision-making bodies.	25
Figure 5: Results of Regional gender gaps over time. Evolution in scores, 2006–2025.	28
Figure 6: Comparative results of the G4, G5 and G6 questions from the first COOPERANT survey on gender.....	52
Figure 7: Results of the question G8 “Within your company/institution, which gender holds the main responsibility of being in charge of WP in the COOPERANT project by Partner (P)”	53
Figure 8: Results of the question G9 “Within you company/institution, which gender holds the main responsibility of being in charge of Tasks/Sub-tasks in the COOPERANT project by Partner (P)”	54
Figure 9: Comparative results of the G4, G5 and G6 questions from the second COOPERANT survey on gender.	56
Figure 10: Results of the question G8 “Within your company/institution, which gender holds the main responsibility of being in charge of WP in the COOPERANT project by Partner (P)”	57
Figure 11: Results of the question G9 “Within you company/institution, which gender holds the main responsibility of being in charge of Tasks/Sub-tasks in the COOPERANT project by Partner (P)”	58
Figure 12: Results of the question E1 “Do you believe that the inclusion of the ethical dimension is a priority in the field of Research & Innovation?”	63
Figure 13: Results of the question E2 “How familiar are you with relevant EU legislation on ethical research? (e.g. EU Code of Conduct for Research Integrity)”	64
Figure 14: Results of the question E3 “How familiar are you with relevant EU legislation on the ethical development and deployment of Artificial Intelligence? (e.g. Ethics Guidelines for Trustworthy AI; Artificial Intelligence Act)”	65
Figure 15: Results of the question E4 “How familiar are you with relevant EU legislation on ethical handling of data? (e.g. General Data Protection Regulation).....	66
Figure 16: Results of the question E1 “Do you believe that the inclusion of the ethical dimension is a priority in the field of Research & Innovation?”	68
Figure 17: Results of the question E2 “How familiar are you with relevant EU legislation on ethical research? (e.g. EU Code of Conduct for Research Integrity)”	69

Figure 18: Results of the question E3 “How familiar are you with relevant EU legislation on the ethical development and deployment of Artificial Intelligence? (e.g. Ethics Guidelines for Trustworthy AI; Artificial Intelligence Act)”	70
Figure 19: Results of the question E5 “How familiar are you with relevant EU legislation on ethical handling of data? (e.g. General Data Protection Regulation).....	70
Figure 20: Results of the question I1 “Does your organisation have measures to foster an inclusive and healthy working environment?.....	76
Figure 21: Results of the question I4 “Does Human Resources have measures in place towards hiring candidates from underrepresented groups?”	77
Figure 22: Results of the question I8 “Does your workplace have mechanisms to report incidents of discrimination?”	78
Figure 23: Results of the question I1 “Does your organisation have measures to foster an inclusive and healthy working environment?.....	79
Figure 24: Results of the question I4 “Does Human Resources have measures in place towards hiring candidates from underrepresented groups?”	80
Figure 25: Results of the question I8 “Does your workplace have mechanisms to report incidents of discrimination?”	81

List of Tables

Table 1: HOL actions to monitor and follow up gender dimension on COOPERANT project between M1-M18. (Gender dimension).....	49
Table 2: Questions developed by HOL for the first gender, ethics and inclusion survey for COOPERANT project (Gender dimension).....	50
Table 3: HOL actions to monitor and follow up ethics dimension on COOPERANT project between M1-M18. (Ethics dimension).....	61
Table 4: Questions developed by HOL for the first gender, ethics and inclusion survey for COOPERANT project (Ethics dimension).....	62
Table 5: Questions developed by HOL for the second gender, ethics and inclusion survey for COOPERANT project (Ethics dimension).....	67
Table 6: HOL actions to monitor and follow up inclusion dimension on COOPERANT project between M1-M18.....	73
Table 7: Questions developed by HOL for the first gender, ethics and inclusion survey for COOPERANT project (Inclusion dimension).....	74

List of Acronyms

AI	Artificial Intelligence
ALLEA	All European Academies
CM	Consortium meeting
CSP	Concentrated Solar Power
DMP	Data Management Plan
EIC	European Innovation Council
EIGE	European Institute for Gender Equality
EU	European Union
EUI	European University Institute
GA	Grant Agreement
GDPR	General Data Protection Regulation
GEAR	Gender Equality in Academia Research
GEP	Gender Equality Plan
HE	Horizon Europe
HOL	HOLOSS
IC	Informed Consent
LCSA	Life Cycle Sustainability Assessments
M	Month
MENA	Middle East and North Africa
Obj	Objective
R&I	Research and Innovation
RRI	Responsible Research and Innovation
s-LCA	Social Life Cycle Assessment
LCSA	Life Cycle Sustainability Assessment
SSbD	Safe and Sustainable by Design
STEM	Science, Technology, Engineering, and Mathematics
T	Task
TES	Thermal Energy Storage
UK	United Kingdom
UKRI	UK Research and Innovation
GDPR	General Data Protection Regulation
WP	Work Package

1 Introduction

Across Europe, the research and innovation landscape is evolving toward a model where excellence depends on scientific achievements and the values guiding research practices. Moreover, the European Union increasingly promotes responsible, transparent, and socially aligned approaches that ensure research contributes to societal well-being and long-term resilience. Consequently, ethical integrity, inclusiveness, and gender equality have become central expectations within the European Research Area, influencing how projects are designed, governed, and evaluated [1]. Within this dynamic context, the COOPERANT project positions itself as an initiative committed to aligning scientific ambition with the principles that support high-quality and future-oriented innovation [1].

However, despite the EU's strong policy direction, many research initiatives still struggle to translate principles such as inclusion, ethics, and gender equality into concrete operational practices [1]. Furthermore, although existing frameworks highlight their importance, practical guidance on embedding these dimensions into governance structures, team dynamics, and methodological choices remains fragmented. As a result, gaps persist between policy aspirations and daily implementation, limiting the potential for research to reflect societal values [1]. Therefore, COOPERANT identifies this disconnect as an opportunity to develop a coherent and actionable framework that systematically integrates responsible research principles to enhance credibility, relevance, and impact.

To address this need, the COOPERANT project aims to establish a structured framework that embeds inclusion, ethics, and gender equality across all stages of its research process. In addition, the project seeks to strengthen internal governance, promote diverse and equitable team participation, and ensure methodological choices reflect transparency and fairness. This will be achieved through clear assessment of practical guidelines, participatory mechanisms, and continuous monitoring tools that support iterative improvement. Ultimately, by articulating a robust methodological approach, COOPERANT intends to enhance the quality of its outcomes and contribute to a more responsible and resilient European innovation ecosystem.

1.1 Purpose of the document

This document outlines the rationale, scope, and methodological approach developed within task 5.4 titled “Gender, Ethics, and Inclusion Aspects”, which is embedded in Work Package 5 (WP5). Specifically, this task aims to prevent potential biases forming within the project while providing consortium-wide awareness of gender, ethical and inclusion aspects, and supervise the requirements with which the project must comply. Accordingly, by integrating gender, ethics, and inclusion considerations it ensures that COOPERANT’s scientific and technological

developments remain socially responsible, equitable, and aligned with EU expectations for responsible research and innovation.

As part of this effort, potential discrimination risks will be systematically identified. In parallel, tailored recommendations will be provided to strengthen understanding of all forms of bias and to support the implementation of effective mitigation measures. In doing so, the task ensures compliance with all relevant requirements and supports the integration of responsible, fair, and inclusive practices across the project's research, development, and innovation activities. In addition, it also establishes mechanisms to promote gender balance, uphold ethical standards, and embed inclusive approaches throughout research, communication, dissemination, and stakeholder engagement. Moreover, particular attention is given to co-creation and participatory methods, ensuring that the perspectives and needs of diverse end users are meaningfully reflected throughout the project lifecycle.

Accordingly, this document presents the initial findings, observations, and monitoring strategies that support these objectives. In parallel, the strategy is grounded in key European regulations, policy frameworks, and project-specific guidelines across the three dimensions, gender, ethics, and inclusion, that inform COOPERANT's approach, including the EU Code of Conduct for Research Integrity and other relevant EU legislations.

Giving this context, the report provides an overview of fundamental gender, ethics and inclusion concepts and highlights the primary approaches that COOPERANT will implement to integrate these perspectives into its research and innovation activities. Hence, it incorporates the most up-to-date related data available within the consortium and offers guidance on strengthening gender equality, ethics considerations and inclusiveness efforts in COOPERANT scientific environment. Moreover, another central focus is placed on ensuring representation and inclusivity, particularly within the European energy research context, where gender and ethics imbalances in STEM fields and decision-making roles remain a persistent challenge [1].

By detailing the strategies, frameworks, and methodological steps that COOPERANT will adopt, this document aims to embed gender, ethics, and inclusion considerations systematically across the entire project life cycle. This approach aligns with the broader objectives of the Horizon Europe programme, which emphasises that excellence in research requires not only scientific and technological innovation but also adherence to ethical standards, inclusiveness, and gender equality and equity. In this regard, the overarching goal is to cultivate a research environment that is both socially responsible and reflective of diverse perspectives.

Overall, the structured monitoring framework is presented to assess progress in gender parity, ethical compliance, and inclusive research practices throughout the project's duration. This includes mechanisms for tracking representation, evaluating awareness, and identifying potential gaps or risks. The report also outlines consortium-wide strategies to ensure alignment with Horizon Europe's expectations for responsible research and innovation, reinforcing

COOPERANT's commitment to fostering an equitable, transparent, and ethically grounded research culture.

1.2 Objectives

The primary objective of Task 5.4 and this associated deliverable is to ensure that gender, ethics and inclusion considerations are effectively integrated and monitored throughout the implementation of the COOPERANT project. This task aims to identify and address gender, ethics and inclusion related issues, in a way to promote gender equality, reduce inequalities and guarantee compliance with applicable ethical principles and regulatory requirements across all project activities. In line with this objective, a set of specific goals has been defined to guide the execution of the task and the development of the deliverable. Hence, the specific objectives can be defined:

- Identify, assess and mitigate potential gender, ethics and inclusion-related biases within the COOPERANT project, ensuring their effective consideration and integration throughout all project phases.
- Promote gender balance and inclusive representation within research teams, governance structures and decision-making processes across the project.
- Monitor, implement and advance inclusivity strategies, fostering equitable participation and critically evaluating gender, ethics and inclusion related assumptions in research design, development and execution.
- Address key ethical considerations relevant to the project scope and implementation, including research integrity, health and safety, and responsible innovation practices.
- Ensure full compliance with ethical standards and applicable legal requirements, including data protection and relevant EU regulations.
- Develop mechanisms to monitor and assess the long-term effectiveness of gender equality, inclusion and ethical policies adopted within the project.
- Implement and promote best practices to mitigate biases and enhance fairness, transparency and accountability in decision-making processes.

Specifically, this task addresses gender, ethics, and inclusion within transversal dimensions to enhance the quality and societal relevance of COOPERANT's technical and digital developments. In this regard, the task 5.4 does not specifically target a single technical objective, as it provides a general enabling framework that aligns all research and innovation activities with EU ethical standards, legal requirements, and RRI (Responsible Research and Innovation) principles. As a result, it aims to help the COOPERANT project to reduce risks, minimise biases, and remove barriers to adoption, thereby ensuring that all developments remain socially responsible, ethically compliant, and widely acceptable to end users.

Furthermore, it is still possible to identify clear links, arising from the synergies between the objectives of Task 5.4 and the project's technological objectives. Starting with Objectives 1, on novel CSP concepts and Objectives 2 on high temperature TES materials. In these cases, by integrating ethical, health-and-safety, and inclusion considerations from the early design stages it can help support the development of safer, more sustainable, and user-oriented CSP receivers and TES materials. This transversal oversight also enhances the reliability, scalability, and long-term applicability of the developed components. As a result, it supports their experimental validation and future deployment without interfering with their technical performance targets.

Additionally, Task 5.4 makes an important contribution to the development of the COOPERANT AI Tool as defined in Objective 3, on digital intelligence for orchestrating CSP-TES coupling. By promoting gendered innovations and intersectional perspectives, it helps embed these considerations into digital and intelligent systems. In parallel, by addressing inclusiveness, transparency, and user diversity, it supports the creation of trustworthy and widely acceptable decision-support tools. The task also ensures compliance with emerging AI regulations, including ethical requirements and obligations introduced by the AI Act, thereby guiding the responsible design and deployment of AI components. This regulatory alignment is essential for effective energy management, improved dispatchability, and the broader replication of the CSP-TES solution.

Moreover, task 5.4 indirectly supports Objective 4, on demonstrating short-term heat storage technology at TRL4, by ensuring that COOPERANT's technologies are developed and tested in an ethical, inclusive, and socially responsible way. By checking that gender, ethics, and inclusion principles are respected, the task helps increase trust in the prototype, the long-duration storage concept, and the planned replication activities. This leads to more reliable testing, strengthens the case for continuous 24/7 solar-based energy production, and makes it easier for the solution to be adopted and scaled in real settings.

Finally, the integration of gender, ethics, and inclusion principles also supports the sustainability, impact assessment, and exploitation objectives 5 and 6, on assessing COOPERANT solutions viability and boosting adoption and commercialisation through COOPERANTTRANSFER. In particular, it reinforces social acceptability, stakeholder engagement, and compliance with EU guidelines on inclusive communication and dissemination. As a result, it contributes to more robust socio-economic impact assessments, facilitates market uptake and replication, and strengthens the potential of COOPERANT solutions to advance a fair, inclusive, and sustainable energy transition.

2 Relevant background

The integration of gender equality, ethics, and inclusion has become a core requirement of European research and innovation policy. Specifically, Horizon Europe emphasises RRI principles. These principles aim to align scientific progress with societal values, legal frameworks, and public expectations. Additionally, the European Commission recognises that neglecting gender, diversity, and ethical dimensions can lead to biased outcomes. This inattention, can, in turn, reduce social acceptance and limits the uptake of innovative solutions, especially in complex transitions such as the energy sector [1].

Accordingly, within the energy research and digital innovation, such as CSP–TES technologies and AI-based decision-support systems, developed in the COOPERANT project may unintentionally embed biases. These biases can arise from design choices, data selection, or user interaction frameworks. Therefore, addressing these aspects from the early stages strengthens the project's overall approach. By treating them as transversal elements, COOPERANT aligns technical excellence with ethical responsibility. Consequently, this leads to more robust, transparent, and socially acceptable technologies that support a fair and sustainable energy transition.

Finally, these considerations are not abstract. Hence, recent data across Europe and globally reveal persistent inequalities and ethical challenges [2]. These issues directly affect research quality, workforce participation, and technology adoption. Consequently, the concepts and statistics below illustrate why integrating gender, ethics, and inclusion, central to Task 5.4, is essential for ensuring fair, safe, and socially accepted innovation.

2.1 Gender

Gender equality is a fundamental principle of the European Research Area and a core requirement within Horizon Europe, ensuring that research and innovation are conducted in a fair, inclusive, and socially responsible manner. In this context, the COOPERANT project recognizes that integrating gender considerations is not only a matter of compliance but a driver of scientific excellence, societal relevance, and ethical integrity. By acknowledging the structural barriers that persist in research environments and addressing them proactively, the project contributes to the EU's broader ambition of fostering a Union of Equality where all individuals can participate and thrive.

Within COOPERANT, gender equality is approached as a cross-cutting dimension that shapes project governance, team composition, research methodologies, and stakeholder engagement. This means ensuring balanced representation, promoting inclusive participation, and embedding gender-sensitive perspectives into the design and implementation of

activities. By doing so, the project strengthens its capacity for innovation, enhances the quality and impact of its outcomes, and aligns with European Commission expectations for responsible, bias-aware, and socially responsive research practices.

2.1.1 Basic concepts

A comprehensive understanding of gender in the context of Research and Innovation (R&I) and Horizon Europe (HE) projects require familiarity with key concepts and terminology. Considering this the European Institute for Gender Equality (EIGE) stands by the “Glossary and Thesaurus,” [3] a recognized and specialised terminology tool focused on the area of gender equality. As a result, it aims to foster a common understanding of gender equality terms across the EU and promote gender-fair and inclusive language to improve equality between women and men.

Accordingly, a very first fundamental distinction to recognize is the one between sex and gender. The term “sex” refers to the biological and physiological characteristics that classify individuals as male or female. Importantly, the definitions acknowledge that these characteristics are not strictly binary, as some individuals, such as intersex persons, may possess traits associated with both sexes [3]. This nuanced understanding highlights the complexity of biological classification and underscores the importance of considering diversity beyond a simple male/female distinction.

In contrast, the term “gender” is understood as a social construct encompassing the roles, expectations, opportunities, and relationships that society assigns to individuals. Considering, the European Institute for Gender Equality (EIGE) highlights that gender characteristics are context and time-specific, meaning they can differ across cultures and historical periods and are subject to change over time. This perspective underscores the fluidity of gender and the importance of considering how societal norms shape experiences and opportunities in different settings [3].

Additionally, two additional key concepts that are essential to this discussion are “gender equality” and “intersectionality”, both, again, defined in EIGE’s Glossary and Thesaurus. In light of this, the term “gender equality” refers to a state in which individuals of all genders enjoy the same rights, responsibilities, and opportunities [3]. Moreover, importantly, equality does not imply that men and women become identical, rather, it ensures that a person’s rights and access to opportunities are not determined by the sex assigned at birth. On the other side, the term “intersectionality”, in turn, examines how gender intersects with other social categories, such as ethnicity, migration status, or socioeconomic background to shape individual experiences [3]. As a result, EIGE notes that this perspective is especially valuable for identifying overlapping layers of discrimination that individuals may face.

Furthermore, the European Commission's Toolkit on Gender in EU-funded Research [4] further provides a structured framework for integrating gender considerations into research. Within this context, several other core research-related concepts are particularly relevant. However not to seem so extensive, becomes important to highlight, the concept of "gender-blind research" which refers to studies that fail to consider gender as a relevant factor, often based on the mistaken assumption that gender differences are irrelevant to the topic under investigation [3] [4]. Conversely, the concept "gender-sensitive research" integrates gender considerations throughout all stages of the research process, recognizing their potential influence on findings [3] [4].

A related concern is the concept "gender bias", which occurs when one gender is systematically prioritized over another, often as a result of entrenched societal stereotypes, whether consciously or unconsciously [3]. Addressing such bias is essential to ensure research outcomes are fair, balanced, and credible. Finally, the concept "gender-specific research" focuses explicitly on gender as the primary subject of study, examining its effects and implications across various domains [3].

Overall, by acknowledging and incorporating these concepts ensures that research not only meets high ethical and scientific standards but also reflects a nuanced understanding of gender, ethical and inclusive dynamics.

2.1.2 Gender in research and innovation

The European Union has made notable progress in advancing gender equality within Research and Innovation (R&I). This progress is driven by key measures such as the Gender Equality Plan (GEP) requirement under Horizon Europe and the systematic integration of the gender dimension into research content [5]. In addition, these efforts are already reshaping the landscape: 81% of R&I calls now address gender aspects, women represent over 51% of participants in Horizon Europe boards and expert groups, and the share of women-led consortia has grown from 23% to 31% [5]. Building on the long-standing priorities of the European Research Area, the EU is further strengthening its commitment through new initiatives aimed at combating gender-based violence in academia. Moreover, it is expanding support for women-led deep-tech start-ups, reinforcing a more inclusive and equitable R&I ecosystem [5].

Accordingly, building on the concepts outlined earlier, embedding gender considerations in both gender-sensitive and gender-specific research is essential for enhancing scientific quality [5]. Yet, advancing gender equality in research and innovation requires far more than simply ensuring women are represented among study participants. Therefore, it calls for a deeper institutional transformation, one that reshapes structures, cultures, and practices to guarantee women's full and fair participation.

In this context, gender equality has long stood as a core priority of the European Union. Among the most valuable tools supporting this commitment are the *She Figures* reports, which provide a systematic overview of progress and help assess the effectiveness of EU policies aimed at strengthening gender equality in R&I. First released in 2003, the publication is updated every three years, offering an evolving picture of trends and developments across the European research landscape [5].

Accordingly, Figure 1, illustrates the extent to which the previous Horizon 2020, the European Union's Framework Programme for Research, and Innovation (2014–2020), while Figure 2 and the newer EU's Research and Innovation Framework Programme (2021–2027), integrated the gender dimension into funded projects [5]. This visual reference is particularly useful for future comparisons, especially once new data from Horizon Europe becomes available through upcoming editions of *"She Figures"*. Additionally, it should be noted that the information presented is based on the *She Figures* data currently accessible, namely, the 2024 edition, relies exclusively on files containing report summaries, project descriptions, publications, and deliverables. Consequently, the resulting figures may not fully capture the complete picture.

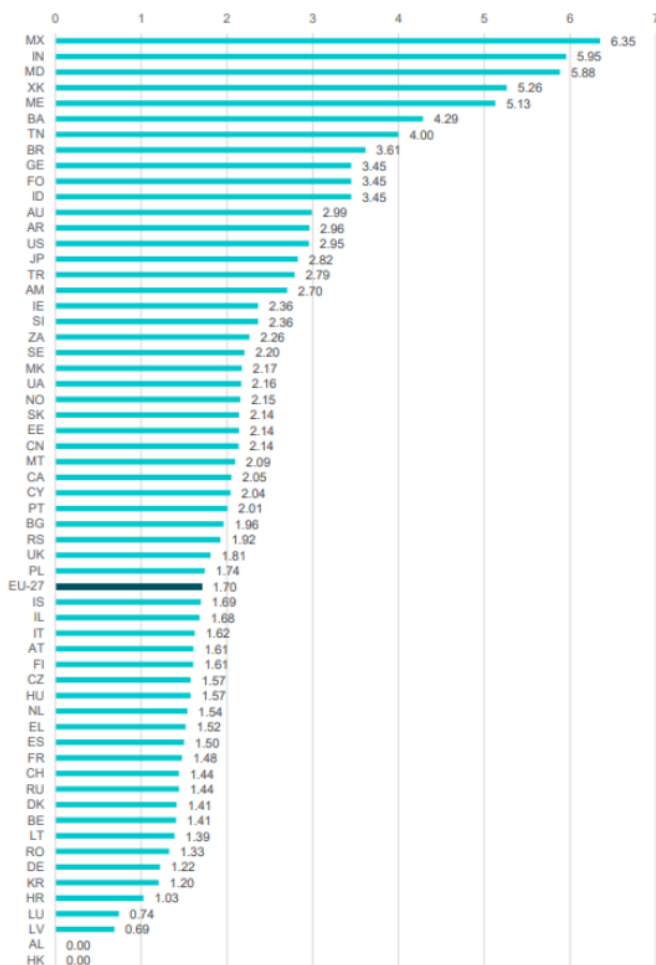


Figure 1: Proportion (%) of Horizon 2020 (2014-2020) projects integrating a gender dimension (GDRIC), by country, 2014-2020.

Source: Retrieved from "She Figures" (2024). Computed using Horizon data, retrieved from CORDIS, EU Open Data Portal [5].

The main takeaway from Figure 1 is that 19 EU-27 Member States and Associated Countries report gender-dimension levels above the EU average [5]. In contrast, only 1.7% of Horizon 2020 projects across Europe incorporated a gender dimension, revealing a strikingly low overall proportion [5]. This gap highlights substantial room for progress, an area where Horizon Europe is expected to deliver meaningful improvements.

Expanding on this, Figure 1 and Figure 2 provide an overview of the share of Horizon Europe projects that currently integrate a gender dimension [5]. These figures, however, should be interpreted carefully. The programme is still in its early stages, the number of projects available at the time of analysis was relatively small (around 9,000 in total, with fewer than 30 in 15 countries as of November 2023), and many initiatives are still underway [5]. Together, these

factors mean that the present data offers only a preliminary snapshot rather than a definitive assessment.

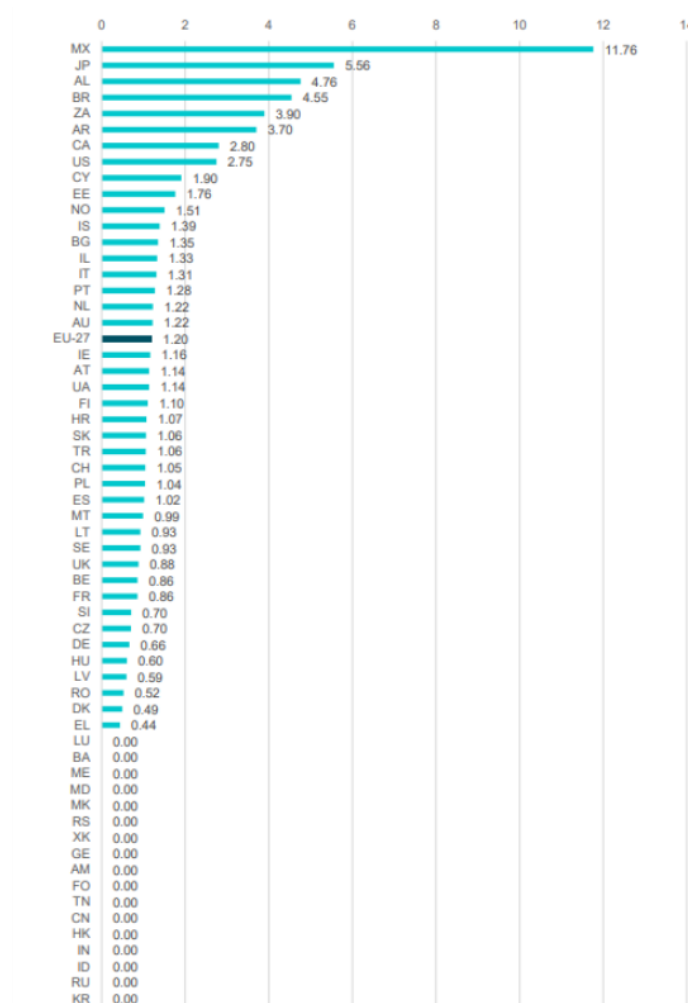


Figure 2: Proportion (%) of Horizon Europe (2020-2027) projects integrating a gender dimension (GDRIC), by country, 2021-2023

Source: Retrieved from "She Figures" (2024). Computed using Horizon data, retrieved from CORDIS, EU Open Data Portal [5].

Moreover, integrating the gender dimension into R&I content is neither a simple nor a one-off task. It is an ongoing, multifaceted process that spans the entire lifecycle of a research and innovation project, far beyond what can be captured in short abstracts. For this reason, the European Commission evaluates the effective incorporation of the gender dimension only at the project's final assessment stage, typically two to four years after its launch [5].

At the national level, the results tend to align closely with the overall EU pattern. A few countries, such as Bulgaria (1.4%), Estonia (1.8%), Italy (1.3%), and Portugal (1.3%), show slightly higher

percentages than the EU average. The situation differs among Associated Countries: while four (IS, NO, AL, XK) report higher rates, nine record 0% [5]. As Horizon Europe progresses and more projects reach completion, deeper and more accurate evaluations will become possible, supported by full access to deliverables and final reports.

Taken together, the comparison between the two figures indicates a modest decline in the share of projects addressing the gender dimension, dropping from 1.7% under Horizon 2020 to 1.2% in Horizon Europe [5]. This decrease is likely linked to the early stage of Horizon Europe's implementation, as many projects are still underway and have not yet undergone final evaluation [5]. Additionally, the limited dataset and reliance on titles and abstracts may not fully reflect the true extent of gender integration. As more Horizon Europe projects conclude, a clearer and more comprehensive picture will emerge, and the programme still holds considerable potential for progress in this area.

This issue is particularly significant, as the integration of the gender dimension into research and innovation is vital for ensuring scientific excellence, enhancing relevance, and maximizing societal impact. In this sense, the *She Figures* data highlight a persistent gap between the EU's strong policy framework and its practical implementation, indicating that structural change in R&I systems remains gradual [5]. The currently low share of projects explicitly addressing gender risks limiting the robustness and inclusiveness of research outcomes. At the same time, early Horizon Europe results should be interpreted with caution, as many projects are still ongoing. Continued monitoring and awareness are therefore critical to ensure that recent policy measures translate into measurable and sustained progress across the European Research Area.

2.1.3 Gender in decision-making

The latest *She Figures* [6] publication highlights both the progress achieved and the persistent challenges in advancing gender equality within research and innovation. While gradual improvements are evident, women continue to be markedly underrepresented in STEM fields, comprising only 21.4% of doctoral graduates in Information and Communication Technologies [7]. Additionally, structural barriers also remain, with women occupying fewer than one-third of senior academic roles and only 26% of leadership positions in research institutions. [7] These disparities underscore the need for sustained and coordinated action. In line with this commitment, the European Union aims to build a more inclusive and dynamic European Research Area where diverse talent can thrive and contribute to global challenges. Within this context, this deliverable serves as a strategic framework, guiding efforts to strengthen gender equality across all dimensions of R&I, in the COOPERANT project [7].

Taken together, these insights highlight why examining women's participation in research leadership is essential for understanding how gender perspectives are embedded across the

R&I system. Ensuring that women are not only considered but meaningfully involved at every stage of the research process is central to the principle of gender mainstreaming [8]. Originating from the 1995 Beijing Platform for Action [9], this approach has been widely adopted in European policy frameworks. The Council of Europe defines it as the systematic reorganisation, development, and evaluation of policy processes to ensure that a gender-equality perspective is integrated into all policies, at all levels, and at every stage by those responsible for decision-making [8]. In practice, gender mainstreaming ensures that gender considerations are not treated as an isolated topic but are embedded across all stages of project design, implementation, and evaluation, making equality a central and systemic part of institutional and research processes.

Accordingly, a key component of this effort involves analysing current data on women's representation in decision-making roles within the research sector. Since this area is a major focus of the EIGE, its Gender Statistics Database plays a central role in monitoring progress. Moreover, it provides detailed information on the presence of women in leadership positions across research funding organisations and national science academies. To support this analysis, the following figures draw on EIGE's data to illustrate the distribution of women in senior roles within these institutions. Figure 3 first presents the situation within research funding organisations.

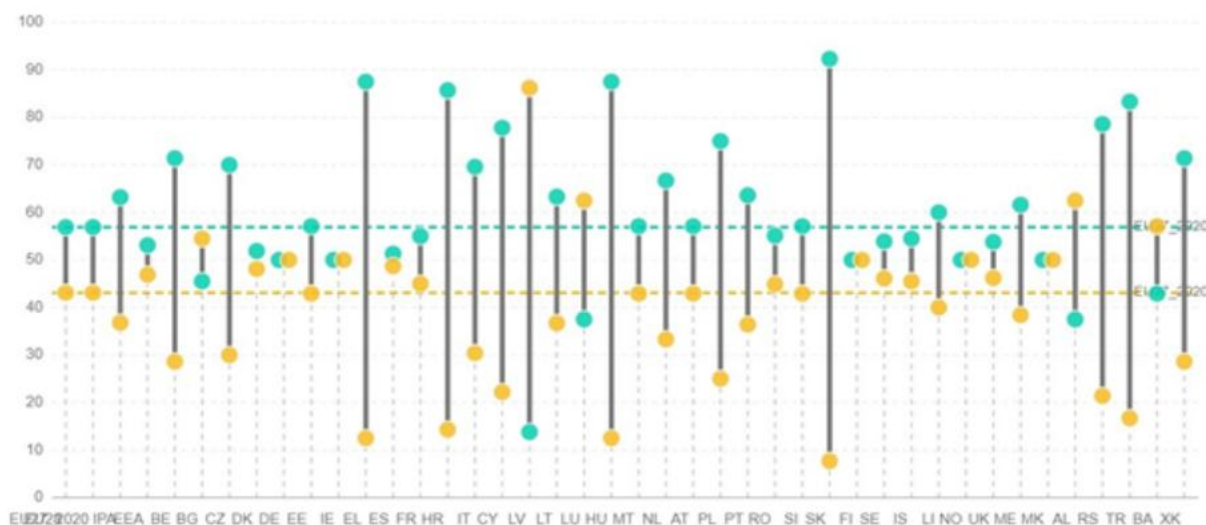


Figure 3: Data for Research funding organisations: gender of the members of the highest decision-making bodies.

The range reflects the disparity between female (in yellow) and male (in blue).

Source: Retrieved from EIGE's Gender Statistics Database [7].

Figure 3 shows that gender representation across the EU-27 remains uneven. Although the overall distribution, 56.9% men and 43.1% women, suggests movement toward balance, genuine parity has not yet been achieved. Several countries, including Germany, Ireland,

Finland, Norway, and North Macedonia, demonstrate equal representation, while five others display a higher share of women, with Latvia standing out at 86.2% [6].

Conversely, 30 countries continue to show a male majority. Greece, Croatia, Hungary, Slovakia, and Türkiye exhibit disparities comparable in scale to Latvia's, but in the opposite direction. These contrasting patterns reveal both encouraging progress and persistent structural gaps, underscoring the need for continued efforts to strengthen gender balance across research funding bodies [6].

Following this broader overview, Figure 3 turns to gender representation within national academies of science, offering further insight into leadership dynamics across academic institutions. This next figure presents the corresponding data for national academies, complementing the analysis of research funding organisations.

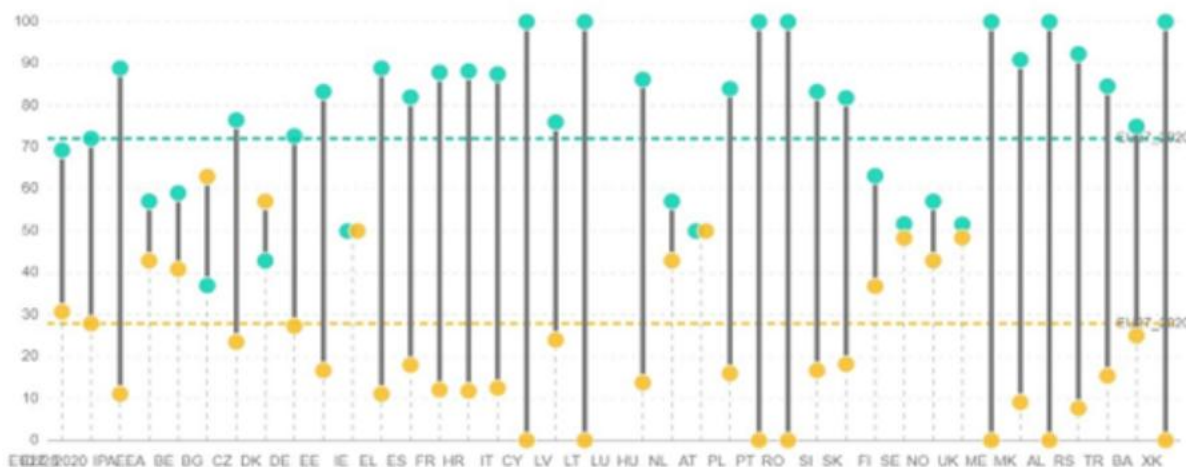


Figure 4: Data for National academies of science: gender of the members of the highest decision-making bodies.

The range reflects the disparity between female (in yellow) and male (in blue).

Source: Retrieved from EIGE's Gender Statistics Database [6].

Figure 4 reveals a pronounced gender imbalance within national science academies across the EU-27, where men account for 72.1% of decision-making positions and women only 27.9% [7]. This disparity indicates that gender inequality is even more acute in these academic leadership structures than in research funding organisations. Although most countries continue to show a clear male majority, Ireland and Austria stand out as the only two achieving gender parity. In addition, Bulgaria and Denmark also diverge from the broader pattern, displaying a higher proportion of women in these roles, an uncommon exception within an otherwise male-dominated landscape [7].

More concerning, however, is the situation in seven countries, Cyprus, Lithuania, Portugal, Romania, Montenegro, Albania, and Kosovo, where women hold no decision-making positions at all [7]. The complete absence of female representation in these senior roles underscores the urgency of targeted interventions and stronger policy measures to advance gender equality within national academies of science [7]. Consequently, ensuring balanced leadership is a critical step toward fostering more inclusive governance and strengthening the overall integrity of decision-making processes.

As a result, this analysis becomes particularly relevant, since leadership and decision-making structures strongly influence research priorities and funding allocations. Moreover, they determine how effectively gender perspectives are integrated across the research and innovation system [7]. Accordingly, examining women's representation in these roles provides a critical indicator of institutional change. Moreover, it highlights where progress has occurred and where targeted interventions are still needed to ensure inclusive governance, equitable participation, and higher-quality research outcomes across the European Research Area.

2.1.4 Gender in Horizon Europe

An examination of gender dynamics in research, innovation, and decision-making roles shows that substantial progress is still required to achieve genuine equality across the R&I landscape. The European Commission's LGBTIQ+ equality strategy 2026–2030 [10] recognises that persistent structural barriers continue to limit women's participation and advancement. Within this context, Horizon Europe is positioned as a central instrument for addressing these challenges. Thusly, the *2024 Report on Gender Equality in the EU* [11] identifies five core provisions within Horizon Europe that reinforce the EU's commitment to gender balance, further elaborated in the factsheet *Horizon Europe, Gender Equality: A Strengthened Commitment in Horizon Europe* [12].

According to the stated above, a key requirement is the introduction of mandatory Gender Equality Plans (GEPs) for institutions seeking Horizon Europe funding. Additionally, to support organisations in developing these plans, the EIGE provides the GEAR tool [13]. Furthermore, and complementing this, the *Gendered Innovations* policy report underscores the importance of systematically integrating gender perspectives into research and innovation content as a standard expectation.

Hence, Horizon Europe also promotes gender balance through additional measures, including ensuring equitable representation in evaluation panels, advisory boards, and expert groups. Through dedicated funding streams, particularly under "Widening Participation and Strengthening the European Research Area" and within Cluster II of Pillar II, further support gender studies, intersectional research, and initiatives aimed at fostering inclusive scientific communities.

The European Innovation Council (EIC) has likewise adopted targeted actions, such as aiming for 40% of supported companies to be women-led and ensuring gender parity within its advisory structures. In addition, the EIC also recognises and supports women innovators through dedicated awards and initiatives designed to strengthen women-led entrepreneurship [14]. Collectively, these measures signal a reinforced commitment to advancing gender equality across the European R&I ecosystem.

Accordingly, central to these efforts there are the five thematic pillars that define a robust GEP [15]: promoting work–life balance and inclusive organisational cultures; ensuring gender parity in leadership and decision-making; fostering fair recruitment and career progression; integrating gender perspectives into research and teaching; and implementing strong mechanisms to prevent and address gender-based violence, including sexual harassment.

Hence, effective implementation of these provisions is essential for driving meaningful change. By making GEPs a prerequisite for funding, Horizon Europe encourages institutions to embed gender equality as a strategic priority rather than a peripheral consideration. Together, these initiatives contribute to reshaping the structural landscape of European research and innovation, supporting greater participation of women and fostering a more diverse, equitable, and forward-looking R&I environment [15].

Up to this point, the analysis has focused primarily on EU Member States. However, given the wider scope of the project, the *Global Gender Gap Report 2025*, the most recent edition, was also reviewed [16]. In this regard, Figure 5 provides an overview of how gender disparities have evolved across world regions between 2006 and 2025. For the purposes of this assessment, particular attention is given to the Europe and the Middle East and North Africa (MENA) region, allowing for a comparative understanding of broader global trends.

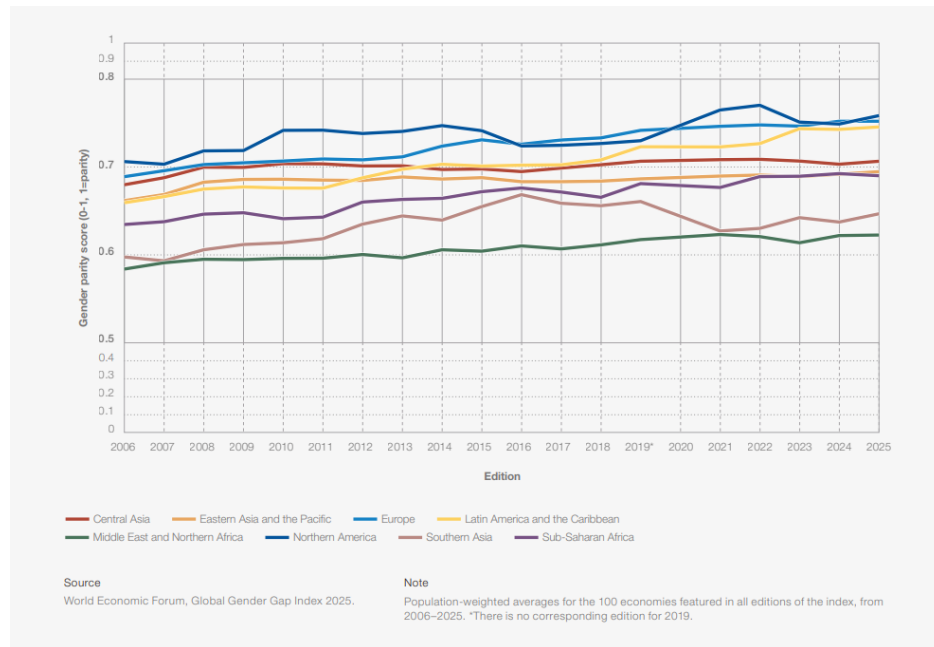


Figure 5: Results of Regional gender gaps over time. Evolution in scores, 2006–2025.

Source: Adapted from World Economic Forum, *Global Gender Gap Index 2025* [16].

Accordingly, Figure 5 shows that regions tend to follow distinct paths toward gender parity. In this context, Europe stands out as one of the highest genders parity- scores globally at 75.1%, a result that reflects the long-term impact of its regulatory frameworks and -equality driven- policies. Moreover, it reflects Europe's sustained commitment contrasts with slower or inconsistent progress in other regions, where stagnation, reversals, or limited gains continue to extend timelines toward parity. Consequently, Europe's results highlight how structured policy action and coordinated institutional efforts can generate more resilient and measurable advances compared with regions facing weaker or less consistent equality measures.

Overall, the data highlights a global landscape where all regions are moving forward, but at markedly different speeds. While some regions demonstrate steady and coordinated progress, others face persistent structural and socio-economic barriers that slow their trajectory. These disparities underscore the need for sustained, region-specific strategies to accelerate progress and reduce long-term inequalities in gender parity.

2.2 Ethics

Ethics is a foundational pillar of responsible research and innovation within the European Union. It ensures that scientific progress is pursued with integrity, transparency, and respect for fundamental rights. In the COOPERANT project, ethical considerations guide every stage of the research process. This includes conceptual design, data management, and stakeholder

engagement. Moreover, these measures ensure compliance with EU regulations, safeguard participants, and uphold high standards of professional conduct. This commitment reflects the broader European framework, which emphasises trust, accountability, and societal benefit as essential components of high-quality research.

Within this context, COOPERANT integrates ethics not as a procedural requirement but as a continuous and proactive practice. The project establishes clear mechanisms to identify, assess, and mitigate potential ethical risks. These risks may relate to privacy, data protection, inclusivity, or unintended impacts. In addition, embedding ethical reflection into decision-making and daily operations strengthens the project's scientific credibility. This approach also supports responsible innovation and ensures that outcomes are fair, transparent, and aligned with societal values. Consequently, it reinforces COOPERANT's commitment to excellence and promotes a research environment where integrity and respect guide all actions.

2.2.1 Ethical principles

Ethical principles form the backbone of responsible research and are essential for ensuring integrity, transparency, and trust in academic work. Building on Resnik's foundational contributions [17], Recker (2021) [18] highlights four overarching dimensions that guide ethical conduct in research. In light of this, responsibility refers to the researcher's obligation to consider the consequences of their decisions and actions throughout the research process. Additionally, accountability requires researchers to be able to justify their choices and methodologies, ensuring that their work can withstand scrutiny. Moreover, liability involves accepting the potential repercussions of failing to uphold ethical standards, providing a basis for addressing any harm caused. Finally, due diligence emphasises the need for continuous attention to the proper application and enforcement of these principles.

Accordingly, Resnik et al. [17] further outline a comprehensive set of ethical standards that researchers are expected to follow. Hence, these include integrity, which calls for honesty, consistency, and reliability in all research activities, and carefulness, which involves rigorous attention to detail, accurate record-keeping, and verification of information. In addition, transparency is also essential, requiring clear disclosure of methods, materials, and analytical procedures to support reproducibility. Lastly, respect for intellectual property ensures that sources are acknowledged appropriately, and that plagiarism is avoided, while confidentiality safeguards sensitive information entrusted to the researcher. Additional principles, such as social responsibility, non-discrimination, objectivity, openness, responsible publication, competence, respect for colleagues, legality, animal welfare, and the protection of human subjects, collectively reinforce the ethical framework that underpins credible and responsible research.

Together, these principles provide a robust foundation for ethical decision-making, helping to protect research participants, uphold scientific standards, and ensure that scholarly work contributes positively to society.

2.2.2 Ethics in research and innovation

Understanding ethical principles in research provides an essential basis for examining how ethics operate within R&I. Reijers et al. [19] analyse the main methodological approaches used to address ethical issues in R&I and distinguish three complementary categories: ex-ante, intra, and ex-post methods.

- Ex-ante approaches focus on anticipating ethical implications before research or technological development begins. These methods are particularly relevant for emerging technologies, where potential impacts must be assessed early. Their purpose is to identify new technological trends, evaluate possible ethical risks, and critically reflect on the moral dimensions associated with innovation [19].
- Intra approaches embed ethical reflection within the design and development phases. As ideas evolve into prototypes and technologies, these methods ensure that ethical considerations remain integral to the process. They involve ethicists in identifying ethical challenges, support policymakers in shaping ethical frameworks, and encourage researchers and designers to incorporate ethical values directly into technological development [19].
- Ex-post approaches address ethical issues that arise once technologies are already in use. These methods typically involve ethicists, regulatory bodies, expert committees, and innovation professionals, and may also include public or stakeholder engagement. Their aim is to assess the ethical impacts of existing technologies, analyse emerging concerns, and support governance structures in making informed ethical decisions [19].

Together, these approaches ensure that ethical considerations are integrated throughout the entire research and innovation lifecycle from the earliest conceptual stages to implementation and post-deployment evaluation. As a result, by embedding ethics at each phase not only strengthens the integrity of R&I processes but also enhances societal trust and acceptance of technological developments.

Within this broader context, RRI governance plays a central role in shaping how ethical principles are translated into practice. The Horizon 2020 ETHNA System project [20] identifies two key orientations in RRI governance. On one hand, a retrospective perspective focuses on learning from past shortcomings to prevent their recurrence. On the other hand, a prospective perspective seeks to align research trajectories with societal values, expectations, and long-term needs. Together, these complementary viewpoints help ensure that research and

innovation evolve responsibly and remain attuned to the broader social context in which they operate.

- The retrospective model focuses on examining past actions and decisions, particularly those made by identifiable individuals who had control over potential risks. While this approach aims to address previous harm, it has notable limitations. Systematic reflection on past projects is often neglected, which can lead to repeated mistakes rather than meaningful learning. Moreover, ethical issues may be overlooked when no clear individual can be held responsible, making it difficult to address broader structural or systemic problems [20].
- In contrast, the prospective model emphasises anticipating ethical challenges and shaping research trajectories before technologies become embedded in society. Responsibility within this approach increases in line with one's capacity to influence technological development. A key strength of the prospective model is its ability to identify and adjust problematic research directions early, reducing the likelihood of harmful outcomes. However, it also challenges traditional views of linear technological development and relies on the assumption that a shared societal vision of "desirable innovation" exists, an assumption that is often complex and contested [20].

Accordingly, both governance models underscore the importance of a comprehensive and balanced approach to steering ethical research and innovation. As a result, effective governance requires a combination of internal self-regulation within scientific communities and external oversight from independent bodies. Therefore, rather than concentrating authority exclusively in policymakers, an inclusive governance structure should involve researchers, ethicists, regulatory institutions, and the wider public. Consequently, such participation ensures that ethical considerations are examined from multiple perspectives and that R&I activities remain aligned with societal expectations and values.

A strong example of this type of governance is the framework developed by the Center for Nanotechnology in Society at Arizona State University [21]. Their model integrates three core components.

- Foresight involves developing plausible future scenarios to anticipate potential technological pathways and their implications.
- Integration promotes collaboration across disciplines, bringing together expertise from the social sciences, humanities, and nanoscale engineering to ensure that ethical reflection is embedded in technical development.
- Engagement actively incorporates public perspectives, ensuring that societal concerns and expectations inform ethical evaluations and decision-making.

This multidimensional governance approach demonstrates the value of combining expert knowledge, institutional oversight, and public involvement. By adopting such inclusive and forward-looking structures, research and innovation systems can better uphold ethical standards, enhance public trust, and ensure that technological advancements contribute positively to society.

Distinguishing between prospective and retrospective approaches is essential when analysing ethics in R&I. In light of this, Dawson et al. (2019) [22] note that prospective research review remains the most widely used method, as it evaluates ethical considerations before a project begins. However, this approach alone cannot address all ethical challenges, particularly those that emerge during or after the research process. Its reliance on predefined frameworks limits its ability to respond to evolving or unforeseen ethical issues.

As a result, integrating both retrospective and prospective approaches enables institutions to uphold ethical standards at multiple levels. Additionally, prospective review ensures that individual projects begin on a sound ethical footing, while retrospective analysis strengthens institutional learning and adaptability. Together, they support a more resilient and ethically responsive research and innovation ecosystem, one capable of addressing both established principles and emerging ethical challenges.

2.2.3 Ethics in Horizon Europe

Ethics is a core component of responsible research and innovation in the European Union. It ensures that scientific activities are conducted with integrity, transparency, and full respect for fundamental rights. In COOPERANT, ethical considerations guide every stage of the research process, from conceptual design to data management and stakeholder engagement. Moreover, this approach guarantees compliance with EU regulations, protects participants, and upholds high standards of professional conduct. In addition, it also reflects the broader European commitment to trust, accountability, and societal benefit as essential elements of high-quality research [23].

Within this framework, COOPERANT treats ethics not as a formal requirement but as an ongoing, proactive practice. The project establishes mechanisms to identify, assess, and mitigate potential ethical risks, including those related to privacy, data protection, inclusivity, and unintended impacts. In addition, integrating ethical reflection into daily decision-making strengthens scientific credibility and supports responsible innovation. This ensures that project outcomes remain fair, transparent, and aligned with societal values. Ultimately, this approach reinforces COOPERANT's commitment to excellence and fosters a research environment grounded in integrity and respect.

The Horizon Europe Programme Guide highlights the importance of embedding ethics throughout the entire research life cycle. In this regard, ethical compliance is therefore essential for achieving research excellence and promoting responsible innovation. Furthermore, Article 19 of Regulation (EU) 2021/695 [24] emphasises the need to respect human dignity and protect both physical and mental integrity. Hence, it also requires fairness, proportionality, privacy, personal data protection, non-discrimination, environmental protection, and high standards of human health.

In line with these principles, actions funded under Horizon Europe must adhere to fundamental ethical standards, including those set out in the EU Charter of Fundamental Rights [25] and the European Convention on Human Rights [26]. This includes respecting proportionality, safeguarding privacy and personal data, preventing discrimination, and ensuring environmental and health protection.

Additionally, when necessary, ethics monitoring is carried out by the European Commission or the relevant funding authority. Hence, in cases involving complex ethical issues, dedicated ethics checks are performed with the support of specialised experts. However, projects that fail to meet ethical requirements may be suspended or discontinued once non-compliance is confirmed [24].

These principles ensure that ethics remains central to EU-funded research, creating a framework built on accountability and integrity [24]. Embedding ethical guidelines is therefore not a procedural formality but a fundamental condition for achieving research excellence [24]. By adhering to these standards, researchers protect human dignity, uphold individual rights, and address societal and environmental concerns [24]. This comprehensive ethical framework strengthens the credibility and impact of Horizon Europe projects while reinforcing public trust and supporting sustainable progress across Europe.

Accordingly, below we outline the core dimensions relevant to the COOPERANT project, which fall under the ethical compliance requirements established in Horizon Europe such as: Research integrity, Artificial intelligence, Personal data/data protection, Health and safety and Environment protection.

2.2.3.1 *Research Integrity*

Research integrity is fundamental to ensuring that scientific work is credible, reliable, and ethically conducted. It strengthens trust in research outcomes and safeguards the rights and well-being of all individuals involved. To support COOPERANT's partners, a set of core best practices has been identified and synthesised [27].

- Proper attribution of contributions: Acknowledging the roles of authors, collaborators, funders, and mentors in research efforts.

- Fairness in peer review: Offering timely, constructive, and unbiased feedback, avoiding conflicts of interest and misusing confidential information.
- Transparent disclosure of conflicts of interest: Revealing any financial, professional, or personal factors that could influence research findings.
- Ethical treatment of human and animal subjects: Upholding informed consent, ensuring privacy and confidentiality, minimising harm, and adhering to ethical regulations.
- Compliance with institutional and funding requirements: Following established policies and guidelines related to research design, execution, analysis, and reporting.
- Commitment to integrity in collaboration: Maintaining honesty, transparency, mutual respect, and ethical interactions among colleagues, stakeholders, and the wider community.
- Prevention of research misconduct: Avoiding fabrication, falsification, plagiarism, and other dishonest practices that could compromise research integrity.

These principles ensure that COOPERANT's research activities generate robust, reproducible, and meaningful results while contributing positively to scientific and technological progress. Institutions participating in COOPERANT must provide comprehensive training in research integrity at all career stages, encourage open dialogue about ethical challenges, and ensure that researchers have access to relevant guidance and resources. As a result, key lessons emphasised within COOPERANT include the use of validated methodologies, transparent and accurate reporting, and adherence to recognised professional codes of conduct, such as the European Code of Conduct for Research Integrity [9]:

- The application of well-defined, verified methodologies for conducting and assessing research.
- Transparent and accurate reporting of findings in line with regulations and ethical guidelines.
- Adherence to recognised professional codes of conduct in research.

By embedding these values into COOPERANT's operational framework, the project ensures that ethical considerations remain central throughout all research activities, strengthening credibility and supporting high-quality scientific contributions.

Additionally, across COOPERANT's work packages (WP1–WP6), researchers commit to rigorous planning, execution, analysis, and preservation of data, ensuring accuracy and reliability at every stage. In this regard, ethical financial management is upheld throughout, ensuring that resources are used responsibly and transparently. Furthermore, research outputs are presented in accordance with disciplinary standards, enabling verification and reproducibility. Hence, within WP6, dissemination activities prioritise openness and accuracy while respecting confidentiality obligations where appropriate. Collectively, these practices foster a culture of

trust and ensure that COOPERANT's research meets the highest standards of excellence and ethical responsibility.

2.2.3.2 Artificial intelligence

To ensure the development of trustworthy Artificial Intelligence (AI), COOPERANT adopts a human-centred approach that integrates ethical, technical, and legal considerations throughout the entire development process. In line with the European Commission's guidelines, define the technical requirements for a reliable AI system, addressing elements such as human oversight, system robustness, safety, privacy and data governance, transparency, and accountability [28] [29].

Complementing this, ethical principles, including respect for human autonomy, the prevention of harm, fairness, and explicability, will be systematically monitored to ensure responsible AI practices. From a legal standpoint, all relevant regulatory frameworks applicable to COOPERANT will be identified at the outset, followed by continuous assessment to ensure full compliance as the system evolves.

As a result, by integrating these three pillars, technical robustness, ethical responsibility, and legal compliance, COOPERANT aims to minimise AI-related risks while maximising societal benefit. This comprehensive approach supports the creation of a secure, transparent, and ethically grounded technological framework.

The rapid advancement of AI has heightened the need for strong regulatory frameworks and effective oversight mechanisms. In response, the European Union introduced the *AI Act*, a comprehensive legal framework that sets binding standards for the development, deployment, and use of AI systems across companies, developers, researchers, and institutions operating within the EU market. The legislation classifies AI systems into four risk categories, each subject to specific obligations [28] [29].

- Unacceptable risk: AI systems that manipulate behaviour, exploit vulnerabilities, enable social scoring, or support biometric categorisation and identification. Due to their potential to undermine human dignity, autonomy, and security, these systems are strictly prohibited.
- High risk: AI used in sensitive domains such as critical infrastructure, employment, education, law enforcement, border control, and judicial processes. These systems must comply with stringent requirements related to risk management, data quality, human oversight, transparency, and accountability to prevent discrimination and ensure fairness.
- Limited risk: AI systems that interact directly with users, such as chatbots, emotion-recognition tools, or AI-generated content, must meet transparency

obligations. Users must be clearly informed when they are engaging with AI, supporting informed decision-making and reducing the risk of misinformation.

- Minimal risk: Applications with low potential impact on fundamental rights or safety, including AI-enhanced video games, inventory tools, or basic analytics. While subject to fewer legal constraints, these systems are encouraged to follow voluntary ethical guidelines.

A key provision of the *AI Act*, outlined in Article 2 [30], specifies that AI systems developed exclusively for scientific research and development fall outside the regulation's direct scope. However, once these systems transition into industrial or commercial applications, they must comply fully with the Act's requirements [30]. This approach supports scientific exploration while ensuring that AI technologies entering the market are deployed responsibly and with appropriate safeguards. By aligning with this regulatory framework, COOPERANT ensures that its AI-related activities remain ethically grounded, legally compliant, and attentive to societal expectations [30].

Additionally, to the core of COOPERANT's ethical framework, there are also four essential topics regarding the Ethical Principles in the Context of AI Systems, that will continuously shape and will be regularly monitored throughout the project, namely: (I) Respect for human autonomy; (II) Prevention of harm; (III) Justice/Fairness and (IV) Explicability [30].

Many of these are to a large extent already reflected in existing legal requirements for which mandatory compliance is required and hence also fall within the scope of lawful AI, which is Trustworthy AI's first component. Yet, as set out above, while many legal obligations reflect ethical principles, adherence to ethical principles goes beyond formal compliance with existing laws.

- Respect for human autonomy: The fundamental rights upon which the EU is founded are directed towards ensuring respect for the freedom and autonomy of human beings. Humans interacting with AI systems must be able to keep full and effective self-determination over themselves and be able to partake in the democratic process. AI systems should not unjustifiably subordinate, coerce, deceive, manipulate, condition or herd humans [30]. Instead, they should be designed to augment, complement and empower human cognitive, social and cultural skills. The allocation of functions between humans and AI systems should follow human-centric design principles and leave meaningful opportunity for human choice. This means securing human oversight over work processes in AI systems. AI systems may also fundamentally change the work sphere. It should support humans in the working environment and aim for the creation of meaningful work [30].

- Prevention of harm: AI systems should neither cause nor exacerbate harm or otherwise adversely affect human beings. This entails the protection of human dignity as well as mental and physical integrity. AI systems and the environments in which they operate must be safe and secure. They must be technically robust, and it should be ensured that they are not open to malicious use. Vulnerable persons should receive greater attention and be included in the development, deployment, and use of AI systems [30]. Additionally, particular attention must also be paid to situations where AI systems can cause or exacerbate adverse impacts due to asymmetries of power or information, such as between employers and employees, businesses and consumers or governments and citizens. Lastly, preventing harm also entails consideration of the natural environment and all living beings [30]
- Justice/Fairness: The development, deployment and use of AI systems must be fair. While we acknowledge that there are many different interpretations of fairness, we believe that fairness has both a substantive and a procedural dimension. The substantive dimension implies a commitment to ensuring equal and just distribution of both benefits and costs and ensuring that individuals and groups are free from unfair bias, discrimination and stigmatisation. If unfair biases can be avoided, AI systems could even increase societal fairness. Equal opportunity in terms of access to education, goods, services, and technology should also be fostered [30]. Moreover, the use of AI systems should never lead to people being deceived or unjustifiably impaired in their freedom of choice. Additionally, fairness implies that AI practitioners should respect the principle of proportionality between means and ends and consider carefully how to balance competing interests and objectives. The procedural dimension of fairness entails the ability to contest and seek effective redress against decisions made by AI systems and by the humans operating them. In order to do so, the entity accountable for the decision must be identifiable, and the decision-making processes should be explicable [30].

- **Explicability:** Explicability is crucial for building and maintaining users' trust in AI systems. This means that processes need to be transparent, the capabilities and purpose of AI systems openly communicated, and decisions, to the extent possible, explainable to those directly and indirectly affected. Without such information, a decision cannot be duly contested. An explanation as to why a model has generated a particular output or decision (and what combination of input factors contributed to that) is not always possible [30]. These cases are referred to as "black box" algorithms and require special attention. In those circumstances, other explicability measures (e.g. traceability, auditability, and transparent communication on system capabilities) may be required, provided that the system respects fundamental rights. The degree to which explicability is needed is highly dependent on the context and the severity of the consequences if that output is erroneous or otherwise inaccurate [30].

To reinforce this approach, following the COOPERANT GA, it will also integrate the core ethics of scientific research and publication. This includes full compliance with the EU Code of Conduct for Research Integrity, the ethical principles outlined in the Horizon Europe Regulation (Art. 18–19) [24], and all relevant sectoral legislation such as REACH or COSHH. In addition, clear procedures for research integrity [31] will be embedded across training activities, ethics structures, data management processes, declarations of interest, and all publication and communication practices. These measures ensure that ethical considerations remain central to the project's operational environment.

Furthermore, COOPERANT recognises that trustworthy AI requires responsibility for its development and deployment. In line with the Ethics Guidelines for Trustworthy AI [28], the project will ensure that all AI-related activities uphold principles of transparency, accountability, and human oversight. This commitment reinforces the broader objective of ensuring that AI systems remain reliable, safe, and aligned with societal values.

Finally, COOPERANT's AI systems will rely exclusively on process-related and system-generated data. No personal data will be collected, processed, or used at any stage of AI development. This guarantees full alignment with General Data Protection Regulation (GDPR) [32] and ensures that the project's AI components remain lawful, privacy-preserving, and ethically compliant from the outset. By adopting this approach, COOPERANT strengthens the integrity of its technological outputs while maintaining the highest standards of ethical and legal responsibility.

2.2.3.3 *Personal data/Data protection*

Protecting privacy and ensuring strong data security have become central priorities in the digital era. The GDPR [32] provides a comprehensive legal framework for safeguarding

personal data across EU Member States, reinforcing individuals' fundamental right to privacy. In addition, the European University Institute (EUI) emphasises that data protection is a core component of this right [33]. As a result, Article 9 of the GDPR further highlights the need for heightened protection of sensitive categories of personal data, including information related to racial or ethnic origin, political opinions, religious beliefs, trade union membership, genetic and biometric identifiers, health data, and aspects of private life such as sexual orientation [32].

Moreover, to uphold these protections, the GDPR requires data protection by design, ensuring that privacy safeguards are embedded into digital systems from the outset. This principle promotes the use of techniques such as anonymisation, pseudonymisation, and data minimisation to reduce risks and protect individual rights. Hence, the European Commission's Directorate-General for Research & Innovation recognises data protection as a "central issue for research ethics in Europe and a fundamental human right" [34]. Consequently, researchers are therefore expected to apply these principles rigorously when accessing, processing, and storing data.

Given this context, ethical data management requires careful use of anonymisation and pseudonymisation methods. Furthermore, techniques such as masking, generalisation, aggregation, and perturbation help prevent the identification of individuals. While anonymised data fall outside the scope of data protection laws, ethical considerations remain, particularly regarding data provenance and potential misuse. In addition, researchers must ensure transparency about data sources and address any associated ethical implications [35]. Considering this, pseudonymisation is often preferred in research contexts, as it preserves data utility while preventing direct identification. Therefore, because pseudonymised data remain subject to GDPR, compliance measures such as Informed Consent (IC) are essential. Therefore, consent must be voluntary, specific, clearly communicated, and properly documented

Moreover, EUI guidelines further stress the importance of researchers understanding and complying with legal obligations related to data collection, processing, and storage. This includes respecting individuals' rights to access, correct, or delete their personal data. Therefore, by prioritising transparency, accountability, and ethical data handling, research practices can remain fully aligned with GDPR requirements while safeguarding individual privacy.

Accordingly, within COOPERANT, all technological developments will comply with GDPR [32]. As the systems will process only operational and system-related data for the defined use cases, no personal data will be collected or used, ensuring full adherence to data protection principles from the outset. Specifically, the COOPERANT project ensures that during webinars, events, and training actions predicted to be conducted under WP5 and WP6, where personal data from stakeholders may be collected. In this regard, all such data will be aggregated to prevent

accidental identification of individuals, ensuring full protection of privacy. Furthermore, Task 1.2 (Research Data Management & Open Science) develops the project's Data Management Plan (DMP), which guarantees that all data are collected, stored, and used in accordance with GDPR requirements.

Additionally, COOPERANT partners apply rigorous data-handling standards across all activities. This includes ensuring that any operational or system-related data processed by technological developments remain free of personal identifiers. As a result, no personal data will be collected or used within these systems, ensuring full adherence to data protection principles from the outset.

2.2.3.4 Health and Security

Healthy and safe working conditions are fundamental to ensuring a productive workforce and a resilient economy. In this sense, the European strategic framework on health and safety at work emphasises that no individual should be exposed to preventable occupational diseases or workplace accidents. Moreover, it highlights that strong safety standards directly support the EU's long-term sustainability and competitiveness. In line with the European Code of Conduct for Research Integrity [36], all researchers involved in COOPERANT commit to safeguarding the health, safety, and wellbeing of colleagues and collaborators. This responsibility also extends to all individuals connected to project activities. In addition, it covers both physical and mental health, ensuring a comprehensive approach to protection.

All COOPERANT activities will therefore be carried out under strict health and safety procedures designed to prevent harm and minimise risk. Each partner institution complies fully with its national legislation as well as with the EU Strategic Framework on Health and Safety at Work 2021–2027 [37]. Furthermore, COOPERANT partners follow the requirements of the EU OSHA framework to ensure safe working environments across all project tasks. In addition, all work conducted in associated countries adheres to standards equivalent to those applied within the European Union. Consequently, activities carried out outside the EU remain fully aligned with EU legislation, ensuring consistent ethical, legal, and procedural compliance across all COOPERANT partners.

Moreover, COOPERANT partners indicated that, as in agreement with the GA, measures were implemented in consistency with the environmental management system requirements defined by the ISO 14001 standard [38]. Given this context, practices such as chemical handling, use of PPE, equipment safety, emergency preparedness, waste management, and staff training are currently being applied, demonstrating key alignment with key health, safety, and environmental requirements. Additionally, this ensures that compliance obligations are met, and environmental impacts are reduced, particularly within Task 5.2. Additionally, only non-toxic materials and chemicals are intended for use within the project. As a result, all

handling procedures will follow relevant occupational health and safety requirements [39]. In this regard, when materials are imported or exported, appropriate documentation, such as material safety data sheets (MSDS), certificates of origin, and invoices, will be prepared and provided whenever necessary [39].

2.2.3.5 *Environmental Protection*

The European Union has set an ambitious goal of achieving climate neutrality by 2050 [40]. This objective is supported by targeted research and innovation programmes designed to accelerate the transition. In addition, a central element of this vision is the protection, restoration, and sustainable use of natural resources [40]. It also includes the shift toward a competitive low-carbon economy and the reduction of environmental risks that threaten citizens' health and wellbeing. In this context, the COOPERANT project is designed to contribute meaningfully to environmental protection.

In this regard, the COOPERANT project directly supports the objectives of the European Green Deal, [41] which aims to position Europe as the first climate-neutral continent. This includes fostering cleaner energy systems and promoting green technologies. In addition, it involves ensuring net-zero greenhouse gas emissions by mid-century. Moreover, it aims to enable economic growth that is decoupled from resource consumption. At the same time, it ensures a just transition for all regions and communities.

Recognising that environmental quality underpins public health, economic stability, and societal resilience, COOPERANT proposes an innovative approach to the next generation of Concentrated Solar Power (CSP) technologies. The project aligns, therefore with the EU's long-term climate strategy and contributes to meeting sustainability targets across environmental, economic, and social dimensions.

All partners will apply the principles of the ISO 14001 [38] environmental management standard to ensure compliance with environmental obligations and to systematically reduce their ecological footprint. As outlined in the project's GA, a key ambition of COOPERANT is to demonstrate a substantial reduction in the environmental footprint of the CSP-TES solution and improved the circularity indicators, moving toward near-zero-emission energy production.

Furthermore, within the COOPERANT project, Task 5.1 will conduct a comprehensive assessment of circularity and Safe-and-Sustainable-by-Design premises. In this task, a "Circularity by Design" SSbD approach for innovations will be actively encouraged. In addition, Task 5.2, which focuses on lifecycle assessment across three comprehensive dimensions and multiple impact categories, will confirm improvements toward genuinely sustainable solutions. Moreover, it will provide clear conclusions and recommendations regarding the project's environmental performance. Finally, these insights will support a robust evaluation of COOPERANT's overall sustainability.

2.2.3.6 Non-EU countries

The participation of non-EU partners, HSLU and ENGI from Switzerland, and PCMP from the United Kingdom, brings essential expertise and strategic added value to COOPERANT. Moreover, their involvement is fully aligned with the Horizon Europe Regulation 2021/695, which governs association to the programme [24]. This regulation allows legal entities from associated countries to participate under conditions equivalent to those of EU Member States [24].

In addition, Switzerland's participation is supported by the national security of information agreement established by SERI and the Swiss Government. This agreement ensures that all research activities meet EU-equivalent safeguards. Likewise, PCMP contributes specialised engineering and consultancy expertise relevant to high-performance PCM solutions in WP2. Their participation is enabled under the UKRI (UK Research and Innovation) funding [42] guarantee, following the confirmed association of the United Kingdom to Horizon Europe programme.

In addition, COOPERANT ensures that all activities carried out by associated-country partners comply with EU ethical, legal, and procedural requirements. The Horizon Europe Regulation [24] foresees that participation from associated countries may be subject to specific limitations when necessary to safeguard the EU's strategic assets, interests, autonomy, or security. However, COOPERANT operates fully within these provisions, as none of the project's activities fall under restricted categories. Furthermore, all partners meet the eligibility criteria defined in the relevant work programme, including requirements related to place of establishment and ownership structures [24].

In this regard, by ensuring that Swiss and UK partners operate under standards equivalent to those applied within the EU, COOPERANT maintains consistent ethical integrity and legal compliance across the consortium. Consequently, this alignment guarantees that cross-border collaboration strengthens the project's scientific excellence while respecting the broader legislative framework governing association to Horizon Europe.

2.3 Inclusion

Inclusion is a core principle of the European Union's vision for responsible research and innovation. It ensures that diverse voices, experiences, and perspectives are meaningfully represented in scientific and technological development. In the COOPERANT project, inclusion is understood as an active commitment to creating an environment where all individuals can participate fully and equitably. Moreover, this applies regardless of gender, background, culture, ability, or professional experience. This approach also aligns with EU priorities to foster research ecosystems that are socially responsive, barrier-free, and reflective of Europe's diversity [43].

Within this framework, COOPERANT integrates inclusive practices into its governance, communication, stakeholder engagement, and research methodologies. The project promotes open dialogue and values interdisciplinary and multicultural contributions. In addition, it ensures that decision-making processes remain transparent and accessible. By embedding inclusion into everyday operations, COOPERANT strengthens collaboration and enhances the relevance and impact of its outcomes. Ultimately, this contributes to a research culture where every participant feels respected, empowered, and able to contribute meaningfully to shared goals.

2.3.1 Inclusion basic concepts

A clear understanding of inclusion within R&I settings relies on several core concepts. These concepts help organisations create fair and participatory environments. Moreover, widely used inclusion frameworks emphasise the importance of distinguishing these terms. This distinction ensures that policies and practices effectively address structural barriers. In addition, it supports diverse forms of participation across research contexts [43].

In this regard, the Guidelines for Inclusive Communication [44] emphasise the use of respectful, clear, and non-discriminatory language in institutional communication. Additionally, they encourage gender-inclusive wording, the avoidance of stereotypes, and the recognition of diversity in all forms. Furthermore, the guidelines promote accessibility, clarity, and audience-sensitive communication. They also recommend adapting messages to different social and cultural contexts. Overall, these principles aim to ensure that communication reflects European values of equality, diversity, and inclusion.

Accordingly, both these frameworks, provide an essential distinction must be made between equality and equity. In this regard, equality refers to offering the same resources or opportunities to all individuals. It assumes that identical treatment leads to fair outcomes. In contrast, equity recognises that individuals may start from different social, economic, or structural conditions. Therefore, equity focuses on adapting support or redistributing resources to ensure meaningful participation [44]. Consequently, this distinction is central to designing inclusive measures. Moreover, it ensures that policies respond to real needs rather than assuming uniform conditions.

Another key concept is ‘unconscious bias’. As mentioned in the guidelines [44] it describes the concept as a set of automatic and often unintentional attitudes or stereotypes that influence behaviour and decision-making. Moreover, these biases can shape recruitment choices, performance evaluations, team dynamics, and everyday interactions. This occurs even when individuals believe they are acting objectively.

Accordingly, contemporary research on inequality shows that these biases are not personal flaws. Instead, they are cognitive patterns shaped by social norms, historical power relations, and cultural narratives. They influence perceptions of competence, credibility, and belonging long before conscious reasoning occurs. Moreover, the EIGE Toolkit [44] also highlights that such biases often surface through language, assumptions, and habitual communication practices. And in addition, they can reinforce stereotypes even in environments that explicitly value fairness

As a result, addressing unconscious bias therefore requires more than awareness. It demands structural and communicative change. Accordingly, EIGE emphasises the importance of adopting inclusive language and questioning default assumptions. It also stresses the need to create communication environments where diverse identities are represented accurately and respectfully [44]. Likewise, research on systemic inequality highlights the value of organisational mechanisms that counteract cognitive blind spots. These include transparent criteria, diverse decision-making bodies, and reflexive evaluation processes [44]. By embedding such practices, organisations strengthen their capacity to mainstream inclusion. Moreover, they ensure that efforts remain intentional, evidence-based, and aligned with broader societal commitments to equity and representation.

In organisational and research settings, unconscious bias poses a significant challenge to mainstreaming inclusion. It subtly reproduces existing hierarchies and exclusions. Furthermore, decisions about recruitment, leadership potential, collaboration, or stakeholder engagement may be unintentionally skewed toward familiar profiles or dominant groups. Additionally, the EIGE toolkit stresses that these patterns accumulate over time. Consequently, they shape institutional cultures and limit whose perspectives are recognised as legitimate. As a result, inclusion efforts based solely on formal policies or procedural commitments may fall short. They may fail if everyday interactions continue to privilege certain voices while marginalising others [44].

Finally, allyship and advocacy are crucial components of inclusive environments [44]. Allyship involves individuals actively supporting underrepresented or marginalised groups. It requires recognising one's position of influence and using it to promote fairness [44]. This includes amplifying diverse perspectives and challenging exclusionary behaviours. Moreover, it contributes to policies that remove barriers to participation. Advocacy extends this role by encouraging structural change. In addition, it ensures that inclusion is embedded not only in interpersonal interactions but also in organisational culture and decision-making processes [44].

3 Target scenario

The target scenario envisions the COOPERANT project operating within a fully inclusive, gender-responsive, and ethically robust environment. Moreover, it aligns with the European Commission's commitment to building a Union of Equality and advancing gender equality across research and innovation. This means that gender equality and diversity are not treated as add-ons. Instead, they are structurally embedded into project design, governance, research methodologies, and decision-making processes.

In this scenario, research teams and leadership structures reflect balanced gender representation. This is consistent with EU objectives to address persistent gender gaps in research and innovation. In addition, it ensures that diverse perspectives shape scientific and technological development. The project actively seeks, values, and integrates contributions from individuals of all genders and backgrounds. This reflects the understanding that diversity enhances the societal relevance and quality of research outcomes.

Furthermore, ethical compliance would be ensured throughout the entire project life cycle. In light of this, clear mechanisms are in place to identify and mitigate gender bias. In addition, these mechanisms prevent discrimination and uphold fairness and integrity in research practices. This reflects Horizon Europe's strengthened requirements for gender equality plans, gender-sensitive research design, and the integration of intersectional perspectives.

Moreover, inclusivity would be as well practiced as a core operational value. In this regard, all participants, regardless of gender, background, or experience, feel empowered, respected, and able to contribute meaningfully. Furthermore, this approach aligns with EU policy goals to remove structural barriers and promote equal participation. It also supports the creation of research environments where everyone can thrive.

This envisioned scenario anticipates measurable positive outcomes. These include improved collaboration, more innovative research processes, and stronger decision-making grounded in diverse viewpoints. Moreover, these outcomes demonstrate how Task 5.4 indirectly reinforces COOPERANT's overarching objectives by embedding gender equality, diversity, and ethics into everyday practices. Ultimately, the project cultivates a supportive and high-performing environment. This environment benefits the team, enhances scientific excellence, and contributes to the EU's broader goals for inclusive and responsible research and innovation.

4 Methodology applied

The approach adopted for this deliverable followed a comprehensive and structured methodology. A key early step was to establish a baseline of the Consortium's overall understanding of gender, ethics, and inclusion dimension. To do this, a survey, send to partners on M4, and further explained below, was conducted to assess members' existing knowledge and familiarity with these concepts. The results provided a clear picture of the group's level of sensitivity and awareness regarding the topics. This insight then guided the HOL team selection and refinement of the themes that required further reinforcement, helping shape the focus for deeper reading and capacity building- activities. To achieve this, a detailed review of relevant frameworks and guidelines was conducted, drawing on sources such as the Horizon Europe programme, the European Code of Conduct for Research Integrity [45], and materials from EIGE [46]. This alignment ensured compliance with EU regulations and adoption of best practices in promoting equity, ethical conduct, and inclusiveness.

Accordingly, to strengthen this understanding, a preliminary **survey** was launched in M4, some months preceding the seminar, aimed at assessing and validating gender representation, inclusion, and ethical practices across the COOPERANT project. Each partner organization designated a representative to complete the survey, collecting preliminary insights on current knowledge on gender, ethics and inclusion aspects within the consortium. In this regard, 7 individual responses were received, ensuring comprehensive coverage of all 7 partners. The survey was structured around three thematic areas of Gender, Ethics, and Inclusion in Research and Innovation

Following the survey, a **seminar** was organized in M9 to disseminate findings and reinforce understanding of the identified themes. This event brought together 10 participants from 6 partner organizations and provided a forum to explore gender, ethics, and inclusion within research and innovation contexts. The seminar encouraged active discussion, reflection, and knowledge-sharing, strengthening a collective approach to embedding these principles across the project. Insights gathered informed practical actions and strategies for enhancing fairness, ethical compliance, and inclusive practices throughout COOPERANT.

In addition, a structured monitoring process was established to ensure **continuous assessment** of gender, ethical and inclusive practices. Every four months, partners submitting deliverables are asked to complete a "Ethical Considerations Survey for Deliverable Submission" survey. This process allows the consortium to evaluate compliance and engagement in areas that require systematic improvement. In this regard, the collected data is aimed to be used to refine best practices, guide policy adjustments, and reinforce accountability across all project activities.

Further, as the project entered its second year, a **new Gender, Ethics and Inclusion survey** was circulated among consortium partners in M16. This follow-up survey enabled an update of the data collected in M4. In addition, it allowed a direct comparison between both datasets, highlighting changes in awareness and practices over time. Moreover, it captured partners' understanding of the three dimensions after the seminar held earlier in the project. These insights help assess whether awareness has strengthened and whether recommendations are being effectively integrated. The results of this second survey are examined in detail in this deliverable.

By adopting this integrated approach, the consortium is better equipped to embed gender, ethics, and inclusion considerations into research design, data collection, dissemination, and decision-making processes. Continuous monitoring, evaluation, and feedback mechanisms ensure transparency and accountability, while concrete recommendations guide the creation of a more equitable, responsible, and inclusive research environment. These measures collectively support innovation while promoting fairness, diversity, and ethical conduct throughout the COOPERANT project.

5 Results and discussion

The following section presents the key findings emerging from the gender, ethics, and inclusion assessment conducted within the COOPERANT project. Moreover, it builds on the methodological approach previously outlined in earlier sections. The results synthesise data collected across consortium partners, including gender-representation monitoring and ethical self-evaluation. In addition, they incorporate inclusion reflections gathered through consultations and structured discussions. Together, these insights provide a clear picture of current practices within the project. They also illustrate how gender equality, ethical responsibility, and inclusive approaches are embedded in COOPERANT's organisational and research environment.

The discussion that follows examines these findings across the three core dimensions of the strategy. These dimensions include gender balance and participation, ethical governance and awareness, and the integration of inclusive and intersectional practices in research and innovation activities. Moreover, by analysing strengths, gaps, and emerging patterns, this section highlights how these dimensions influence COOPERANT's capacity to conduct responsible and socially relevant research aligned with Horizon Europe principles. It also identifies opportunities for further improvement. In addition, it ensures that the project's scientific and technological advancements are supported by a research culture that is equitable, ethically robust, and inclusive.

5.1 Gender

Building on the general overview of gender considerations previously outlined, this section turns to the concrete findings emerging from the COOPERANT gender assessment. The survey results offer a snapshot of how gender balance, representation and awareness that are currently reflected within the consortium, providing a basis for understanding progress made and areas that may require further attention.

By examining the data collected across partners, the analysis highlights both the strengths already visible within the project and the structural aspects that continue to shape gender dynamics. In this regard, this focused assessment allows the consortium to monitor developments over time to ensure that gender-sensitive practices remain embedded in COOPERANT's implementation.

5.1.1 Gender in the COOPERANT project

As outlined in the methodology developed and implemented by HOL in Section 4, the strategy focuses on measuring gender, ethics and inclusion aspects within the COOPERANT project. In line with this approach, so far, COOPERANT has completed two structured rounds of consortium-wide data collection and has organised a seminar in M9. To begin with, the first survey round, sent in M4, provided a baseline assessment for the consortium and informed the design of the seminar's content. Subsequently, the consortium met for the M9 seminar to reflect on emerging patterns and align shared priorities on the three dimensions. Following this discussion, a second survey round, sent in M16, was conducted to track the project's evolution over time. Through this process, the project aimed to monitor progress and identify potential shifts across its key dimensions.

Within this framework, regarding the gender dimension, particular attention was given to analysing gender balance in participation, leadership and decision-making roles. In addition, these indicators were examined because they offer a clear picture of how gender dynamics operate within the consortium. Moreover, understanding who is represented, and in which positions, helps identify potential gaps in access, influence and visibility.

Accordingly, interpreting these findings enables HOL to engage the consortium on specific areas where gender disparities may persist and to encourage reflection on internal practices. This targeted approach strengthens the project's commitment to non-discrimination and supports the integration of inclusive, gender-responsive measures across all stages of the COOPERANT project.

Given this context, Table 1 below summarises HOL's main interactions with the consortium for the development and monitoring of the gender dimension in the COOPERANT project thus far.

Table 1: HOL actions to monitor and follow up gender dimension on COOPERANT project between M1-M18. (Gender dimension).

What	When	(For) who?	How	Objective
First Gender, Ethics and Inclusion survey	M4	All partners	Online	The survey examined Gender representation within the COOPERANT project, offering evidence-based insights that informed both the seminar's content and the dialogue among partners
G&E&I seminar*	M9	All partners	Online	The seminar focused on deepening comprehension of the gender dimension, equipping Consortium members with the insights required for effective implementation.
Second Gender, Ethics and Inclusion survey	M16	All partners	Online	The second and more extensive survey aimed to ensure systematic, ongoing assessment of gender representation within the project.

* More detailed in **Annexes**; CM – Consortium Meeting.

Accordingly, the following sections detail the activities undertaken throughout the assessment process, together with the key findings they generated and the interpretations that inform the project's strategic conclusions.

5.1.1.1 First survey results

To align with the commitments outlined in the COOPERANT GA, the project applies an Ex-Post gender analysis approach to ensure that gender considerations are embedded across all stages of the project's development and implementation. In addition, by drawing on the EIGE framework, this method supports a systematic and continuous examination of gender-related dynamics, enabling the project team to identify disparities, monitor progress, and refine actions as new insights emerge. This ongoing evaluative process strengthens the project's capacity to integrate gender responsiveness in both its internal structures and its operational activities.

As part of this analytical process, an online survey was disseminated to all COOPERANT consortium partners ahead of the seminar held on 24 June 2025. This survey comprehensively

assessed the three main domains established for monitoring within the COOPERANT project: Gender, Ethics and Inclusion. However, regarding the analysis of the gender dimension, the present section focuses specifically on gender-related findings, while the remaining domains will be addressed in their respective sections later in this deliverable.

Given this context, the questionnaire section regarding the gender dimension, presented below in Table 2 was designed to capture baseline information on gender representation on research teams and on decision-making, organisational practices, and perceptions related to gender equality. In this regard, this data aims provide an essential foundation for assessing the current state of the gender dimension within the consortium and for informing subsequent recommendations and actions.

Table 2: Questions developed by HOL for the first gender, ethics and inclusion survey for COOPERANT project (Gender dimension).

Category	Reference	Question
Gender dimension	G1	Do you feel it is a priority to always include gender in Research and Innovation activities?
	G2	Have you read any literature and other sources related to gender dimension in the field of Research and Innovation?
	G3	How familiar are you with the inclusion of the Gender Dimension in Horizon Europe projects?
	G4	Number of men (researchers and non-researchers) working from your company/institution in the project?
	G5	Number of women (researchers and non-researchers) working from your company/institution in the project?
	G6	Number of non-binary people (researchers and non-researchers) working from your company/institution in the project?
	G7	Do you believe there is gender balance in the project team in decision-making processes?
	G8	Within your company/institution, which gender holds the main responsibility of being in charge of WP?
	G9	Within you company/institution, which gender holds the main responsibility of being in charge of Tasks/Sub-tasks?

The analysis aimed to establish an initial overview of gender parity in participation, decision-making, and management roles across the project. To gather this information, a short survey was completed by one designated representative from each partner organisation. It is important to note that the responses reflect the perceptions of those individuals rather than the full composition of their teams. Even so, the insights collected offered a useful starting point,

helping to identify priority areas and informing the development of materials and themes to be further explored throughout the project.

Accordingly, the first survey category aimed to assess gender parity within the consortium and are related to questions G4, G5 and G6 from Table 2. The initial question G4 related to the Figure 6, revealed that the project includes a total of 31 male workers (70,45%). In this regard, the project team is composed of 70% male indicating that men are overwhelmingly represented within the current workforce. The subsequent question G5, also represented in Figure 6, shows that the project includes a total of 13 female workers, corresponding to 29.55% of the workforce. In contrast to the male representation, women therefore account for roughly one-third of the team. This highlights a notable gender imbalance within the current composition of the project.

Nonetheless, it is important to note that these statistics do not predetermine any specific outcomes, particularly given the early stage of the project. Even so, the current imbalance has the potential to shape team dynamics in subtle ways. In this regard, acknowledging this context is important as the project advances, ensuring that any emerging patterns are interpreted with appropriate awareness. Considering this context, this distribution also helps to inform future recruitment strategies, as achieving a more balanced gender representation is a stated goal of the project. Moreover, because gender representation is a central objective, it will be important to monitor how this initial baseline develops as project activities advance. Establishing this early snapshot offers valuable insight and provides a solid foundation from which progress can be assessed, potentially marking the beginning of a gradual shift toward greater parity throughout the project's life cycle.

On the other hand, the third question G6 showed in Figure 6, represented below, that throughout all partners, no worker identifies as non-binary. This absence may be due to several factors. First, gender identity is a personal and sensitive topic, and individuals may choose not to disclose it in professional or survey contexts [47]. Additionally, despite ongoing progress in gender inclusion across Europe, many industrial sectors still face challenges in fully integrating non-binary identities into their workplace practices and cultures [47]. These factors may contribute to underreporting or limited representation in such environments.

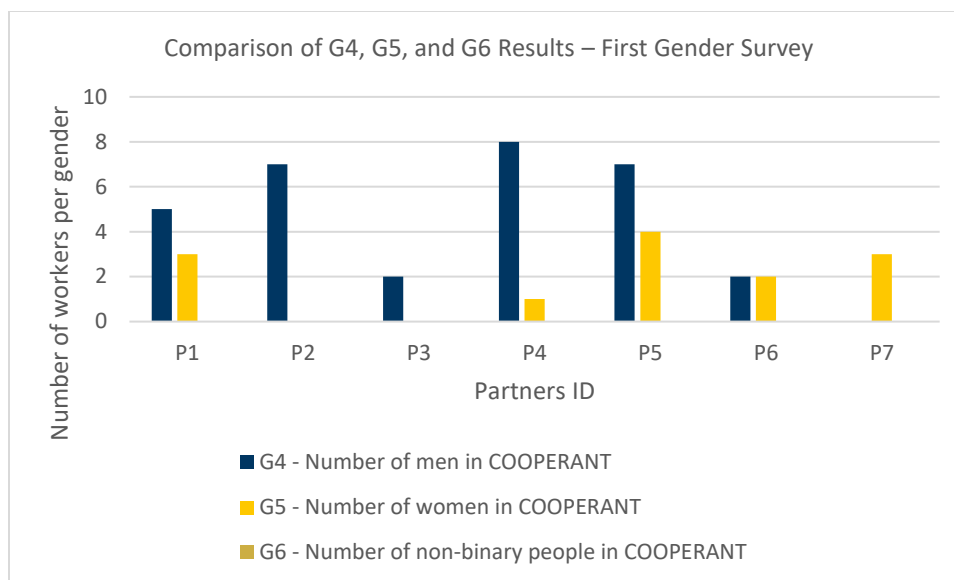


Figure 6: Comparative results of the G4, G5 and G6 questions from the first COOPERANT survey on gender.

Moreover, questions G8 and G9, assessed below, were designed to examine gender distribution specifically within leadership and management roles in the COOPERANT Horizon Europe project. As a result, these indicators aimed to provide an additional layer of insight into how representation manifests across different organisational levels, complementing the broader workforce analysis presented above. This analysis is particularly important, as leadership structures often set the tone for organisational culture and can significantly influence the project's capacity to advance its gender-related objectives.

This being said, the results, showed in the Figure 7 below, indicate that, when asked which gender holds primary responsibility for leading Work Packages (WP) within COOPERANT, 43% of consortium partners reported that men occupy most WP leadership roles within their organisations. An equal proportion 43% indicated that women hold the majority of these that WP leadership is equally shared between genders. In this regard, the data points to a highly heterogeneous situation across organisations rather than a single, uniform pattern. This means that gender representation in leadership is not structurally skewed in one direction across the entire project but instead varies significantly depending on the partner organisation. Such variability can be meaningful, as it highlights both areas where gender

balance is already being achieved and areas where further attention may be needed to align with the project's broader gender-equality objectives.

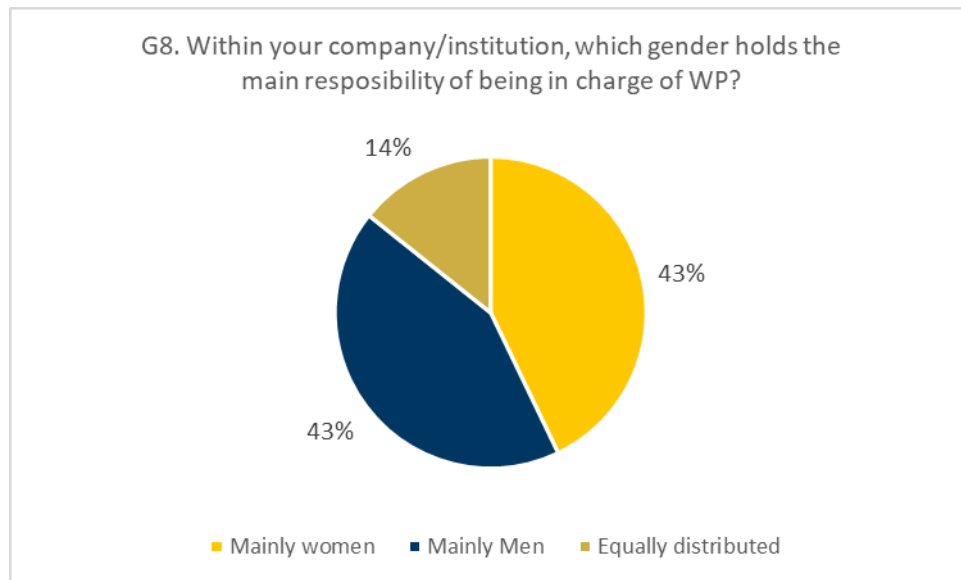


Figure 7: Results of the question G8 "Within your company/institution, which gender holds the main responsibility of being in charge of WP in the COOPERANT project by Partner (P)"

Similarly, the subsequent question G9, represented in Figure 8, presents the same statistical breakdown, but this time in relation to task and sub-task responsibilities. The results again reveal a heterogeneous pattern across the consortium, with partners indicating different gender distributions depending on their organisational context. This suggests that much like WP leadership, the allocation of operational responsibilities does not follow a uniform trend across the COOPERANT project. Instead, gender representation in task-level roles appears to vary considerably between organisations, offering a more nuanced picture of how responsibilities are distributed throughout the project structure.

Additionally, this variability underscores the importance of establishing a clear baseline, particularly as this is the first survey conducted to assess gender dynamics within the project. From this starting point, and after the performance of the gender, ethics and inclusion seminar, the consortium will be able to effectively identify disparities, monitor progress, and implement targeted measures where needed. Ultimately, this initial analysis provides a valuable

foundation for guiding future actions aimed at strengthening gender balance across all levels of project implementation.

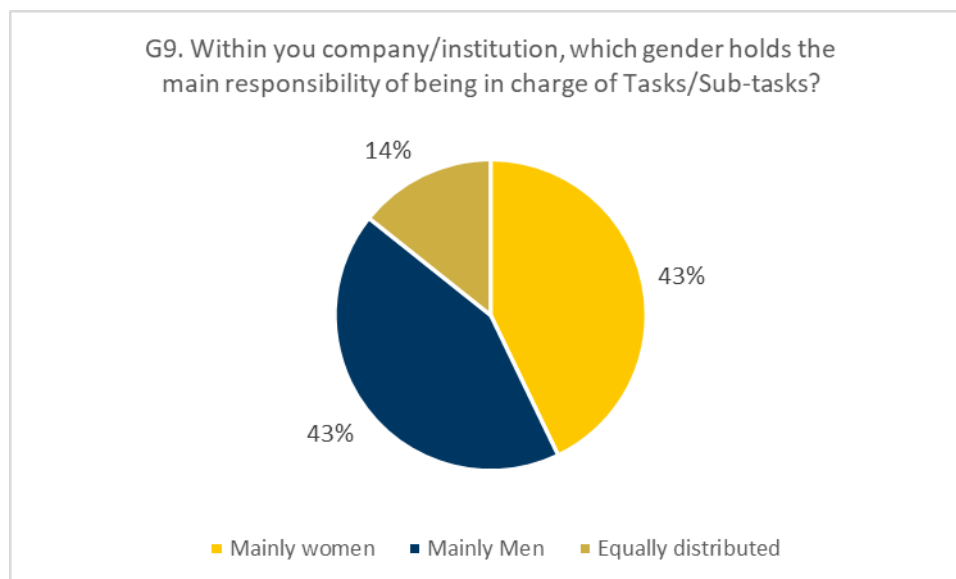


Figure 8: Results of the question G9 “Within your company/institution, which gender holds the main responsibility of being in charge of Tasks/Sub-tasks in the COOPERANT project by Partner (P)”

Lastly, the remaining questions G1, G2, G3 and G7 explored broader attitudes and levels of awareness regarding gender considerations in Research and Innovation. In particular, they examined whether respondents view gender as a priority. They also assessed familiarity with relevant literature and sources on gender in R&I. Furthermore, they evaluated respondents’ understanding of the gender dimension in Horizon Europe projects. In addition, they considered perceptions of gender balance in decision-making processes. Overall, the responses were notably positive, demonstrating the consortium’s strong recognition of the relevance of gender issues. Moreover, they indicate a clear willingness among partners to engage with these considerations. Taken together, these results reinforce the insights from earlier questions and show that consortium partners acknowledge the importance of gender representation in practice. They also reveal an encouraging level of conceptual awareness and commitment to integrating gender considerations throughout the project.

5.1.1.2 Second survey results

Following the methodology developed by HOL for COOPERANT project, a second and more detailed survey was conducted by M16, marking the beginning of the second year of the project life cycle. Accordingly, it aimed to collect updated information and track past changes in previously submitted questionnaire. In this regard, as before, one representative from each partner organisation was responsible for completing the survey. Importantly, the survey retained, as much as possible, the same organisational questions and overall structure of the

first survey to ensure consistency, allowing for reliable comparison over time and strengthening the validity of the longitudinal analysis.

As represented in the Figure 9 below, covering questions G4, G5 and G6, the second survey shows that the consortium now includes 31 men out of 46 team members. In another words, men account for approximately 67.4% of the total workforce. Notably, a decrease of 3.05% was noted in the proportion of men in the consortium compared with the first questionnaire. However, the new survey still confirms that men continue to represent the majority within the project, maintaining a similar proportional distribution to the first survey. The predominance of male workers highlights the importance of continued and reinforced attention to gender balance. However, by keep tracking this distribution over time will help determine whether recruitment, engagement, and organisational practices are contributing to a more balanced gender composition as the project progresses.

Moreover, the same Figure 9, reflecting questions G4, G5 and G6, shows that the consortium now includes 15 women out of 46 team members, representing approximately 32.6% of the total workforce. This proportion indicates that women despite remaining a minority within the project, they still constitute a significant share of the team. Additionally, it still is relevant to mention that this new survey registered a 3.05% increase on women representation within the consortium, since the initial questionnaire. Nonetheless, their presence still represents roughly one-third of the consortium provides an important reference point for assessing gender balance across roles, responsibilities, and decision-making structures. This updated figure also allows the project to monitor whether women's participation is increasing, stable, or declining over time, offering valuable insight into the effectiveness of ongoing gender-equality measures.

Accordingly, although the overall number of participants has increased since the first survey, the proportional imbalance remains broadly consistent. This continuity suggests that, despite project growth, gender representation has not shifted significantly. As a result, the updated figures reinforce the importance of ongoing monitoring and targeted actions to support the project's commitment to improving gender balance. Moreover, by comparing this second dataset with the initial baseline, the consortium can begin to observe early trends and assess

whether current recruitment and engagement practices are contributing to progress toward greater parity.

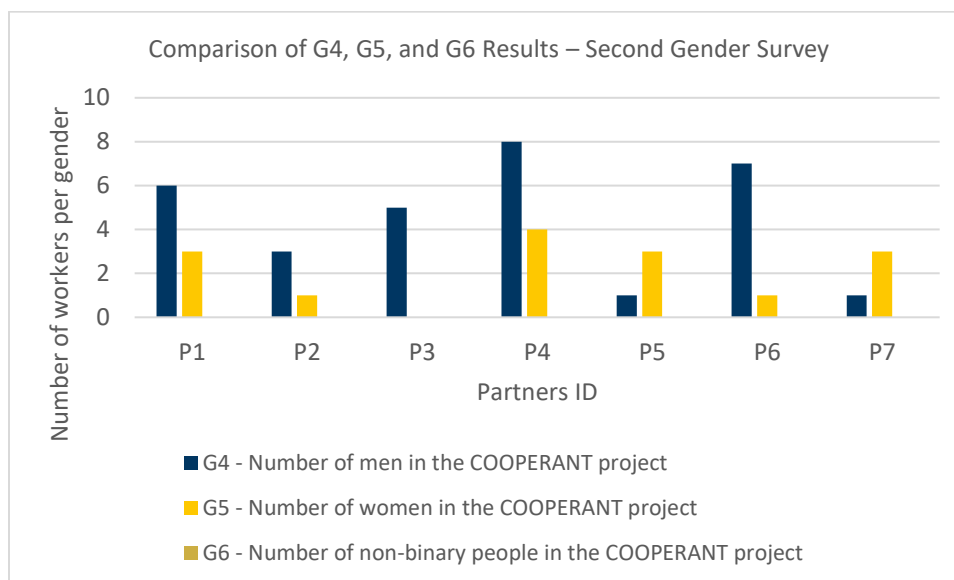


Figure 9: Comparative results of the G4, G5 and G6 questions from the second COOPERANT survey on gender.

Regarding the question G8, summarized in the Figure 10, the second survey showed a notable shift compared with the first survey. As represented in the updated results, 71% of respondents indicated that women hold the main responsibility for WP leadership within their organisation. The remaining 29% selected “Not applicable”, reflecting the fact that some partners do not lead a WP in the project. This option was introduced in the second survey to ensure greater accuracy and avoid misinterpretation, thereby improving the reliability of the data. Overall, these findings identify women as the only group represented in WP leadership roles among the partners who do hold such responsibilities, marking a very positive indication of gender representation at higher levels of project coordination.

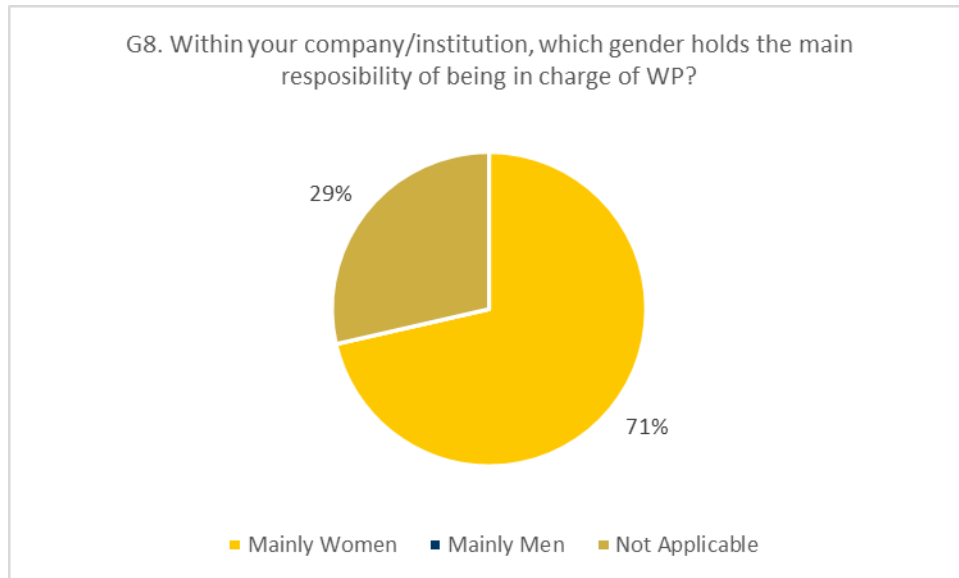


Figure 10: Results of the question G8 "Within your company/institution, which gender holds the main responsibility of being in charge of WP in the COOPERANT project by Partner (P)"

Furthermore, for the question G9, summarized in Figure 11, concerning which gender holds the main responsibility for tasks and sub-tasks within the COOPERANT project, the second survey indicates a more balanced distribution. According to the updated results, 57% of respondents reported that women lead these operational responsibilities, while 43% indicated that men do so. This represents a more even allocation compared with WP leadership and suggests that, at the task level, gender representation is distributed in a relatively equitable manner across the consortium. These findings complement the earlier analysis by showing that women not only hold a strong presence in WP leadership roles but also play a significant role in the day-to-day execution of project activities.

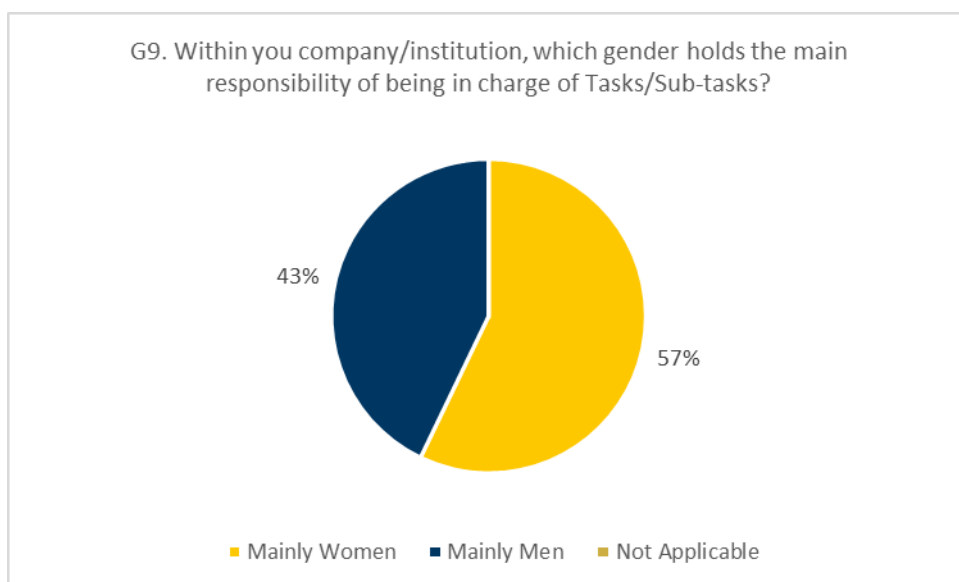


Figure 11: Results of the question G9 "Within your company/institution, which gender holds the main responsibility of being in charge of Tasks/Sub-tasks in the COOPERANT project by Partner (P)".

Lastly, the remaining questions G1, G2, G3 and G7 once again assessed partners' attitudes and awareness regarding the gender dimension in Research and Innovation. In this second survey, the responses were fully positive across all items, showing complete alignment and strong support for the integration of gender considerations within the project. This high level of agreement not only reinforces the results obtained in the first round but also suggests that the seminar on Gender, Ethics and Inclusion, held at M9, contributed to strengthening partners' understanding and commitment. During that session, the consortium explored key themes related to gender in R&I, including relevant legislation, practical case studies, illustrative examples, and concrete recommendations. Overall, the second-round responses demonstrate a consolidated recognition of the relevance of gender issues and confirm the consortium's continued willingness to engage actively with gender-related practices and principles throughout the COOPERANT project.

5.1.2 Gender recommendations

Since its inception, the COOPERANT project has aimed to strengthen cross-border cooperation, improve public governance and promote inclusive regional development, placing communities at the centre of its actions. Yet, despite this collaborative framework, gender imbalances remain present across several institutional and territorial contexts, influencing participation, leadership and access to opportunities. As cooperation initiatives can both drive positive change and inadvertently reinforce existing disparities, COOPERANT must remain attentive to how gender dynamics shape representation and influence within the project. By integrating gender-sensitive approaches into governance, capacity-building and stakeholder engagement, the consortium can ensure that its efforts contribute not only to territorial cohesion but also to greater fairness and inclusion across all participating regions.

The gender related recommendations outlined during the seminar held in M9, are intended to be upheld throughout the project, that aligns with the COOPERANT's GA. A crucial aspect that must be taken into consideration is the ex-ante approach, which must be integrated early in the project's development. Therefore, to ensure that gender considerations are embedded from the outset of the project, there has been constant monitoring of gender risks throughout the project, by analysing processes, times, spaces and interactions where social vulnerability may emerge.

In this context, other activities within the project can contribute to further evaluation and dissemination of the topic. WP5 "Life Cycle Sustainability Assessment (LCSA): LCA + LCC + s-LCA" includes Task 5.2, which enables disaggregation of data during the Social Life Cycle Assessment (s-LCA), allowing the identification of sector-specific disparities, such as the

gender wage gap or unequal participation in the labour force. This process has already commenced with the seminar that was conducted.

In addition, both the Dissemination, Exploitation, Communication and Replicability activities carried out in (WP6) must consider key diversity factors, such as age, sex, gender and ethnicity, to align with stakeholder and end-user expectations. Activities that involve direct interaction with the public, including the various workshops planned throughout the project and bilateral meetings with actors across the COOPERANT value chain, will also be essential for ensuring broad and effective outreach. To support this, communication materials should adopt inclusive language and feature diverse, representative visuals, in line with Horizon Europe recommendations for gender-sensitive communication.

In this regard, HOL has actively monitored and evaluated external publications produced within the consortium, to actively monitor any incongruence. Moreover, the key findings, identified challenges and resulting recommendations were presented during the Gender, Ethics and Inclusion session held at M9 as part of Task 5.4. These insights were also shared with the consortium during the meetings at M6 and M12, ensuring continuous alignment and collective awareness across all partners. Therefore, the overarching approach centres on identifying the key themes emerging in each reporting period and anticipating those likely to arise in the next. This ensures that planned actions remain responsive to evolving ethical and equity considerations and aligned with the project's broader commitments.

Aligned with the European Commission's LGBTIQ+ equality strategy 2026 – 2030, the continuous data collection and analysis carried out by HOL has been instrumental in advancing COOPERANT's gender-related objectives. A comparison between the first and second survey rounds shows a modest but encouraging improvement in gender diversity within the consortium: the number of male team members stability of 31, while female representation rose slightly from 13 to 15.

A particularly noteworthy development would be the inclusion of non-binary team members in the third survey, where no such representation had been reported previously. This shift would eventually suggest a growing sense of openness and inclusivity within the project environment. Although these changes indicate progress, sustained attention and systematic monitoring will be essential to ensure that these positive trends translate into long-term structural improvements.

Additionally, looking ahead, the COOPERANT consortium should continue to promote women's leadership across all levels of the project. In doing so, partners are expected to uphold the principles set out in Directive 2006/54/EC [48] on equal treatment in employment, vocational training, promotion and working conditions. Ideally, women should lead four Work Packages and represent at least 32% of the project team. Although the current figures within COOPERANT

are encouraging, the consortium should continue striving for further progress. In this regard, there is always room to strengthen gender balance and deepen inclusive practices, ensuring that improvements remain sustained and evolve over time.

To support this objective, partners are encouraged to maintain and strengthen their internal gender-equality practices. Therefore, regular monitoring of aspects such as working hours, promotion pathways, working conditions and pay equity, although managed individually by each organisation, remains essential for ensuring balanced participation and responsible workforce management across the consortium.

5.2 Ethics

Following the general overview of ethical principles presented earlier, this section focuses specifically on the findings emerging from the COOPERANT ethics assessment. The survey results provide insight into how partners understand, apply and monitor ethical standards within their organisations and project activities, offering a clear picture of current practices across the consortium.

By analysing the data collected, this section highlights both the strengths already embedded in partners' ethical frameworks and the areas where further attention may be beneficial. This targeted assessment supports continuous improvement and ensures that ethical considerations remain fully integrated into COOPERANT's implementation and governance processes.

5.2.1 Ethics in the COOPERANT project

Ethical compliance is a core requirement for all EU-funded initiatives, as highlighted in the Horizon Europe Programme Guide [23], where ethics is framed as an essential component of research quality rather than an optional add-on. Accordingly, regulation (EU) 2021/695 [24] further underscores this by establishing key principles, such as respect for human dignity, proportionality, privacy, non-discrimination, environmental responsibility and the protection of human health, that must guide all project activities.

In line with these expectations, COOPERANT integrates ethical considerations throughout its structure and implementation. Furthermore, the project embeds mechanisms, through task 5.4, to ensure that ethical standards, gender equality and broader societal impacts are continuously monitored and addressed. In parallel, D5.4 outlines directives on gender, ethics and inclusion, ensuring its continuous review and monitoring. Moreover, this includes adherence to recognised frameworks such as the European Code of Conduct for Research Integrity [44] and the tools and guidance provided by the EIGE [3], which support partners in maintaining high ethical and inclusive standards across all work packages.

Having outlined the monitoring process and its application to the gender dimension, the analysis now shifts to the ethics dimension, applying the same framework. In this regard, this section will analyse the results, in order to interpret COOPERANT's ethical performance so far. Furthermore, it aims to identify potential shifts across the project's ethical dimensions. In addition, this approach enables the consortium to track progress and reinforce ethical awareness. Finally, it helps ensure that responsible research practices remain consistently embedded throughout the project's evolution. Accordingly, Table 3 below summarises HOL's main interactions with the consortium for the development and monitoring of ethics in COOPERANT project, thus far

Table 3: HOL actions to monitor and follow up ethics dimension on COOPERANT project between M1-M18. (Ethics dimension).

What	When	(For) Who	How	Objective
First Gender, Ethics and Inclusion survey	M4	All the partners	Online	The survey examined, besides the other dimensions, the Ethics level of compliance within the COOPERANT project, offering evidence-based insights that informed both the seminar's content and the dialogue among partners.
G&E&I Seminar*	M9	All the partners	Online	The seminar focused on deepening comprehension of the ethics dimension, equipping Consortium members with the insights required for effective implementation.
First "Ethical Considerations Survey for Deliverable Submission"	M12	All the partners	Online	A complementary structured process was launched to systematically track ethical and other relevant aspects, generating new insights to support the ongoing monitoring of the three dimensions throughout the COOPERANT project.
Second Gender, Ethics and Inclusion survey	M16	All the partners	Online	The second and more extensive survey aimed to ensure systematic, ongoing assessment of gender representation within the project.
Second "Ethical Considerations Survey for Deliverable Submission"	M18	All the partners	Online	This survey will be circulated again, and at every six-month intervals, to ensure ongoing and consistent follow-up.

*More detailed in **Annexes**; CM – Consortium Meeting.

Accordingly, it becomes also important to note that the results from the first round of the “ethical considerations survey for deliverable submission” will not be included in this deliverable. At this stage, the dataset gathered is still too limited to support a meaningful or reliable analysis and presenting it now could lead to premature or incomplete conclusions. For this reason, a more robust and comprehensive assessment will be carried out at the end of the project. These results will be thoroughly examined and discussed in the future D5.9.

Given this context the following sections detail the activities undertaken throughout the assessment process, together with the key findings they generated and the interpretations that inform the project’s strategic conclusions.

5.2.1.1 First survey results

In line with the approach used for the gender dimension, the main survey developed also encompassed the ethics and inclusion dimensions. In this regard, for the continuous monitoring of the ethics dimension some questions were designed to evaluate ethical awareness and support partners in upholding high standards throughout the project. Therefore, the survey explored several aspects, including the perceived relevance of ethics in research and the extent to which partners understand the ethical implications of their work. Additionally, responses related to the compliance procedures indicate that all partners responsible for the project outputs are attentive to GDPR requirements and broader EU ethical guidelines, particularly in areas involving personal data and the use of digital or AI-based tools.

In light of this, the survey included a set of questions covering a broad range of ethical themes relevant to COOPERANT’s activities. These addressed general ethical principles, such as inclusiveness, environmental responsibility and stakeholder engagement, as well as issues related to data protection, including personal data handling, consent procedures, anonymisation practices and data security. Additional items focused on ethical aspects of AI, exploring topics such as fairness, transparency, accountability and impact assessment.

The list of questions presented in the first survey to the consortium are shown in Table 4:

Table 4: Questions developed by HOL for the first gender, ethics and inclusion survey for COOPERANT project (Ethics dimension).

Category	Reference	Question
Ethics dimension	E1	Do you believe that the inclusion of the ethical dimension is a priority in the field of Research & Innovation?
	E2	How familiar are you with relevant EU legislation on ethical research? (e.g. EU Code of Conduct for Research Integrity).

Category	Reference	Question
	E3	How familiar are you with relevant EU legislation on the ethical development and deployment of Artificial Intelligence? (e.g. Ethics Guidelines for Trustworthy AI; Artificial Intelligence Act).
	E4	How familiar are you with relevant EU legislation on ethical handling of data? (e.g. General Data Protection Regulation).

The purpose of gathering this information was to establish a clear understanding of the consortium's current level of ethical awareness. Recognising the diversity of backgrounds, expertise and perspectives within COOPERANT also provides valuable context, enabling a more comprehensive interpretation of the results. The responses also helped shape the content developed for this deliverable as well as the material used in the seminar held in M9.

To keep this report focused and accessible, only a few illustrative questions from each main thematic area are presented here. This approach ensures clarity and relevance while avoiding unnecessary detail, without compromising the overall insight provided by the full survey.

In this regard, the question regarding the importance of inclusion of ethical dimension as a priority in the R&I field, identified as E1 in Table 4. As shown in the Figure 12 below the results, all consortium partners (100%) agreed that integrating the ethical dimension is a priority within Research & Innovation. This unanimous response highlights a shared understanding across COOPERANT that ethical considerations are essential to responsible research practices and must be embedded throughout the project's activities.

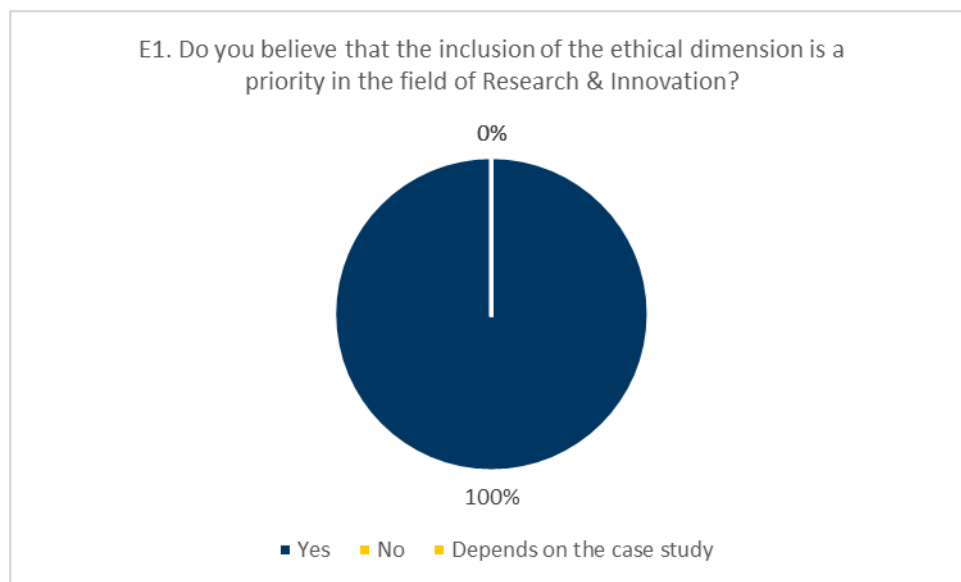


Figure 12: Results of the question E1 "Do you believe that the inclusion of the ethical dimension is a priority in the field of Research & Innovation?"

Furthermore, the next question E2 focused on personal data handling, consent data anonymisation and data security aspects, as presented the Figure 13 below. Additionally, the results indicated a very strong level of awareness regarding EU ethical legislation among the consortium. A total of 86% of participants reported being *somewhat familiar* with key frameworks such as the EU Code of Conduct for Research Integrity, while the remaining 14% indicated being *very familiar* with these guidelines.

This distribution shows that all respondents possess at least a solid baseline understanding of EU ethical requirements, with the vast majority demonstrating a high level of confidence in this area. Such familiarity is essential for ensuring that COOPERANT's activities remain aligned with EU standards, particularly in areas involving data protection, research integrity and responsible innovation.

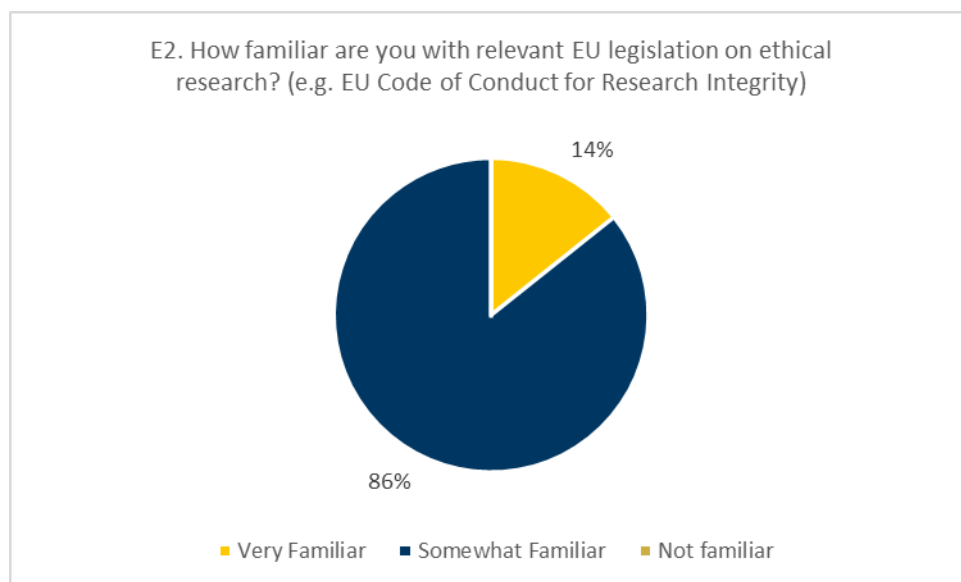


Figure 13: Results of the question E2 "How familiar are you with relevant EU legislation on ethical research? (e.g. EU Code of Conduct for Research Integrity)".

Moreover, regarding question E3, summarized in Figure 14 below, focused on the familiarity of EU relevant legislation on the ethical deployment of Artificial Intelligence (such as the ethics guidelines for trustworthy AI; AI act) results show that 86% of respondents consider themselves *somewhat familiar* with the relevant EU ethical frameworks on the matter, while 14% reported *not being familiar*. This indicates that although most of the consortium demonstrates strong awareness of EU ethical legislation regarding the AI, there remains a small proportion for whom additional support may be beneficial. The seminar planned for M9 was designed precisely to help reinforce this knowledge and ensure a more consistent understanding across all partners.

In this sense, by presenting key legislation, practical guidance and relevant case studies to strengthen partners' understanding and application of AI ethical principles in R&I.

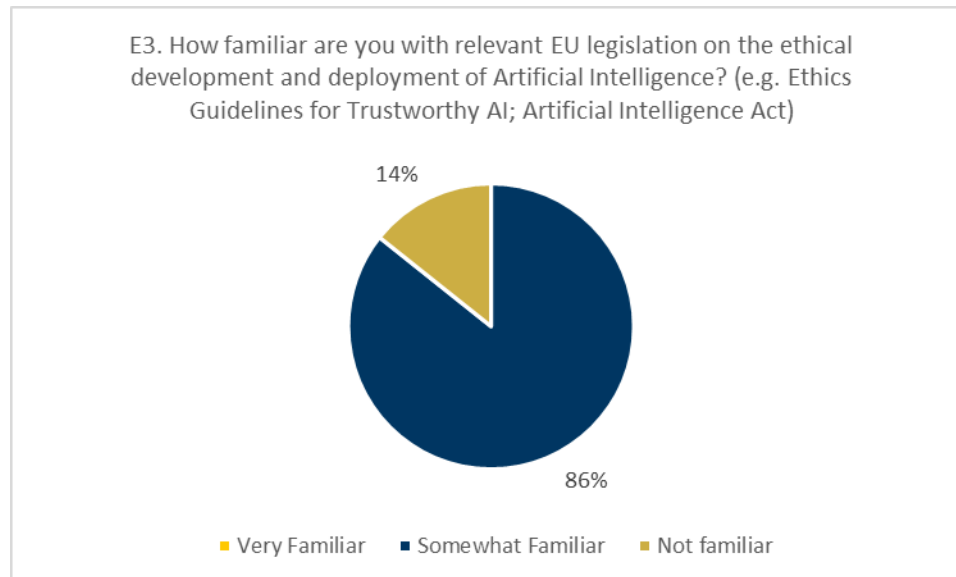


Figure 14: Results of the question E3 “How familiar are you with relevant EU legislation on the ethical development and deployment of Artificial Intelligence? (e.g. Ethics Guidelines for Trustworthy AI; Artificial Intelligence Act)”.

Furthermore, regarding question E4, summarised in Figure 15 below, the results show that 100% of consortium partners reported being aware of the relevant legislation on the ethical handling of data. This indicates that all respondents possess at least a baseline understanding of key principles such as data minimisation, lawful processing, informed consent and secure data management. Moreover, this shared level of awareness provides a solid foundation for ensuring consistent ethical practices across the project.

Although the level of familiarity varies, the fact that no respondent selected “not familiar” suggests that the consortium is already operating with a shared foundation of knowledge in this area. This provides a strong starting point for ensuring compliance across project activities and supports the effective implementation of data-related ethical measures throughout COOPERANT. Although the consortium already demonstrates a solid baseline of awareness, the seminar planned for M9 is expected to further strengthen this knowledge. By revisiting key legislation and discussing practical case studies, the session aims to support partners in deepening their understanding and, ultimately, contribute to even more positive responses in the follow-up survey.

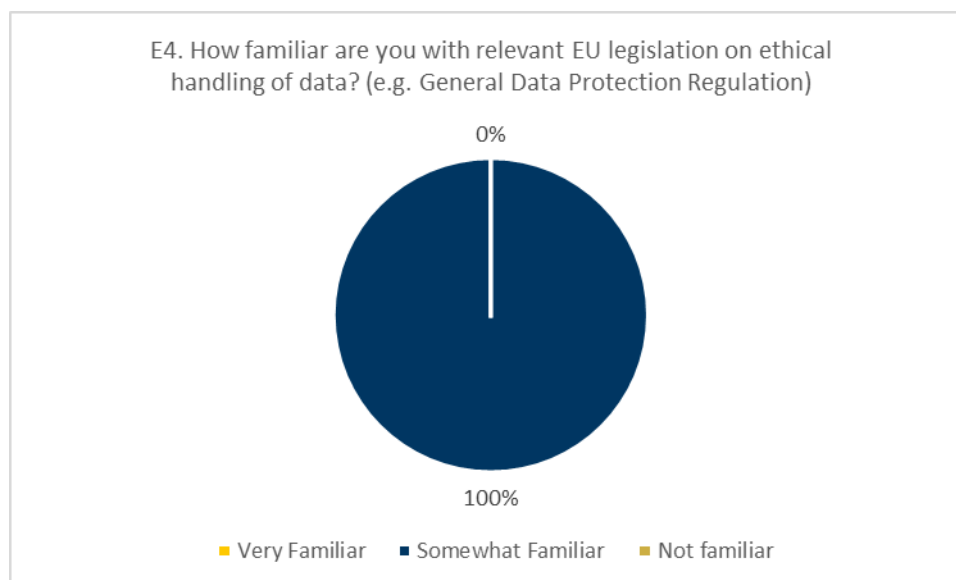


Figure 15: Results of the question E4 “How familiar are you with relevant EU legislation on ethical handling of data? (e.g. General Data Protection Regulation).

5.2.1.2 Second survey results

Accordingly, following the methodology developed by HOL for COOPERANT project, a second and more detailed survey was conducted by M16, marking the beginning of the second year of the project life cycle. Accordingly, it aimed to collect updated information and track past changes in previously submitted questionnaire. This survey comprehensively assessed the three main domains established for monitoring within the COOPERANT project: Gender, Ethics and Inclusion. However, regarding the analysis of the ethics dimension, the present section focuses specifically on ethics-related findings. In addition, the survey maintained the same organisational questions and overall structure as the first round to ensure consistency. This approach allows for reliable comparison over time and strengthens the validity of the longitudinal analysis. At the same time, a few additional supporting questions were introduced to deepen the dimension-specific assessment. These additions provide a more comprehensive understanding of the ethical aspects under evaluation, going beyond what was captured in the initial survey.

In addition to the themes addressed in the first survey, this second round incorporated a small set of new questions to broaden the ethical assessment. These additions focused on areas not previously explored in depth, namely additional AI-related ethical considerations, the sharing of data or materials with non-EU countries, and health and safety requirements in research environments. By integrating these topics, the survey offers a more comprehensive and nuanced understanding of the ethical dimensions relevant to COOPERANT’s activities.

The list of questions presented in the second survey to the consortium are shown in Table 5:

Table 5: Questions developed by HOL for the second gender, ethics and inclusion survey for COOPERANT project (Ethics dimension).

Category	Reference	Question
Ethics dimension	E1	Do you believe that the inclusion of the ethical dimension is a priority in the field of Research & Innovation?
	E2	How familiar are you with relevant EU legislation on ethical research? (e.g. EU Code of Conduct for Research Integrity).
	E3	How familiar are you with relevant EU legislation on the ethical development and deployment of Artificial Intelligence? (e.g. Ethics Guidelines for Trustworthy AI; Artificial Intelligence Act).
	E4	Do your activities in COOPERANT involve the development or use of AI systems?
	E5	How familiar are you with relevant EU legislation on ethical handling of data? (e.g. General Data Protection Regulation).
	E6	Do your activities in COOPERANT involve sharing of data/materials from non-EU countries?
	E7	If yes, please, specify any measures of ethical compliance you will adopt when sharing data/materials from non-EU countries. (if you know of any).
	E8	Do your activities in COOPERANT require attention to health & safety concerns? (ie. lab environments).
	E9	Please specify any measures of ethical, health & safety compliance you will adopt. (if you know of any).

As with the previous survey, the aim of this second round was to assess the consortium's ethical awareness, using the same core questions to allow direct comparison between both sets of results. Because the objectives of the two surveys are aligned, the same key questions and corresponding analyses are presented here. The remaining, newly added questions are also interpreted, but in a more general manner to keep the report focused and proportionate.

Given this context, the question E1, as represented in the Figure 16 below, addressed the inclusion of the ethical dimension as priority in the field of research and innovation. The results revealed a notable change in the consortium's perception of the importance of integrating the ethical dimension in research and innovation. According to the second survey, 71% of partners indicated that the relevance of ethics "depends on the case study," while 29% responded "no." This stands in contrast to the first survey, where all partners unanimously agreed that ethics is a priority compliance when performing research and innovation.

This shift suggests that the consortium's views have become more differentiated over time. Rather than seeing ethics as a universal requirement across all activities, partners may now be

interpreting its relevance as context-dependent, possibly reflecting the specific nature of their tasks within COOPERANT. Additionally, it may also indicate that, as the project progresses, partners are developing a more nuanced understanding of when ethical considerations are directly applicable and when they may be less central. At the same time, the decrease in agreement could point to a need for continued clarification and reinforcement of the role of ethics in R&I, something that the ongoing guidance performed on task 5.4 is intended to support. On the other hand, as the consortium's composition evolved, and new members joined, many of whom did not attend the initial seminar, their level of awareness and perspectives on these issues may differ.

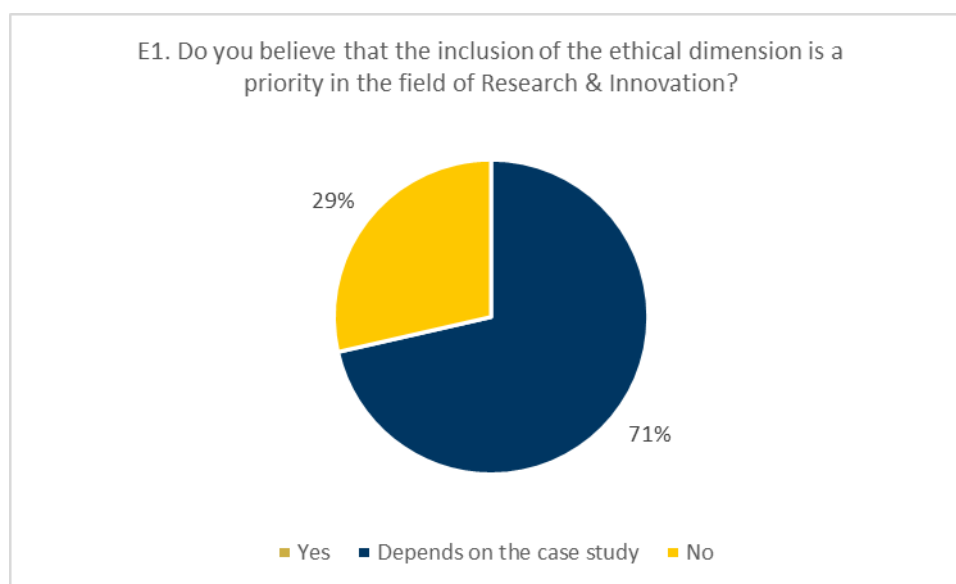


Figure 16: Results of the question E1 “Do you believe that the inclusion of the ethical dimension is a priority in the field of Research & Innovation?”

For question E2, represented in the Figure 17 below, which asked partners how familiar they are with relevant EU legislation on ethical research (e.g., the EU Code of Conduct for Research Integrity), the results remain broadly aligned with the first survey. In this second round, 86% of the consortium reported being “somewhat familiar” with the applicable legislation, while 14% indicated they were not familiar with it.

This distribution suggests that the consortium continues to demonstrate a generally solid baseline of awareness, although not fully uniform. The presence of a small proportion of partners who still feel unfamiliar with the legislation highlights the need for ongoing clarification and capacity-building. It also reinforces the value of the training and guidance activities already implemented within COOPERANT, as well as the importance of maintaining accessible resources to support partners with varying levels of prior exposure to ethical and regulatory frameworks.

For question E2, the second survey shows a clear downgrade in perceived familiarity with EU ethical legislation. The second round shows 86% of consortium partners are “somewhat familiar” and 14% as “not familiar” at all.

The change lies in the remaining 14%, where it could reflect some scenarios, whereas in the first survey this group described themselves as very familiar, in the second survey they reported not being familiar at all. This downgrade may reflect the entry of new team members after the M9 seminar who had not yet received the same exposure or training, thereby lowering the familiarity level previously reported. On the other hand, this shift may reflect a more cautious self-assessment as partners gained a deeper understanding of the complexity of the legislation. In any case, these results highlight considerations that should be considered to better support partners in strengthening their understanding of this ethical dimension.

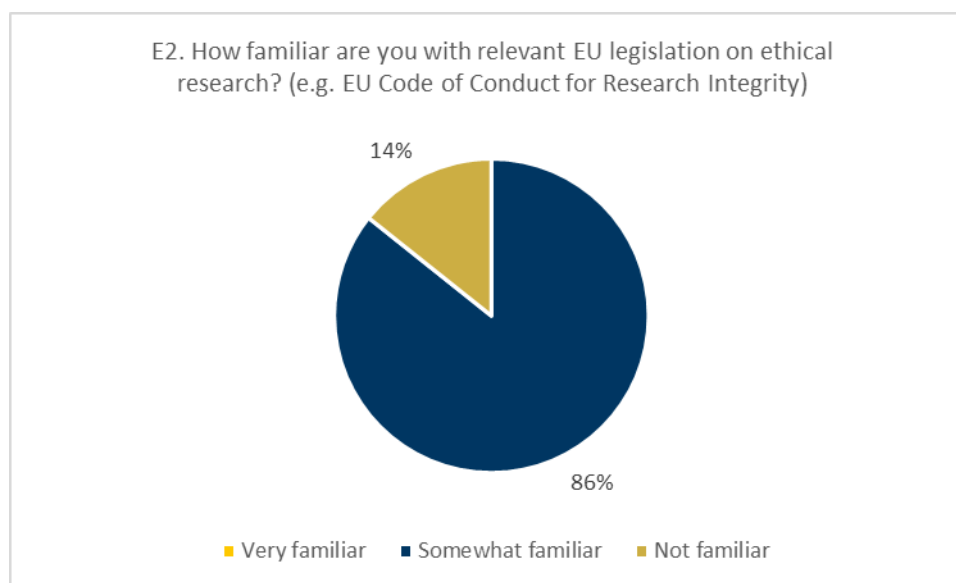


Figure 17: Results of the question E2 “How familiar are you with relevant EU legislation on ethical research? (e.g. EU Code of Conduct for Research Integrity)”.

For question E3, represented in the Figure 18 below, regarding with familiarity with EU legislation on the ethical development and deployment of AI shows a slight redistribution compared with the first survey. In this second round, 72% of partners reported being somewhat familiar, 14% very familiar, and 14% not familiar. This shift suggests a modest polarisation: some partners have strengthened their confidence in this area, while others, possibly including new team members, report limited familiarity. Overall, the results indicate both emerging expertise and persistent gaps, reinforcing the need for continued support in this dimension.

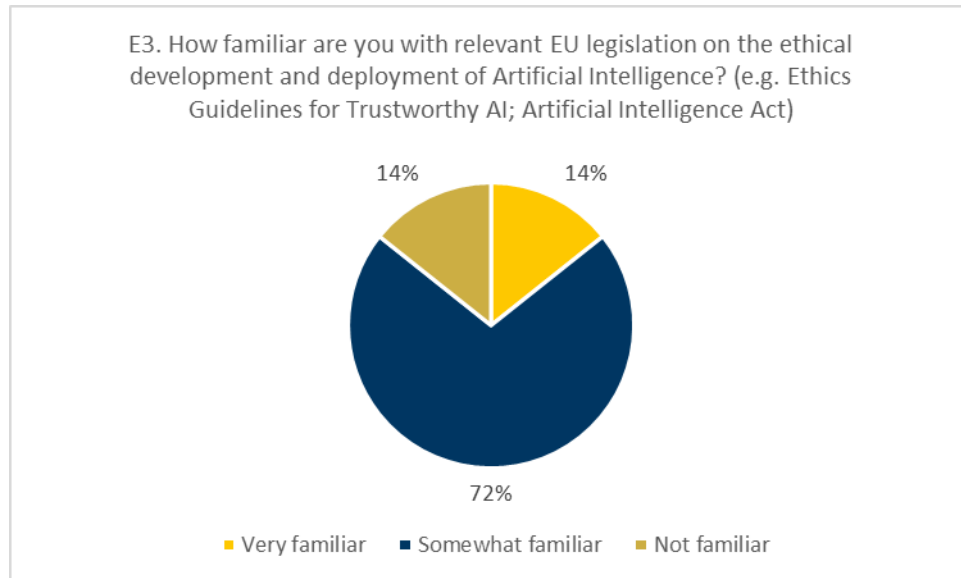


Figure 18: Results of the question E3 "How familiar are you with relevant EU legislation on the ethical development and deployment of Artificial Intelligence? (e.g. Ethics Guidelines for Trustworthy AI; Artificial Intelligence Act)".

For question E5, represented in the Figure 19 below, familiarity with EU legislation on the ethical handling of data shows a clear shift from the first survey. The second survey showed a more varied distribution regarding the partners familiarity with GDPR-related requirements: where 72% being "somewhat familiar", 14% "very familiar", and 14% "not familiar". This change suggests a diversification of self-perceived knowledge, with some partners gaining confidence while others, potentially including new team members, report limited familiarity. Overall, and very similar to other results in this second assessment, highlight the need to continue supporting partners in strengthening their understanding of this dimension.

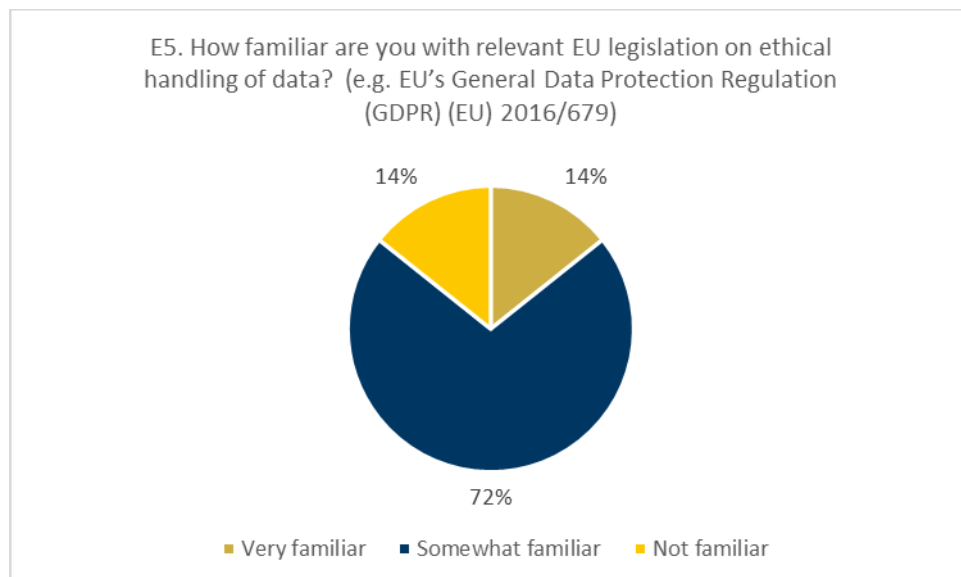


Figure 19: Results of the question E5 "How familiar are you with relevant EU legislation on ethical handling of data? (e.g. General Data Protection Regulation)".

For the new questions introduced in this second survey (E4, E6, E7, E8 and E9), partners' contributions were consistently positive and detailed. Beyond confirming whether their activities involved AI systems, data sharing or health and safety considerations, many provided concrete examples of compliance measures. For E6 and E7, partners highlighted adherence to REACH and RoHS requirements, clear sample labelling, respect for international safety and transport standards, and ethically sourced materials (e.g., free from conflict minerals). For E8 and E9, they reported strict compliance with institutional health and safety procedures, including prior risk assessments, appropriate PPE, and safe handling of high-temperature or particulate materials. Overall, these responses demonstrated a strong engagement and a solid commitment, to broad ethical and safety standards across the consortium.

5.2.2 Recommendations on ethics

The ethical guidelines defined during the seminar, and intended to guide the project throughout its duration, are fully consistent with the principles set out in COOPERANT's GA. These recommendations were developed with particular attention to the three core ethical dimensions identified as central to COOPERANT's work.

From a human-centred perspective, ensuring that the technologies developed within COOPERANT generate positive social impact requires careful attention to fairness, particularly by avoiding bias or discriminatory practices in sampling and recruitment. Furthermore, transparency is equally essential, ensuring that all participants provide informed consent freely and with a clear understanding of their involvement. Moreover, ensuring strong safeguards for data protection and management must also be maintained to preserve confidentiality and prevent misuse, reinforcing principles of integrity and safety.

With regard to personal data, ethical considerations linked to the collection of information from companies, employees, stakeholders, and participants must be fully addressed. This relies on a clear and comprehensive Data Management Plan (DMP) that defines procedures for collecting, storing, securing, retaining, and disposing of data in line with EU regulations, especially GDPR. In this regard, external contributors must provide explicit consent, with clear explanations of the purpose of data collection and assurances of anonymity. Consequently, each organisation should also designate a Data Protection Officer (DPO) to oversee compliance and ensure proper implementation of these measures.

Concerning, the area of AI in ethics, the COOPERANT project must remain attentive to the human and societal implications of AI-enabled systems. This being said, measures should be put in place to mitigate potential risks in human-machine interactions, prevent algorithmic bias, and account for intersectionality in decision-making processes. As a result, promoting explainable AI is equally important, enabling users to understand the system's functioning, limitations, risks, and benefits.

By embedding these ethical principles throughout every stage of the COOPERANT project life cycle, the initiative can uphold responsible research practices that champion fairness, inclusivity, and adherence to legal and regulatory standards. This integrated approach not only strengthens the project's credibility but also fosters trust among stakeholders, ensuring that innovation is pursued with transparency, accountability, and long-term societal benefit in mind.

In addition, following the seminar held in M9, the oriented recommendations provided in each consortium meeting, the HOL team continues to meet every six months to refine strategies that strengthen equity and inclusion. These small assessments provide recommendations on inclusive engagement with external partners, effective communication practices, and the identification of potential gender-related biases in dissemination. Lastly, guidance is also offered on fostering collaborative and inclusive dialogue, reinforcing the project's commitment to diversity and equal participation.

5.3 Inclusion

Building on the broader discussion of inclusion presented earlier, this section examines the specific findings from the COOPERANT inclusion assessment. Consequently, the survey results provide an overview of how partners currently address inclusiveness within their organisations and project activities, offering insight into existing practices and levels of awareness across the consortium.

By analysing these data, the section highlights both the inclusive strengths already present and the areas where further development may be beneficial. This focused assessment supports COOPERANT's commitment to ensuring that participation, representation and access remain equitable throughout the project's implementation.

5.3.1 Inclusion in the COOPERANT project

Having now outlined the monitoring process and its application to the gender and ethics dimensions, the analysis shifts to the inclusion dimension, applying the same overarching framework. In this context, the monitoring activities supported the assessment of how inclusion has evolved throughout the project. Furthermore, they helped identify potential shifts in inclusion-related practices and perceptions.

Within this framework, particular attention was given to examining how inclusion appears in organisational practices, team composition and participation across project activities. In addition, the analysis assessed whether partners have measures to foster an inclusive and healthy working environment. It also reviewed the availability of training on inclusion topics and

the diversity of the teams involved in the project. Moreover, the analysis considered recruitment practices aimed at underrepresented groups and the presence of team members with physical or cognitive disabilities. It further examined the extent to which workplaces are adapted to support accessibility needs. Additional themes explored perceptions of multicultural friendliness and the existence of mechanisms to report discrimination incidents. Together, these indicators provide valuable insight into how inclusive, equitable and supportive the working environment is across the consortium.

Interpreting these findings allowed HOL to engage the consortium in reflecting on areas where inclusion gaps may persist. In addition, this reflection encourages the adoption of practices that promote equal participation, accessibility and a respectful environment for all contributors. Furthermore, this targeted approach reinforces the project's commitment to non-discrimination. Finally, it supports the integration of inclusive measures throughout all stages of the COOPERANT project.

Table 6 below summarises HOL's main interactions with the consortium for the development and monitoring of inclusion in COOPERANT project, thus far:

Table 6: HOL actions to monitor and follow up inclusion dimension on COOPERANT project between M1-M18.

What	When	(For) Who	How	Objective
First Gender, Ethics and Inclusion survey	M4	All the partners	Online	The survey examined gender representation within the COOPERANT project, offering evidence-based insights that informed both the seminar's content and the dialogue among partners.
G&E&I Seminar	M9	All the partners	Online	The seminar focused on deepening comprehension of the gender dimension, equipping Consortium members with the insights required for effective implementation.
Second Gender, Ethics and Inclusion survey	M16	All the partners	Online	The second and more extensive survey aimed to ensure systematic, ongoing assessment of gender representation within the project.

* More detailed in **Annexes**; CM – Consortium Meeting.

Given this context, the following sections outline the activities carried out throughout the inclusion assessment process, together with the key findings they produced and the interpretations that inform the project's strategic conclusions.

5.3.1.1 First survey results

In line with the approach adopted for the gender and ethics dimension, the main survey also integrated a dedicated focus on the inclusion dimension. To enable continuous monitoring in this area, a set of questions was designed to assess partners' awareness of inclusion-related considerations and to support them in embedding inclusive practices throughout the COOPERANT project. Accordingly, the survey examined how partners perceive the relevance of inclusion in research and innovation activities, as well as their understanding of how inclusive approaches can enhance the quality, accessibility, and societal value of COOPERANT's outcomes.

The themes explored covered a broad spectrum of inclusion considerations relevant to the project's activities. These included organisational measures to foster an inclusive and healthy working environment, the availability of training on inclusion topics, and the diversity of the teams involved in COOPERANT. Additional items examined recruitment practices, particularly efforts to attract candidates from underrepresented groups, as well as the presence of individuals with physical or cognitive disabilities within project teams. The survey also assessed whether workplaces are adequately adapted to support people with disabilities, including through accessible infrastructure, software, or other forms of assistance.

Further questions focused on the cultural dimension of inclusion, exploring whether partners perceive their work environments as multicultural and welcoming to diverse backgrounds. Mechanisms for reporting discrimination or exclusion were also addressed, reflecting the project's commitment to ensuring safe, respectful, and equitable working conditions for all contributors.

The list of questions presented in the first survey to the consortium regarding the inclusion dimension is shown in Table 7.

Table 7: Questions developed by HOL for the first gender, ethics and inclusion survey for COOPERANT project (Inclusion dimension).

Category	Reference	Question
Inclusion dimension	I1	Does your organisation have measures to foster an inclusive and healthy working environment?
	I2	Does your organisation promote/have training in inclusion aspects?
	I3	How diverse is your organisation's team (involved in the project)?
	I4	Does Human Resources have measures in place towards hiring candidates from underrepresented groups?

Category	Reference	Question
	I5	Is anyone from your team (involved in the project) considered to have a physical or cognitive disability?
	I6	Is your work environment adapted to people with disabilities (through infrastructure, software, medical support, etc.)?
	I7	Do you believe that your workplace is multiculturally friendly?
	I8	Does your workplace have mechanisms to report incidents of discrimination?

The purpose of gathering this information was to establish a clear picture of the consortium's current level of inclusion awareness and practice. Understanding the diversity of backgrounds, organisational cultures, and team compositions within COOPERANT provides essential context for interpreting the results in a meaningful way. The insights gained also informed the development of the content presented in this deliverable, as well as the material used during the inclusion-focused dimension seminar held in M9.

To maintain clarity and ensure the report remains accessible, only a selection of illustrative questions from each main thematic area of the inclusion dimension is presented here. This approach highlights the most relevant aspects without overwhelming the reader with unnecessary detail, while still preserving the overall value and interpretative depth offered by the full survey.

In this regard, by examining the results obtained in question I1, that refers to the organisational measures to foster an inclusive and healthy working environment, as represented by Figure 20 below, shows that responses reflect a strong overall commitment to fostering inclusive and healthy working environments across the consortium. A large majority, of 86%, reported that their organisation already has concrete measures in place, indicating that inclusion is embedded in existing policies, practices or workplace culture for most partners. On the other hand, the remaining 14% selected "somewhat," suggesting that while certain initiatives or informal practices exist, there is still room for further development or formalisation.

Notably, no respondents indicated the absence of such measures, which demonstrates that all participating organisations recognise the importance of inclusion and have taken at least initial steps toward supporting it. As a result, this provides a solid baseline for COOPERANT's project inclusion objectives and highlights opportunities for targeted support to help partners strengthen or expand their existing approaches.

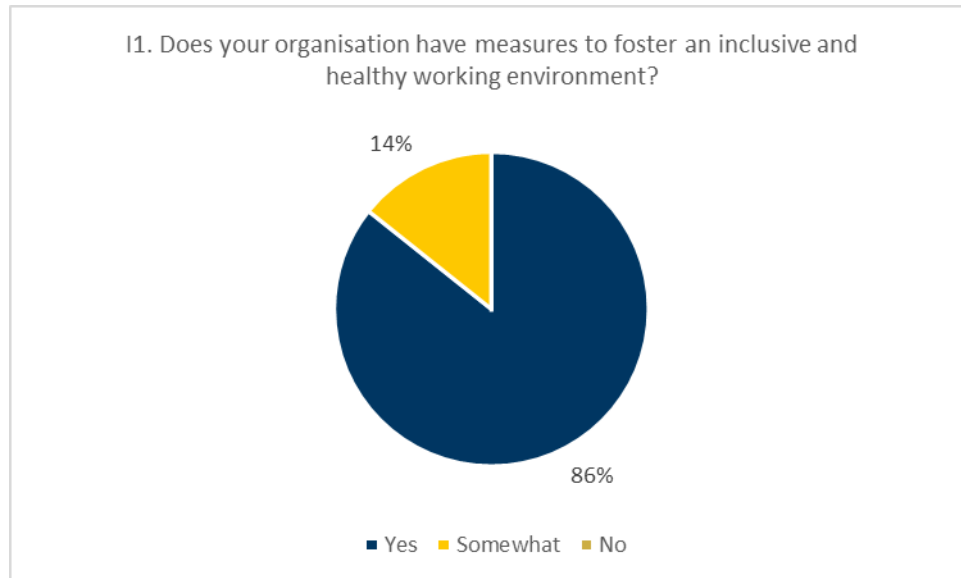


Figure 20: Results of the question I1 "Does your organisation have measures to foster an inclusive and healthy working environment?"

The next question, I4, represented in the Figure 21 below, examined the extent to which organisations have Human Resources measures in place to support the recruitment of candidates from underrepresented groups. In this regard, responses to Question I4 reveal a less consistent picture regarding inclusive recruitment practices. With 43% answering "somewhat," 29% "no," and 28% "yes," the results suggest that while some organisations have established measures to support the hiring of underrepresented groups, many rely on partial or informal practices, and a notable share lacks such measures entirely. The fact that nearly three-quarters of respondents fall into the "somewhat" or "no" categories highlight a clear opportunity for strengthening structured, proactive and equitable recruitment policies across the COOPERANT consortium.

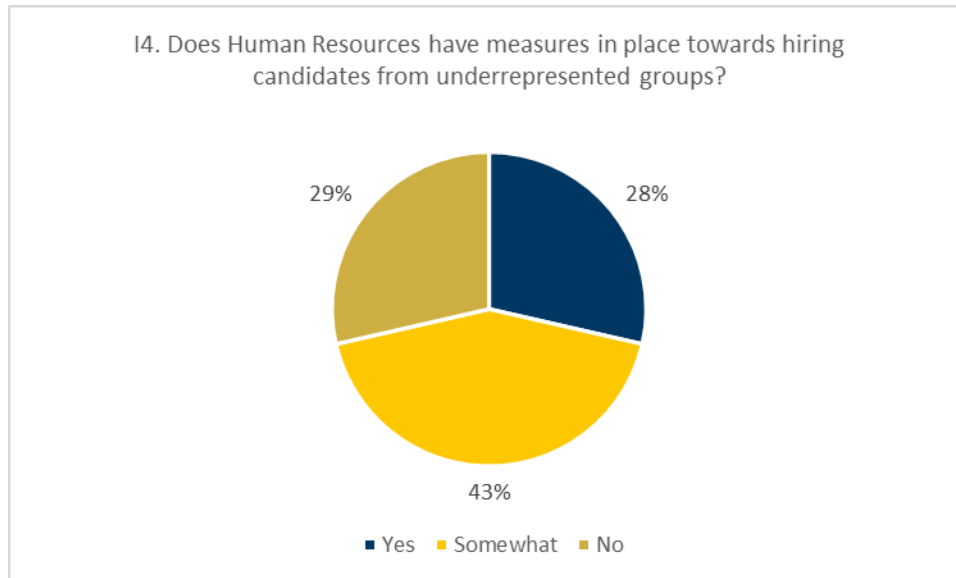


Figure 21: Results of the question 14 "Does Human Resources have measures in place towards hiring candidates from underrepresented groups?"

The following question, 18, represented in the Figure 22 below explored whether organisations have formal mechanisms in place to report incidents of discrimination. The results, show that responses present a relatively balanced but not fully reassuring picture regarding mechanisms to report discrimination. With 43% answering "yes," 43% "somewhat," and 14% "no," the results indicate that while nearly half of the organisations have clear reporting channels in place, an equally large share only has partial or informal mechanisms. The remaining 14% without any reporting structures highlights a notable gap, as the absence of formal procedures can limit employees' ability to safely address incidents. Overall, the distribution suggests that although awareness of the need for reporting mechanisms exists across the consortium, there is still significant room to strengthen and standardise these protections to ensure a safe and accountable working environment for all.

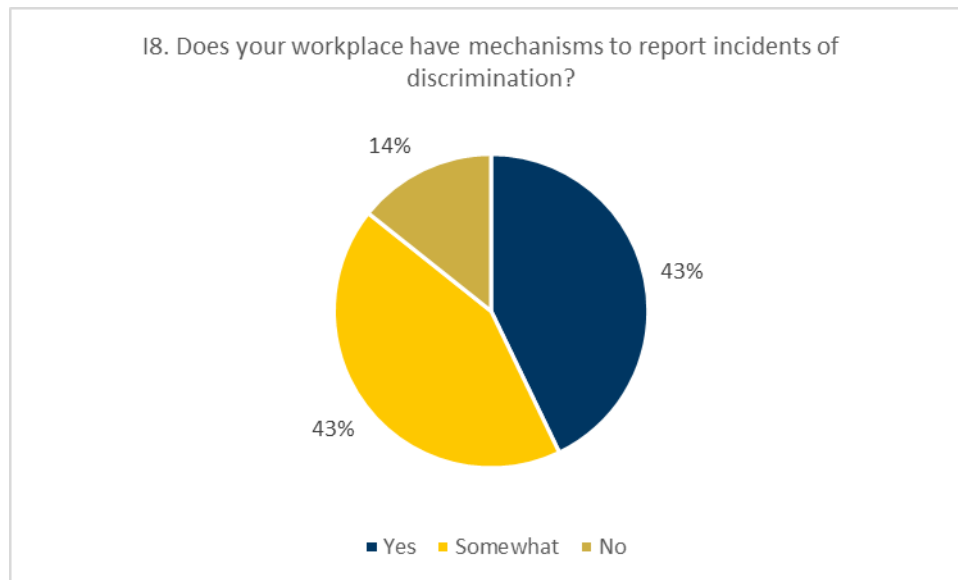


Figure 22: Results of the question 18 “Does your workplace have mechanisms to report incidents of discrimination?”

Lastly, the remaining questions, I2, I3, I5, I6 and I7, which addressed disability inclusion, workplace adaptations, multicultural friendliness, inclusion training and team diversity, showed consistently positive results across the consortium. Most partners responded “yes” or “somewhat”, indicating that organisations generally perceive themselves as taking meaningful steps toward creating inclusive, accessible and culturally welcoming environments. While these responses provide a strong and encouraging baseline, the presence of “somewhat” answers also suggests that several measures are still developing, leaving room for further improvement and consolidation of inclusive practices across all partners.

5.3.1.2 Second survey results

Following the methodology developed by HOL for the COOPERANT project, a second and more detailed survey was conducted at M16, marking the beginning of the project’s second year. In the context of the Inclusion dimension, this new round of data collection aimed to update the information gathered in the first survey and to track any changes in partners’ organisational practices related to inclusion. As before, one representative from each partner organisation completed the questionnaire. Crucially, the inclusion-related questions and overall structure were kept identical to those of the initial survey to ensure consistency, enabling reliable comparison over time and reinforcing the validity of the longitudinal analysis.

That being said, responses for question I1, represented in the Figure 23 below, state that the second survey shows a slight decline in the proportion of partners selecting “yes.” In the second round, 71% answered “yes” and 29% “somewhat,” compared with answers in the first survey. Although the overall picture remains positive, since all respondents still report having at least

some inclusion measures in place, the decrease in “yes” responses suggests that some organisations may have reassessed their practices more critically or identified gaps that were not previously acknowledged. However, such as previously indicated before, the entrance of new partners into the consortium likely contributed to this shift, as there may have a different view on how perceive, develop or formalise their inclusion policies. This evolution highlights the value of longitudinal monitoring and points to areas where further support may help partners strengthen their inclusive workplace measures over time.

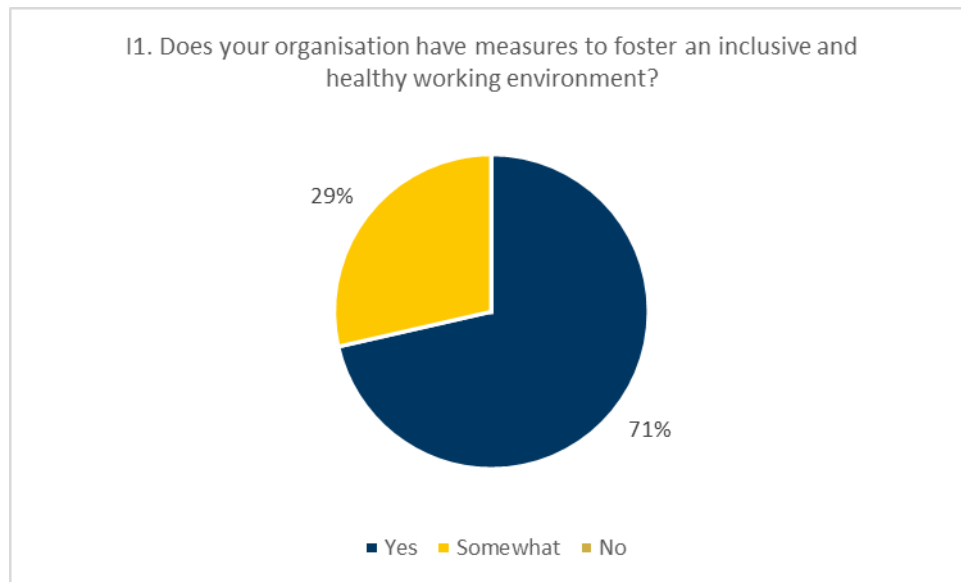


Figure 23: Results of the question 11 “Does your organisation have measures to foster an inclusive and healthy working environment?”

Furthermore, Figure 24, represented below, presents the results for Question 14, “Does Human Resources have measures in place towards hiring candidates from underrepresented groups?” In this second survey, the responses show a somewhat uneven but still generally positive picture. Half of the partners (50%) answered “somewhat,” indicating that many organisations have partial or developing measures in place, though not yet fully formalised. Meanwhile, 33% responded “yes,” confirming that a third of the consortium has established concrete practices to support inclusive hiring. The remaining 17% who answered “no” highlight that some organisations still lack structured approaches in this area. Additionally, when compared with the first survey responses, the results indicate a slight improvement, with fewer organisations reporting no measures and a modest increase in those with established or developing inclusive hiring practices.

Overall, while most consortium partners report at least some level of action, the distribution suggests that inclusive recruitment remains an area where practices vary considerably and where further support and alignment could help strengthen consistency across the consortium.

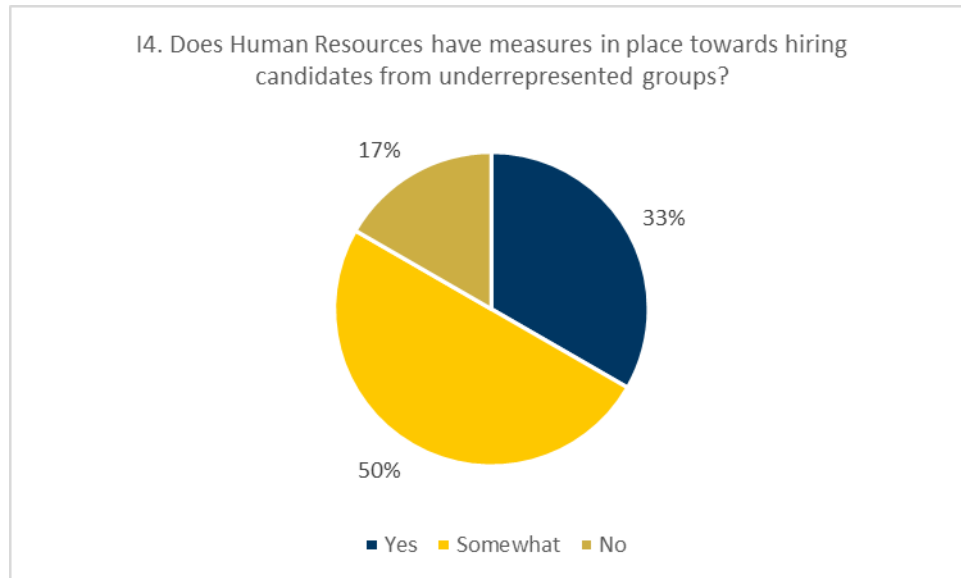


Figure 24: Results of the question 14 "Does Human Resources have measures in place towards hiring candidates from underrepresented groups?"

For Question 18, "Does your workplace have mechanisms to report incidents of discrimination?", represented in Figure 25, the second survey shows a significant improvement compared with the first round. In the second survey, 86% of partners answered "yes" and 14% "somewhat," meaning that all organisations now report having at least some form of reporting mechanism in place.

In contrast, the first survey presented a more mixed and less reassuring picture, with 43% answering "yes," 43% "somewhat," and 14% "no." The disappearance of "no" responses and the sharp rise in "yes" answers suggest that partners have strengthened or formalised their reporting procedures over the past year. Overall, this progression indicates a clear positive shift toward more robust and accessible mechanisms for addressing discrimination, reflecting growing organisational commitment to accountability and safe working environments.

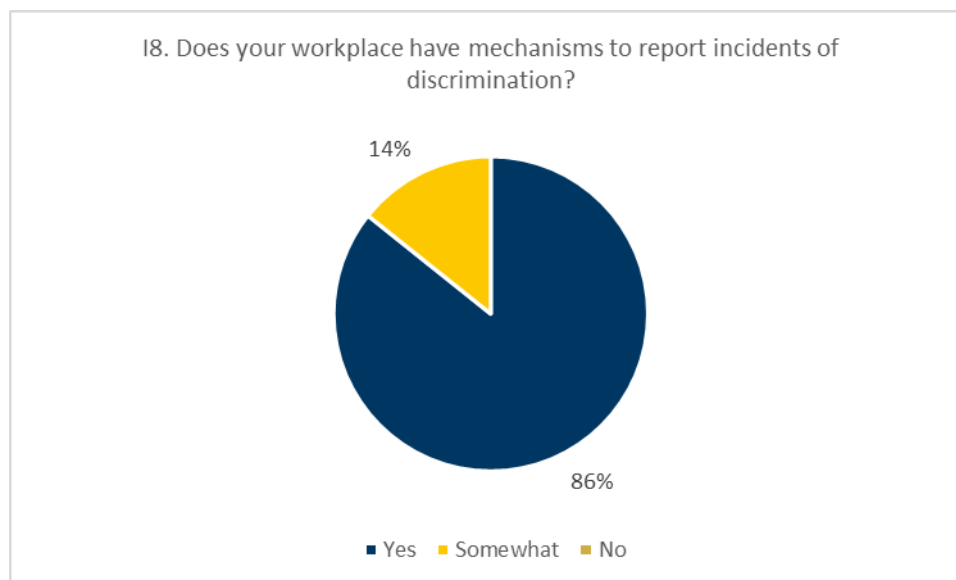


Figure 25: Results of the question 18 “Does your workplace have mechanisms to report incidents of discrimination?”

Lastly, the remaining questions, 12, 13, 15, 16 and 17, covering disability inclusion, workplace adaptations, multicultural friendliness, inclusion training and team diversity, showed consistently positive results across the consortium. When compared with the first survey, the second-round responses were notably more positive, with a higher number of partners selecting “yes” and fewer choosing “somewhat.” This suggests a gradual strengthening of inclusion practices across organisations. It is also worth noting, that the seminar held within the project addressed several of these topics, which may have contributed to this improvement by raising awareness and supporting partners in refining their approaches.

5.3.2 Recommendations on inclusion

The inclusion guidelines discussed during the seminar, and intended to guide the project throughout its duration, are fully aligned with the principles established in COOPERANT’s GA. These recommendations were shaped around the key areas assessed in the inclusion surveys, ensuring that the project consistently promotes equitable participation, diversity, and accessible working environments. Creating an inclusive and healthy workplace requires ongoing organisational commitment. This involves implementing internal measures that foster respectful communication, psychological safety, and equal opportunities for participation in project activities. Regular reflection on organisational practices, together with the identification of potential barriers to inclusion, enables partners to strengthen supportive environments where all team members feel valued.

Building inclusion also depends on equipping staff with the necessary knowledge and tools. Training on diversity, intercultural awareness, disability inclusion, and unconscious bias helps cultivate a shared understanding of inclusive behaviours and supports more equitable

engagement with colleagues and external stakeholders. These initiatives should be practical and tailored to the project's context, ensuring that partners are prepared to work effectively within diverse teams. In parallel, the diversity of the teams involved in COOPERANT represents an important asset. Different backgrounds, experiences, and perspectives enrich the project's work and enhance the relevance of its outcomes. For this reason, organisations are encouraged to reflect on the composition of their teams and consider how broader representation can strengthen collaboration and decision-making.

Inclusive recruitment practices also play a central role in promoting equity. Establishing measures that encourage applications from underrepresented groups, such as transparent job postings, inclusive language, and fair evaluation criteria, helps ensure that hiring processes remain accessible and unbiased. Even if partners are at different stages of implementing such measures, incremental improvements contribute to more equitable recruitment across the consortium. Similarly, recognising and supporting the participation of individuals with physical or cognitive disabilities is essential for a genuinely inclusive project environment. Organisations should foster a culture in which team members feel comfortable expressing their needs and where appropriate support mechanisms are readily available.

Ensuring that workplaces are adapted to the needs of people with disabilities is another fundamental requirement. This includes accessible infrastructure, assistive technologies, ergonomic tools, and appropriate medical or technical support. Regular reviews of both physical and digital environments help identify gaps and guide improvements that enhance participation for all team members. Given the international nature of COOPERANT, cultivating a multicultural-friendly environment is equally important. Encouraging open dialogue, respecting cultural differences, and adopting inclusive communication practices contribute to smoother collaboration and reinforce the consortium's ability to engage with diverse stakeholders.

Finally, robust mechanisms for reporting discrimination are essential for maintaining a safe and accountable working environment. Organisations should ensure that reporting channels are clearly communicated, confidential, and accessible, and that procedures for handling complaints are transparent and fair. These mechanisms strengthen trust and demonstrate a clear commitment to zero tolerance for discriminatory behaviour.

Following the seminar held at M9 and the guidance provided during consortium meetings, the HOL team continues to meet every six months to refine strategies that reinforce inclusion across the project. These periodic assessments offer practical recommendations on inclusive engagement with external partners, accessible communication practices, and the identification of potential biases in project activities and dissemination. They also provide guidance on fostering collaborative and respectful dialogue, further strengthening COOPERANT's commitment to diversity, equal participation, and an inclusive project culture.

6 Conclusions

This deliverable provides an in-depth examination of the gender, ethical and inclusion dimensions within the COOPERANT project, ensuring that responsible and equitable practices are embedded across all stages of its implementation. By addressing gender roles and ethical principles in a comprehensive manner, the project strengthens fairness and inclusivity, reinforcing its overall impact and alignment with established ethical frameworks. This approach highlights the project's commitment to advancing research and innovation through socially responsible methodologies.

From the beginning, COOPERANT places strong emphasis on gender inclusion, promoting the active involvement of women at all levels and encouraging research that integrates gender perspectives. In this regard, women currently represent 32.06% of the project team, marking an improvement compared with the initial survey. Although this figure is not yet ideal, it reflects meaningful progress in gender representation within Horizon Europe. This advancement supports the objectives of the European Commission's LGBTIQ+ equality strategy 2026–2030. Beyond numerical indicators, the project actively promotes gender awareness and education. Moreover, this commitment is reflected in initiatives such as the seminar held in M9 and the presentations delivered on CM's. In addition, these actions reinforce the project's recommendations, ensuring that balanced participation and leadership remain central priorities. Furthermore, this approach is ensured by the continuous monitoring of gender related data, and the consistent use of inclusive, non-discriminatory language and visuals that strengthen equality across all communication activities.

Additionally, ethical considerations remain central to the project, particularly regarding nonmedical research involving human participants, data protection, and the responsible integration of AI. To support this, the intra method has been adopted to guide the development of AI enabled tools, ensuring continuous ethical reflection and adaptation throughout the project life cycle. These principles are embedded from the outset, beginning with a structured Data Management Plan in WPI that guarantees GDPR compliance and robust informed consent procedures. Advanced anonymisation and pseudonymisation techniques further reinforce the protection of personal data. Moreover, potential ethical challenges linked to AI, such as bias, privacy risks, and unintended impacts, are proactively addressed in alignment with the European Commission's Ethics Guidelines for Trustworthy AI, which emphasise human autonomy, harm prevention, fairness, and transparency. Together, these measures ensure that gender equality, ethics, and inclusion are consistently upheld across all project activities.

Lastly, the Inclusion dimension is also a central pillar of COOPERANT's approach, extending beyond gender to embrace diversity in all its forms. The project actively promotes an environment where individuals from different backgrounds, cultures, and abilities can

participate meaningfully and equitably. This includes ensuring accessibility in communication materials, adopting inclusive facilitation methods during meetings and workshops, and encouraging diverse perspectives in decision-making processes. By embedding inclusion into its governance and dissemination practices, COOPERANT strengthens social cohesion within the Consortium and enhances the relevance and reach of its research outcomes.

Accordingly, following the seminar in M9 and the subsequent consortium sessions, the HOL team continues to play an active role in refining strategies that promote equity and inclusion. Through biannual sessions, the team provides recommendations on inclusive engagement with external stakeholders, focusing on effective communication practices and identifying potential gender-related biases in dissemination. Additional guidance supports the creation of collaborative and inclusive dialogue, highlighting communication techniques and proactive measures that ensure equitable participation across all interactions. This ongoing work reinforces the project's dedication to diversity and equal opportunities.

6.1 Next actions

Looking ahead, COOPERANT will continue strengthening its commitment to gender balance, inclusion, and ethical responsibility by deepening the monitoring and evaluation mechanisms already in place. In this regard, HOL will maintain regular and comprehensive assessments of gender representation, explore strategies to increase women's participation in under-represented areas, and ensure that inclusive, non-discriminatory communication practices remain standard in all dissemination activities. These efforts will be supported by ongoing data collection and the refinement of internal procedures that promote equitable participation and leadership.

In parallel, the project will also expand its inclusion and accessibility measures, ensuring that all partners and stakeholders can engage meaningfully in project activities. This includes enhancing the accessibility of communication materials, adopting inclusive facilitation methods in meetings and workshops, and integrating diverse perspectives into decision-making processes. Additional CM's recommendations will be organised to build capacity in areas such as inclusive communication, bias mitigation, and responsible AI development, reinforcing the Consortium's shared understanding of ethical and inclusive practices.

Finally, COOPERANT will continue strengthening its gender, ethical and inclusion oversight of AI-related tasks, updates to the Data Management Plan, and continuous alignment with EU guidelines on data protection and trustworthy AI. In addition, eventual feedback from stakeholders and Consortium members will inform future improvements, while preparatory work for upcoming deliverables, particularly D5.9, will summarize the continuity and sustained

progress. These next actions collectively support a forward-looking approach that embeds gender equality, inclusion, and ethics at the core of the project's evolution.

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8 Annexe I

8.1 Images of the COOPERANT Seminar on Gender, Ethics and Inclusion aspects (held on M9).



Leading-edge cooperative alliances towards the next generation of concentrated solar power (CSP) technology

COOPERANT

"Gender perspectives are relevant when the research has or may have consequences for people"

(Rector of the NHH Norwegian School of Economics quoted in "What is the Gender dimension in research? Case studies in interdisciplinary research, 2018).

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2

Leading-edge cooperative alliances towards the next generation of concentrated solar power (CSP) technology

COOPERANT

Basic concepts: Connected to Research



Gender Sensitive Research

Gender is consistently taken into account throughout the research cycle.



Gender-Blind Research

Research that centers on gender itself as a subject matter.



Gender Specific Research

Gender-blind research does not take gender into account. Based on the often-incorrect assumption that possible differences between men and women are not relevant for the research at hand.

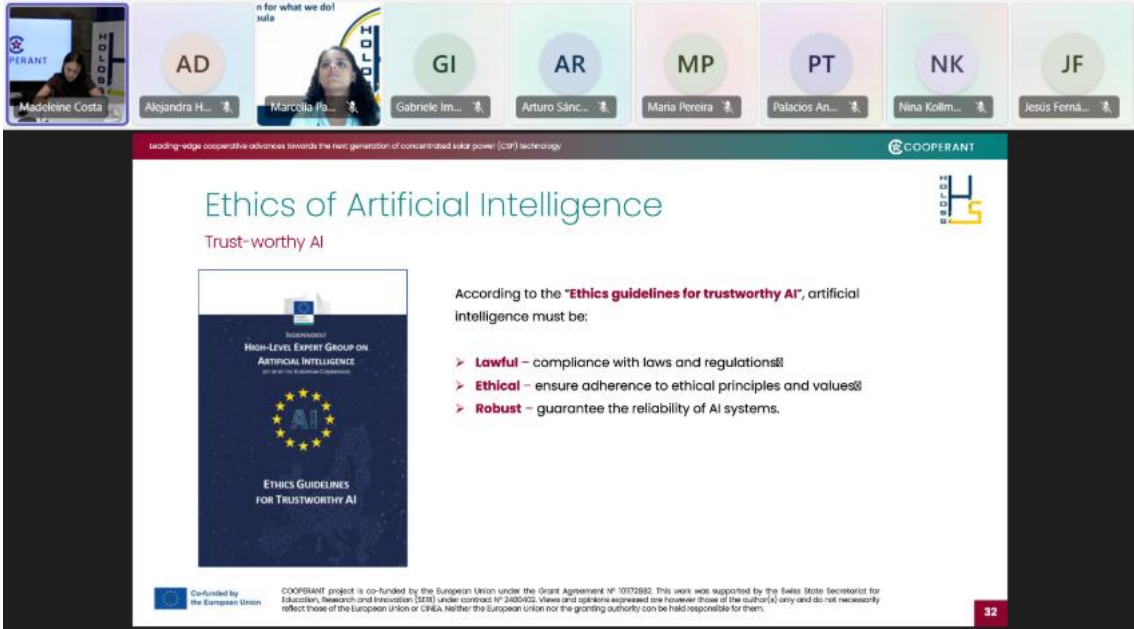


Gender Bias in Research

Gender bias is the often unintentional and implicit differentiation between men and women by placing one gender in a hierarchical position relative to the other in a certain context.

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6



leading-edge cooperative advances towards the next generation of concentrated solar power (CSP) technology

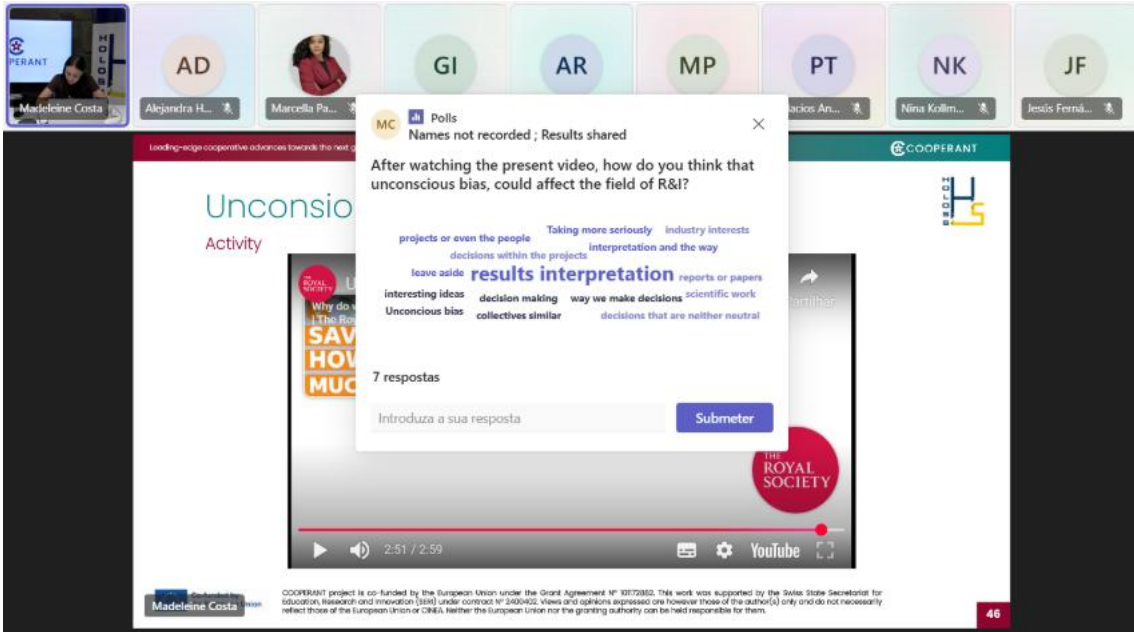
Ethics of Artificial Intelligence
Trust-worthy AI

According to the "Ethics guidelines for trustworthy AI", artificial intelligence must be:

- **Lawful** – compliance with laws and regulations
- **Ethical** – ensure adherence to ethical principles and values
- **Robust** – guarantee the reliability of AI systems.

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32



leading-edge cooperative advances towards the next generation of concentrated solar power (CSP) technology

Unconscious Bias
Activity

After watching the present video, how do you think that unconscious bias, could affect the field of R&I?

projects or even the people
leave aside
interesting ideas
Unconscious bias

results interpretation
decision making
collectives similar

Taking more seriously
interpretation and the way
reports or papers
scientific work
way we make decisions
decisions that are neither neutral

7 respostas

Introduza a sua resposta

Submeter

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46



AD
Alejandra H...

GI
Marcella Pa...

AR
Gabriele Im...

MP
Arturo Sánc...

PT
Maria Penra...

NK
Palacios An...

JF
Nina Kallim...

JF
José Ferná...

Leading-edge cooperative advances towards the next generation of concentrated solar power (CSP) technology

Recomendations

Inclusion Dimension

To integrate the **inclusion dimension** within the whole scope of the project, you can:

- Promote **diverse hiring practices** by actively seeking candidates from underrepresented communities;
- Provide **accessibility measures**, such as sign language interpretation, closed captions, and materials in multiple formats;
- Ensure **equal participation** by removing barriers for people with disabilities, ethnic minorities, and LGBTQ+ individuals;
- Encourage **leadership opportunities** for people from diverse backgrounds;
- Implement an **Inclusion Action Plan** to systematically improve equity across all aspects of the project.

 Funded by the European Union

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60



