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Item 8 of the provisional agenda

Team of Specialists on Gender-Responsive Standards

Improving Artificial Intelligence Standards for an Equitable Future*

Submitted by secretariat

Summary

Building equitable artificial intelligence (AI) is not a technical aspiration – it is a societal imperative. Standards, when designed with intention and inclusivity, can serve as powerful levers to challenge systemic bias and shape technologies that uphold fairness, accountability, and human rights. By embedding gender responsiveness at every stage of standardization, we move closer to an AI ecosystem that works for everyone – not just by design, but by outcome.

Mandate

The Working Party on Regulatory Cooperation and Standardization Policies (WP.6) foresees in its programme of work 2025 to “Explore further areas that [gender-responsive standards] GRS could add guidance, notably in mainstreaming gender throughout the quality infrastructure.” Also, “WP.6 seeks to promote further horizontal guidance across its subgroups with respect to regulatory challenges related to digitalization. This includes topics like cybersecurity, privacy, artificial intelligence and data-based products.” (ECE/CTCS/WP.6/2024/14, paragraph 17(e) and paragraph 7).

Proposed decision

“Member States endorsed the document *Improving Artificial Intelligence Standards for an Equitable Future* (ECE/CTCS/WP.6/2025/9), welcomed the work undertaken by the Team of Specialists on Gender-Responsive Standards and encouraged member States to make use of the guidance and implement its recommendations to foster inclusive and equitable AI standardization.”

* This document has not been formally edited.



I. Introduction

1. Artificial intelligence (AI) systems increasingly shape decision-making across vital sectors such as healthcare, finance, human resources, and public services as well as everyday decision making. However, these systems often inherit and amplify existing gender biases embedded in historical data, design decisions, and past implementations. This results in the systematic exclusion and/or harm of women and marginalized groups, reinforcing inequalities in access to services, economic participation, and personal safety.
2. Bias in AI manifests in several ways. In healthcare, AI tools trained primarily on male patient data may fail to recognize critical conditions in women, while underrepresenting women of colour in dermatological and radiological models leads to lower diagnostic accuracy. In human resources, AI-driven hiring platforms have penalized resumes linked to women's education or caregiving gaps, reinforcing occupational segregation. Financial services powered by AI often disadvantage women with nontraditional credit histories, particularly in regions where economic roles are shaped by gender norms.
3. AI application deployments in the public sector are also affected. AI used in welfare distribution, facial recognition, and safety systems often misidentifies or excludes women and individuals of minority groups. Similarly, algorithmic content and job recommendation systems perpetuate gender stereotypes and reinforce outdated social roles.
4. These problems stem from three core types of bias in AI:
 - **Preexisting bias**, rooted in societal inequalities and underrepresentation in data;
 - **Technical bias**, emerging from design and modelling choices that encode gendered assumptions; and
 - **Emergent bias**, which evolves through real-world interaction and reinforcement feedback loops.
5. A persistent “data crisis” underpins these challenges. Many datasets used in AI are incomplete, inconsistently structured, or fail to include gender-disaggregated or intersectional data. This limits AI's ability to recognize, much less address, systemic disparities. Fragmented data systems, proprietary restrictions, and lack of interoperability further obstruct the development of equitable AI systems.
6. To ensure AI advances gender equality rather than exacerbates existing gaps, standards must promote inclusive data practices, transparent system design, and accountability across the AI lifecycle. Without these foundational reforms, AI risks becoming a tool that reinforces, rather than resolves, inequality.

II. Role of standards

7. Standards play a critical role in translating high-level principles like fairness, transparency, and accountability into practical tools for governing AI. As AI systems increasingly influence decisions in human resources, healthcare, finance, public services and also everyday tasks, internationally recognized standards can help mitigate risks – particularly those that disproportionately impact women and marginalized communities.
8. International and regional standards bodies such as the Economic Commission for Europe (ECE) Working Party on Regulatory Cooperation and Standardization Policies (WP.6), the International Organization for Standardization (ISO), the International Electrotechnical Commission (IEC), the Institute of Electrical and Electronics Engineers (IEEE), and the European Committee for Standardization – European Committee for Electrotechnical Standardization (CEN-CENELEC) provide frameworks for addressing bias, managing risk, and ensuring data quality across the AI lifecycle. These standards guide organizations in aligning with regulatory requirements – such as the European Union (EU) AI Act – and in promoting public trust in AI systems. They are particularly valuable for small- and medium-sized enterprises (SMEs) which often need clear, actionable guidance to

demonstrate compliance and uphold ethical norms – especially when standards are intentionally designed with accessibility in mind.¹

9. However, the legitimacy and effectiveness of AI standards depend not only on who is at the table, but also on how their contributions shape outcomes. While increasing the participation of women and marginalized groups in technical committees is a necessary step, it is not sufficient. Inclusion must go beyond numerical representation to ensure that diverse voices have meaningful influence over decisions. Too often, women are expected to act as the sole gender reference rather than being recognized as full experts in their respective fields. The ultimate goal is not simply to diversify committees, but to ensure that the resulting standards are genuinely gender responsive. This requires structural changes that embed inclusivity throughout the standardization process, prioritize impact over optics, and focus on the substance of outputs rather than just the composition of inputs.

10. Gender-responsive standards aim to drive this type of structural change by integrating gender considerations from the outset. Initiatives like ECE *Recommendation U on Gender-Responsive Standards* and the IEEE P7000 series on *Standard Model Process for Addressing Ethical Concerns during System Design* offer practical tools to embed gender equity into AI development, from risk assessment and conformity testing to dataset governance. International cooperation, such as between and within ECE, ISO/IEC Joint Technical Committee JTC 1/ Sub-Committee (SC) 42 on *Artificial Intelligence*, CEN-CENELEC, the United Nations Educational, Scientific and Cultural Organization (UNESCO) and the Organisation for Economic Co-operation and Development (OECD), is advancing this work, working to ensure that standards reflect lived experiences and support inclusive innovation.

11. Transparency and participation are central pillars of effective AI standards. Transparent reporting on data sources, model logic, and system behaviour enables meaningful oversight and accountability. This does not mean transparency in the sense of exposing proprietary source code, but rather clarity about what data the system was trained on, what objectives and constraints guided its development, and how it is intended to function in real-world contexts. Participatory design approaches – engaging civil society, women's groups, and all affected communities – ensure that standards are not only technically robust but also socially responsive. Such approaches help AI systems address, rather than reinforce, gender inequalities.

12. In sum, standards are indispensable for building fairer AI systems – but only when they are intentional and inclusive by design. Embedding gender responsiveness into standardization processes ensures that AI technologies are designed and implemented to serve all people equitably and uphold human rights principles.

III. Recommendations: Advancing gender-responsive and equitable artificial intelligence standards

13. To ensure AI technologies serve all members of society fairly and inclusively, standards development and implementation must ensure gender-responsive principles are embedded throughout the AI lifecycle – from design and development to deployment, auditing, and post-market surveillance. The following recommendations aim to support all relevant actors – policymakers, regulators, standards bodies, system deployers, industry stakeholders and end users – in strengthening equity, transparency, and accountability in AI governance.

A. Strengthen independent oversight and accountability mechanisms

14. Establish robust and transparent conformity assessment procedures that evaluate AI systems throughout their life cycle for potential discriminatory outcomes, particularly in high-risk sectors such as healthcare, finance, human resources, and public services.

¹ Many of these standards are outlined in the ECE publication *Compliance of products with embedded artificial intelligence* (ECE/TRADE/486), see: https://unece.org/trade/publications/ece_trade_486

15. Mandate regular, independent, third-party audits of AI systems across their entire lifecycle – both before and after deployment – to evaluate demographic fairness, dataset provenance, bias mitigation strategies, explainability, and compliance with human rights obligations. These audits should include documentation of training data sources and model development, ensuring transparency about how systems are built and whether they reflect diverse and representative inputs.

16. Introduce post-market monitoring and reporting obligations to identify and address performance disparities across gender and other intersecting identities, ensuring systems can be corrected in real time when harm is identified.

17. Integrate impact assessments such as Human Rights, Democracy, and Rule of Law evaluations into governance frameworks to ensure continuous human rights due diligence in AI deployment, consistent with the *United Nations Guiding Principles on Business and Human Rights*.

B. Embed gender-responsive practices in artificial intelligence standards

18. Promote the systematic collection, use, and disclosure of disaggregated data to ensure datasets reflect the diversity of the populations AI systems affect. This includes gender, age, race, geography (particularly from the global South), and other intersecting dimensions.

19. Evaluate AI models not only for accuracy and efficiency but also for fairness and explainability, recognizing that prioritizing fairness might only slightly reduce accuracy yet significantly improve equity and service provision.

20. Integrate requirements for gender-responsive design and use-case assessments into technical specifications, including guidance on bias detection tools, dataset validation protocols, and user impact assessments for new standards and for the revision of existing standards.

21. Acknowledge and challenge the assumption of neutrality in standards. Instead, ensure that AI standards actively address historical inequities and promote inclusive outcomes.

C. Ensure inclusive and participatory standards development

22. Embed inclusive and participatory design in standards-setting processes by proactively involving diverse stakeholders – especially women, gender minorities, and affected communities – at all stages of development, not only during review or audit.

23. Expand outreach and remove structural barriers to participation in technical committees, including opaque nomination processes, financial constraints, and limited access to information.

24. Require standards bodies to adopt and implement gender action plans and training initiatives, equipping technical experts with the tools to identify and address gender-relevant issues in standardization.

25. Encourage transparent documentation of who is consulted and how their input is integrated, ensuring participatory engagement is meaningful and not merely symbolic.

D. Harmonize with international frameworks and support global cooperation

26. Align national and regional AI standards with multilateral principles such as the Organisation for Economic Co-operation and Development (OECD) *AI Principles*, the United Nations Educational, Scientific and Cultural Organization (UNESCO) *Recommendation on the Ethics of AI*, and the G7 *AI Principles* to foster consistency, mutual recognition, and shared ethical commitments.

27. Leverage frameworks like the ECE *Common regulatory arrangement (CRA) for the regulatory compliance of products and/or services with embedded artificial intelligence or*

other digital technologies (see ECE/TRADE/486) to promote regulatory coherence, reduce trade barriers, and facilitate cross-border compliance with fairness, security, and inclusivity goals.

28. Support the adoption of globally recognized standards – such as *ISO/IEC 42001 on AI Management Systems*, *ISO/IEC 23894 on AI Guidance on Risk Management*, and *IEEE P7003 Standard for Algorithmic Bias Considerations* – to ensure a consistent approach to risk management, lifecycle oversight, and algorithmic bias mitigation.

29. Promote the use of international best practices in sectors with significant societal impact, such as healthcare, finance, human resources, and public services, to ensure AI systems uphold human rights and sustainable development.

E. Institutionalize gender-responsive governance across the artificial intelligence ecosystem

30. Require regulators and standards bodies to monitor and regularly report on the gender impact of AI and standardization processes by developing measurable indicators that assess whether systems and standards produce inclusive, equitable outcomes – such as how training data represents diverse populations or whether deployed systems mitigate gender bias in practice.

31. Support gender-responsive capacity building within standards development organizations and regulatory agencies, ensuring sustained institutional change.

32. Recognize AI as both a risk and an opportunity for gender equality and ensure that gender mainstreaming is embedded in AI strategies, funding priorities, and innovation ecosystems.

33. Integrate gender-responsive AI considerations into trade, development, and innovation policies, helping shape inclusive digital futures across sectors and geographies.

IV. Conclusion

34. Building equitable AI is not a technical aspiration – it is a societal imperative. Standards, when designed with intention and inclusivity, can serve as powerful levers to challenge systemic bias and shape technologies that uphold fairness, accountability, and human rights. By embedding gender responsiveness at every stage of standardization, we move closer to an AI ecosystem that works for everyone – not just by design, but by outcome.
